

This file was downloaded from BI Open Archive, the institutional repository (open access) at BI Norwegian Business School <http://brage.bibsys.no/bi>.

It contains the accepted and peer reviewed manuscript to the article cited below. It may contain minor differences from the journal's pdf version.

Wickstead, R., & Furnham, A. (2017). Comparing mental health literacy and physical health literacy: an exploratory study. *Journal of Mental Health*, 26(5), 449-456. doi:10.1080/09638237.2017.12947

Copyright policy of Taylor & Francis, the publisher of this journal:
'Green' Open Access = deposit of the Accepted Manuscript (after peer review but prior to publisher formatting) in a repository, with non-commercial reuse rights, with an Embargo period from date of publication of the final article. The embargo period for journals within the Social Sciences and the Humanities (SSH) is usually 18 months

<http://authorservices.taylorandfrancis.com/journal-list/>

**Comparing Mental Health Literacy and Physical Health Literacy: An Exploratory
Study.**

Robert Wickstead^a and Adrian Furnham^{a,b}

^aResearch Department of Clinical, Educational and Health Psychology, University College
London

^bNorwegian Business School (BI), Nydalveien, Oslo, Norway

Corresponding author: a.furnham@ucl.ac.uk Tel 00 44 207 679 539

Abstract

Background: This study compared mental health and physical health literacy using five health problems from each area.

Aims: The aim was to determine whether the same group had better physical than mental health literacy

Method: A sample of 263 participants completed an online questionnaire requiring them to name a problem/illness described in 10 vignettes and suggest treatment options. Five vignettes described mental health problems (anxiety, bipolar-disorder, depression, OCPD and schizophrenia) and five physical problems (angina, COPD, diabetes, a heart attack, and sinusitis). Participants were also asked to rate their sympathy and estimates of prevalence for each disorder.

Results: Recognition of the mental health disorders was superior compared recognition of the physical disorders. Analysis of treatment beliefs, sympathy and prevalence ratings also showed significant differences between disorders.

Conclusions: Results highlight the importance of education and the lack of public knowledge regarding major physical health conditions.

Introduction

Mental health literacy (MHL) was defined by Jorm et al. (1997) as knowledge and beliefs about mental disorders which aid their recognition, management or prevention. Jorm proposed that greater MHL allows individuals to take action to improve both their own mental health and that of others in the community (Jorm, 2012). Since the mid-1990s there has been an abundance of research examining MHL. This study compares a person's Mental vs Physical health literacy (PHL)

Research consistently reveals that under-recognition of mental health disorders is widespread (Jorm, 2012). Typically, these studies also highlight substantial differences between recognition of discrete disorders, particularly focusing on schizophrenia and depression. Ability to correctly identify or label the mental health disorders varies significantly across different demographic groups, including gender (Cotton et al., 2006); nationality (see Furnham & Hamid, 2014); age (Farrer et al., 2008); ethnicity (Gonzalez, Alegria, & Prihoda, 2005); level of education (Fisher & Goldney, 2003) and training (Kitchener, & Jorm, 2002). Research has also explored how MHL varies across specific groups such as internet users (Lawlor et al., 2008), university students (Furnham, Cook, Martin, & Batey, 2011) and nurses (Yeo et al., 2001).

One emergent finding is a clear distinction between the lay understanding and recognition of depression and schizophrenia with around two to three times the number of people recognising the former compared to the latter (Lauber, Nordt, Falcató, & Rössler, 2001).

Studies have also begun to examine MHL in a range of other DSM disorders such as anxiety disorders (Furnham & Lousley, 2013), bipolar disorder (Furnham & Anthony, 2010), and the personality disorders (Furnham & Wincelhaus, 2011). Relatively high levels of mental health disorder recognition amongst the public is also correlated with a greater likelihood of seeking help (Wright, Jorm, Harris & McGorry, 2007).

Physical Health Literacy (PHL)

The term ‘health literacy’ has been used in health literature since the mid-1970s (Ad Hoc Committee on Health Literacy, 1999). In this study however we will refer to PHL in a similar way to MHL namely the “knowledge and beliefs about physical disorders which aid their recognition, management or prevention. There is an extensive research literature in this area (Fernandez, Larson & Zikmund-Fisher, 2016). PHL however generally describes and explains the relationships between patient literacy levels (their ability to read and write) and their ability to comply with or adhere to prescribed treatments (Nutbeam, 2000). It has been shown that low PHL results in poor health outcomes (Berkman et al., 2011). Many studies have found links between deficient health literacy and limited understandings of individuals’ specific chronic health disorders. There is an extensive literature in this area not dissimilar from the MHL research (Fernandez et al., 2016).

Current Study

This study will investigate the PHL with respect to five disorders: angina, bronchitis (Chronic Obstructive Pulmonary Disease: COPD), diabetes, heart attack and sinusitis. These were chosen because they are common and relatively well known. Both the physical and mental conditions were taken from a study describing the ten most costly physical and mental health. Various hypotheses were tested, mainly based on the extant literature.

H₁: Lay people will have higher MHL in conditions with higher prevalence such as (a) depression and (b) anxiety; as well as lower literacy in disorders that are less common such as (c) OCPD; (d) schizophrenia and (e) bipolar disorder.

H₂: (a) Females; (b) those with an interest in mental illness; and (c) those who have received some mental health education will have high. This will be consistent with past research (Swami, 2012; Lauber et al., 2005).

H₃: (a) Lay people will be less likely to correctly label mental illnesses than physical ones. (b) The physical illnesses associated with the greatest morbidity, such as Acute Myocardial Infarct, will be most easily identified due to public education campaigns.

H₄: (a) Treatment beliefs will vary across all disorders, disorders associated with the highest levels of morbidity will receive the highest ratings for seeking professional help (b) participants will be more likely to suggest medical care for vignettes describing physical illnesses and (c) specific psychological care for those with mental illness.

H₅: Lay people will perceive that there are lower rates of mental illness than physical illness. This is a result of the stigma attached to mental illness.

H₆: Lay people will rate higher levels of sympathy for those describing individuals suffering from physical illness as opposed to those suffering from mental illnesses due to the stigma attached to mental illness.

H₇: There will be a) a positive correlation between age and ability to label physical illness and b) a negative correlation between age and ability to label mental illness. This is thought due to the age at which mental illnesses become prevalent and perhaps to an increased level of education regarding mental illnesses.

Methods

Participants

In total 261 participants completed the questionnaire but those with relevant advanced training and currently practicing psychology and medicine were removed from the sample. There were 65.2% female, 34.3% male, and 0.5% identified as 'other'. The mean age of the participants was 26.2 years (range 16 to 62 yrs). The ethnic profile of the sample consisted of 88.4% white, 1% Afro-Caribbean, 3.4% Asian, 4.8% mixed/multiple ethnicities, 1.9% other, and 0.5% missing. In all 28.5% had a degree (e.g. a BSc or BA); 16.9% had a postgraduate qualification (e.g. a PhD, MSc, MA) and 2.9% had vocational qualifications (e.g. NVQ, HNC, or HND). 1.9% held no qualifications. A total of 88.4% of participants spoke English as their first language, and 86.2% of the sample knew someone who suffered from at least one of the conditions.

Questionnaire

The questionnaire comprised of ten vignettes: five chronic conditions that can broadly be categorised as physical health conditions and five that can be described as mental health conditions. The conditions themselves were taken from Goetzl, Hawkins, Ozminkowski, & Wang (2003) a study describing the ten most costly physical and mental health conditions for US employers.

The Bipolar disorder vignette was taken from Ellison, Mason and Scior (2015), which had been adapted from a vignette used by Wolkenstein and Meyer (2008). The Depression and Schizophrenia vignettes were taken from Jorm et al. (1997) and Lawlor et al (2008) respectively. The Generalized Anxiety vignette was taken from Fricchione (2004). Finally the OCPD vignette was adapted from Furnham and Wincelous (2012).

The vignettes for physical health conditions had to be written by the medically trained researcher who used lists of archetypal symptoms from the NHS choices website to compose the vignettes (Department of Health, 2014). Every effort was made to recreate the style of the mental health literacy type vignettes. They were written in laymen's terms and between 50 and 200 words in length and available from the first author.

Participants were asked to read each vignette carefully and answer a series of four questions about each one. These included two open questions and two Likert-based scale questions with a scale of one to eight. The questions used were: What if anything is X's main problem? How do you think he/she could best be helped? How likely is it for a person to experience this problem over their lifetime? How much sympathy do you have for people with this problem?

Procedure

The study received appropriate departmental ethical approval. The questionnaire was piloted on students and doctors. Potential participants were contact by the authors via the social media. Participants generally took between 10 and 20 minutes to complete the full questionnaire. Those participants who did not complete the task were removed.

Results

Reliability analysis involved a second-rater who coded 10% of questionnaires (n=21) using the same coding system as the author (Condition identified/ condition not identified). Results were shown to be very reliable (Kappa = 0.95). In cases where more than one response was given, and the correct condition was mentioned, the response was coded as correct.

1. Vignette Recognition of Mental Health Disorders (H₁)

It was evident that vignette recognition varied greatly over the 10 disorders (see Table 1)

Insert Table 1 and Figure 1 here

Particularly good recognition was shown for depression, anxiety, and bipolar disorder, with 89.9%, 79.7% and 75.4% of people correctly identifying the vignettes describing depression, generalised anxiety disorder and bipolar disorder respectively. 72.4% recognised schizophrenia while just 3.4% of the sample were able to correctly identify OCPD, although a further 3.8% were able to recognise it as a personality disorder. From these results we can infer that hypothesis a), b), c) and d) were confirmed although we must reject hypothesis e) as recognition of bi-polar disorder was higher than expected.

Throughout all the vignettes describing mental health conditions, the proportion of correct answers was higher than the proportion of incorrect answers, with the exception of OCPD. To test H_1 and to establish whether recognition of the disorders did indeed vary significantly, a Cochran's Q test was carried out.

Figure 1 shows the differences in rates of recognition across all 5 mental health disorders. A

2. Factors affecting vignette labelling of mental health problems (H_2)

a) The findings revealed that the mean female score (4.23 ± 1.203) was significantly higher than the mean male score (3.90 ± 1.395) $t(204) = -2.847$ $p=.005$. This confirms part a) of H_2 . A paired t-test was also conducted to examine whether gender had an impact on recognition of physical health vignettes. This found similar results in that recognition scores were significantly higher in females (3.16 ± 1.376) than in males (2.72 ± 1.354) $t(204) = -2.179$, $p=.030$. The individual break down of gender differences between each disorder can be found in Table 2.

Insert Table 2

b) Whilst people, who claimed to be ‘very interested’ or ‘extremely interested’ in psychology, were found to have higher levels of recognition for mental health (4.23 ± 1.203); this difference was not significant when compared to those who described themselves as just moderately interested in psychology and below (4.19 ± 1.074) $t(204) = 0.262$ $p = .794$.

c) Those who had basic experiences of healthcare, or psychology were examined using a one-way MANOVA to explore whether these skills made a significant difference to their ability to recognise disorders. Basic training in health care had no significant effect: ($F = 0.229$, $p > .05$; partial $\eta^2 = .00$.) and basic training in psychology only had a marginally significant effect ($F = 0.174$, $p < .045$; partial $\eta^2 = .03$.). Advanced health care training and advanced psychology training both had significant effects on recognition of physical health vignettes ($F = 12.558$ $p < .001$) and mental health vignettes ($F = 8.883$ $p < .001$) respectively.

3. Comparison of vignette labelling between mental and physical health conditions (H_3)

Recognition of physical health conditions was remarkably low. Diabetes was the only condition correctly labelled by more than half the sample, with 50.7% of respondents labelling it correctly. The heart attack vignette was only labelled correctly by around 47.8% of the population which is surprising given recent public awareness campaigns (Public Health England, 2015). However, it must be noted that whilst recognition of heart attacks was poor, it was still the second most correctly labelled vignette amongst those describing physical disorders. This is in line with what was suggested by hypothesis H_{3B} .

In order to create a rudimentary comparison between mental health and physical health literacy, participants were given scores out of five for how many of the conditions each individual correctly labelled. Overall scores (out of a total possible score of 5) for correct labelling of mental health vignettes (3.2 ± 1.122) were revealed to be higher than scores for correct labelling of physical health vignettes (2.01 ± 1.379). Thus the third hypothesis was

rejected. A paired t-test revealed that the sample scores for correctly labelling mental illnesses were significantly higher ($p < .001$). As with mental illnesses, a full Q sort technique was performed, breaking down suggestion labels for each vignette. Whilst participants did not always know the technical terms for conditions, they often had some degree of understanding of what the condition was. This was particularly true for lesser-known conditions such as OCPD and angina. Diabetes had a particularly low level of understanding (the lowest of all the physical conditions) with just 52.7% of the population suggesting correct or partially correct labels for it.

Insert Table 3 here

4. Treatment beliefs across all disorders (H_4)

To examine treatment beliefs another Q-sort content analysis was performed. This involved categorising the answers given to the question “how can X best be helped?” into distinct categories e.g. medication, professional psychological help or self-care (See Table 3). The majority of participants recommended a form of professional help across all disorders. Schizophrenia received the highest rating for seeking professional help overall, whilst the heart attack received the highest rating for seeking help amongst the physical conditions; with seeking help being suggested by 95.0% and 92.8% of the population in each condition. A total of 54.1% of participants specified in the heart attack vignette that the character could best be helped by some form of emergency care. Participants were generally good at describing different treatment types with 14.5% suggesting lifestyle changes such as exercise for the vignette describing depression. However, help with mental health disorders through chatting with members of the community such as family and friends was a relatively underutilised treatment type with it being suggested by just 7.2% of the sample across all the mental health vignettes. Sinusitis and OCPD had the lowest ratings for seeking professional help (71.2% and

74.9% respectively). To examine to what extent treatment varied between disorders, a Cochran's Q test was used. This uncovered a significant difference in the rates of seeking professional help across all ten disorders $p < .001$. The difference between categories of treatment suggested for mental health and physical health underwent bivariate analysis which found no significant difference between them.

Insert Table 4 here

5. Estimates of prevalence between mental and physical health disorders (H₅)

Sinusitis received by far the highest rating of prevalence (8.62 ± 1.78), with depression (7.71 ± 1.63) and anxiety (7.50 ± 1.68) also receiving fairly high ratings. Psychosis (3.33 ± 1.82) and OCPD (3.00 ± 1.83) received the lowest ratings of prevalence. The data indicates that in general the sample assumed that the prevalence of mental health disorders is either very high (>7.0) or very low (<4.5) whereas the prevalence ratings of physical health disorders were predominantly (with the exception of sinusitis) rated as just moderately prevalent ($5.5-7.0$). Overall the total prevalence rating was (33.4 ± 6.54) across all physical disorders and (29.2 ± 6.69) across mental health disorders ($t(206) = 8.873$ $p < .001$).

Insert Table 5 here

6. Levels of sympathy towards sufferers of mental and physical health disorders (H₆)

Participants' sympathy was fairly consistent across all vignettes, with an average rating of 7.86/10. Depression received the highest rating of sympathy (8.74 ± 1.72), with schizophrenia, anxiety, bipolar disorder and heart attacks also receiving high ratings (8.64, 8.25, 8.23 and 8.12 respectively). COPD attained the lowest sympathy rating (6.54 ± 2.25) – this could be a result of the vignette character being a 'smoker'. Overall, the total scores for sympathy across the two categories were 36.6 for physical disorders and 40.0 for mental health disorders. A t-test showed this significant ($t(206) = 7.399$ $p < .001$). Age also correlated with sympathy levels for

physical illnesses: older participants were more receptive to those with physical health problems ($r=.221$, $n=195$, $p=.006$).

7. Relationship between age and health literacy (H₇)

There was a negative correlation between age and recognition of mental health, as predicted by H₇, ($r = -.124$, $n = 207$, $p <.05$) while a positive correlation ($r=.228$, $n=207$, $p<.001$) was observed between age and physical health vignettes. This provides evidence in support of H₇.

Discussion

Many of the results confirmed findings from other studies. Levels of ‘correct’ labelling varied significantly across disorders, where ‘correct’ refers to participants who used currently accepted psychiatric terms for each disorder. Recognition for levels of depression and schizophrenia were broadly similar to other recent studies, if slightly higher. Wright and Furnham (2015) for example found that 89% and 48% of participants could correctly label depression and schizophrenia compared to the 90% and 72% found in this study. Recognition of OCPD was broadly similar to levels found by Koutoufa and Furnham (2014) who found 2% levels of recognition as opposed to the 3.4% found here. They also showed that many of the participants identified the OCPD vignette as being a ‘perfectionist’ (12.6%) or having ‘OCD’ (30.4%), terms that are intrinsically related to OCPD (Baer, 1994). This demonstrates that participants may have an inherent understanding of what OCPD actually is, but not know the official psychological term for it (Link et al., 1999).

Disorders with high levels of prevalence, such as anxiety and depression (Kessler et al., 2005) were more easily recognised by participants. However, recognition was (with the exception of depression) consistently higher than expected across all the mental health vignettes. Bipolar disorder in particular was surprisingly high (79.7% compared to 28.4% in Furnham, Annis, &

Cleridou, 2014). This could result from the use of a predominantly female, relatively young and well-educated sample. This factor has been used to explain higher levels of MHL in the past (Furnham & Dadabhoy, 2012). However, higher levels found here could in fact be due to real progression in public awareness of mental health conditions, similar to those found by Reavley and Jorm (2014).

The results regarding factors affecting MHL are fairly consistent with past research; for example, the fact that females are more literate than males (Cotton et al., 2006; Swami, 2012). A higher level of self-proclaimed interest in psychology did not significantly result in more accurate recognition. This also provides support for studies that have used high levels of psychology students in the past (Furnham & Lousley 2013), as interest in the subject does not always result in higher levels of MHL. It also substantiates research by Lauber, Nordt, Falcató and Rössler (2003) who found that a self-reported interest in psychiatric topics in the media did not increase recognition.

The results show that having had *advanced healthcare training* (i.e. having studied medicine or pharmacy at degree level) engendered significantly higher levels of recognition of physical illnesses. Similarly, having had *advanced psychology training* (having studied psychology at degree level) had an effect on levels of recognition of mental health - as demonstrated previously (Lauber et al. 2005; Reavley, McCann, & Jorm, 2012). For this reason, the exclusion of participants with this relevant experience from analysis was warranted. Whilst having *basic healthcare training* (e.g. a first aid course) did not increase the ability of participants to recognise the mental illness, having *basic psychology training* (e.g. an introductory university course) did. This concurs with other studies that a small amount of education (see Kitchener, & Jorm 2006 for review) can make a real difference to MHL and thus facilitate early help seeking. The fact that training makes a significant difference, whereas pure interest does not,

highlights the importance of using targeted campaigns to improve MHL such as *beyondblue* (Jorm, Christensen, & Griffiths, 2005).

Comparing Physical and Mental Health Literacy

The findings were the opposite of what was expected, and contradict that which is implied by Jorm (2012). The findings highlight suboptimal levels of recognition across all physical disorders. Particularly of note is the finding that merely 47.8% of the population sampled could label a heart attack (although 59.3% believed it to be heart related). Moreover, a heart attack is a life-threatening condition that requires urgent medical attention – uncertainty in recognition is associated with a dramatic rise in morbidity (Cummins, Ornato, Thies, & Pepe, 1991). Recognition of diabetes and COPD was also suboptimal and, as they are both conditions that hugely benefit from early diagnosis (Wee, Ho, & Li, 2002). The diabetes results also revealed a poor level of understanding of the disease, only approximately half participants were even partially correct.

There are several possible explanations for these findings. The nature (i.e demography) of the sample was less likely to have come across the physical illness. The physical illnesses tend to manifest in older people (Goldberg et al., 2000; Mehta et al 2001; Chang, & Mosenifar 2007), whereas mental health problems often affect younger generations (Patel, Flisher, Hetrick, & McGorry, 2007). Research has demonstrated the link between contact with mental illness and MHL (Wolff, Pathare, Craig & Leff, 1996) and this may apply to physical illness. This is evidenced by the fact that there was a correlation between age and recognition of physical illnesses (older people also seemed to have more sympathy for those with physical illnesses). It is also plausible that physical illnesses were not easily recognised because they are less frequently dealt with through film and television, whereas many of the mental health issues are. This reasoning was used to explain the higher levels of recognition for certain

illnesses like bipolar disorder in Furnham and Wineslaus (2012). Perhaps fundamentally people consider bipolar disorder more interesting than angina. This reiterates the need for general health education in schools (Kemmm, 2003). There was however a small positive correlation between youth and mental illness recognition. This could indicate genuine improvement in MHL as a result of public education campaigns, which often target younger generations (World Health Organization, 2005).

The study did show that, compared to recognition scores, a significant number of participants suggested that the patient seek professional help. It is possible that participants would have felt obliged to suggest that the individual seek treatment, regardless of whether they would do so in reality. However, the knowledge of specific treatments was generally good i.e. recommending psychological or physical treatments for the appropriate category of disorder. Moreover, the study represents an improvement on other research, as participants were more likely to suggest that the individual seek help from friends and family than professionals (Cotton et al., 2006; Jorm & Wright, 2007; Burns & Rapee, 2006).

The results for levels of sympathy suggest that people are more likely to feel sympathy for things to which they can relate (Loewenstein & Small, 2007).

As always, the study does have several limitations. The sample used was very highly educated, with the vast majority having started or completed further education. This has been shown in the past to result in increased MHL (Kaneko & Motohashi, 2007). In further studies it would be highly desirable to have a much larger and representative population using both on-line and interview methods. It would be particularly interesting to test the extent to which general as well as a medical/psychological education and interests related to PHL and PHL.

Also the study only used one vignette to describe each condition. Sai and Furnham (2013) demonstrated that recognition for schizophrenia and depression can vary between different

vignettes describing the same disorders. This is a problem that could be easily addressed by further research. Further, in this study we examined five mental and five physical health problems. It leads us to conclude that overall PHL was weaker than MHL. However this interesting finding needs to be confirmed on a different and perhaps bigger set of various illnesses and disorders

References

- Ad Hoc Committee on Health Literacy (1999). Health literacy-Report of the Council on Scientific Affairs. *Journal of the American Medical Association*, 281(6), 552-557.
- Baer, L. (1994). Factor analysis of symptom subtypes of obsessive compulsive disorder and their relation to personality and tic disorders. *Journal of Clinical Psychiatry*, 55, 18-23.
- Berkman, N. D., Sheridan, S. L., Donahue, K. E., Halpern, D. J., & Crotty, K. (2011). Low health literacy and health outcomes: an updated systematic review. *Annals of Internal Medicine*, 155(2), 97-107.
- Burns, J. R., & Rapee, R. M. (2006). Adolescent mental health literacy: Young people's knowledge of depression and help seeking. *Journal of Adolescence*, 29(2), 225-239.
- Chang, J., & Mosenifar, Z. (2007). Differentiating COPD from asthma in clinical practice. *Journal of Intensive Care Medicine*, 22(5), 300-309.
- Cotton, S. M., Wright, A., Harris, M. G., Jorm, A. F., & McGorry, P. D. (2006). Influence of gender on mental health literacy in young Australians. *Australian and New Zealand Journal of Psychiatry*, 40, 790-796
- Cummins, R. O., Ornato, J. P., Thies, W. H., & Pepe, P. E. (1991). Improving survival from sudden cardiac arrest: the "chain of survival" concept. *Circulation*, 83(5), 1832-1847.

Department of Health. (2014). NHS Choices. Retrieved November 7, 2015, from

<http://www.nhs.uk/pages/home.aspx>

Ellison, N., Mason, O., & Scior, K. (2015). Public beliefs about and attitudes towards bipolar disorder: Testing theory based models of stigma. *Journal of Affective Disorders, 175*, 116-123.

Farrer, L., Leach, L., Griffiths, K. M., Christensen, H., & Jorm, A. F. (2008). Age differences in mental health literacy. *BMC Public Health, 8*(1), 125.

Fernandez, D., Larson, J., & Zikmund-Fisher, B. (2016). Association between health literacy and preventive health behaviours among older adults. *BMC Public Health, 16*: 596

Fisher, L. J., & Goldney, R. D. (2003). Differences in community mental health literacy in older and younger Australians. *International Journal of Geriatric Psychiatry, 18*(1), 33-40.

Fricchione, G. (2004). Generalized anxiety disorder. *New England Journal of Medicine, 351*(7), 675-682.

Furnham, A., & Anthony, E. (2010). Lay theories of bipolar disorder: the causes, manifestations and cures for perceived bipolar disorder. *International Journal of Social Psychiatry, 56*(3), 255-269.

Furnham, A., & Hamid, A. (2014). Mental health literacy in non-western countries: a review of the recent literature. *Mental Health Review Journal, 19*(2), 84-98.

Furnham, A., & Lousley, C. (2013). Mental health literacy and the anxiety disorders. *Psychology, 5*, 521-531

Furnham, A., & Wincelous, J. (2012). Psychiatric literacy and the personality disorders. *Psychopathology, 45*(1), 29-41.

Furnham, A., Annis, J., & Cleridou, K. (2014). Gender differences in the mental health literacy of young people. *International Journal of Adolescent Medicine and Health, 26*(2), 283-292.

- Furnham, A., Cook, R., Martin, N., & Batey, M. (2011). Mental health literacy among university students. *Journal of Public Mental Health, 10*(4), 198-210.
- Furnham, A., & Dadabhoy, H. (2012). Beliefs about causes, behavioural manifestations and treatment of borderline personality disorder in a community sample. *Psychiatry Research, 197*(3), 307-313.
- Goetzel, R. Z., Hawkins, K., Ozminkowski, R. J., & Wang, S. (2003). The health and productivity cost burden of the “top 10” physical and mental health conditions affecting six large US employers in 1999. *Journal of Occupational and Environmental Medicine, 45*(1), 5-14.
- Goldberg, R. J., Goff, D., Cooper, L., Luepker, R., Zapka, J., Bittner, V. ... & Mann, C. (2000). Age and sex differences in presentation of symptoms among patients with acute coronary disease: the REACT trial. *Coronary Artery Disease, 11*(5), 399-407.
- Gonzalez, J. M., Alegria, M., & Prihoda, T. J. (2005). How do attitudes toward mental health treatment vary by age, gender, and ethnicity/race in young adults? *Journal of Community Psychology, 33*, 611–629.
- Jorm, A. F. (2012). Mental health literacy: empowering the community to take action for better mental health. *American Psychologist, 67*(3), 231.
- Jorm, A.F., Christensen, H. & Griffiths, K.M. (2005). The impact of beyondblue: the national depression initiative on the Australian public’s recognition of depression and beliefs about treatments. *Australian and New Zealand Journal of Psychiatry, 39*, 248-254
- Kemm, J. (2003). Health education: a case for resuscitation. *Public Health, 117*(2), 106-111.
- Kaneko, Y., & Motohashi, Y. (2007). Male gender and low education with poor mental health literacy: a population-based study. *Journal of Epidemiology, 17*(4), 114-119.
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*, 593–602

- Kitchener, B. A., & Jorm, A. F. (2002). Mental health first aid training for the public: evaluation of effects on knowledge, attitudes and helping behavior. *BMC Psychiatry*, 2(1), 1.
- Kitchener, B. A., & Jorm, A. F. (2006). Mental health first aid training: review of evaluation studies. *Australian and New Zealand Journal of Psychiatry*, 40(1), 6-8.
- Koutoufa, I., & Furnham, A. (2014). Mental health literacy and obsessive–compulsive personality disorder. *Psychiatry Research*, 215(1), 223-228.
- Lauber, C., Nordt, C., Falcato, L., & Rössler, W. (2001). Lay recommendations on how to treat mental disorders. *Social Psychiatry and Psychiatric Epidemiology*, 36(11), 553-556.
- Lauber, C., Nordt, C., Falcato, L., & Rössler, W. (2003). Do people recognise mental illness?. *European Archives of Psychiatry and Clinical Neuroscience*, 253(5), 248-251.
- Lauber, C., Ajdacic-Gross, V., Fritschi, N., Stulz, N., & Rössler, W. (2005). Mental health literacy in an educational elite—an online survey among university students. *BMC Public Health*, 5(1), 1.
- Lawlor, E., Breslin, J. G., Renwick, L., Foley, S., Mulkerrin, U., Kinsella, A., & O'Callaghan, E. (2008). Mental health literacy among Internet users. *Early Intervention in Psychiatry*, 2(4), 247-255.
- Link, B. G., Phelan, J. C., Bresnahan, M., Stueve, A., & Pescosolido, B. A. (1999). Public conceptions of mental illness: labels, causes, dangerousness, and social distance. *American Journal of Public Health*, 89(9), 1328-1333.
- Loewenstein, G., & Small, D. A. (2007). The Scarecrow and the Tin Man: The vicissitudes of human sympathy and caring. *Review of General Psychology*, 11(2), 112.
- Mehta, R. H., Rathore, S. S., Radford, M. J., Wang, Y., Wang, Y., & Krumholz, H. M. (2001). Acute myocardial infarction in the elderly: differences by age. *Journal of the American College of Cardiology*, 38(3), 736-741.

- Nutbeam, D. (2000). Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. *Health Promotion International*, *15*(3), 259-267.
- Patel, V., Flisher, A. J., Hetrick, S., & McGorry, P. (2007). Mental health of young people: a global public-health challenge. *The Lancet*, *369*(9569), 1302-1313.
- Public Health England, (2015). PHE launches new tool to raise awareness about heart disease. [online] Available at: <https://www.gov.uk/government/news/phe-launches-new-tool-to-raise-awareness-about-heart-disease> [Accessed 28 Feb. 2016].
- Reavley, N. J., & Jorm, A. F. (2014). Willingness to disclose a mental disorder and knowledge of disorders in others: Changes in Australia over 16 years. *Australian and New Zealand Journal of Psychiatry*, *48*(2), 162-168.
- Reavley, N. J., McCann, T. V., & Jorm, A. F. (2012). Mental health literacy in higher education students. *Early Intervention in Psychiatry*, *6*(1), 45-52.
- Sai, G., & Furnham, A. (2013). Identifying depression and schizophrenia using vignettes: A methodological note. *Psychiatry Research*, *210*(1), 357-362.
- Swami, V. (2012). Mental health literacy of depression: gender differences and attitudinal antecedents in a representative British sample. *PLoS One*, *7*(11), e49779.
- Wee, H. L., Ho, H. K., & Li, S. C. (2002). Public awareness of diabetes mellitus in Singapore. *Singapore Medical Journal*, *43*(3), 128-134.
- Wolff, G., Pathare, S., Craig, T., & Leff, J. (1996). Community knowledge of mental illness and reaction to mentally ill people. *British Journal of Psychiatry*, *168*(2), 191-198.
- Wolkenstein, L., & Meyer, T. D. (2008). Attitudes of young people towards depression and mania. *Psychology and Psychotherapy*: *81*(1), 15-31.
- World Health Organization. (2005). Child and adolescent mental health policies and plans.

- 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? *Social Psychiatry and Psychiatric Epidemiology*, *42*, 244–250. doi:10.1007/s00127-006-0156-x
- Wright, K., & Furnham, A. (2015). How to spot a narcissist: Mental health literacy with respect to Narcissistic Personality Disorder. *Personality and Mental Health*, *9*(2), 150-161.
- Yeo, S. G., Parker, G., Mahendran, R., Jorm, A. F., Yap, H. L., Lee, C., & Loh, M. I. (2001). Mental health literacy survey of psychiatrically and generally trained nurses employed in a Singapore psychiatric hospital. *International Journal of Nursing Practice*, *7*(6), 414-421. *Figure 1*.

Figure 1. Graph showing average scores between physical and mental health vignettes out of a possible total of 5 (error bars show standard error)

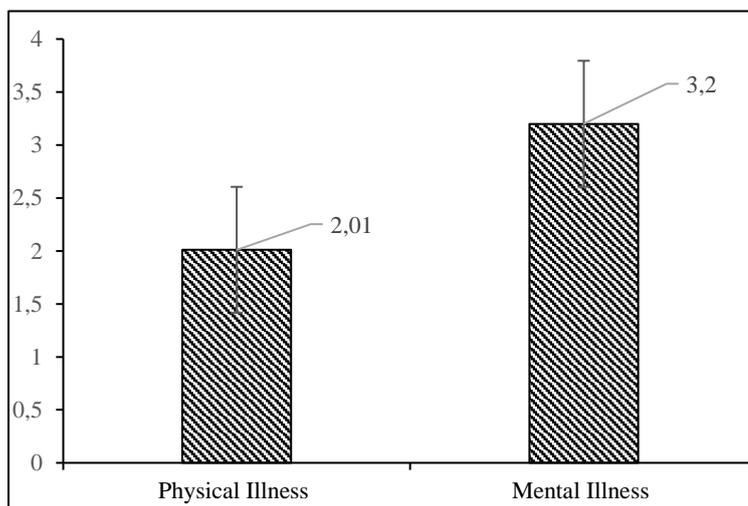


Table 1

Percentage of corrected and partly corrected labelling those recommending professional help across all vignettes

| | Corrected | Partly Corrected | Help |
|----------------------------|------------------|-------------------------|-------------|
| <i>1. Anxiety</i> | 75.4% | 77.8% | 85.5% |
| <i>2. Bipolar Disorder</i> | 79.7% | 86.5% | 94.2% |
| <i>3. Depression</i> | 89.9% | 89.4% | 91.8% |
| <i>4. OCPD</i> | 3.4% | 56.0% | 69.6% |
| <i>5. Schizophrenia</i> | 72.4% | 87.0% | 94.7% |
| <i>6. Angina</i> | 30.0% | 70.5% | 76.3% |
| <i>7. COPD</i> | 38.2% | 69.6% | 82.6% |
| <i>8. Diabetes</i> | 50.7% | 52.7% | 85.5% |
| <i>9. Heart Attack</i> | 47.8% | 60.9% | 91.3% |
| <i>10. Sinusitis</i> | 47.3% | 56.0% | 76.8% |

Table 2

Gender difference in correct recognition of vignettes N = 207

| | Vignette | Males | | Females | | F | P | Total Percentage Correct |
|----------------------|---------------|----------------------|-----------|----------------------|------------|-------------|---------------|--------------------------|
| | | Percentage Correct/% | N correct | Percentage Correct/% | N | | | |
| Physical Health | Anxiety | 66.2 | 47 | 80.8 | 143 | 4.82 | 0.02* | 73.5 |
| | Bipolar | 74.6 | 53 | 88.1 | 156 | 7.19 | 0.01** | 81.4 |
| | Depression | 85.9 | 61 | 92.7 | 164 | 1.78 | 0.18 | 89.3 |
| | OCPD | 5.6 | 4 | 0.7 | 1 | 4.76 | 0.03* | 3.2 |
| | Schizophrenia | 57.7 | 41 | 78 | 138 | 6.46 | 0.01** | 67.9 |
| | Mean | 58.0 | 41 | 68.06 | 120 | 8.10 | 0.01** | 63.0 |
| Mental Health | Angina | 15.5 | 11 | 27.7 | 49 | 1.31 | 0.25 | 21.6 |
| | COPD | 36.6 | 26 | 42.4 | 75 | 5.73 | 0.01** | 39.5 |
| | Diabetes | 40.8 | 29 | 59.3 | 105 | 4.06 | 0.04* | 50.1 |
| | Heart Attack | 45.1 | 32 | 49.2 | 87 | 0.00 | 0.93 | 47.2 |
| | Sinusitis | 33.8 | 24 | 54.8 | 97 | 5.71 | 0.01** | 44.3 |
| | Mean | 34.4 | 24 | 46.68 | 83 | 7.67 | 0.00** | 40.5 |
| Overall total | | 46.2 | 33 | 57.37 | 102 | 9.87 | 0.00** | |

Table 3

Categories of individual suggestions for how characters in each vignette could “best be helped”.

| Mental health disorder / Physical illness | Suggestion of help | Percentages |
|--|------------------------|-------------|
| Angina | Medication | 46.3 |
| | Medical Help | 33.8 |
| | Lifestyle Change | 42.0 |
| | Didn't know/ blank | 9.2 |
| COPD | Medication | 20.8 |
| | Medical Help | 66.7 |
| | Emergency Help | 1.9 |
| | Lifestyle Change | 12.1 |
| | Self help | 3.4 |
| | Quit Smoking | 4.8 |
| | Didn't know/ blank | 13.0 |
| Diabetes | Medication | 32.4 |
| | Medical Help | 64.7 |
| | Emergency Help | 1.4 |
| | Lifestyle Change | 16.4 |
| | Lifestyle change alone | 1.9 |
| | Do nothing | 2.4 |
| | Didn't know/ blank | 9.2 |
| Sinusitis | Medication | 38.6 |
| | Medical Help | 46.4 |
| | Rest | 15 |
| | Lifestyle Change | 3.9 |
| | Self-help | 10.6 |
| | Didn't know/ blank | 5.8 |
| Heart attack | Medication | 1.4 |
| | Medical Help | 46.4 |
| | Emergency Help | 54.1 |
| | Lifestyle Change | 11.1 |
| | Self-help | 3.9 |
| | Psychological Help | 18.4 |
| | Didn't know/ blank | 4.8 |
| Anxiety | Medication | 43 |
| | Medical Help | 13.5 |

| | | |
|------------------|------------------------------|------|
| | Psychological Help | 71.0 |
| | Lifestyle Change | 14 |
| | Self-help | 5.8 |
| | Community support | 0.5 |
| | Didn't know/ Blank | 4.3 |
| Bipolar Disorder | Medication | 66.7 |
| | Medical Help | 18.8 |
| | Psychological Help | 57 |
| | Lifestyle Change | 3.9 |
| | Community support | 4.8 |
| | Didn't know/ Blank | 2.9 |
| Depression | Medication | 48.8 |
| | Medical Help | 19.3 |
| | Psychological Help | 74.9 |
| | Lifestyle Change | 14.5 |
| | Community support | 10.6 |
| | Didn't know/ Blank | 2.9 |
| OCPD | Medication | 16.4 |
| | Medical Help | 4.3 |
| | Psychological Help | 63.8 |
| | Lifestyle Change | 17.4 |
| | Self-help | 11.6 |
| | Community support | 5.3 |
| | Didn't know/ Blank | 9.2 |
| Schizophrenia | Medication | 48.3 |
| | Medical Help | 21.3 |
| | Psychological Help | 70.5 |
| | Emergency psychological help | 5.3 |
| | Lifestyle Change | 2.9 |
| | Community support | 8.7 |
| | Self-help | 1.0 |
| | Didn't know/ Blank | 2.9 |

Note. Figures shown are percentages and do not total 100 as many participants gave more than one suggestion.

Table 4

Differences between suggested treatments for physical and mental health

| | Physical Health | Mental Health | F Value | P Value | Total Average |
|-------------------|-----------------|---------------|---------|---------|---------------|
| Medication | 27.9 | 44.64 | 2.20 | 0.176 | 36.27 |
| Professional help | 66.76 | 77.39 | 0.46 | 0.514 | 72.075 |
| Self-help | 24.64 | 20.2 | 0.42 | 0.534 | 22.42 |

Table 5

Mean ratings of prevalence and sympathy across each disorder amongst those who recognised each disorder

| Condition | Mean Prevalence Rating/10 | SD | Mean Sympathy Rating/10 | SD |
|---------------|---------------------------|------|-------------------------|------|
| Angina | 6.80 | 2.02 | 7.56 | 1.79 |
| Diabetes | 5.98 | 1.83 | 7.82 | 1.85 |
| COPD | 5.52 | 1.82 | 6.54 | 2.25 |
| Sinusitis | 8.26 | 1.78 | 7.40 | 2.27 |
| Heart attack | 6.40 | 1.84 | 8.12 | 1.81 |
| Bipolar | 4.28 | 1.81 | 8.23 | 1.77 |
| Depression | 7.71 | 1.63 | 8.74 | 1.56 |
| OCPD | 3.00 | 1.83 | 7.25 | 2.22 |
| Anxiety | 7.50 | 1.68 | 8.25 | 1.78 |
| Schizophrenia | 3.33 | 1.82 | 8.64 | 1.72 |

