

Empathy and Mental Health Literacy

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ABSTRACT

Background: There is growing literature on mental health literacy (MHL), but few studies have conducted research on anything more than demographic predictors of MHL. We believe that those who are more empathic would be more interested in and more knowledgeable about mental illnesses. **Objective:** This study was concerned to establish whether people who were more empathic would have higher MHL. **Methods:** The 129 volunteer, university panel, participants completed the Interpersonal Reactivity Index and were presented with 15 vignettes describing people with various mental disorders. Questions assessed participants' identification of the disorders and their perception of the life adjustment of each person. **Key Results:** The results showed that 3 of the 4 empathy subscales correlated with the MHL score. Results from correlation and regression analyses suggest that people who are more empathic, have studied psychology, and have had personal experience of mental illness demonstrate better MHL. **Conclusions:** As predicted, people with greater MHL had greater empathy, but this cross-sectional correlational study could not ascertain causal patterns. [*Health Literacy Research and Practice*. 2017;1(2):e31-e40.]

Plain Language Summary: This study addressed whether people who are more empathic tend to be better informed about mental health issues because of their care for, interest in, and sympathy toward those with a range of mental illnesses. This was a questionnaire study and we did indeed find the relationship we thought may occur. However, we cannot be certain which caused which—do those who know more about mental illnesses and how common they are become more empathic or do those with greater empathy learn more about all aspects of mental illness?

This study examines whether those who are more empathic have better mental health literacy (MHL). The underlying suggestion is that those who are more interested in the emotional experiences and difficulties of others would develop a greater understanding of mental health issues over time, particularly the recognition of relatively common mental illnesses.

Jorm (2000) defined MHL as knowledge of, and beliefs about, mental disorders that aid their recognition,

management, and treatment. MHL also relates to the ability to gain access to, understand, and use information in ways that promote and maintain good mental health (Lauber, Nordt, Falcató & Rössler, 2003). This mental health knowledge is considered to facilitate taking appropriate action to benefit one's own or another person's mental health (Jorm, 2012; Leighton, 2009, Smith & Shochet, 2011). Such empirical research studies have also identified a substantial discrepancy between a layperson's

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understanding of mental health and that of a psychiatry professional across different cultures and nationalities (Dahlberg, Waern, & Runeson, 2008; Pescosolido et al., 2008).

MENTAL HEALTH LITERACY RESEARCH

A common method used to investigate MHL involves presenting participants with a prototypic case vignette describing a person with specific diagnostic criteria of a mental disorder (Swami, 2012). However, it has been demonstrated that different vignettes that supposedly describe the same mental illness can reveal different results (Sai & Furnham, 2013). Studies using this method regularly demonstrate that few members of the public are able to provide a “correct” (i.e., the clinical academic vs. the common, everyday usage of the term) diagnostic label to mental illness, although the described symptoms are often recognized as belonging to some kind of mental illness (Jorm, 2000; Furnham, Abajjian, & McClelland, 2011).

Recent research has investigated specific disorders such as schizophrenia (Furnham & Wong, 2007), personality disorders (Furnham & Wincelhaus, 2012), psychopathy (Furnham, Daoud, & Swami, 2009), obsessive-compulsive disorder (Koutoufa & Furnham, 2013), amongst many others. These studies consistently demonstrate that certain mental health problems are more likely than others to be recognized by laypeople (Jorm, 2000), including psychological disorders that are more commonly portrayed in the media as well as those representing higher prevalence rates in the general population (Furnham & Telford, 2012). For example, Furnham, Cook, Martin, & Batey (2011) found that anorexia nervosa, anxiety disorders, and schizophrenia had the highest recognition rates among university students. Furnham, Daoud, & Swami, (2009) found that 97% of their adult participants recognized depression, 61% recognized schizophrenia, but only 39% correctly identified antisocial personality disorder. However, Goldney, Fisher and Wilson (2001), using a large community study, found just over half the group of 3,010 Australians correctly “diagnosed” male and female vignettes as depressed. Thoresteinsson, Loi, & Moulunox (2014) found that approximately three-fourths of an Australian community sample recognized both “normal” depression as well as postpartum depression. Although more recent studies tend to report higher recognition rates in comparison to past studies, this does not necessarily imply raised awareness about mental health, and may instead reflect methodological differences (Furnham & Dadabhoy, 2012).

Studies have also looked at the potential factors influencing recognition such as age (Farrer, Leach, Griffiths, Christensen, & Jorm, 2008) and sex (Gibbons, Thorsteinsson, & Loi, 2015). Lauber, Nordt, Falcató, & Rössler (2003) showed that a positive attitude to psychopharmacology and previous contact with a person who has a mental disorder was associated with correctly identifying depression. People with no previous contact with a patient were more likely to interpret depressive states as “life crises” (Lauber, Nordt, Falcató, & Rössler, 2003). Results from Reavley, Morgan, and Jorm (2014) also indicated that people who had close contact with a person who has a mental disorder showed significantly higher overall scores on MHL. Other demographic factors associated with lower levels of MHL were male sex, being older than age 60 years, and relatively low education levels.

Other studies have also shown that women and younger people are better at labelling depression from a vignette (Hight, Hickie, & Davenport, 2002) and that people with higher levels of education exhibit more informed beliefs about mental illness (Fisher & Goldney, 2003). These studies suggest that informed beliefs about the causes, nature, and treatment of mental illness are facilitated by academic study and through extensive contact with affected persons, which may therefore be predictive of recognition (Furnham & Telford, 2012).

EMPATHY AND MENTAL HEALTH LITERACY

Empathy has been defined as the “reactions of one individual to the observed experiences of another” (Davis, 1983). Empathy is a psychological construct encompassing cognitive and affective elements that produces emotional understanding (Shamay-Tsoory, Aharon-Peretz, & Perry, 2009; del Barrio, Aluja, & Garcia, 2004). Empathy is multidimensional and comprises a set of discriminable, but related constructs (Davis, 1980; 1983). Emotional empathy is defined as a person’s emotional response to the perceived emotional experience of others (Baron-Cohen & Wheelwright, 2004), whereas cognitive empathy is the process of imagining another person’s state by identifying and understanding his or her feelings and perspectives, while maintaining an objective standpoint (Preston, Bechara, Damasio, Grabowski, Stansfield, Mehta, & Damasio, 2007).

It has been proposed that understanding and empathy are important components of MHL (Goldney, Dunn, Dal Grande, Crabb, & Taylor, 2009), and that empathy has moral, cognitive, emotive, and behavioral components that may generate more positive attitudes toward mental disorders (Mercer & Reynolds, 2002). Notably, empathy

is important in mental health care and has been shown to improve attitudes toward members of stigmatized groups (Batson, Chang, Orr, & Rowland, 2002). Likewise, personal exposure to depression may yield greater appreciation for the experience of mental illness and a greater capacity for empathy (Goldney, Dunn, Dal Grande, Crabb, & Taylor, 2009).

THE CURRENT STUDY

The current study examined whether a person's empathy levels were related to his or her ability to identify psychological disorders, and whether they influenced assessments of other people's ability to adjust to life with mental illness. Because previous studies have shown a "vignette effect," the identification of similar illness by different vignettes, as a problem, (Sai & Furnham, 2013) we used diverse vignettes to measure two mental disorders—depression and schizophrenia.

Three hypotheses were tested:

1. Different mental disorders show varying rates of identification, with depression, posttraumatic stress disorder (PTSD), and obsessive-compulsive disorder as the most recognizable.
2. Participants who have studied psychology/psychiatry and have experience with people who have a history of mental illness will demonstrate more accurate MHL.
3. Empathy scores, both at the Domain (total score) and Facet (subscale score) levels will be positively associated with MHL.

The study also examined general issues about each vignette, such as how happy and adjusted they were perceived to be, although no hypotheses were formulated.

METHOD

Participants

The total study population included 129 participants (16 men, 113 women). Participants were mainly recruited through opportunistic sampling and an internal experimental subject pool accessible within a university psychology department; students were granted one experimental credit in exchange for their participation. The age of the participants ranged between 18 and 56 years (mean = 21.9 years, standard deviation = 6.68 years), and 66% ($n = 85$) of the participants had studied psychology

or psychiatry. In all, 22% ($n = 28$) of the participants were employed, and the rest were undergraduate or postgraduate students. Additionally, 14% ($n = 18$) of the participants reported having been personally treated for a psychological illness, and 47% ($n = 60$) reported knowing somebody close to them who had been treated for a psychological illness.

Materials

Interpersonal reactivity index. The interpersonal reactivity index (IRI) is a 28-item scale measuring empathy (Davis, 1980; Fernández, Dufey, & Kramp, 2011). The four subscales are: (1) perspective taking, measures the tendency to spontaneously adopt others' psychological point of view; (2) fantasy, assesses the tendency to transpose oneself to the actions and feeling of fictitious characters; (3) empathic concern, taps "other-oriented" feelings of sympathy and concern for unfortunate others; and (4) personal distress, measures "self-oriented" feelings of unease and anxiety in tense interpersonal settings (Davis, 1983). Scores for each scale range from 0 to 28. The scales are themselves similarly intercorrelated from >0.29 to <0.44 .

Vignette identification and character adjustment. The MHL questionnaire was designed using a collection of vignettes describing 15 men and women fictional characters with different symptoms of mental illnesses meeting *Diagnostic and Statistical Manual of Mental Disorders, 5th edition*, (American Psychiatric Association, 2013) criteria. Among the disorders depicted in the questionnaire are schizophrenia, depression, social phobia, panic disorder, PTSD, various personality disorders, and obsessive-compulsive disorder (OCD). The vignettes were gathered from previous studies using a similar method to investigate laypeople's theories of mental illness and were adapted to fit the present study. The vignettes have all previously been used in MHL studies (Race, 2014). They were chosen to represent a wide range of mental disorders. The order was randomized, but not counterbalanced; each person received them in the same order. The sex of the person in the vignettes was the same as the examples provided by Race (2014) (which is publically available) with approximately half of each sex. There is available literature on MHL as a function of the sex of the "patient"; however, it is equivocal and would not affect the central issue in this study, which is the relationship between MHL and empathy.

After each vignette, participants were first presented with an open-ended question to assess their identification of the described disorder: "How would you describe/name the disorder?" This was a primary method of operationalizing MHL. Participants were then asked to rate the vignette

characters' adjustment to living with his or her disorder. The five life adjustment questions were as follows: (1) How distressing do you think it would be to have this condition? (2) How sympathetic would you be toward someone with this problem? (3) In general, how happy do you think they are? (4) In general, how successful at their work do you think they are? (5) In general, how satisfying do you think their personal relationships are? Participants responded using a Likert scale ranging from 1 (not at all) to 7 (extremely).

Procedure

Ethics approval was sought and received by the Ethics Committee from the Department of Experimental Psychology at University College London (Number CEHP/2013/514). Data collection was conducted by the authors using an Internet-based approach using Qualtrics. Before commencing, participants first consented to partaking in the study, were informed of their right to withdraw at any point, and were assured that their responses would be kept strictly confidential and anonymous under the Data Protection Act (1998). The participants then completed the IRI, followed by the Mental Health Literacy (MHL) questionnaire. All respondents participated on a voluntary basis and completed the questionnaires remotely using computers.

RESULTS

Content Analysis of Vignette Identification

A coding frame was developed to assess participants' responses to the open-ended question. The codes depicted a "correct," "partially correct," or "incorrect" response. "Correct" responses were coded as 2, "partially correct" responses were coded as 1, and "incorrect" responses were coded as 0 (Table 1). This coding system indicated that a higher score implied a more accurate MHL, and allowed for calculation of a total MHL score per participant. A subsequent inter-rater reliability analysis suggested agreement between the two independent raters. Note not all rows add up to 100% because of missing data.

Quantitative Analysis

Overall, the results showed a difference in identification responses for all disorders. PTSD in vignette 15 showed the highest rate of "correct" identification, followed by depression in vignette 1. Histrionic personality disorder had the lowest rate at 0%. Identification rates also differed between the same disorders; for example, schizophrenia as described in vignettes 8 and 9 showed that the former had a higher rate of correct identification. Overall, the personality

disorders constituted the lowest "correct" identification rates.

One question that arises is whether ability to identify different disorders is linked to their clinical prevalence in the population. The latter is often unreliable and what there is suggests that with regard to this data there is no relationship.

Next, independent sample *t*-tests were conducted to determine if participants' MHL differed depending on demographic variables of psychological education and a personal history of psychological treatment. Results showed a significant difference between participants who had studied psychology (Mean [M] = 14.36, standard deviation [SD] = 5.75) and those who had not (M = 10.32, SD = 6.11): $t(127) = 3.71, p < .001, d = 0.68$. There was also a significant difference in MHL between participants who had been treated for psychological illness (M = 16.08, SD = 5.23) and those who had not (M = 12.20, SD = 6.15): $t(127) = 2.95, p < .01, d = 0.68$.

Then correlations were used to examine the relationship between participants' MHL scores and their empathy as measured by the IRI. These showed a significant correlation between MHL and 3 of the 4 subscales: Fantasy ($r = 0.35, n = 129, p < .01$), Empathic Concern ($r = 0.33, n = 129, p < .001$), and Perspective Taking ($r = 0.22, n = 129, p < .05$). Personal Distress was not significantly correlated with MHL ($r = -0.12, n = 129, p > .05$). There was also a strong significant correlation between MHL and the total average IRI scores: $r = 0.29, n = 129, p < .01$. Secondly, correlations were calculated between the total MHL variable and the five adjustment ratings (Table 2). This showed significant positive correlations between MHL and the ratings regarding distress and sympathy, and a significant negative association with personal relationships (Table 3). Empathic Concern was significantly correlated with 4 of the 5 ratings. Perspective Taking was significantly correlated with 2 of the 5 adjustment ratings.

Finally, to examine the contribution of empathy to the variance in MHL, a hierarchical multiple regression analysis was performed. Prior to the analysis, the data were examined to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. First, the demographic variables of psychological education, experience, and age were entered into the model, followed by the adjustment ratings, and lastly the IRI subscales. Results from step one of the regression analysis showed that the variance in MHL accounted for by the demographic variables was significantly different from 0: $F(3, 125) = 9.07, p < .001$. In step two, the life adjustment scores were entered into the regression model, which changed the variance

TABLE 1

Total Percentages of Participants' Incorrect, Partially Correct, and Correct Identification Responses to Each Vignette in Order of Presentation

Vignette Disorder	Incorrect % ^a	Partially Correct % ^b	Correct % ^c
Depression	12.40	16.28	71.32
Social phobia	44.19	17.83	37.21
Schizoid personality disorder	69.77	24.03	6.20
Panic disorder	49.61	16.28	33.33
Obsessive-compulsive disorder	18.60	13.95	67.44
Avoidant personality disorder	45.74	53.49	0.78
Narcissistic personality disorder	56.69	43.49	2.33
Schizophrenia	22.48	17.83	58.91
Schizophrenia	43.41	24.03	32.56
Depression	27.90	13.95	58.14
Histrionic personality disorder	93.80	5.88	0
Anti-social personality disorder	73.64	17.83	8.53
Schizophrenia	54.26	9.30	35.66
Narcissistic personality disorder	62.02	33.33	4.65
Posttraumatic stress disorder	10.08	15.50	74.42

^a"Incorrect" responses were coded as 0.

^b"Partially correct" responses were coded as 1.

^c"Correct" responses were coded as 2.

TABLE 2

Correlations Between Mental Health Literacy and the Five Life Adjustment Questions

Variable	Distress	Sympathy	Happiness	Work	Relationships
Rating	0.24 ^a	0.35 ^a	-0.09	-0.21	-0.19 ^b

Note. *n* = 129.

^a*p* < .01

^b*p* < .05

significantly $F(5, 120) = 6.49, p < .001$. Lastly, the IRI subscales were added to the model. The increase in variance was highly significant: $F(4, 116) = 5.94, p < .001$. When all variables were included in the final step, the variables adding independent significance to the model were Fantasy ($p < .001$), experience of psychological illness ($p < .05$), and Personal Distress ($p < .05$). A summary of the regression analysis is presented in **Table 4**.

Last, a principal component analysis was conducted to investigate any potential factors underlying the adjustment ratings. Inspection of the Scree plot showed presence of two

underlying factors that accounted for 79.28% of variance in the data. Therefore, these two factors were retained for rotation. Inspection of the communalities, displayed in **Table 5**, showed that all five variables were well defined by the solution, with all values above 75%.

The factor loadings showed that factor 1 had heavy loadings on work, relationships, and happiness (all > 0.75). Factor 2 had heavy loadings on the questions addressing sympathy and distress (all > 0.75). As evaluation of work, relationships, and happiness require an objective standpoint, component one was labelled "cognitive empathy." Sympathy

TABLE 3

Correlations Between the Four Subscales of the Interpersonal Reactivity Index and the Five Life Adjustment Ratings

Variable	Distress	Sympathy	Happiness	Work	Relationships
Fantasy	0.02	0.17	-0.02	-0.02	-0.14
Empathic	0.29 ^a	0.50 ^a	-0.22 ^b	-0.13	-0.27 ^a
Perspective	0.27 ^a	0.40 ^a	-0.12	-0.03	-0.08
Personal distress	0.06	0.12	-0.14	-0.12	-0.02

Note. $n = 129$.

^a $p < .01$

^b $p < .05$

and distress, however, are believed to be more reliant on insight into an individual's emotional experience; thus, component two was labelled "emotional empathy."

Following the results of the principal component analysis, a regression analysis was conducted to determine how much of the variance in MHL could be specifically accounted for by the adjustment ratings. The model showed that the adjustment ratings could significantly predict MHL: $F(5, 123) = 4.33, p < .001$, adjusted $R^2 = 0.12$. Sympathy was the only significant predictor in the model ($p < .05$).

DISCUSSION

The results provided support for all hypotheses. In this study, PTSD was recognized by the largest proportion of participants. This may be attributable to the media coverage of PTSD following soldiers' return from wars and the experience of natural disasters (Reavley & Jorm, 2014). Recognition of depression, the second highest, was also in line with previous cross-cultural research citing depression to be among the most readily recognized mental disorders (Loo, Wong, & Furnham, 2012). This might be explained by the high prevalence of depression, increasing the likelihood of having been in contact with a depressed person, as well as by the ability to relate to some of the symptoms, for example lowered mood.

Thus, the results showed that OCD was recognized more frequently than social phobia and panic disorder (Coles & Coleman, 2010; Furnham & Buck, 2003). The relatively low recognition of social phobia may be explained by previous research demonstrating laypeople's unawareness of its causes, attributing it to "personal weakness" and environmental causes (Coles & Coleman, 2010). Panic disorder, which also showed low recognition rates, may not be viewed by laypeople as a mental illness and instead as caused by stress and other biological factors. This demonstrated lack of

knowledge about the causes of anxiety disorders suggests that the current participants may not have viewed the characters as having an illness. Participants also varied in their identification of schizophrenia. The overall low rates of recognition are similar to many previous studies, although it should be noted that there is some inconsistency in these studies as a function of the size, demography and culture of the participants, the precise vignettes used, and the precise definition of MHL.

Support for the hypothesized positive relationship between MHL and empathy was partly provided by correlation analyses. Although the Personal Distress subscale was not significantly associated with MHL, an explanation is likely provided by its assessment of self-oriented feelings; as empathy by definition is a reaction to the observation of another person's experience, hence other-oriented personality disorder on its own may not be associated with MHL, yet contributes important affective elements to empathy overall (Davis, 1983).

The hierarchical regression model provided evidence for two hypotheses. First, it supported the part of the second hypothesis specifying that demographic variables would be a predictor of variance in MHL. People who had studied psychology and those who had been treated for psychological illness demonstrated better MHL compared to those who had not. Specifically, people who have experience with psychological illness may be more mental health literate and can better identify symptoms. This is consistent with previous research (Furnham et al., 2011) and supports the proposal that experience of psychological illness can be a predictor of MHL. It has also been suggested that this experience is a main source of information regarding mental health (Wolff, Pathare, Craig, & Leff, 1996). However, awareness of one aspect of mental illness cannot be generalized to all aspects; thus, it cannot be concluded that a specific experience of

TABLE 4

Summary of the Hierarchical Regression Analysis for Variables Predicting Mental Health Literacy

Variable	β	<i>T</i>	<i>R</i> ²	Adjusted <i>R</i> ²	ΔR^2
Step 1			0.18	0.16	0.18
Age	0.19	2.07 ^a			
Psychological education	0.35	4.11 ^b			
Psychological experience	0.28	3.33 ^b			
Step 2			0.30	0.26	0.12
Age	0.14	1.59			
Psychological education	0.37	4.42 ^b			
Psychological experience	0.21	2.53 ^b			
Distress	0.02	0.23			
Sympathy	0.30	2.99 ^b			
Happiness	0.04	0.37			
Work satisfaction	0.12	1.02			
Personal relationships	-0.17	1.44			
Step 3			0.38	0.32	0.08
Age	0.12	1.43			
Psychological education	0.29	3.47 ^b			
Psychological experience	0.21	2.64 ^c			
Distress	0.06	0.58			
Sympathy	0.22	2.03 ^a			
Happiness	0	0.03			
Work satisfaction	0.06	0.54			
Personal relationships	-0.07	-0.62			
Fantasy	0.25	2.98 ^c			
Empathic concern	0.06	0.68			
Perspective taking	0.04	0.49			
Personal distress	-0.16	-2.04 ^a			

Note. *n* = 129.

^a*p* < .05

^b*p* < .001

^c*p* < .01

psychological illness necessarily leads to improved literacy. Instead, it may be likely that this experience provides an

incentive to obtain more information about mental illness (Lambert & Loiselle, 2007).

TABLE 5

Mean Item Scores with Standard Deviations, Community Values, Factor Loadings Accounted for by Each Factor to Mental Health Literacy, and Eigenvalues and Explained Variance for the Components

Variable	Mean Item (Standard Deviation)	Component 1	Component 2
Distress	77.50 (11.38)	-0.02	0.89
Sympathy	72.18 (14.23)	-0.10	0.89
Happiness	44.07 (7.61)	0.83	-0.27
Work	49.35 (8.00)	0.89	0.08
Relationships	39.62 (8.51)	0.88	-0.14
Variance accounted for	--	50.57%	28.71%
Eigenvalue	--	2.53	1.44

Note. Numbers in bold show the highest loadings (> .80).

Psychological education may be an important predictor of more informed beliefs about mental health, as previous research has demonstrated (Furnham et al., 2011). It appears that participants are able to apply their acquired knowledge to an evaluation of a person's mental health situation and correctly identify disorders. Furthermore, the contribution of age in literacy may be related to the increased probability of encountering somebody with a mental disorder, thus increasing knowledge (Wolff et al., 1996).

Second, the variance in recognition accounted for by empathy over and above all other predictors provides support for the hypothesis that empathy would be an important predictor of MHL. More positive attitudes to mental illness decrease the likelihood of viewing the characters with stigma and deprecation, for instance labelling them as 'crazy,' and instead lead to more understanding of the characters' situation. By providing a diagnostic label, participants can appreciate the abnormal behaviors to identify the disorder. Consequently, positive attitudes may be linked to identification of mental illness.

The results of the principal component analysis confirmed the supposition that the life adjustment ratings could predict empathy. The two underlying components demonstrated a clear distinction between the content of the ratings. The first component loaded heavily on ratings of the characters' happiness, work satisfaction, and personal relationships. These are related to the cognitive component of empathy, assessing the ability to view the characters' situation from an objective standpoint and to base evaluations intellectually on the descriptions of their situations. The second component suggested that the distress and sympathy ratings

measure emotional empathy, as they require assessment of an individual's perceived emotional experience; hence participants with higher empathy levels gave higher ratings. Correspondingly, this provides evidence demonstrating that the five adjustment ratings can together be considered as an empathy measure due to their encompassment of the two different components of empathy.

Furthermore, there was a split in the direction of the adjustment ratings' relationship with MHL, where the "emotionally loaded ratings" demonstrated a positive relationship, and the "cognitive components" showed a negative relationship. Although this finding needs to be explored, our results suggests a negative association between the likelihood of recognizing a disorder and the cognitive component of empathy (Furnham et al., 2011). It suggests that emotional empathy may be more involved in formation of beliefs about, rather than analysis of, mental health, aiding the recognition of mental disorders.

The finding of greater involvement of emotional, affective aspects of empathy in recognition of mental illness can be applied to research on health information-seeking behavior (Lambert & Loiselle, 2007). How a person responds to this need for information may depend on an interaction between personal and contextual factors. Personal factors include psychosocial variables like personality traits, beliefs, attitudes, and emotions. Research has also shown that women, younger people, and more educated people are more likely to be active information seekers. Consequently, a cognitive outcome of increased information-seeking is increased knowledge, equivalent in this context to increased MHL. In turn, this can lead to behavioral outcomes

such as increased likelihood of contacting mental health professionals and self-care abilities (Lambert & Loisel, 2007).

One methodological issue needs to be mentioned and it is the use of vignettes, which is common in the MHL but not the health literacy field, although some recent work has done this (Wickstead & Furnham, 2017). Presumably both related areas of research could benefit from using each other's methodology, although much depends on the participants used in the study.

The study had numerous limitations. One was the use of an opportunistic, relatively small sample unrepresentative of the general population, and overrepresentative of women in particular. Women tend to be more empathic (Schieman & van Gundy, 2000) and generally tend to display more knowledge about mental health (Cotton, Wright, Harris, Jorm, & McGorry, 2006). The low proportion of men who participated could imply influence of the gender differences on the study's results and implications.

Second, many of the participants were students of psychology and it could be that those who study psychology could be more empathic than the general population. Thus, it could be that those who are more empathic both choose psychology and increase the MHL literacy. Moreover, because the study is cross-sectional and not longitudinal it is impossible to rule out reverse correlations. That is rather than empathy predicts an interest in, and knowledge of mental illness, but that that the latter predicts the former.

Next, although we used many vignettes to increase reliability, the way we defined MHL as essentially the recognition of these different illnesses could be challenged. Equally the effect of the gender of the character in the vignettes could have played a role. The literature on MHL as a function of both vignette character and participant is mixed with some evidence to suggest that with some disorders the gender of the vignette character can either inhibit or facilitate identification (i.e., men being anorexic or women as psychopathic).

As well as not systematically exploring the gender effect we did not randomize the order in which the vignettes were presented. Again, studies that have investigated this have tended to show it plays very little part, yet it is always better to check for possible contaminating order effects.

This study demonstrated, as hypothesized, a positive relationship between empathy and MHL. However, it was the particular facets of empathy, namely Empathic Concern and Perspective Taking, that related most clearly to MHL. The assumption was that these two traits led people to take more interest in those with mental health problems and

become more literate about all aspects on mental health and illness.

REFERENCES

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed). Arlington, VA: American Psychiatric Publishing.
- Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: An investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders*, 34(2), 163-175.
- Batson, D., Chang, J., Orr, R., & Rowland, J. (2002). Empathy, attitudes, and action: Can feeling for a member of a stigmatized group motivate one to help the group? *Personality and Social Psychology Bulletin*, 28(12), 1656-1666. doi:10.1177/014616702237647
- Coles, M. E., & Coleman, S. L. (2010). Barriers to treatment seeking for anxiety disorders: Initial data on the role of mental health literacy. *Depression and Anxiety*, 27(1), 63-71. doi:10.1002/da.20620
- 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(9), 790-796. doi:10.1111/j.1440-1614.2006.01885.x
- Dahlberg, K., Waern, M., & Runeson, B. (2008). Mental health literacy and attitudes in a Swedish community sample – Investigating the role of personal experience of mental health care. *BMC Public Health*, 8(1). doi:10.1186/1471-2458-8-8
- Data Protection Act 1998. *The National Archives*. Retrieved from <http://www.legislation.gov.uk/ukpga/1998/29/contents>
- Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology*, 10, 85.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44, 113–126. doi:10.1037/0022-3514.44.1.113
- Davis, M. H. (1996). Empathy: a social psychological approach. *Choice Reviews Online*, 34(04), 34–2454–34–2454. doi:10.5860/choice.34-2454
- del Barrio, V., Aluja, A., & Garcia, L. (2004). Relationship between empathy and the big five personality traits in a sample of Spanish adolescents. *Social Behavior and Personality*, 32(7), 677-682. doi:10.2224/sbp.2004.32.7.677
- Farrer, L., Leach, L., Griffiths, K., Christensen, H., & Jorm, A. (2008). Age differences in mental health literacy. *BMC Public Health*, 8(1). doi:10.1186/1471-2458-8-125
- Fernández, A. M., Dufey, M., & Kramp, U. (2011). Testing the psychometric properties of the Interpersonal Reactivity Index (IRI) in Chile. *European Journal of Psychological Assessment*, 27(3), 179-185. doi:10.1027/1015-5759/a000065
- Fisher, L., & Goldney, R. (2003). Differences in community mental health literacy in older and younger Australians. *International Journal of Geriatric Psychiatry*, 18(1), 33-40. doi:10.1002/gps.769
- Furnham, A., Abajian, N., & McClelland, A. (2011). Psychiatric literacy and personality disorders. *Psychiatry Research*, 189(1), 110-114. doi:10.1016/j.psychres.2011.02.024
- Furnham, A., & Buck, C. (2003). A comparison of lay-beliefs about autism and obsessive-compulsive disorder. *International Journal of Social Psychiatry*, 49(4), 287-307. doi:10.1177/0020764003494006
- Furnham, A., Cook, R., Martin, N., & Batey, M. (2011). Mental health literacy among university students. *Journal of Public Mental Health*, 10(4), 198-210. doi:10.1108/17465721111188223

- Furnham, A., & Dadabhoj, H. (2012). Beliefs about causes, behavioural manifestations and treatment of borderline personality disorder in a community sample. *Psychiatry Research*, 197(3), 307-313. doi:10.1016/j.psychres.2011.12.024
- Furnham, A., Daoud, Y., & Swami, V. (2009). "How to spot a psychopath." *Social Psychiatry and Psychiatric Epidemiology*, 44(6), 464-472. doi:10.1007/s00127-008-0459-1
- Furnham, A., & Telford, K. (2012). *Public Attitudes, Lay Theories and Mental Health Literacy: The Understanding of Mental Health. Mental Illnesses - Understanding, Prediction and Control*. Rijeka, Croatia: Intech.
- Furnham, A., & Wineslaus, J. (2012). Psychiatric literacy and the personality disorders. *Psychopathology*, 45(1), 29-41. doi:10.1159/000325885
- Furnham, A., & Wong, L. (2007). A cross-cultural comparison of British and Chinese beliefs about the causes, behaviour manifestations and treatment of schizophrenia. *Psychiatry Research*, 151(1), 123-138. doi:10.1016/j.psychres.2006.03.023
- Gibbons, R. J., Thorsteinsson, E. B., & Loi, N. M. (2015). Beliefs and attitudes towards mental illness: An examination of the sex differences in mental health literacy in a community sample. *PeerJ*, 3, e1004. doi:10.7717/peerj.1004
- Goldney, R. D., Fisher, L. J., & Wilson, D. H. (2001). Mental health literacy: An impediment to the optimum treatment of major depression in the community. *Journal of Affective Disorders*, 64(2-3), 277-284. doi:10.1016/s0165-0327(00)00227-5
- Goldney, R., Dunn, K., Dal Grande, E., Crabb, S., & Taylor, A. (2009). Tracking depression-related mental health literacy across South Australia: A decade of change. *Australian and New Zealand Journal of Psychiatry*, 43, 476-483. doi:10.1080/00048670902817729
- Hight, N., Hickie, I., & Davenport, T. (2002). Monitoring awareness of and attitudes to depression in Australia. *The Medical Journal of Australia*, 176(10), S63-68.
- Jorm, A. (2000). Mental health literacy: Public knowledge and beliefs about mental disorders. *The British Journal of Psychiatry*, 177(5), 396-401. doi:10.1192/bjp.177.5.396
- Jorm, A. (2012). Mental health literacy: Empowering the community to take action for better mental health. *American Psychologist*, 67(3), 231-243. doi:10.1037/a0025957
- Jorm, A., Korten, A., Jacomb, P., 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. *The Medical Journal of Australia*, 166(4), 182-186.
- Koutoufa, I., & Furnham, A. (2013). Mental health literacy and obsessive-compulsive personality disorder. *Psychiatry Research*, 215(1), 223-228. doi: 10.1016/j.psychres.2013.10.027
- Lambert, S. D., & Loiselle, C. G. (2007). Health information-seeking behavior. *Qualitative Health Research*, 17(8), 1006-1019.
- Lauber, C., Nordt, C., Falcat, L., & Rössler, W. (2003). Do people recognise mental illness? factors influencing mental health literacy. *European Archives of Psychiatry and Clinical Neuroscience*, 253(5), 248-251. doi:10.1007/s00406-003-0439-0
- Leighton, S. (2009). Adolescents' understanding of mental health problems: Conceptual confusion. *Journal of Public Mental Health*, 8(2), 4-14. doi: 10.1108/17465729200900009
- Loo, P. W., Wong, S., & Furnham, A. (2012). Mental health literacy: A cross-cultural study from Britain, Hong Kong and Malaysia. *Asia-Pacific Psychiatry*, 4(2), 113-125. doi: 10.1111/j.1758-5872.2012.00198.x
- Mercer, S. W., & Reynolds, W. J. (2002). Empathy and quality of care. *British Journal of General Practice*, 52(Suppl), S9.
- Pescosolido, B. A., Jensen, P. S., Martin, J. K., Perry, B. L., Olafsdottir, S., & Fettes, D. (2008). Public knowledge and assessment of child mental health problems: Findings from the National Stigma Study-Children. *Journal of the American Academy of Child & Adolescent Psychiatry*, 47(3), 339-349. doi:10.1097/chi.0b013e318160e3a0
- Preston, S., Bechara, A., Damasio, H., Grabowski, T., Stansfield, R., Mehta, S., & Damasio, A. (2007). The neural substrates of cognitive empathy. *Social Neuroscience*, 2(3-4), 254-275. doi: 10.1080/17470910701376902.
- Race, M-C. (2014). *Mental Illness at Work. A Manager's Guide to Identifying, Managing and Preventing Psychological Problems in the Workplace*. London: Palgrave Macmillan.
- 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 & New Zealand Journal of Psychiatry*, 48(2), 162-168. doi:10.1177/0004867413495317
- Reavley, N., Morgan, A., & Jorm, A. (2014). Development of scales to assess mental health literacy relating to recognition of and interventions for depression, anxiety disorders and schizophrenia/psychosis. *Australian & New Zealand Journal of Psychiatry*, 48(1), 61-69. doi:10.1177/0004867413491157
- Roberts, W., & Strayer, J. (1996). Empathy, emotional expressiveness, and prosocial behavior. *Child Development*, 67(2), 449-470. doi:10.2307/1131826
- Sai, G., & Furnham, A. (2013). Identifying depression and schizophrenia using vignettes: A methodological note. *Psychiatry Research*, 210, 357-362. doi:10.1016/j.psychres.2013.05.004
- Schieman, S., & Van Gundy, K. (2000). The personal and social links between age and self-reported empathy. *Social Psychology Quarterly*, 63(2), 152. doi:10.2307/2695889
- Shamay-Tsoory, S., Aharon-Peretz, J., & Perry, D. (2009). Two systems for empathy: A double dissociation between emotional and cognitive empathy in inferior frontal gyrus versus ventromedial prefrontal lesions. *Brain*, 132(3), 617-627. doi:10.1093/brain/awn279
- Smith, C. L., & Shochet, I. M. (2011). The impact of mental health literacy on help-seeking intentions: Results of a pilot study with first year psychology students. *International Journal of Mental Health Promotion*, 13, 14-20. doi:10.1080/14623730.2011.9715652
- Swami, V. (2012). Mental health literacy of depression: Gender differences and attitudinal antecedents in a representative British sample. *PLoS One*, 7(11):e49779. doi: 10.1371/journal.pone.0049779
- Thorsteinsson, E. B., Loi, N. M., & Moulouynox, A. L. (2014). Mental health literacy of depression and postnatal depression: A community sample. *Open Journal of Depression*, 3, 101-111. doi:10.4236/ojd.2014.33014
- Wickstead, R., & Furnham, A. (2017). Comparing mental health literacy and physical health literacy: An exploratory study. *Journal of Mental Health*, 1-8. doi:10.1080/09638237.2017.1294743
- 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. doi:10.1192/bjp.168.2.191