Attitudes of Malaysian general hospital workers towards mental illness and diabetes

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Abstract

Background
The aim of this research was to explore attitudes among general hospital health workers toward patients with mental illness and patients with diabetes.

Methods
General hospital health professionals in Malaysia were randomly allocated one of two vignettes, one describing a patient with mental illness and the other a patient with diabetes, and invited to compete a questionnaire examining attitudes and health care practices in relation to the case.
The questionnaires completed by respondents included questions on demographics, training in mental health, exposure in clinical practice to people with mental illness, attitudes and expected health care behaviour towards the patient in the vignette, and a general questionnaire exploring negative attitudes towards people with mental illness. Questionnaires with complete responses were received from 654 study participants.

Results
Stigmatising attitudes towards the mentally ill were common. Those responding to the mental illness vignette (N=356) gave significantly lower ratings on care and support and higher ratings on avoidance and negative stereotype expectations compared with those responding the diabetes vignette (N=298).

Conclusions
Results support the view that, in the Malaysian setting, patients with mental illness may receive differential care from general hospital staff and that general stigmatising attitudes among professionals may influence their care practices. More direct measurement of clinician behaviours than able to be implemented through survey method is required to support these conclusions.
Background

Stigma associated with mental illness is an international concern [1, 2], having a major personal and social impact on patients [3-5] and their families [6, 7]. General public attitudes towards the mentally ill appear to be universally framed in beliefs of their dangerousness and incapability [8-10] relative to local social norms, and, public campaigns to change such views have made uncertain impact [11, 12]. There is also a growing literature on stigma in professional groups and trainees of the professions that provide health care. Recognition that stigma may be carried by trainees, and literature proposing that familiarisation with those having mental disorder may reduce stigma [13-15], has given rise to a series of work on the effects of mental health training on attitudes [16-19]. However training benefits have not been found reliably or consistently across studies [18, 20, 21] and there is uncertainty about the stability of any benefits over the course of time [22]. Among professional groups some work suggests that those working in mental health settings may have more moderate attitudes regarding the mentally ill than general health care providers [23] while other studies have produced contradictory findings including that mental health workers’ attitudes towards the mentally ill may not be any more moderate than those of the general public [24, 25].

Importantly, studies examining trainee and professional attitudes towards the mentally ill have used general measures of stigma, primarily measures of social distancing and discrimination/devaluation [19, 23, 26], with the expectation that expressed general negative attitudes may have an adverse influence of therapeutic practices [e.g., 27, 28]. However this assumption, surprisingly, has rarely been examined [cf, 29]) and there is reason to dispute this. First, attitude-behaviour relationships are generally weak, regardless of subject matter and settings [30], and second, behaviour (towards patients) may be influenced substantially by situational factors (e.g., clinical role, setting, adherence to professional ethics, patient variation, etc.) reducing any influence that general attitudes may have. On the other hand, discriminatory practices by clinicians towards the mentally ill are common [31-33]. Qualitative studies indicate that patient views reflect dissatisfactions about the lack sufficient attention paid to them by clinicians, lack of opportunity for self-determination and involvement in decisions regarding their treatment and lack of respect shown towards them as people [34-36]. However, the link between generally held attitudes by staff towards the mentally ill and staff behaviours towards patients is not clear from such studies. Ellsworth’s [29] classic work appears to be the first (and last?) systematic attempt to explore this link directly. Ellsworth measured patient responses regarding staff behaviour towards them and independently assessed staff attitudes towards
mentally ill patients. Analyses revealed that staff with high endorsement of restrictive control attitudes attracted patient perceptions of insensitivity, unfeeling, critical, domineering, lacking trust in patients. Further, those staff endorsing ‘protective benevolence’ as a general attitude about patients were seen by patients to be aloof, placating and avoidant. Ellsworth interpreted their apparent benevolence as a means of maintaining a comfortable interaction with the patient rather than having a genuine humane attitude toward them. Ellsworth also found that non-traditional ideology endorsed by staff was related to more positive patient perceptions of staff behaviours towards them.

Given the general lack of research in this area, in this work we question more closely the issue of differential care practice towards those with mental illness by exploring differences between practices endorsed towards a case with mental illness compared with one with chronic physical disease (diabetes). We also examine the relationship between general attitudes towards the mentally ill and its contribution to practices towards patients. Our study sample is general hospital staff in Malaysia, where, like in many developing countries, is the primary workforce treating mental disorders and illness. As in other general health settings the main discipline within this is nursing, who, importantly, spend a substantially longer time in contact with patients in care than other disciplines.

In this study we have measured attitudes. Statements about attitudes are related to intended actions or self-predictions in a given situation, and are reliably predictive of behaviours [37]. In the present case, following other work [e.g., 38, 39] general hospital staff were asked to read a vignette of a patient having either diabetes or mental illness (see Methods section), and a series of clinical behaviour and practice-based attitude statements were presented for their consideration and response. Importantly, the patient’s chief complaint and reason for hospital admission was a somatic complaint (“pressure in the chest”) for both cases. Random allocation was used for the vignettes forming two groups of hospital staff expected to be equivalent with respect to background factors (age, sex, ethnicity, professional discipline, total work experience), exposure to mental health and mentally ill patients (amount of mental health training received, amount of work experience in a mental health setting) and level of endorsement of stigma towards mentally ill persons as measured using a social distancing/discrimination/devaluation scale (termed, general stigma). A between-group design was felt to be important in this study to prevent comparative ratings between vignettes and a conflation of ratings between them. Besides testing the null hypothesis that there will be no different endorsement of attitudes between the two groups rating different vignettes, we document the
level of endorsement of general stigma toward those with mental illness in this Malaysian sample and explore the contribution of the background, exposure and general stigma factors to attitudes within the group rating the mental illness vignette. In the latter we were particularly interested in knowing if general stigma and exposures to mental health training or work influence attitude scores.

We repeat such analysis in attitude ratings in relation to the diabetes case with the expectation that general stigma towards the mentally ill will not be systematically associated with attitudes in this case.

**Methods**

**Participants & Procedure**

Approval or the study was given by the National University of Malaysia Research Ethics committee. Twelve hundred questionnaires were distributed among hospital staff at the Hospital Universiti Kebangsaan (Kuala Lumpur, Malaysia) by the heads of different departments within the hospital in co-operation with the researchers requests. Of these 814 were returned to researchers representing a 67.8 percent response rate; this rate may be an under-estimate as it is not known if all staff received questionnaires from their heads of department. Of these 6 respondents were disqualified because they were mental health specialists and 153 because of some missing data leaving a sample of 654 with complete data for the main analysis. Included and excluded general hospital staff sub-samples did not differ on important characteristics (see below). One group of respondents considered the vignette with diabetes, N=298, and the other the vignette with mental illness, N= 356. The sample details are presented in the Results section.

**Vignettes**

**Please read the following description of Mr. X who suffers from mental illness.**

Mr. X is 24 years old and lives at home with his parents. He has had a few temporary jobs since leaving school. He is currently unemployed. Over the past six months, he has more or less stopped seeing his friends and spends most of his time in his room at home. He neglects to do chores at home and when his parents request this from him, he loses his temper easily. Even if he is alone in his room, his parents have often heard him arguing as if someone else is there. He has regular follow up in the psychiatric clinic and is taking psychotropic medications. He is admitted to your ward today complaining of pressure in the chest.
Please read the following description of Mr. X who suffers from diabetes mellitus.

Mr. Y is 24 years old and lives at home with his parents. He has suffered from diabetes for the last two years and his condition has not been under sufficient control for most of this period. After the onset of his illness, he has held only a few temporary jobs. He is presently unemployed. He has progressively lost his self-confidence and has tended to stay in his room at home and not do much around the house. His parents say that his temper has been increasingly bad over the last three months. Nevertheless, he remains in contact with a few friends but has tended not to go out as much as he used to. He attends his out-patient clinic appointment for his diabetes problem regularly and is on medications for the condition. He is admitted to your ward today complaining of pressure in the chest.

Measures

General stigma towards those with mental illness was measured by five items reflecting level of agreement on a five-point response scale (strongly disagree, disagree, not sure, agree, strongly agree). Items are indicated in the Results Section (Table 2). Items were derived and adapted from other questionnaires (e.g., Opinions about Mental Illness [40]) and covering themes of social distancing, devaluation and dangerousness perceptions. Preliminary principal components analysis in the present sample identified only a single factor underlying the variation in the original set of seven items. Two items were subsequently removed to improve the internal consistency of the scale resulting in an alpha coefficient of .65.

Attitudes were measured by first asking respondents to read a brief vignette of the patient’s pre-admission condition (over the past 6 months). For each vignette the ‘diagnosis’ (‘mental illness’ or ‘diabetes mellitus’) was clearly provided in the instruction set and for each. Importantly, the reason given for admission to hospital was the same for both the diabetes and mental illness cases: “He is admitted to your ward today complaining of pressure in the chest.” Other data between vignettes were made as compatible as possible, including self-isolation, argumentativeness/bad temper and regularity of treatment for the background condition. For each vignette respondents were given 20 items, selected from preliminary work at our centre suggesting that these items were effective in discriminating between mental illness and diabetes [41]. Responses were on a five-point scale (strongly agree, agree, not sure, disagree, strongly disagree). Principal components analysis in the present sample was conducted (with oblique axes rotation to help interpretation) to reduce redundancies and to develop subscales. Five factors were initially identified (eigenvalues >1.0) of which the first three most directly related to care practices and attitudes, a fourth captured expected patient stereotyped behaviour (e.g., aggression, demanding) and the fifth was defined by a sole item. A scree test suggested three or
four factors could be retained and so a four-factor solution was refined, leaving out three items that had low communality. The final four-factor solution accounted for 50.51 percent of the variation in items and each factor (and no other) had an eigenvalue greater than one. Simple structure was evident with only two items having a non-dominant cross-loading as high as .36 on other factors.

The first factor was labelled Care and Support (items included: “I would take care, more than usual, to ask Mr Z about his state of health.”; “More than usual I would ask Mr. Z. if he would like to discuss any problems or concerns he is having about his stay in the hospital.”). The resulting final six-item scale had an alpha coefficient of .79. The second factor was labelled Avoidance (items included: “I would be a little reluctant to work together with Mr Z to develop the care plan”; “Compared with other patients, I would avoid confronting Mr Z if he did something against the rules of the ward.”). The resulting five-item scale had an alpha coefficient of .66. The third factor was labelled ‘Mistrust’ and although originally composed of three items it was reduced to two to improve reliability (alpha= .65). The items were: “I would not trust the opinion of Mr Z in making treatment decisions.” and “I would have some doubt that Mr Z could contribute significantly to his management plan.” – which refer to mistrust in the patient’s judgements about treatment and care. The fourth factor was composed of three items reflecting expectations of patient behaviour in the ward and included expectations that the patient will be aggressive and demanding, and that the patient’s complaint (i.e., felt pressure in the chest) is likely to be ‘psychogenic’ (implying less legitimacy). The factor was labelled Negative Stereotypes. As a scale, its reliability was low to moderate (alpha= .48) given its low number of items. Overall, five attitude items were removed from further formal analysis, and in any case, additional analysis revealed that these were non-discriminating of the two groups.

Other measures included the respondent’s age (years), sex, ethnicity (Malay, Indian, Chinese, Other), discipline background (aggregated into the categories of Medical, Paramedical and Nursing), time in professional employment since first qualified (months), time in mental health training (weeks), time employed in a mental health setting (weeks).

Design and analyses

Scale construction, as indicated above, used all available data. For the main analysis, initial inspection of the data indicated a small group (n=6) were specialists in mental health and they were removed from further analysis. In the remaining, for 19.0 percent (n=153) there was
missing data on one or more of the variables; this was unsystematic but reduced the analysis sample to 654. The potential biasing of the sample was therefore assessed by comparing the 153 respondents from the left-out group where responses were not missing with the 654 included sample across all variables (background, exposure types, general stigma, response distributions within the general stigma measure, attitudes and which patient type was rated). Using t-tests or chi-square statistics no significant differences were found for any of the variables between the left-out and included groups at the .05 level. Additionally, univariate comparisons conducted for all those responding to a particular variate led to the same result. We conclude that the sample remaining for the main analysis is not a biased subgroup on these variables.

The main comparison of the two groups (those responding to the diabetes vignette, n=298, and those to the mental illness vignette, n=356) was by use of multivariate analysis of variance with follow-up univariate tests. This was supplemented by multivariate analysis of covariance and related univariate tests, taking into consideration any possible differences between groups due to background, exposure and general stigma variables, as well as exploring the influence of such variables on the main outcome variables. Multiple linear regression analyses within each group were conducted to explore the relative influences of background, exposure and general stigma variables on attitude ratings.

Results

Sample Characteristics

Table 1 shows comparisons between the two groups on background, exposure and general stigma scores. Chi-square analyses revealed no differences in categorical variables (sex, ethnicity, discipline background between groups). For the remaining variables, multivariate analysis of variance indicated no difference between groups overall (Wilk’s Lambda = .99, F(5, 648)= 1.37, ns) and univariate analyses indicated only slight (non-significant) trends for the diabetes group to have had received more mental health training (F(1, 652)= 3.04, p = .08) and to have worked longer within a mental health setting (F(1, 652)= 3.65, p = .06) than the mental illness group. Thus we conclude that the random allocation of vignettes resulted in reasonably equivalent groups with respect to their background composition and general stigma attitudes.

In general the majority of the sample was female, mostly of Malay ethnic background and nurses. The sample was generally young (mean=28.31, sd= 5.29) and with over 5 years work
experience as a health care professional (mean= 64.63 months, sd=54.29). However, only 22 percent of the sample had worked in a mental health setting and the mean mental health work experience within this group was 17.21 weeks (sd= 33.16), which is relatively substantial. On average the sample received 3.79 (sd= 9.78) weeks of training in mental health, with 54.7 percent stating to have received some training. The majority of these (97.5%) indicated that their training was at an undergraduate level. Mean scores on the general stigma measure indicated a slight tendency towards agreement on average (mean= 3.29, sd=.68), although, as we show next, there was substantial variation in agreement dependent on the items composing the general stigma scale.

Endorsement of general stigma

Given the lack of comparative data on the general stigma measure an appreciation of the degree of endorsement of this by the sample was sought by analysing level of agreement with the items composing the general stigma scale. Preliminary analyses comparing the two groups on their item responses indicated only one significant difference between groups in their ratings of the five items but further inspection of the distributions indicated that the difference did not emerge within the region of agreement with this statement (66.7% and 67.2% of the respective diabetes and mental illness groups’ responses were in the region of agreement). Thus in Table 2 we summarise results for the two groups combined. Items in Table 2 are ranked by the overall percent of the sample in agreement with the statement. Across all items it is evident that half of the sample agreed with the statements and clearly agreement ranged between a third to over 70 percent of the sample depending on the item. Cross-item variation was tested by mixed analysis of variance with repeated measures on items and including group as a between-subjects factor. Given that the sphericity assumption was not met the multivariate outcome is reported which indicated a significant variation in responses across items (Wilk’s Lambda=.219, F(4,627)= 560.41, p < .0005). Groups did not differ in ratings nor was the item by group interaction significant. Pair-wise comparisons using repeated measures t-tests among items revealed significant differences among all items (p< .05) and after Bonferroni adjustment (alpha= .005) between all except items 2 and 3 (Table 2). Items implicating direct exposure to the danger ascribed to the mentally ill (items 4 and 5) attracted the highest agreement. Qualitatively, percent agreement appears high among these health professionals.

Comparisons of attitudes
Table 3 summarises findings in relation to attitudes, including statistical outcomes in conducting comparisons between raw measures (by analysis of variance) and residualised scores (by analysis of covariance). First, multivariate analysis of variance indicated a significant difference between groups (Wilks Lambda= .95, F(4, 649)= 8.83, p < .005). Univariate follow-up tests as indicated in Table 3 show that Care and Support scores were significantly lower for ratings of mental illness relative to diabetes and significantly higher Avoidance and Negative Stereotypes scores for the former group. No differences were evident in Distrust scores. Analysis was repeated using as covariates background factors (age, sex, total work experience), exposure factors (amount of mental health training and amount of work experience in a mental health setting) and general stigma scores. Results were the same as before in indicating lower Care and Support and higher Avoidance and Negative Stereotypes endorsed for the mental illness than diabetes case. Importantly several covariate effects were significant (Table 3 notes) including for Care and Support the factors of general stigma, discipline and gender. Care and Support scores increased with higher (!) endorsement of stigma, being a nurse than another professional type and for females than males. For Avoidance scores significant covariate effects included general stigma and professional discipline (in this case not being a nurse was related to higher Avoidance scores). Mistrust scores, though not differentiated between groups, were also influenced by covariates, but primarily general stigma (the effect of amount of mental health work very small). Negative Stereotype expectations were endorsed more by those with higher endorsement of general stigma and by nurses than others. In general, of most interest, it does appear that general stigma is related to attitudes but when this is held constant across groups those rating the case of mental illness endorsed lower Care and Support and higher Avoidance and Negative Stereotype expectations of the patient than those rating the diabetes case.

It should be kept in mind that the overall ratings for the three attitudes fall in the region of agreement in relation to Care and Support (mean= 3.48, sd= .70) and disagreement with Avoidance (mean= 2.58, sd= .58) and Mistrust (mean= 2.93, sd= .84), as might be expected from such a sample. Unexpectedly, Negative Stereotypes tended to be agreed with for both patient types, perhaps reflecting the specific vignette content highlighting aggressiveness/bad temper in these patients (mean= 3.32, sd= .63).

Factors related to attitudes
Multiple regression analyses were conducted to explore the unique predictors of attitudes within each of the groups rating the two vignettes respectively. The main interest was to explore if general stigma was associated with attitudes when controlling for other factors. Although the covariance analysis suggests this is the case, the following regression analyses serve to indicate if this relationship is restricted to the case of mental illness ratings, according to expectations. Results are summarised in Table 4, showing the zero order correlation between attitudes and predictor variables along with beta coefficients and their associated t-values. First, it is clear from inspection of Table 4 that general stigma is associated with attitudes, while holding other factors constant. For the mental illness group (upper panel) higher general stigma endorsement is associated with higher scores on all attitude scales, including Care and Support. More surprising is that the same findings pertained to those rating the diabetes case, suggesting that the measurement of attitudes towards mental illness in general may be tapping into a more general construct of attitudes towards people with any illness.

In an attempt to gain some insight into the nature of those endorsing general stigma to different degrees a regression analysis was conducted exploring the predictors (as listed in Table 4) of general stigma scores from other available factors in the overall sample. The model was significant although it explained a low proportion of the variance in general stigma scores (F(7, 647)= 6.06, p < .001, Adjusted $R^2 = .044$). The only predictor of general stigma was professional discipline (Beta= .22, t= 4.68, p< .0005), showing higher endorsement among nurses relative to other professional groups.

**Discussion**

The present study demonstrated several important results and raises further questions in need of research. Using a between groups design with random allocation of the vignettes was considered important in eradicating any possibility of comparative ratings between vignettes by subjects, which could result in a conflation of ratings of attitudes. It is possible, that subjects given an opportunity for comparing vignettes may have responded in a similar way regarding their practice approaches because it may be socially undesirable to be seen to treat patients differently because of mental illness. Just as important was the examination of whether the main analysis sample was a biased sub-sample of all those responding to the survey on key background factors, including demographic, exposure to mental illness (through training and work) and in their ratings of social distancing of the mentally ill in general. This was not the case and we are confident that results from the sample included in the analysis pertain to the
overall responding group, and given the high response rate to the survey, perhaps to the overall hospital workforce. Of primary importance was also the demonstration that the random allocation of vignettes effectively resulted in two equivalent groups with respect to these background factors in order to test the hypothesis of differential attitudes between the two vignettes. Results indicated that the two vignettes attracted different mean ratings on attitudes, particularly, lower Care and Support and higher Avoidance and Negative Stereotype expectations pertained to the mental illness than the diabetes vignette. It is noteworthy that such results were found in the context of defining the primary complaint and reason for hospital admission to be a somatic problem (chest complaint) for both vignettes. That is, attitude differences emerged as a function of the background knowledge of the patient’s diagnosis in the treatment of a somatic complaint rather than having to treat mental illness or diabetes specifically.

Despite showing that equivalent groups differed in their attitude ratings statistical control was exercised for the possibility of differences in attitudes arising due to the influence of background factors. For example, non-significant trends were evident for the diabetes group to have had more training and workplace experience with regards to mental illness. These analyses confirmed that such background factors were not responsible for the different ratings on attitudes between groups. In addition these analyses suggested that general stigma, controlling for other variables, was associated with attitude ratings, leading to higher endorsement of all attitude subscales. While Avoidance and Negative Stereotyping may be logically expected to be related to general stigma towards the mentally ill, as reflected in the social distancing measure, it is perhaps more surprising that Care and Support ratings were positively associated with general stigma endorsement. It may be that those with higher endorsement of general stigma had higher expectations of deficit for the mental illness case because the social distancing measure also captures perceptions of incapability in the mentally ill.

In our regression analyses we questioned whether the relationship between general stigma and attitudes was limited to the mental illness case with the expectation of no systematic association between these in the diabetes case. Most surprising was that the relationship held true for the diabetes as well as the mental illness vignette. We have no explanation for this effect other than the measure of general stigma may tap into a more general factor related to hospital staffs’ attitudes towards people with any illness. An attempt to explore the variance explained in general stigma ratings from the limited demographic and exposure factors proved to be of limited worth with only a small proportion of the variance explained by discipline background
of the respondent. Further research is needed to explore why health professionals endorsing higher rather than lower social distancing of the mentally ill, specifically, are also more likely to endorse higher care and support, higher avoidance, higher negative stereotype expectations, and indeed higher mistrust of patients with a somatic problem.

What is also obvious in the present findings is the fact that amount of mental health work experience and amount of mental health training of participants were not associated with variations in general stigma or attitude ratings. The lack of effect of training level could be due to when such training occurred - most of those with mental health training received this at an undergraduate level, which may be insufficient to produce changes in attitudes towards the mentally ill or in influencing attitudes. On the other hand the moderation of attitudes towards the mentally ill, by theory, is more specifically related to familiarization through direct exposure [42]. Thus the finding that amount work within a mental health setting was not related attitudes towards the mentally ill or to their practice orientations more directly contradicts the contact hypothesis [see also, 19]. It is notable that this lack of effect of exposure cannot be attributed to a restriction of variance on the mental health work experience variable since, as indicated, 22 percent of the sample had worked in a mental health setting with an average of 17 weeks duration and with wide variation in this exposure (sd=33 weeks) for this subgroup. Indeed the average level of exposure in this group is more than sufficient to have had substantial familiarity with people having a mental illness. It may also be important that a negative relationship was not observed between experience and the dependent variables, as it is possible that exposure to negative experiences with those having mental illness (e.g., episodes of aggression, poor judgement, etc.) may have served to affirm negative attitudes towards the mentally ill [e.g., 43] and thereby influencing attitudes. It may be therefore important to understand more directly the qualitative aspects of such exposure in mental health settings [e.g., 43, 44] in the Malaysian context and how these may be related to attitudes and attitudes towards the mentally ill.

Results also indicated that professional discipline was related reliably to ratings of general stigma as well as to attitudes. Nurses compared with medical and paramedical staff endorsed higher levels of social distancing of the mentally ill in general and they endorsed higher Care and Support, lower Avoidance and higher Negative Stereotype expectations in relation to patients. The reason why nurses endorsed higher general stigma than others is open to speculation. Differences may be a function of personal opportunity and predilection in career choice, training, clinical exposures or clinical roles adopted by the different disciplines in the
Malaysian setting. Further comparative research is needed, first, to confirm the discipline effect given that our non-nursing sub-sample was small and therefore subject to possible biases of self-selection to responding to the survey, and second, to elucidate factors that may have led to different attitudes towards the mentally ill between disciplines.

Turning to the discipline differences in relation to attitudes, the regression analyses clarified that higher Care and Support ratings by nurses than others were replicated across mental illness and diabetes vignettes. This may have to do with the intensity of contact with patients in general afforded by the nursing role and opportunities for care and support behaviours captured by the measure we used. Perhaps role compatibility of the items in our measure may have played a role. Most items highlight an interactive, social care dimension in treatment (e.g., supporting the patient in self-care, supporting families, influencing the family to support the patient, resolving issues about patient comfort during the admission) that may be more compatible with the nursing role than with the roles of medical and paramedical staff. The regression analyses however also indicated that lower Avoidance, higher Negative Stereotype expectations were endorsed by nurses more than others in the mental illness case but not in the diabetes case. This was unrelated to general stigma as this was controlled for statistically. It may be thought that lower Avoidance within the nursing group may because of their higher Care and Support towards the case with mental illness. However, through post-hoc inquiry, these two scales within the nursing group were positively correlated (r (316)=.19, p < .01) – that is, nurses who endorsed higher Care and Support also endorsed more Avoidance. This was different for medical and paramedic group where higher Care and Support was negatively correlated with Avoidance (r (40)=-.41, p < .01) regarding the mental illness vignette. It would appear that nurses express a more ambivalent role towards the mental illness vignette combining apparently conflicting orientations of need to provide more intensive care (than usual) and greater reluctance to engage with the patient [see also, 45], compared with other health professionals. The latter appear to position themselves more firmly along a Care and Support versus Avoidance dimension. It remains unclear why nurses endorsed less Avoidance, other than being forced into the situation of providing care by virtue of their more intensive and continuing contact with the patient, and higher Negative Stereotype expectations than other professionals in this setting.

Finally, the study seems to be the only one measuring social distancing of the mentally ill in a Malaysian general health care staff. We expressed that the level of agreement with items
measuring this factor impress as high. In the absence of comparable data in the literature (particularly Malaysian public or mental health professional data as reference points, and especially using the same measure) it is difficult to defend this. In a study of attitudes among Malaysian medical students using the attitudes towards the Mental Ill scale [16] low proportions of students agreed with stigmatising attitudes. In an item similar to the one used here, that a mentally ill patient should not be given a job with high responsibility, only 11 percent agreed with this before their psychiatry training and 15 percent after the training (compared with 47% presently). In our current study in Melbourne [46] using the same general stigma scale as here we compared Anglo-Australian and Chinese background nurses working either in general health or in mental health. In that work 42.8 percent of Chinese nurses on average agreed with the items on the scale compared with 15.1 percent of Anglo-Australian nurses, suggesting powerful cultural differences. Less mental health nurses agreed than general nurses (20.8% versus 37.0%) indicating effects of specialization. More pertinent to the present study was that among general nurses 55.5 percent of the Chinese agreed with the general stigma items, comparable to the rate seen in the present sample (51.1%, Table 2) while only 15.1 percent of Anglo-Australians did so. (The comparable figures among mental health nurses were 30.0 and 11.6 percent). Thus while the qualitative impression is that the rate is high among the present sample in endorsing general stigma items the cultural context of such ratings must be considered in judging the magnitude of stigmatisation [9].

Conclusions

The present study suggests that knowledge of the diagnosis of mental illness may affect health care practices and attitudes among general hospital staff towards treating such patients for a general somatic complaint. However, this conclusion is made with the following cautions. In this study we measured attitudes which are statements of intended actions or self-predictions of behaviours in relation to the cases, not their actual behaviours of staff in relation to real patients, which may be substantially moderated by situational factors. Second, though a common method in the study of stigma, we used vignettes to present the cases, which may be highly artificial given that only a limited amount of information about the patient can be presented in such a mode and this may not simulate a face-to-face interaction with a real patient. Third, we presented a single vignette to each group and this could introduce unexpected idiosyncratic reactions to the cases. A methodology is required to answer more directly the issue of differential care towards the mentally ill most probably based on multiple case interactions by staff and patients and most probably combining direct observational methods and subjective
accounts of staff in relation to their attitudes towards the patient. Ellsworth’s (1965) method and qualitative accounts of patient dissatisfactions with staff behaviours towards them [34-36] are not entirely unproblematic given that patient perceptions of staff behaviours may be confounded by milieu effects or models of practice adopted within different health care settings.

The second major finding in the present study is that attitudes do seem to be influenced by more general attitudinal dimensions regarding mental illness. Higher endorsement of general stigma was related to higher Care and Support, higher Avoidance and higher Negative Stereotype expectations in relation to the ward behaviour of the mental illness case. However, we unexpectedly found that negative attitudes towards the mentally ill, per se, were equally related with attitudes the diabetes case. We proposed that the measure of general stigma may tap into a broader dimension of attitudes towards people with illness, although it is not clear to us what this dimension may be, nor is its relationship to stigma, or whether this observation is peculiar to the Malaysian sample.

The third major result was that mental health workplace experience did not influence attitudes or social distancing in relation to mental illness. While training influences could readily be dispelled because most received mental health training during their undergraduate education, the lack of effect of workplace experience directly contradicts the contact hypothesis in moderating, especially, attitudes towards the mentally ill in general. There is a need to understand the quality of contact with those having a mental illness in the Malaysian setting to further elucidate the reasons for a lack of relationship between exposure and attitudes.

**Competing interests**

The authors declare no competing interests.

**Authors’ contributions**

All authors were involved in the conceptualization and design of the study. HM and the late Steven Klimidis constructed the survey questionnaire. Data collection was coordinated by RZZ and MM. Data analysis and interpretation was carried out by Steven Klimidis and HM. The draft manuscript was written by Steven Klimidis and HM. All authors contributed to the writing of, and approved, the final version of the manuscript.
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Tables

Table 1 - Background and exposure characteristics for the two groups.

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<th>Diabetes Group (N= 298)</th>
<th>Mental Illness Group (N=356)</th>
<th>Statistical outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Females %</strong></td>
<td>96.0</td>
<td>95.8</td>
<td>c(1)^2=.01 ns</td>
</tr>
<tr>
<td><strong>Ethnic Group %</strong></td>
<td></td>
<td></td>
<td>c(3)^2=1.37 ns</td>
</tr>
<tr>
<td>Malay</td>
<td>91.2</td>
<td>89.2</td>
<td></td>
</tr>
<tr>
<td>Chinese</td>
<td>3.0</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Indian</td>
<td>3.7</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>2.0</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td><strong>Discipline %</strong></td>
<td></td>
<td></td>
<td>c(2)^2=5.78 ns</td>
</tr>
<tr>
<td>Medical</td>
<td>7.4</td>
<td>5.1</td>
<td></td>
</tr>
<tr>
<td>Paramedical</td>
<td>2.7</td>
<td>6.2</td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td>89.9</td>
<td>88.8</td>
<td></td>
</tr>
<tr>
<td><strong>Age, mean (sd)</strong></td>
<td>28.63 (5.35)</td>
<td>28.04 (5.24)</td>
<td>F(1, 652)=1.99 ns</td>
</tr>
<tr>
<td><strong>Work experience, months, mean (sd)</strong></td>
<td>67.02 (53.11)</td>
<td>62.29 (54.86)</td>
<td>F(1, 652) =1.29 ns</td>
</tr>
<tr>
<td><em><em>MH</em> training, weeks, mean (sd)</em>*</td>
<td>4.06 (13.50)</td>
<td>2.73 (4.77)</td>
<td>F(1, 652) =3.04 ns</td>
</tr>
<tr>
<td><em><em>MH</em> work, weeks, mean (sd)</em>*</td>
<td>5.18 (22.94)</td>
<td>2.62 (9.78)</td>
<td>F(1, 652) =3.65 ns</td>
</tr>
<tr>
<td><strong>General Stigma Score, mean (sd)</strong></td>
<td>3.28 (.67)</td>
<td>3.29 (.69)</td>
<td>F(1, 652) =.02 ns</td>
</tr>
</tbody>
</table>

*MH= mental health; ns= not significant (also, these results were confirmed with t-tests under unequal variances assumptions)
Table 2 - Percent agreeing with items measuring general stigma.

<table>
<thead>
<tr>
<th>Item</th>
<th>% Agree</th>
<th>% Strongly Agree</th>
<th>% Overall Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A woman would be foolish to marry a man who has had a severe mental illness, even though he seems to be fully recovered.</td>
<td>25.9</td>
<td>7.7</td>
<td>33.6</td>
</tr>
<tr>
<td>2. It is frightening to think of people with mental problems living in your own neighbourhood.</td>
<td>32.4</td>
<td>4.0</td>
<td>36.4</td>
</tr>
<tr>
<td>3. Someone with a history of mental illness should not be given a job of high responsibility.</td>
<td>41.3</td>
<td>6.0</td>
<td>47.3</td>
</tr>
<tr>
<td>4. Although some mental patients seem all right, it is dangerous to forget for a moment that they are mentally-ill.</td>
<td>59.4</td>
<td>7.5</td>
<td>67.1</td>
</tr>
<tr>
<td>5. A woman who has had a history of mental illness should not be hired as a babysitter.</td>
<td>52.4</td>
<td>19.0</td>
<td>71.4</td>
</tr>
<tr>
<td>Mean</td>
<td>42.3</td>
<td>8.8</td>
<td>51.1</td>
</tr>
</tbody>
</table>
Table 3 - Group comparisons on attitude measures

<table>
<thead>
<tr>
<th>Scale</th>
<th>Diabetes Group (N= 298)</th>
<th>Mental Illness Group (N=356)</th>
<th>ANOVA F</th>
<th>ANCOVA F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care &amp; Support</td>
<td>3.56 (.68)</td>
<td>3.41 (.71)</td>
<td>7.86 (p&lt;.01)</td>
<td>6.63 (p&lt;.05)</td>
</tr>
<tr>
<td>Avoidance</td>
<td>2.50 (.59)</td>
<td>2.64 (.57)</td>
<td>8.59 (p&lt;.01)</td>
<td>7.58 (p&lt;.01)</td>
</tr>
<tr>
<td>Mistrust</td>
<td>2.88 (.85)</td>
<td>2.98 (.82)</td>
<td>2.03 ns</td>
<td>2.60 ns</td>
</tr>
<tr>
<td>Negative Stereotypes</td>
<td>3.23 (.66)</td>
<td>3.39 (.60)</td>
<td>10.04 (p&lt;.01)</td>
<td>10.29 (p&lt; .01)</td>
</tr>
</tbody>
</table>

ns= not significant;

**Significant covariate effects and direction of effects:**
Care & Support: higher general stigma (F(1, 645)=15.08, p<.0005); is a nurse (F(1, 645)=68.89, p<.0005); is female (F(1, 645)=4.70, p<.05);
Avoidance: higher general stigma (F(1, 645)=35.09, p<.0005); is a not a nurse (F(1, 645)=22.59, p<.0005);
Mistrust: higher general stigma (F(1, 645)=32.58, p<.0005); more MH work experience (F(1, 645)=4.01, p=.046)
Negative Stereotypes: higher general stigma (F(1, 645)=36.47, p<.0005); is a nurse (F(1, 645)=15.15, p<.0005).
Table 4 - Results of regression analyses examining background and general stigma as predictors of attitudes

<table>
<thead>
<tr>
<th></th>
<th>Care &amp; Support</th>
<th>Avoidance</th>
<th>Mistrust</th>
<th>Negative Stereotypes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>Beta</td>
<td>t-value</td>
<td>r</td>
</tr>
<tr>
<td>Gen stigma</td>
<td>.19***</td>
<td>.10</td>
<td>2.02*</td>
<td>.19</td>
</tr>
<tr>
<td>Sex</td>
<td>.10</td>
<td>-.12</td>
<td>2.09*</td>
<td>-.03</td>
</tr>
<tr>
<td>MH work</td>
<td>-.06</td>
<td>-.01</td>
<td>&lt;1</td>
<td>.00</td>
</tr>
<tr>
<td>MH training</td>
<td>-.03</td>
<td>.02</td>
<td>&lt;1</td>
<td>-.05</td>
</tr>
<tr>
<td>Age</td>
<td>.02</td>
<td>.22</td>
<td>1.82</td>
<td>.03</td>
</tr>
<tr>
<td>Work experience</td>
<td>.01</td>
<td>-.11</td>
<td>&lt;1</td>
<td>.03</td>
</tr>
<tr>
<td>Discipline</td>
<td>.38***</td>
<td>.45</td>
<td>7.55***</td>
<td>-.22***</td>
</tr>
<tr>
<td><strong>Model F</strong></td>
<td>10.78***</td>
<td></td>
<td>5.30***</td>
<td></td>
</tr>
<tr>
<td><strong>Adj R²</strong></td>
<td>.162</td>
<td></td>
<td>.078</td>
<td></td>
</tr>
</tbody>
</table>

Mental Illness Vignette Group

<table>
<thead>
<tr>
<th></th>
<th>Diabetes Vignette Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
</tr>
<tr>
<td>Gen stigma</td>
<td>.24***</td>
</tr>
<tr>
<td>Sex</td>
<td>.10</td>
</tr>
<tr>
<td>MH work</td>
<td>.03</td>
</tr>
<tr>
<td>MH training</td>
<td>.05</td>
</tr>
<tr>
<td>Age</td>
<td>-.05</td>
</tr>
<tr>
<td>Work experience</td>
<td>-.01</td>
</tr>
<tr>
<td>Discipline</td>
<td>.26***</td>
</tr>
<tr>
<td><strong>Model F</strong></td>
<td>5.71***</td>
</tr>
<tr>
<td><strong>Adj R²</strong></td>
<td>.100</td>
</tr>
</tbody>
</table>

*p<.05; **p<.01; ***p<.001; r=zero order correlation