Abstract

Many studies have investigated university students' attitudes to people with mental disorder (PMD) but most have used medical student participants. No Scottish studies were found on this topic where students of a broad range of subjects had participated. A mixed methods research design was employed where the topic was qualitatively explored (n=10) prior to quantification of perspectives via questionnaire use (n=642). Only 10.3% of questionnaire respondents agreed that PMD tended to be more violent than others and only 3.7% believed keeping PMD in psychiatric hospitals made the campus safer. Over 94% disagreed that PMD caused their problems, but 20.3% disagreed that PMD often got better with treatment. Almost 4% reported unwillingness to work on a class project with PMD. Science students were significantly more likely than arts students to view PMD as: violent, unpredictable, blameworthy for their condition, people who should be kept away from campus, causing them to feel unsafe. International students were more likely to 'strongly agree' than European Union (EU) students that PMD should be kept off the campus. EU students were more willing to work on a class project with PMD than international students were. Postgraduate students exhibited several more negative attitudes than undergraduates; being more likely to see PMD as violent and less likely to work on a class project with PMD. The need for mental disorder stigma related education among students at Scottish universities should be assessed.

Keywords

mental disorder stigma, university students, Scotland.

Introduction

Mental disorder, characterised by clinical disturbance in cognition, emotion, or behaviour, results in an impairment in psychological, biological or developmental processes (American Psychiatric Association, 2013). Affecting more than 25% of all people at some point in their lives, there is increasing awareness of mental disorder as a public health concern (World Health Organization, 2001). From 2003 to 2013, mental disorder constituted the largest category of UK National Health Service (NHS) disease expenditure (Nuffield trust, 2015). In Scotland, from 2012-2013, nearly one in ten (9%) adults had two or more symptoms of depression or anxiety (The Scottish Government, 2014). Negative attitudes toward PMD are assigned to stigma (Mas and Hatim, 2002). This study will assess stigma by focusing on negative attitudes expressed by participants, acknowledging that there may be some likelihood that students who exhibit negative attitudes will prejudge PMD and discriminate against them (Mas and Hatim, 2002; Thornicroft, 2006). Universities offer a learning environment where progressive attitudes

towards PMD may be acquired, with much potential to influence future societal beliefs (Mahto, e*t al.,* 2009). Understanding attitudes towards PMD is a step in addressing prejudice and discrimination towards members of this group (Vijayalakshmi, Reddy *et al.,* 2013).

Five databases were searched - CINAHL (EBSCOhost), EMBASE, PsycINFO (EBSCOhost), Medline (Ovid) and Web of Science – and 18,414 papers identified, of which 39 were included. In addition, three websites were searched that identified eight policies and reports: Scottish Government; World Health Organisation (WHO); and that of the university where the study took place. The reference lists of retrieved articles identified a further five studies. Quantitative and qualitative studies that measured college or university students' (undergraduate and postgraduate) mental disorder related attitudes, or stigma, or prejudice, or discrimination as primary outcomes and were written in English were included. Articles published from 1992 to 2016 were used. Studies that focused on populations other than students, those that did not measure mental disorder stigma or prejudice or discrimination as a primary outcome, and studies not written in English and those published before 1992 were excluded.

Stigma towards PMD has been highlighted at university college level among a representative sample of 404 Indian medical students (Aruna, *et al.,* 2016). While only 40.9% felt comfortable talking to PMD, the majority (73%) believed mental disorder to be treatable. Similarly, 62% of a relatively similar sample of 496 New Zealand psychology students expressed reservations about living next door to PMD, and 72% were concerned about becoming romantically involved with a PMD. Some 75% perceived PMD as unpredictable and 41% as dangerous (Read and Harré, 2001). Unpredictability may have underpinned their negative attitudes resulting in feelings of discomfort around PMD. The coexistence of negative attitudes and beliefs in the treatability of mental disorder may reflect their low expectations of treatment outcome.

Three studies that used non-healthcare student professionals revealed negative attitudes to PMD. Two of them (Mann and Himelein, 2004; Day *et al.,* 2007) used arts college student participants and found negative attitudes to schizophrenia (mean=17.4, SD=4.3) and positive attitudes to depression (mean=19.87, SD=4.51). The Mann and Himelein (2004) participants viewed depression as the most visible of mental disorders, which may have resulted from personal encounters with depression and probable media exposure on this disorder.

Two studies (Chung *et al.,* 2001; Vijayalakshmi *et al.,* 2013) compared attitudes of student healthcare and student non-healthcare professionals towards mental disorder, and

findings suggested that the student healthcare professionals had the more positive attitudes. More positive attitudes towards PMD may arise from increased personal contact. Vijayalakshmi *et al.* (2013) found – with a sample of 148 nursing and 120 business management students - that nursing students had significantly ($p<0.001$) more contact with PMD than business management students.

Aim and Objectives

The study aimed to assess and compare the attitudes of undergraduate and postgraduate students toward PMD in one Scottish University. The study sought to identify any differences in mental disorder stigma related attitudes between students studying arts subjects and those studying science subjects, at the undergraduate and the postgraduate level, from the EU and from elsewhere. It also attempted to identify any differences in students' attitudes towards sufferers of schizophrenia, depression, generalised anxiety.

Materials and methods

A mixed methods research design was employed to examine students' attitudes towards PMD and to people with schizophrenia, depression, and generalised anxiety disorder (GAD). The study sampled students from two organisational units of one Scottish university; one offered arts degree programmes and the other offered science degree programmes. An exploratory sequential mixed methods design (Creswell and Clark 2007), was used to combine elements of qualitative and quantitative approaches.

Semi-structured interviews were conducted, enabling participants to provide a vivid description of their own opinions (Padgett 2011). Convenience sampling was used for this and participants were drawn from one social science masters' programme offered and two Africans and one Asian student participated from the 10 students invited. Recordings were transcribed by IF and thematic analysis employed in the analysis (Braun and Clarke 2006). Ethical approval for this study was obtained from a Scottish university research ethics committee.

Interviews were conducted to gather opinions of students to inform development of the questionnaire. The interview themes (unpredictability, violence tendency, not blameworthy, treatment optimism, willing to have close relationships, dangerousness) that emerged were similar to the six questionnaire items adapted from previous work (Mukherjee et al., 2002; Vijayalakshmi et al., 2013; Lyons et al., 2015) and were incorporated here.

The questionnaire study included a large sample of students on science and arts degree programmes and power analysis indicated that 400 participants were required from each

group, to ensure that results could produce an 81% power to detect a small effect size of 0.20 at the 0.05 significance level.

The study employed an online questionnaire using the Google Form system (Google 2016). Fourteen students returned a completed questionnaire for the pilot study and thereafter students of both groups received an invitation email that included the questionnaire hyperlink. One follow-up reminder was sent a week after the initial invitation. Personal information was not collected and all information collected remained anonymous.

The questionnaire was comprised of five sections. The first section collected demographic information and the second addressed attitudes to PMD using a five point Likert scale (Table 1).

Table 1: Online questionnaire attitude items

No.	Statement
1	I would feel more safe around people with mental disorder than people without mental disorder
2	People with mental disorder tend to be more violent than people without mental disorder
3	Keeping people with mental disorder in the psychiatric hospital makes the campus safer
4	It is more easy for me to make friends with people with mental disorder than people without mental disorder
5	People with mental disorder have caused their problems by themselves
6	People with mental disorder often get better with treatment
7	I would be willing to work on a class project with someone with mental disorder
8	People with mental disorder exhibit more unpredictable behaviour than people without mental disorder

Statistical Analysis

Likert items were coded from one to five, with one=strongly agree, two=agree, three=neutral, four=disagree and five=strongly disagree and data analysed using Excel and STATA version 12. Positive and negative statements were used to avoid response set. Data was seen as ordinal hence measures of central tendency and variability were used (Sullivan and Artino, 2013). The non-parametric Mann Whitney U Test and Friedman's analysis of variance (ANOVA) were employed to determine differences in attitudes to disorders (Siegel and Castellan, 1988). Follow up tests, involving comparisons between pairs of group medians, were conducted for significant results (Green and Salkind, 2008; Campbell, *et al.,* 2010). The Wilcoxon signed rank test was used to examine unique pairs and a Bonferroni adjustment ($p<0.017$) used to control for multiple paired comparisons.

Results

Qualitative results

Qualitative findings were used to develop the study questionnaire. While six of the eight questionnaire items were established from the literature review (Vijayalakshmi *et al.,* 2013; Mukherjee *et al.,* 2002; Lyons *et al.,* 2015), two further questions relating to personal safety and PMD were developed from interview analysis. Qualitative results evidenced a degree of therapeutic optimism and acceptance of PMD in the classroom. PMD were not viewed as responsible for their condition and were seen as somewhat unpredictable with potential for violence. Verbatim quotations are presented to represent the qualitative data's six themes.

Participants were generally optimistic about treatment outcomes.

> *We had to [um] initiate treatment for her [PMD], full mental health treatment and after about six, seven months, yeah, she was quite stable and we got her back to work…she was taking her medication, and she was able to and she worked as a midwife, she was delivering children, babies.* Male 2

Students were clearly willing to develop close relationships with PMD with one viewing this as an aspect of human variability.

> *I don't see anything [um], that would make me be uncomfortable with a fellow student [PMD] who is able to sit in class, and be able to concentrate…* Male 2

> *I mean if the guy is very close with me I won't [stutters] mind because people have a lot of…variations…so it doesn't matter, I won't feel anything bad about it.* Male 1

Participants did not view PMD as responsible for their disorder.

> *It's natural…it's not something wrong with them, you know it's like it just happened to them…I don't think it's bad or something, I don't think so, it's just a bit condition.* Male 1

PMD were viewed as unpredictable and this related to the likelihood of undesirable behaviours.

> *That's the first reaction, be careful because, this person can do anything…so depending on their condition you would want to know how stable.* Male 2

Participants were clear about the dangerousness of PMD and potential for them to cause personal harm.

> *Certain mental illnesses are a danger to both themselves and to the people around them so I will not be 100% very comfortable…I [stutters] wouldn't leave a child with someone who will cut them and put them in a pot.* Male 2

Violence by PMD was anticipated and, a history of this – other than depression - predicted the need for extra caution in one participant.

> *Then I will first watch…I would be there but [um] observing everything they are doing…am I safe physically…if I know that this person has issues of being violent then I would be extra, extra, cautious but if it just like something like depression…which is not violent or would harm me physically.* Female 1

Quantitative results

Over the six weeks' data collection period, 642 responses were received, from all 11,062 students invited (response rate = 5.8%). The number of responses received in all categories was enough to detect a small effect size (0.30) at a power of ≥90% (Table 2).

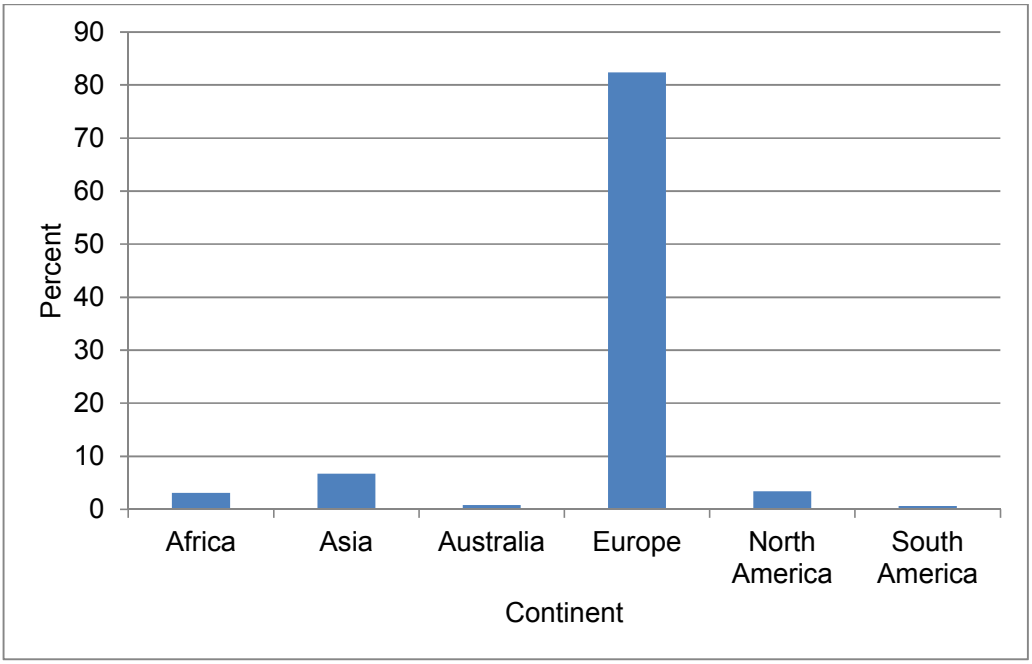
Table 2: Statistical power and response rates

Variable	No of students invited	No. of responses received	Response Rate (%)	Power
Arts subjects	4831	255	5.3	90%
Science subjects	6231	383	6.1	
Missing Data		4		
Undergraduate	8761	421	4.8	95%
Postgraduate	2291	221	9.6	
EU	9309	477	5.1	91%
International	1663	165	9.9	

Demographic characteristics

Of all respondents, 496 (77.26%), 136 (21.18%) and eight (1.25%) indicated their sex to be female, male and transgender respectively. The highest response (47.04%) was from the 20-24-year-olds. There were 477(74.30%) EU and 165(25.70%) international students, 421(65.58%) undergraduates and 221(34.42%) postgraduates, 383(59.66%) taking science degrees and 255(39.72%) taking arts degrees. Students from 53 nationalities completed the survey - with most from the UK (65.9%) - enabling data to be analysed by continent.

Figure 1: Home continent of participants



Opinions of students towards PMD

Some 5.5% of all participants agreed that they would feel 'more safe' around PMD than people without mental disorder and 9.8% agreed that, 'it is more easy for me to make friends with PMD than people without mental disorder'. Some 10.3% agreed that, 'PMD tend to be more violent than people without mental disorder' and 3.7% agreed that, 'keeping PMD in the psychiatric hospital makes the campus safer'. Almost all (94.6%) disagreed that, 'PMD have caused their problems by themselves'. Furthermore, 20.3% disagreed that, 'PMD often get better with treatment' with 3.7% disagreeing that they, 'would be willing to work on a class project with someone with mental disorder.'

Science students were significantly ($p<0.05$) more likely than arts students to view PMD as: violent, unpredictable, blameworthy for their condition, people who should be kept away from campus, and causing them to feel unsafe when around them. International students were significantly ($p<0.001$) more likely to 'strongly agree' than EU students, that PMD tend to be more violent than others and EU students were significantly ($p<0.001$) more willing to work on a class project with someone with mental disorder. In addition, EU

students (70.3%) were significantly (p=0.001) more likely than international students (29.7%) to agree that, 'PMD often get better with treatment'.

Postgraduate students exhibited significantly (<0.05) more negative attitudes than undergraduates, where they were: more likely (80%) to 'strongly agree' that, 'PMD tend to be violent' and more likely (64.7%) to 'disagree' that they would be willing to work on a class project with PMD.

In comparison to those with other diagnoses: People with GAD were considered significantly (p<0.001) 'more safe' to be with, those with a schizophrenia diagnosis were considered significantly (p<0.001) more violent and their hospitalisation was significantly (p<0.001) more likely to be seen to make the campus safer, people with depression were significantly (p<0.001) more likely to improve with treatment. Students were significantly (p<0.001) more likely to be willing to work on a class project with someone with depression, whilst people with schizophrenia were considered significantly more likely (p<0.001) to exhibit unpredictable behaviour.

Discussion

Differences in mental disorder stigma between arts and science students.

Science students reported significantly (<0.05) more negative attitudes towards PMD and this finding contradicts other studies comparing attitudes of clinical and non-clinical students (Totic, *et al.,* 2011; Vijayalakshmi *et al.,* 2013). This may reflect the limitations of science's work in modelling the world and arts subjects' closer linkage to the social world. Of those agreeing that, 'PMD tend to be violent', significantly more (69.7%) were science students and, given nursing's scientific underpinning, this is slightly at odds with the Vijayalakshmi et al. (2013) finding that business students were more likely to view PMD as potentially violent than nursing students.

Differences in mental disorder stigma between undergraduate and postgraduate students.

Little work has been done in this area, so results here were compared to studies that assessed medical and pharmacy students' attitudes across all years of study. Postgraduates exhibited significantly (<0.05) more negative attitudes, and were: more likely (80%) to 'strongly agree' that, 'PMD tend to be violent'; and more likely (64.7%) to 'disagree' that, they would be willing to work on a class project with PMD. This suggests that increasing academic knowledge and personal maturation is not necessarily associated with a more positive view of PMD. The less positive view may be linked to normative attitudes acquired through postgraduate life experience but the higher

proportion (2:1) of undergraduate respondents may have biased results if those holding more positive results were more likely to respond.

Differences in mental disorder stigma between EU and international students.

EU students were more likely (75.5%) ($p=0.001$) than international students (24.5%) to disagree that, 'PMD have caused their problems by themselves' and this may suggest a more sympathetic approach. EU students (70.3%) were significantly ($p=0.001$) more likely to agree that the health of PMD improves with treatment. The welfare systems of EU countries may be more developed, offering more hope to sufferers and this may be important here. The slightly more positive attitudes found among EU students is consistent with Masuda et al. (2009) where international students exhibited greater stigma toward PMD than their US counterparts. Some international students here reported belief in external explanations for mental disorder aetiology, belief in influence of evil spirits for example, and this may underpin attribution of blame to PMD and less optimistic treatment expectations. EU students' greater optimism about working on class projects ($p<0.001$) with PMD may owe something to better treatment options, more detailed understanding of causes and treatments, a culture of equal opportunities, social desirability bias, or political correctness where sharing pessimistic views is less than socially acceptable. These results point to the need for universities to explore these beliefs in more detail and consider the provision of greater student education on mental disorder, particularly for international students.

Differences in mental disorder stigma related to schizophrenia, depression, and anxiety

Students' views of PMD varied according to mental disorder. People with a schizophrenia diagnosis were seen as more (29%) violent than people with depression (3.7%) and those with GAD (3%). This is consistent with Economou *et al.* (2012) who found that 27.1% of medical students shared these beliefs. Despite negative attitudes shown towards people with a schizophrenia diagnosis, only 0.5% believed that these individuals were personally to blame for their disorder. This may suggest that students accepted an illness hypothesis in this disorder's aetiology and at interview, several shared the belief that people with such a diagnosis required more help than people with other types of mental disorder.

Belief in recovery after treatment was relatively high with most optimism shown for people with depression (62.1%), GAD (58.6%), and schizophrenia (48.8%). Beliefs regarding the extent of recovery were not sought but few believed sufferers were to blame for their disorder, although the importance of social determinants of mental disorder for them was not explored.

More students (64.8%) are of the view that people with schizophrenia exhibit more unpredictable behaviour, followed by people with depression (23.8%), and those with GAD (21.2%). The proportion viewing people with a schizophrenia diagnosis as unpredictable is slightly less than in studies of medical students where this figure is over 70% (Mukherjee *et al.,* 2002; Economou *et al.,* 2012; Fernando *et al.,* 2010).

Strengths of the study

This study is the first to assess university students' attitudes in relation to mental disorder stigma across science and arts organisational units. Such data has not previously been collected in Scotland. Questionnaire development based on interview data and the incorporation of a pilot study were design strengths.

Limitations of the study

The scale used here was not standardised, making comparison with other studies less straightforward. No wider data were collected from participants although information of their previous experience/knowledge with PMD would have enabled wider exploration of any associations between attitudes, previous knowledge and experience. Social desirability bias may have been pertinent here and the response rate was low (5.8%), limiting generalisability.

Conclusion and recommendations

Participants here were shown to hold stigmatising attitudes towards PMD regarding unpredictability and dangerousness. The extent to which disorder interferes with studies is not clear but the large proportion of postgraduates who were unwilling to work on a class project with PMD is concerning especially where class sizes are usually smaller for this group and collaboration a more likely course expectation. Further qualitative research questions are needed to explore this study's findings in greater detail; why are international students less likely to want to work with PMD, what challenges do postgraduates anticipate in working with class mates with mental disorder? Evidence from this small study suggests that Scottish universities should consider exploring the prevalence of mental disorder stigma with their students, the extent to which this may interfere with studies, and the need for student education on this issue.

Disclosure statement

The authors have no financial interests related to this research to disclose.

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