Background: Education is integral to reducing stigma toward the mentally ill. Medical educators have a key role in delivering education that reduces that stigma. Undergraduate psychiatric training and specific education programs are both effective in reducing stigma. However, many students are exposed to concepts of mental illness at a much earlier stage in their education. No previous study has explored the effect of intervention such as role-play on student attitudinal development. Objectives: This study's objective was to identify whether undergraduate role-play exercises featuring mental illness influenced development of attitudes toward the mentally ill. Methods: A randomized controlled trial was used to compare attitudinal scores between students exposed to a mental illness role-play as part of routine teaching and a control group that did not receive the teaching. Results: A total of 332 students provided data. There were no between-group differences for any attitudinal scores, although gender (being female) and experience of mental illness were associated with more positive attitudinal scores. Conclusions: Single high-intensity routine teaching sessions such as role-play involving mental illness do not influence student attitudes.

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Adults with mental health problems are one of the most stigmatized groups in society. They have the lowest levels of employment for any of the main groups of disabled people and struggle to access basic services. In 2004, the United Kingdom (UK) government produced “Mental Health and Social Exclusion” to review these areas and suggest changes. Five main reasons for social exclusion among those with mental health problems were identified, including “stigma and discrimination,” which were pervasive throughout society. These reasons, coupled with low expectations of health care professionals, social care, and employment sectors of what people with mental health problems can achieve, has led to the social isolation currently experienced. Social isolation increases the risk of, among other things, deteriorating mental health and suicide.

“Mental Illness: Stigmatisation and Discrimination Within the Medical Profession,” a report published by the Royal College of Psychiatrists, suggested that medical practitioners held similar views about those with mental health problems as the population at large, and those views were shown not always to be positive. Recommendations for change placed particular emphasis on education, which has been identified as integral to reducing stigma toward the mentally ill. It was suggested that organizations with responsibility for medical professional accreditation and training should strive to promote the acquisition of knowledge and skills related to recognition and management of patients with mental illness to the same level as other diseases.

Recent research has explored the attitudes held by medical students toward the mentally ill and the effect of education in reducing stigmatizing attitudes. This research has demonstrated the positive effects of completing undergraduate psychiatric training and of specific education programs on attitudes. Research into the attitudes of medical students toward mental illness has, however, been largely limited to whether psychiatric training or specific anti-stigma programs bring about positive change. Many students, however, will come into contact with the concept of mental illness long before they undergo their psychiatry rotation. This introduction to mental illness is subtle and integrated (eg, through primary care placements, self-directed...
learning, and communication skills training). These experiences occurring early on in a student’s career have the potential to have significant effect on attitudinal development. We were unable to identify any research that aimed to identify whether such contact had positive or negative effects on student attitudes.

It is well established that experiential methods of teaching are more effective than instructional methods when teaching communication skills and are preferred by students. For learning of some skills the “real patient” environment is not appropriate. Complex consultation skills, for example, are best taught in an environment that protects both the patient and the student. Role-playing of complex consultations, with either simulated patients or peers are, therefore, a key component of many curricula.

The effect of role-play simulations with standardized patients and actors has been considered in several studies, with most studies indicating short-term negative effects, including exhaustion, irritability, other stress symptoms, and physical complaints due to the performance. Studies of this nature have tended to focus on the portrayal of complex roles such as psychiatric roles. We were unable to find any studies that explored whether role-play involving such roles had an impact on students beyond those anticipated as learning outcomes.

In light of the importance of stigma within mental health and the dearth of evidence relating to both how early educational experiences influence attitudinal development and the effect of role-play, we decided to explore further the effect that role-play involving psychiatric roles has on student attitudes. The widespread use of role-playing to teach complex communication skills and the fact that these sessions were judged to be memorable to students further indicated that this was an appropriate focus. Anecdotal and observational evidence further indicated that students found the use of a mental illness scenario challenging.

Methods

Design

We performed a randomized controlled trial comparing mental illness attitudinal scores between second-year medical students randomized to receive no mental illness role-play (control group) or a role-play teaching session involving mental illness (intervention group). Approval was obtained from the Medical Education Unit, which oversees research involving medical student participants at the University of Birmingham, prior to commencement of the project. Due to the requirement to deliver core teaching to all students the “no role-play group” was exposed to the mental illness role-play after we collated attitudinal data. Students allocated to the role-play (intervention) group were required to complete the attitudinal questionnaire approximately 1 week after exposure to the role-play session. The slight temporal difference (1–2 weeks) between data collection in the two groups was not considered to introduce significant bias, and the design utilizing temporal adjustment was selected to mimic the effect of a true control group (not receiving role-play session), which could not otherwise be achieved due to the obligation to deliver core curriculum (Figure 1). We believe this to be a methodological improvement on previous studies that have used a before-after design. To reduce contamination and facilitate data collection, students were randomized in groups, with a group being the small teaching group (groups of approx 18 students allocated for the purposes of tutorial teaching) to which the student belongs. Given the random allocation of students to groups this approximates a two phase randomisation process.

Participants and Procedure

All students in the second year of the MBChB program at Birmingham University Medical School who were present on the days of data collection and attended the sessions in which questionnaires were distributed were eligible to participate.

Student groups were randomly allocated to receive the attitudinal measure during the week prior to their communication skills session (control group) or the week after (intervention group). Questionnaires were distributed at the end of identified teaching sessions in which the group was alone. Students were made aware of the fact that all questionnaires were anonymous, and there were no means through which responses could be traced back to individuals. They were not informed of the comparative nature of the study, however, as this would bias outcomes. Instead, all participants were informed that the study aimed to determine the attitudes held by subgroups of the population toward mental illness and were encouraged to answer all questions honestly. Completed questionnaires were deposited in a box when leaving the teaching session.

Outcome Measure

The questionnaire measured personal attitudes (personal stigma of mental illness, social distance) and perceptions of the attitudes of others (perceived stigma of mental illness). Attitudinal scales used were versions of those used in similar research with minor adaptations to improve relevance to a student population. Each stigma scale (personal and perceived) was comprised of nine questions from which an attitudinal score was calculated. The social distance score was calculated from six questions adapted from the 7-point Social Distance Scale developed by Link et al. Adaptations included the removal of the question relating to child care and rewording of questions relating to “your children” to read “a member of your family.”
Participants were also presented with a single case vignette featuring a young male exhibiting signs of social withdrawal and self-neglect. The vignette suggests symptoms such as hallucinations (“[his parents] have heard him shouting and arguing as if someone else is there”) and paranoia (“he won’t leave the house because he is being spied upon by the neighbor”). After reading the vignette, participants were asked to complete the attitudinal statements which related to the case, eg, “John’s problem is a sign of personal weakness.” (Question from the personal stigma of mental illness scale answered on a 5-point scale from strongly agree to strongly disagree). Participants were also asked to indicate age, gender, and personal experience of schizophrenia or other severe mental health problem (experience being personal, in a friend or family member, or through previous work experience, etc).

**Intervention**

The study intervention was an educational session including communication skills. Those in the intervention group received this session prior to collection of outcomes, while control groups did not receive the intervention until data had been captured (Figure 1).

The communication skills session forms part of the core curriculum and was not amended in any way. The session introduces students to a challenging communication scenario and allows them to obtain feedback on their skills, with a focus on two complex communication skills scenarios. Actors (simulated patients) are used and the sessions are facilitated by a communication skills tutor.

The relevant scenario involves an individual exhibiting signs of early onset psychosis that includes social withdrawal, obsessive interests, and a belief that external organizations are seeking to contact the individual.
The character specification is provided in advance to role-players.

Students are selected from within the group and asked to play the role of a general practitioner who has not seen this patient previously and is aware of only routine prior consultations. Each role-play takes 5–10 minutes, and approximately 30 minutes are subsequently devoted to feedback from the student, facilitator, SP, and a sharing of strategies within the teaching group.

Tutors involved in the communication skills session were not explicitly informed of the study, although we cannot exclude the possibility that some tutors or role-players may have become aware of this.

**Statistical Analysis**

Data were entered and maintained in an Access database. Missing data were imputed using the mean of other items scores within each dimension where only one question was unanswered. Individuals with more than one missing item score were excluded from respective analyses.

Comparisons were made between groups for each of the three outcome variables (personal stigma of mental illness, social distance, and perceived stigma of mental illness) using two-sample t-tests. The achieved sample size was sufficient to detect a 1.4 unit difference in the personal stigma of mental illness score and 1.3 and 1.0 unit difference in social distance and perceived stigma of mental illness scores with 80% power at the 5% significance level.

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**Results**

There were 386 students in Year 2 when the study was conducted. One teaching group of 54 students was not available for data collection due to timetabling changes. A total of 332 students, therefore, attended teaching sessions at which data collection was scheduled. In total, data were obtained from 182 students in the control group and 150 in the intervention group (the inequality being attributed to the timetabling change and pragmatic study design, meaning data for this group could not be captured).

A total of 214 students were female and 117 male (one did not specify gender). The two groups were comparable with respect to gender and ethnicity. Small numbers of individuals in each of several ethnic groups led to dichotomization for the purposes of analyses into “white British” and “other.”

Figure 2 shows that attitudinal scores for personal stigma ranged from 2 to 29 out of a possible 36 (mean=15, standard deviation [SD]=4.15). Perceived stigma scores ranged from 13 to 35 (mean=26, SD=3.78). In virtually all cases, students obtained lower scores for personal stigma than perceived stigma, indicating that their perception was that others in society held more stigmatizing views than they themselves. Only two students reported a perceived stigma score lower than their own personal stigma scores and another three had identical personal and perceived stigma scores. This difference between personal and perceived stigma was large, with a mean difference of 10.6 (SD=5.01, \( P < .001 \)) between an individual’s personal score and the score perceived or attributed to others.

Almost half of the cohort (44.9%) indicated that they had personal experience with mental illness (either themselves, friends, family, or others with whom they have had contact). A much smaller number...
(17.2%) indicated that they had experience of an individual with schizophrenia. No significant differences existed between the two groups for either personal stigma, perceived stigma, or social distance scores (Table 1), including neither a positive nor negative effect of the role-play session on student attitudes.

Secondary analyses explored the effect of gender and experience of mental illness on attitudinal scores (Table 2). Male students demonstrated greater levels of personal stigma (16.87 versus 14.76, P<.001) and higher social distance scores (10.31 versus 9.35, P=.005) than female students. Students who reported experience of mental illness (personally or within family or social contacts or work experience) demonstrated lower stigma (15.08 versus 15.86, P=.091) and social distance scores (9.17 versus 10.15, P=.003), although only the latter reached statistical significance. Specific experience of schizophrenia had a similar association with slightly increased between-group differences (14.29 versus 15.73, P=.018 for personal stigma score and 8.71 versus 9.89, P=.007 for social distance score). The perception of stigma demonstrated by others (perceived stigma) did not differ between groups for any of the analyses.

Multiple regression analyses (Table 3) indicated that higher levels of personal stigma was associated with being male (P=.002), being of non-white ethnicity (P=.05), attribution of a higher stigmatizing attitude to others (P=.03), and exhibiting greater social distance scores (P=.0001). The final model, however, only explained 27% of the variance demonstrated in personal stigma scores. The model for perceived stigma explained little of the variance seen in perceived stigma score (5%), with this only being associated with personal stigma (P=.01) and social distance scores (P=.04). Social distance score was associated with higher levels of personal stigma (P=.001), being in the non-white ethnic group (P=.02), and having had no personal experience of mental illness (P=.04). Again the model performed poorly in terms of explaining variance in score, with only 25% explained. For all variables demonstrating statistical significance, the actual effect size was relatively small with a 1.13 unit change being associated with gender (males demonstrating higher levels of stigma) and smaller changes being associated with other variables.

Conclusions
Results did not support the hypothesis that an individual teaching session utilizing role-play of complex consultations containing mental illness influenced students’ attitudes toward the mentally ill in either a positive or negative manner. Power calculation suggests that the study had a sufficient sample to identify small differences in attitude scores with 80% power and, therefore, we have confidence that the finding of no clinically significant difference between groups exists.

The finding of some positive impact on stigma scores from personal experience, however, supports previous findings that psychiatric

<table>
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<th>Control Group (n=182)</th>
<th>P Value</th>
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<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
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<td>Perceived stigma</td>
<td>26.37</td>
<td>3.69</td>
<td>25.90</td>
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<td>Social distance*</td>
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SD—standard deviation
* n=146 intervention group and 180 control group

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<th>Perceived Stigma</th>
<th>Social Distance</th>
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<tr>
<td>No (n=269)</td>
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rotations\textsuperscript{6,7} and specific education programs\textsuperscript{8} can be effective in reducing stigma and suggests that one way in which these rotations work is through delivery of contact and personal experience of individuals with mental illness. Although this finding was limited, it may indicate future avenues educators could explore in the development of programs designed to reduce stigma in medical students. We recommend further research into the use of clinical placements and patient attachment exercises to provide students with these experiences at an early stage in their careers and the use of literature and film to mirror personal experience.

Other findings, such as the greater levels of stigma demonstrated by non-modifiable variables such as gender or ethnicity, do not assist in the development of interventions but may indicate students at whom such programs may be targeted. Given the fact that the vignette featured a male character, it was perhaps surprising that female students exhibited lower social distance scores and were, therefore, more likely to engage with the character socially. The use of a female character may have further enhanced the between-gender difference.

The poor performance of the multivariable models to describe variation is not surprising given that this formed a secondary analysis and used only those variables collected for earlier analyses. The finding that ethnicity was related to personal stigma and social distance supports other studies that have explored the role of ethnicity or culture in psychiatric stigma.\textsuperscript{22-24} The need to dichotomize ethnic groups in this study means that the influence of such stigma within particular groups is likely to have been minimized or diluted. Further work should be undertaken to explore factors that may explain the large variation demonstrated in student scores. It is likely that it is not experience per se that is implicated in the development of attitudes but the quality and nature of this experience. Other factors such as exposure to media images of illness\textsuperscript{21} have previously been implicated in psychiatric stigma, and their effect should be further explored within the medical student population.

The large difference observed in personal and perceived stigma scores indicates that students believe their attitudes to be vastly different from those held by the rest of society. This conflicts with evidence presented by the Royal College of Psychiatrists\textsuperscript{4} and suggests that either students demonstrated social desirability bias or, more likely, overestimated the views of others. This perception needs to be challenged if students are to further reduce stigmatizing attitudes.

### Conclusions

This large randomized controlled trial conducted within a medical education setting suggests single high-impact sessions featuring standardized patients with mental illness do not impact student attitudes toward the mentally ill. While the study is limited in its single site approach, we believe such teaching undertaken at our university is similar to that delivered at other medical schools. We encourage other schools to use this approach in evaluation of novel teaching approaches and the assessment of unintended outcomes.
Acknowledgments: This study was presented at the 2007 Society of Academic Primary Care Annual Meeting in London and the 2007 North American Primary Care Research Group Annual Meeting in Vancouver.

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References