Filmed v. live social contact interventions to reduce stigma: randomised controlled trial†

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Background

Direct social contact interventions are known to reduce mental health stigma. Filmed social contact may be equally effective and have practical and cost advantages.

Aims

To compare the effectiveness of a DVD, a live intervention and a lecture control, in reducing stigma, testing the hypotheses that: (a) DVD and live interventions will be equally effective; and (b) the interventions with social contact (DVD/live) will be more effective than the lecture. Cost-effectiveness, process and acceptability are also assessed.

Method

Student nurses were randomised to: (a) watch a DVD of service users/informal carers talking about their experiences, (b) watch a similar live presentation, or (c) attend a lecture. Primary outcomes were changes in attitudes (using the Mental Illness: Clinicians Attitudes Scale, MICA), emotional reactions (using the Emotional Reactions to Mental Illness Scale, ERMSI), intended proximity (using the Reported and Intended Behaviour Scale, RIBS), and knowledge (using the Social Contact Intended Learning Outcomes, SCILO), immediately after the intervention and at 4-month follow-up.

Results

For the 216 participants, there were no differences between the DVD and live groups on MICA, ERMSI or RIBS scores. The DVD group had higher SCILO (knowledge) scores. The combined social contact group (DVD/live) had better MICA and RIBS scores than the lecture group, the latter difference maintained at 4 months. The DVD was the most cost-effective of the interventions, and the live session the most popular.

Conclusions

Our hypotheses were confirmed. This study supports the wider use of filmed social contact interventions to reduce stigma about mental illness.

Declaration of interest

G.T., P.M., A.K. and S.C. have undertaken collaborative research with the charity Rethink, which sells the DVD online supplement DS1. The study was a three-arm parallel-groups pragmatic RCT. Consenting participants were randomised to a single training session consisting of: (a) watching a DVD of mental health service users and informal carers talking about their experiences; or (b) watching a service user and carer talk about their experiences in person; or (c) hearing a lecture about stigma and mental health awareness. Participants completed measures at baseline, immediately post-session and at 4-month follow-up.

Participants

Participants were student general nurses in their university foundation year following diploma, degree or accelerated diploma.

People with mental illness face stigma and discrimination in many areas of life, with serious adverse consequences for health, social inclusion and quality of life.1 Given findings that interpersonal contact is associated with more positive attitudes towards outgroup members,2,3 social contact interventions in which individuals affected by mental illness share their personal stories have been developed. These are common components of mental health anti-stigma programmes,4,5 and are increasingly being used in the training of health professionals6 as their attitudes and behaviour may also be stigmatising.7,8 Several randomised controlled trials (RCTs) attest to the effectiveness of live social contact interventions in reducing stigma.9–12 Filmed social contact may have practical and cost advantages and is more easily scaled up for use at the population level. We have identified four RCTs comparing filmed social contact interventions with a control without any form of social contact13–16 and all but one15 reported the intervention improved at least one stigma outcome. In none of the above RCTs were outcomes assessed beyond 1-week follow-up, and in the majority of cases follow-up was immediate only. We have located only one RCT directly comparing filmed v. live social contact.17 This compared a 10-minute live and filmed presentation of one individual giving the same presentation in the two delivery modes. No significant difference in reported social distance was found between those watching the live and filmed presentations. The study was limited by having no power calculation and only immediate follow-up. Furthermore, it was an explanatory rather than a pragmatic trial.18 The former has the benefit of control, but the latter tests the effectiveness of an intervention in real-life conditions. There is a need for a study of interventions of a duration more commonly used in education and in which the benefits of the different delivery modes can be utilised (such as film allowing editing and the inclusion of more presenters). Consequently we conducted a pragmatic RCT with medium-term assessment of stigma outcomes, and investigation of cost-effectiveness, process and acceptability. We tested the hypotheses that: (a) there would be no difference in stigma between the filmed (indirect social contact) and live (direct social contact) interventions; and (b) the conditions with social contact, either direct or indirect (live or filmed) would be more effective in reducing stigma than a control condition with no social contact (lecture).

Method

Study design and procedure

More detailed information about the methods used is available in online supplement DS1. The study was a three-arm parallel-groups pragmatic RCT. Consenting participants were randomised to a single training session consisting of: (a) watching a DVD of mental health service users and informal carers talking about their experiences; or (b) watching a service user and carer talk about their experiences in person; or (c) hearing a lecture about stigma and mental health awareness. Participants completed measures at baseline, immediately post-session and at 4-month follow-up.

Participants

Participants were student general nurses in their university foundation year following diploma, degree or accelerated diploma.
courses with their intended specialty being adult nursing, child
nursing or mental health nursing.

Randomisation and masking
Participants were randomised to the three interventions, with
stratification by level of study and intended specialty, and were
given an opaque envelope containing group allocation (for
example, group 2, time and location). This rendered them masked
to group allocation until arrival at the session. Questionnaire data
were entered masked to group allocation.

Intervention and control conditions
The interventions and control were presented to the participants
as different forms of ‘mental health awareness training,’ and took
place concurrently to avoid contamination. As this was a
pragmatic trial we did not aim for exact matching, but inter-
ventions were matched for intended total duration of 75 min
(actual duration was 71, 85 and 70 min for DVD, live and lecture
respectively); coverage of the same key areas; and in the DVD and
live interventions presenters having personal/family experience of
similar illnesses (primarily psychosis).

DVD intervention
The DVD had two main parts: the first being personal narratives
about mental health and stigma presented by two service users, an
informal carer and a carer couple. The second part comprises
short clips of service users and carers talking about their
experiences in relation to nine key areas together with factual
information. The DVD was followed by a researcher-facilitated
discussion.

Live intervention
In the first part of the live session an informal carer and a service
user presented personal narratives about their experiences of
mental health and stigma. In the second part a researcher
presented brief information about key areas with the main
presenters, and one additional service user and carer sharing their
experiences regarding these areas. Finally, there was researcher-
facilitated discussion, with the presenters answering students’
questions.

Lecture control
The lecture was presented by a mental health nurse researcher
with lecturing experience, but no specialised knowledge of stigma.
This reflects the traditional approach that might be taken if a
typical nursing school decided to provide additional coverage
on stigma. The lecture covered stigma and other aspects of mental
health and contained no indirect social contact elements.

Measures
The outcome measures reflected the conceptualisation of stigma as
comprising knowledge, attitudes (cognitive and emotional) and
behaviour. Thus, there were four primary outcome measures with
cognitive attitudes selected for the trial power calculation.

Knowledge-related measure
The Social Contact Intended Learning Outcomes (SCILO) schedule,
devised specifically for this study, comprises five statements true/
false response categories (online Table DS1). The internal reliability
of the SCILO was $\alpha = 0.38$, consequently in the secondary analysis
item-level level testing was undertaken.

Attitudinal measures
The first attitudinal measure was the Mental Illness: Clinicians
Attitudes Scale (MICA), which has good psychometric properties. In
the present study $\alpha = 0.76$. The second attitudinal measure was the
Emotional Reactions to Mental Illness Scale (ERMIS). This
consists of a vignette about a friend experiencing schizophrenia
and nine statements about feelings towards the friend. It has three
subscales: fear, prosocial emotions, and anger, and $\alpha$-values in
the present study were 0.75, 0.47 and 0.34 for each subscale
respectively.

Behaviour-related measures
As a proxy for behaviour, the Reported and Intended Behaviour
Scale (RIBS) was used to measure future intentions to have social
proximity with people with mental health problems. Previous
research reports a test–retest reliability of 0.75 and good internal
reliability ($\alpha = 0.85$). In the present study $\alpha = 0.75$. At 4-month
follow-up two further behavioural intention items were included
as secondary outcomes: intention to disclose and seek healthcare
in the event of mental ill health.

Acceptability and process measures
Closed and open-ended questions assessed participants’ views on,
and the emotional impact of, the sessions; whether they had talked
or thought about the sessions and what they recalled.

Sample size and power
Our pilot trial found a mean MICA score of 37.8 (s.d. = 8.0). To
detect a standardised effect size of 0.5 on MICA scores (reflecting
a 4-point difference) with 90% power and a 0.5% significance level
when comparing the DVD to the live condition, 64 participants
per group (total $n = 192$) would be needed. For our comparison
of DVD/live v. lecture a sample of this size would enable us to
detect a standardised effect size of 0.43 (3.4 points on MICA).

Data analysis
Data were analysed using SPSS version 15 (Windows) and Stata
version 10 (Windows), and was by intention to treat. We
conducted longitudinal regression analyses using cross-sectional
time series modelling allowing for random effects at the individual
level. We included data from all three groups with an indicator
assessing the overall significance of allocation group. Where group
was significant, post-regression contrasts for the comparisons
reflecting our hypotheses were conducted: (a) DVD v. live, and
(b) DVD/live v. lecture. We first ran an unadjusted regression with
group and the baseline score for the outcome variable as
independent variables only adjusting for time. The analysis was
additionally adjusted for design factors used to define the
randomisation strata and by all sociodemographic variables,
variables associated with non-attendance and variables that could
have a confounding effect (knowing someone with mental illness,
mental health work experience). For each analysis the experimental
design factors, group and time (post-session or follow-up) were included
in the model as fixed main effects and a group x time interaction
was investigated.

Economic analysis
The costs of each intervention varied according to the time and
personnel involved in their development and delivery. Of direct
relevance to healthcare providers and commissioners are the amounts charged for the interventions. Consequently the economic analysis was based on time and purchase costs (see online supplement DS1).

**Ethical review**

The study received approval from the King’s College London Psychiatry, Nursing and Midwifery Research Ethics Sub-Committee (reference: PNM/07/08-67).

### Results

Three hundred and sixty students consented to participate and were randomised. The characteristics of these students are shown in Table 1 where it can be seen that the groups were broadly comparable, although those allocated to the lecture group appear to be less likely to have work experience with people with mental illness and to know someone with a mental illness.

A total of 216 students attended an intervention, and attendance of those randomised was not affected by level of study, branch of study or gender. However, randomised students who were older ($t = 4.913, P < 0.001$), who personally knew ($\chi^2 = 6.493, P = 0.11$) or had work experience with ($\chi^2 = 4.762, P = 0.029$) people with mental illness, were more likely to attend. Those allocated to the lecture condition, which took place on an unfamiliar and more distant campus, were less likely to attend ($\chi^2 = 7.709, P = 0.021$). Because of this differential attendance, we compared the characteristics of intervention attenders by group allocated. The groups were found to be balanced for all characteristics listed in Table 1.

Two of the participants attended a different training session from the one allocated and were analysed according to group allocation. Post-session data were collected for all attenders and were analysed according to group allocation. The response rate at 4-month follow-up was 89% (193/216). Participant flow through the trial is shown in Fig. 1.

### Primary outcomes analysis

Mean scores for each outcome are summarised by randomisation group and time point in Table 2. Comparing change scores for the DVD and live groups, the DVD group showed a greater improvement in intended social proximity immediately after the intervention ($t = –0.71, P = 0.022$) and at follow-up there was greater improvement in prosocial emotional reactions to people with mental illness ($t = –0.99, P = 0.011$). Groups with social contact (DVD/live) performed better than the lecture group immediately post-intervention for MICA scores ($t = –2.72, P = 0.003$) and at follow-up had greater change in intended social Proximity ($t = 0.86, P = 0.15$).

The data from all three time points were used together in longitudinal regression analyses. The analyses indicated that there was a significant difference between intervention groups for the MICA (stigmatising attitudes), RIBS (intended social proximity) and SCILO (knowledge) scores (Table 3) but not for ERMIS scores (online Table DS2). Scores for SCILO were shown to differ between the DVD and live training approaches when baseline levels, stratification variables and possible confounding variables were accounted for. There was no significant group × time interaction for the knowledge outcome. The estimated coefficients for all other outcomes were low and not statistically significant for this DVD v. live comparison.

When comparing the DVD/live group to the lecture group (Table 3) differences in MICA and RIBS scores were indicated. On average the RIBS intended social proximity score was 0.59 points higher in the DVD/live group compared with the lecture group (fully adjusted model, 95% CI 0.31–0.81, $P = 0.004$). There was a significant reduction in RIBS score of 0.56 points (fully adjusted model, 95% CI –0.84 to –0.27, $P < 0.001$) over time between post-session and follow-up in all groups but there was no significant interaction, indicating that the comparative benefit was maintained. On average, MICA scores, indicating stigmatising attitudes, were 1.9 points lower (fully adjusted model, 95% CI –3.25 to –0.57) in the DVD/live group compared with the lecture group after adjustment. However, there was a significant interaction with time indicating a greater difference in MICA scores immediately after the intervention between DVD and lecture groups (–3.1 points, 95% CI –4.98 to –1.17, fully adjusted) and between live and lecture (–3.0 points, 95% CI –4.82 to –1.10, fully adjusted). By follow-up there was little difference in scores; DVD v. lecture –0.92 points (95% CI –2.92 to 1.07, fully adjusted), live v. lecture –0.5 points (95% CI –2.39 to 1.48, fully adjusted).

### Secondary outcomes analyses

Responses did not differ significantly with respect to intended disclosure of a mental illness for the DVD v. live comparison.
(Mann–Whitney $U = 1930, P = 0.327$) or the DVD/live v. lecture comparison ($U = 3422, P = 0.269$). Responses for intended healthcare-seeking did not differ for the DVD/live v. lecture comparison ($U = 3305.5, P = 0.138$), but those in the DVD group reported being more likely to seek help than those in the live group ($U = 1640.5, P = 0.018$).

As SCILO knowledge scores had low internal consistency, to better understand the nature of the difference in knowledge scores found between the DVD and live groups we conducted post hoc comparisons for these two groups on each of the SCILO items. The percentages of students correctly answering the items at each time point is shown in online Table DS1. Those in the DVD group were significantly more likely to correctly answer item 1 ‘People with severe mental illness can fully recover (true)’ both post-session ($\chi^2 = 34.542, P < 0.001$) and at follow-up ($\chi^2 = 10.744, P = 0.001$). No statistically significant differences were found for any other items at either time point. There was a pre-session difference for item 3, consequently we conducted a change analyses for this item and found no differences between the DVD and live group.

**Cost-effectiveness**

The total costs for each session were DVD UK £100; live £675; and lecture £199. The DVD had costs that were £575 lower than the costs for the live session. It also had better outcomes in terms of stigmatising attitudes and was therefore dominant (superior). The DVD had costs that were £99 lower than for the lecture, and with better outcomes was again dominant. Finally, the live session had higher costs (by £476) and better outcomes (adjusted difference of 1.77 on the MICA) compared with the lecture and therefore the incremental cost-effectiveness ratio indicates that it costs £269 per extra unit decrease in stigmatising attitudes for the live session compared with the lecture.

**Participants’ views**

The students in the live group were significantly more likely to strongly agree that the session was interesting (72% v. 50%, $\chi^2 = 7.51, P = 0.006$) and useful (67% v. 42%, $\chi^2 = 9.12, P = 0.003$) compared with those in the DVD group, but did not differ on the three other views items listed below. Those receiving interventions with social contact (DVD or live) had more positive views on all five views items compared with those in the lecture group; being more likely to strongly agree that the training was interesting ($\chi^2 = 12.62, P < 0.001$), confidence generating ($\chi^2 = 12.24, P < 0.001$) and useful ($\chi^2 = 9.86, P = 0.002$), to believe their attitude to people with mental health problems had positively changed ($\chi^2 = 4.32, P = 0.038$) and that their behaviour towards these individuals will be different ($\chi^2 = 10.95, P = 0.001$).

What those in both the DVD and live groups liked best was hearing service user and carer stories, particularly the former (online Table DS3). The DVD group also often valued hearing a diversity of views. Both groups felt the structure/quality of their intervention could be improved and wanted particular aspects of mental healthcare to be covered. The DVD group sometimes reported that the DVD was too long, repetitive, focused too much on schizophrenia and should have included nurses’ experiences, views echoed, but to a lesser extent, in the live group. The live group would have liked to hear from more service users/carers or wanted more diversity (for example of age, gender, experiences) in the presenters.

**Process variables**

Those in the DVD group reported having a stronger emotional response to the training session than those in the live group ($U = 2247.5, P = 0.029$), and those in the combined social contact group (DVD or live) had a stronger emotional response than those in the lecture group ($U = 2224, P < 0.001$). The most common emotions in all groups were empathy, sadness, anger and
sympathy, with sadness being particularly evident in the DVD group. Hope, shock, motivation and surprise were almost exclusive to the social contact groups (DVD and live), and respect was confined almost solely to the live group (online Table DS4).

There were no significant differences for either comparison regarding whether the participants reported having thought about the training session during the follow-up period. Those in the groups with social contact (DVD/live) were more likely to report having talked to others about the training during the follow-up period ($\chi^2 = 4.071, P = 0.044$), however, the DVD and live groups did not differ significantly in this respect.

Participants’ responses when asked about the main thing recollected about the sessions were categorised into personal stories, facts or recommendations (online Table DS5). Post-session there were no differences between the DVD and live group in type of information recalled ($\chi^2 = 2.986, P = 0.225$), however at follow-up the live group were more likely than the DVD group to recall stories and the DVD group to recall facts ($\chi^2 = 8.781, P = 0.012$). In all three groups the most frequent fact recollected was that people can recover from mental illness, but this was particularly evident in the DVD group.

## Discussion

### Key findings

Our hypotheses were broadly confirmed. The DVD and live interventions did not differ in three of the four primary stigma outcomes: attitudes (cognitive); attitudes (emotional) and intended social proximity. The DVD performed better on intended learning outcomes (knowledge), but this was found to be the result of one item about recovery. The combined group with any form of social contact (DVD/live) had better attitudes (cognitive) and intended social proximity than the lecture group. The latter difference was maintained at 4-month follow-up, which makes this study the first to provide RCT evidence for the long-term effects of social contact interventions. The magnitude of differences was small at 1.9 MICA points and 0.56 RIBS points, however small differences may make important differences with large-scale implementation and such implementation is more feasible with filmed social contact.

The purchase costs of the DVD are lower than for the live session or the lecture and the outcomes with the DVD are broadly equivalent to those with the live session, and better than the outcomes with the lecture. The DVD appears therefore to represent the best value for money. The live session has better outcomes than the lecture but produces these at a higher cost. It is a value judgement as to whether the extra cost of £269 to achieve a unit improvement in outcome as a result of the live session is acceptable, especially when similar outcomes can be achieved, at less cost than the lecture, with the DVD.

The live session was viewed as more interesting and useful than the DVD session, and the responses to the open-ended questions supported the greater popularity of the live session. However, this did not translate into improved outcomes. It is also unclear whether some of the lesser satisfaction with the DVD could be accounted for by modifiable specific characteristics of the DVD.

### Strengths and limitations

The main strengths of the study are that it was a RCT addressing key evidence gaps, with longer-term follow-up and a high response rate at follow-up, incorporating a cost-effectiveness analysis and examination of process and acceptability, and its large and appropriately powered sample size. It was limited by there being some selective attendance at the intervention, although all
Table 3  Multiple regression models for Mental illness: Clinicians Attitudes Scale (MICA), Reported and Intended Behaviour Scale (RIBS), and Social Contact Intended Learning Outcomes (SCILO)<sup>a</sup>

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<th></th>
<th>n</th>
<th>Coefficient</th>
<th>P</th>
<th>DVD v. live, P</th>
<th>DVD/live v. lecture P</th>
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<tr>
<td><strong>Stigmatising attitudes (MICA)</strong></td>
<td></td>
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<tr>
<td>Unadjusted</td>
<td>213</td>
<td>-1.62 (-3.32 to -0.31)</td>
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<td>0.539</td>
<td>0.017</td>
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<tr>
<td>Live v. lecture</td>
<td></td>
<td>-1.38 (-2.84 to 0.08)</td>
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<tr>
<td>Adjusted</td>
<td>208</td>
<td>-2.05 (-3.59 to -0.50)</td>
<td>0.020</td>
<td>0.708</td>
<td>0.005</td>
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<tr>
<td>Live v. lecture</td>
<td></td>
<td>-1.77 (-3.27 to -0.28)</td>
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<td><strong>Adjusted social proximity (RIBS)</strong></td>
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<tr>
<td>Unadjusted</td>
<td>212</td>
<td>0.77 (0.28 to 1.26)</td>
<td>0.009</td>
<td>0.100</td>
<td>0.008</td>
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<tr>
<td>Live v. lecture</td>
<td></td>
<td>0.38 (-0.09 to 0.86)</td>
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<tr>
<td>Adjusted</td>
<td>207</td>
<td>0.77 (0.31 to 1.23)</td>
<td>0.005</td>
<td>0.111</td>
<td>0.004</td>
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<tr>
<td>Live v. lecture</td>
<td></td>
<td>0.42 (-0.03 to 0.87)</td>
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<tr>
<td><strong>Knowledge (SCILO)</strong></td>
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<tr>
<td>Unadjusted</td>
<td>203</td>
<td>0.06 (-0.16 to 0.27)</td>
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<tr>
<td>Live v. lecture</td>
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<td>-0.22 (-0.43 to -0.01)</td>
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<tr>
<td>Adjusted</td>
<td>199</td>
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<tr>
<td>Live v. lecture</td>
<td></td>
<td>-0.21 (-0.42 to 0.01)</td>
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a. See online Table DS2 for the multiple regression model for the Emotional Reactions to Mental Illness Scale.

three groups of attenders were comparable on all participant characteristic variables examined. The knowledge and emotional reactions findings are tentative due to the low reliability of these scales. It is possible that socially desirable responding and cognitive dissonance may have contributed to more positive outcomes for the novel interventions (DVD and live). Despite intentions, the live session was longer than the other sessions. The effects may have been influenced by the qualities of the particular live presenters or the quality of the DVD or lecture, although all were selected with both quality and similarity to real-life conditions in mind. The pragmatic nature of the trial<sup>18</sup> can be seen as either a limitation (lesser control and matching of interventions) or a strength (more like real-life, interventions maximising the benefits of the different delivery modes).

Understanding processes underlying social contact interventions

Pettigrew theorised that interpersonal contact decreases prejudice via four processes: (a) learning about the outgroup; (b) changing behaviour; (c) generating affective ties through emotion, especially reducing anxiety and increasing empathy; and (d) ingroup reappraisal.<sup>26</sup> We found limited evidence for effects of social contact on learning outcomes, and a larger effect on intended behaviour. We found no ERMIS scale evidence for social contact reducing anxiety (fear) or increasing empathy (prosocial) and the open-ended data showed empathy reported in all three conditions. The social contact interventions generated a set of emotions not present in the lecture: hope, shock, motivation and surprise, so particular affective responses other than those identified by Pettigrew may be mobilised by social contact. In classic intergroup theory work Allport proposed that four conditions were necessary for prejudice reduction through social contact: equal status, common goals, intergroup cooperation and support of authorities.<sup>27</sup> Live contact involves greater equality and cooperation, and so might be expected to outperform a DVD on these grounds, however, a meta-analysis demonstrated that Allport’s conditions should not be regarded as necessary for producing positive contact outcomes.<sup>2</sup>

Narrative theory is an alternative, or complementary, conceptualisation for understanding processes underlying the interventions studied here, with stories rather than contact being the primary mechanism. Kumagai proposes a conceptual framework for the use of illness narratives in medical education that may explain our finding of the DVD working as well as the live intervention.<sup>28</sup> He proposes that from older childhood onwards responses may include ‘mediated associations’ in which an individual feels empathy towards the suffering of another, and consequent commitment to social justice, without the other’s physical presence, but rather elicited through language (stories, films) or pictorial representation (for example, photographs), and thus we can see how a DVD of personal testimonies may reduce stigma.

The DVD and live groups were more likely to report talking about the interventions to others and this may help to embed stigma changes and contribute to long-term change in stigma. There was some evidence of different processes acting with the DVD and live interventions. The live group reported more respect, with comments suggesting this was, in part, in response to the act of presenting face to face. At 4 months the live group were more likely to recall stories and the DVD group facts, which may render the live intervention more memorable beyond 4 months as stories enhance long-term clinical learning.<sup>29</sup> The DVD group reported having a greater emotional response to the intervention than the live group, especially sadness. This group were also more likely to believe recovery is possible. The open-ended data suggest these findings are related to some specific content in the DVD. A consensus development study found ‘see the person’ messages highly recommended for anti-stigma interventions,<sup>30</sup> and both the DVD and live interventions enabled the audience to see the person behind the illness.

What types of people should appear in social contact interventions?

Research by Reinke et al<sup>17</sup> has demonstrated that both moderate and high, but not low, stereotype disconfirmation are most effective in reducing stigma. Both the DVD and live interventions included individuals who moderately or highly disconfirmed stereotypes, although it is easier to select for this and control this element in a DVD. Our study was unusual among the RCTs for including
Filmed v. live social contact interventions to reduce stigma

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References


Advantages and disadvantages of filmed and live social contact not directly addressed by the study

From a policy perspective there are a number of advantages and disadvantages of each delivery mode not directly assessed in this study that are also merit consideration. Live interventions have the advantage of showing people with mental health problems taking a lead role (presenting to groups) that can in itself be destigmatising; give the opportunity to ask questions; provide empowerment or employment-related experiences to presenters; and are never ‘out of date’. Filmed interventions are more easily scaled up to the population level and so have the potential to reach large audiences; can fit flexibly into training programmes; are internet-ready; can include more people, and hence more diversity of presenters; offer consistency; provide greater control through editing; and may have less risk of harm to presenters.

Implications

Given that the DVD and live interventions were largely comparable and where they differed there was no clear pattern favouring one group over the other, our findings support the use of either type of social contact intervention for student nurse populations. When cost, practical benefits and ease of wide-scale implementation are factored in, the wider use of filmed social contact interventions in student nurse training can be recommended.

Future research is needed to further elucidate the optimal content (types of presenter, duration, narrative content) for direct/indirect social contact interventions; to investigate the stigma-reducing effects of other forms of indirect contact such as fictional films, plays, autobiographical and fictional literature, and internet materials; to study the impact of social contact interventions on outcomes such as actual behaviour and healthcare-seeking; and to replicate this study with a general public population.

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carer as well as service user experience, although this is relatively common practice in some anti-stigma programmes. Service users and carers do not always share common perspectives. Social contact theory would suggest that only people with direct experience should be included, although from a narrative perspective carers’ testimonies may be effective because they are stories that encompass the experiences of both the person they care for and themselves. In our study more people mentioned liking the service user stories than the carer stories, although the latter were also appreciated and there were only two comments that carers should be excluded. There was strong support for diversity of presenters in terms of age, gender, ethnicity, types of experience and especially types of illness experienced. It is easier to include a wider range of presenters in a DVD than a live intervention, although the DVD we used focused mainly on one condition.

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reflection

Mayer-Gross, Slater and Roth's Clinical Psychiatry

Alan Lee

How can one revisit such a monumental psychiatric text in fewer than 500 words? There is no scope for the critical epic that it truly deserves. When I was a psychiatric trainee, fresh out of Newcastle Medical School, it had seemed that there was no other psychiatry textbook in the world. The elegant undergraduate lectures from our Professor Sir Martin Roth had promised a credible scientific discipline of psychiatry that would enable new recruits to hold up their heads alongside those of the big beasts in other branches of medicine. And this UK blockbuster with its stellar co-authorship, firm foundations in empirical research, and an integrated scientific model of mental illness, reinforced the ideal, pointing the way towards an ever-brighter future of rational understanding, diagnosis and therapy. Here was a book you could carry with pride into the grandest of all grand rounds, and that would also sustain you on the grimmest of grim backwards.

But such dinosaurian claims to dominance found challenge in unexpected quarters. An early example for me was when the impressive statistical underpinning of the endogenous/neurotic distinction which Roth, in Newcastle, had offered as definitive evidence of two types of depression, met its match in Kendell’s demonstration of a continuum, a Maudsley idea which seemed to have equal scientific credence. And there were many similar debates, in many domains, often revealing differing Aristotelian and Platonic prejudices.

The Titans were clashing, and in the ensuing twilight, the stage was preparing itself for an army of competing models of scientific truth, for the claims of the anti-psychiatrists, for the pluralism of social psychiatry and psychodynamics, for multidisciplinary teamwork and lately for the much maligned understandings of postmodernism. But the notion of a definitive, authoritative account of our discipline remained attractive and comforting for many. I remember slipping the book into my briefcase as a classic reference for a grand round at the Hammersmith Royal Postgraduate Hospital. It was a sword and shield against enquiries from the best critical minds of the medical establishment. My final epiphany came with slipping the book into my briefcase as a classic reference for a grand round at the Hammersmith Royal Postgraduate Hospital. It was a sword and shield against enquiries from the best critical minds of the medical establishment. My final epiphany came with

It is rarely opened, but when one does read it again one cannot but be moved by the sheer scope of its ambition, the beauty of its scientific prose, and the utter commitment of its authors that psychiatry should one day become an integrated and authoritative scientific discipline. Above all, the belief shines through the years that psychiatric patients should always be accorded all of the respect and dignity that their devastating illnesses so deserve.
Online supplement DS1

Method

Additional information about study methods.

Procedure

Students received an information sheet and presentation about the study during a timetabled session. Consenting students completed a form about sociodemographic and course details and prior contact with people with mental illness, and were given an envelope containing their group allocation. Participating students could win one of three £50 vouchers. Students completed baseline and post-session measures immediately before and after the interventions. Follow-up questionnaires were completed 4 months later during a timetabled session, before a lecture commenced. Participants who did not attend this lecture were asked to submit their follow-up questionnaires by email or post.

Randomisation and masking

A stratified block design was used to randomise participants to the three interventions, with stratification by level of study (two strata: degree/accelerated diploma and diploma) and intended specialty (three strata). As there was no diploma in child nursing there were five strata. Within each stratum participants were allocated an intervention using randomly permuted blocks of varying size with block size also varying randomly. Opaque envelopes containing group allocation based on the randomisation list generated as described above were prepared, and sequentially numbered within each stratum. At the recruitment sessions consenting participants queued by strata and were given an envelope to open by a volunteer not part of the study team. The group randomisation information in the envelope was the number of the group (for example, group 2) and its time and location. Two students who did not attend the recruitment sessions were randomised by telephone.

Intervention and control conditions

The intended duration of each training session was 60 min plus 15 min for discussion. In the DVD and live interventions the presenters were of diverse ages, genders and ethnicities.

DVD intervention

The DVD was *Combating Stigma* produced by the mental health charity Rethink in collaboration with the Institute of Psychiatry, King’s College London. It consists of an introduction by a professor of psychiatry (3 min); followed by personal stories from two service users and a carer and a carer couple (7, 5, 7 and 8 min). Their stories included experiences of mental illness and wellness, life activities, mental healthcare, stigma and discrimination. The last part of the DVD (31 min) covers nine key areas: recovery, physical health, minority groups, employment, housing, suicide, dual diagnosis, medication and violent behaviour. Here short clips of service users and carers talking about their experiences in relation to these areas are shown together with factual information provided by the professor. In total four service users and five carers appeared in the DVD. The DVD was followed by a researcher-facilitated discussion that lasted 10 min, making the total actual duration of the intervention 71 min.

Live intervention

The intervention was a modified version of a social contact intervention training model developed by Rethink. The services user and carer presenters all had prior experience of presenting in social contact interventions and had practice sessions with a researcher. A researcher introduced the presenters, and then the main carer and service user talked about their experiences of mental illness and wellness, life activities, mental healthcare, stigma and discrimination, each presenting for 20 min. Next the researcher presented brief information about key areas (as in the DVD) with the main presenters, one additional service user and one additional carer sharing their experiences in relation to these areas (30 min). The session ended with a 15 min researcher-facilitated discussion, in which the students asked the service users and carers questions (total actual intervention time 85 min).

Lecture control

The lecture was presented by a mental health nurse researcher with lecturing experience, but no specialised knowledge of stigma. This reflects the traditional approach that might be taken if a nursing school decided to provide additional coverage on stigma. The mental health nurse was asked to prepare a 60 min lecture covering stigma and discrimination and other aspects of mental health and to facilitate a 15 min discussion. The lecturer was an ‘independent person’ in that she was not part of the research team undertaking the study and was employed on a research study entirely unrelated to stigma. She had no personal or employment-related investment in demonstrating that social contact interventions are superior. She did not see the study protocol and was unaware of the study hypotheses when preparing and presenting the lecture. The lecture had interactive question and answer elements throughout, for example the lecturer asked questions of the audience such as ‘What do you think of when you hear the term mental health?’. She was provided with a book on stigma as source material for the lecture. The lecture contained no quotes from, or case histories of, people with mental illness or carers to ensure it contained no indirect social contact elements. The actual total length was 70 min (50 min lecture, 20 min discussion).

Measures

Knowledge-related measure

The Social Contact Intended Learning Outcomes (SCILLO) schedule, which was devised specifically for this study, comprises five statements chosen because they were related to areas covered in the DVD and the live intervention or were likely to be changed by direct/indirect social contact interventions. The statements can be seen in online Table DS1 and had true/false response categories. The score is the total number of correct responses (possible scores 0–5).

Attitudinal measures

The first attitudinal measure was the Mental Illness: Clinicians Attitudes Scale (MICA), which has good psychometric properties. In the present study \( \alpha = 0.76 \). The scale has good internal consistency (\( \alpha = 0.79 \)) and test–retest reliability (concordance 0.80, 95% CI 0.68–0.91), and demonstrable convergent and divergent validity and responsiveness to change. As it was developed for medical students minor wording changes were made for use with the present sample. The MICA has 16 items and produces an overall score with high scores representing more stigmatising attitudes. One item was inadvertently omitted from the pre- and post-session administrations of the scale, however, analyses using the follow-up data comparing the 16- and 15-item versions indicated no difference in study follow-up
findings when either version was used, and alpha values for both versions were similar at 0.76 and 0.74. Consequently, for consistency, data from the 15-item version were used for all stages of the study (correlation between 15- and 16-item scale at follow-up 0.996). The MICA items are statements with six levels of agreement/disagreement as response categories. The score is the sum of the response category scores (possible scores 15–90).

A second attitudinal measure – the Emotional Reactions to Mental Illness Scale (ERMIS)23 – was included to complement the more cognitive MICA and because familiarity with people with mental illness is associated with positive emotions towards, and less fear of, people with mental illness.21 The ERMIS consists of a vignette about a friend experiencing symptoms of schizophrenia, together with nine statements about feelings towards the friend, rated on a five-point scale for level of agreement. The scale has been validated by confirmatory factor analysis and was found to have three subscales: fear, prosocial emotions and anger, each with possible scores from 3 to 15. The wording of the vignette was modified slightly to make the subject of the vignette a female student.

Behaviour-related measures

We used part two of the Reported and Intended Behaviour Scale (RIBS) to assess intended behaviour. Respondents are presented with four statements: ‘In the future I would be willing to live with/work with/live nearby to someone with a mental health problem’ and ‘continue a relationship with a friend who developed a mental health problem’. These are followed by five-point agreement/disagreement response items, with a high score reflecting greater willingness for social proximity (possible scores 4–20).

Data analysis

Missing data were prorated for the MICA, but not for other scales because of their structural and conceptual properties. The analytic strategy began with examining the characteristics of the randomised sample, and then testing for any evidence of selective attendance at the interventions using chi-squared, $t$-test and one-way ANOVA tests.

Initially, descriptive analyses were undertaken using independent $t$-tests comparing the DVD v. live conditions and DVD/live v. lecture at baseline, post-session and at follow-up, together with the corresponding means and 95% confidence intervals.

To take into account baseline levels of the outcome and make use of all data in one model we conducted longitudinal regression analyses using cross-sectional time series. The main analysis was longitudinal regression analyses using time series modelling, as detailed in the main paper. Secondary outcomes were assessed using $t$-tests, chi-squared tests and Mann–Whitney $U$-tests as appropriate. Responses to open-ended questions were categorised by theme, count data were tabulated and main patterns across groups were described narratively.

Economic analysis

The DVD retail price at the time of the analysis was £47. We have assumed a lecturer would need be present at the DVD session (1.25 h) and do 2 h of preparation (total time cost £53) making the total cost for the DVD session £100. The market cost of the live intervention is based on the charge made by the charity Rethink for an equivalent live intervention. This charge is an average of £675 per session and includes the cost of someone to introduce the session and facilitate discussion. A charge for the lecture was not available, but the cost has been estimated at £199. This is based on 1 day of preparation time and 1.25 h spent delivering the intervention for a nurse lecturer. If one intervention has lower costs and better outcomes than an alternative it is defined as ‘dominant’. If it has higher costs and better outcomes an incremental cost-effectiveness ratio (the difference in costs divided by the difference in outcomes) shows the extra cost incurred to achieve an extra unit of outcome. Such ratios were calculated where relevant using the adjusted difference on the primary outcome measure as the denominator.
<table>
<thead>
<tr>
<th></th>
<th>Baseline, % (n) correct</th>
<th>Post-session, % (n) correct</th>
<th>4-month follow-up, % (n) correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DVD</td>
<td>Live</td>
<td>Lecture</td>
</tr>
<tr>
<td>People with severe mental illness can fully recover (true)</td>
<td>64.8 (46/71)</td>
<td>55.6 (45/81)</td>
<td>62.7 (37/59)</td>
</tr>
<tr>
<td>People with mental illness are more likely to be the victims</td>
<td>80.6 (58/72)</td>
<td>75.3 (61/81)</td>
<td>75.0 (45/60)</td>
</tr>
<tr>
<td>of violence than perpetrators of violence (true)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People with schizophrenia have a split personality (false)</td>
<td>38.0 (27/71)</td>
<td>57.3 (43/75)</td>
<td>64.4 (38/59)</td>
</tr>
<tr>
<td>The media accurately portrays people with mental illness (false)</td>
<td>88.9 (64/72)</td>
<td>94.9 (74/78)</td>
<td>100 (60/60)</td>
</tr>
<tr>
<td>People with mental illness are fundamentally different</td>
<td>86.1 (62/72)</td>
<td>83.3 (65/78)</td>
<td>88.3 (53/60)</td>
</tr>
<tr>
<td>from other people (false)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table D52</td>
<td>Multiple regression model for the Emotional Reactions to Mental Illness Scale (ERMIS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ERMIS subscale</strong></td>
<td>n</td>
<td>Coefficient</td>
<td>P</td>
</tr>
<tr>
<td><strong>Fear</strong></td>
<td>209</td>
<td>0.668</td>
<td></td>
</tr>
<tr>
<td>Unadjusted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DVD v. lecture</td>
<td></td>
<td>0.11 (−0.58 to 0.37)</td>
<td></td>
</tr>
<tr>
<td>Live v. lecture</td>
<td></td>
<td>0.10 (−0.36 to 0.55)</td>
<td></td>
</tr>
<tr>
<td>Adjusted</td>
<td>204</td>
<td>0.686</td>
<td></td>
</tr>
<tr>
<td>DVD v. lecture</td>
<td></td>
<td>−0.15 (−0.63 to 0.33)</td>
<td></td>
</tr>
<tr>
<td>Live v. lecture</td>
<td></td>
<td>0.04 (−0.42 to 0.51)</td>
<td></td>
</tr>
<tr>
<td><strong>Prosocial</strong></td>
<td>204</td>
<td>0.115</td>
<td></td>
</tr>
<tr>
<td>Unadjusted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DVD v. lecture</td>
<td></td>
<td>0.02 (−0.47 to 0.43)</td>
<td></td>
</tr>
<tr>
<td>Live v. lecture</td>
<td></td>
<td>0.39 (−0.82 to 0.04)</td>
<td></td>
</tr>
<tr>
<td>Adjusted</td>
<td>199</td>
<td>0.242</td>
<td></td>
</tr>
<tr>
<td>DVD v. lecture</td>
<td></td>
<td>−0.15 (−0.30 to 0.60)</td>
<td></td>
</tr>
<tr>
<td>Live v. lecture</td>
<td></td>
<td>0.20 (−0.63 to 0.23)</td>
<td></td>
</tr>
<tr>
<td><strong>Anger</strong></td>
<td>204</td>
<td>0.765</td>
<td></td>
</tr>
<tr>
<td>Unadjusted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DVD v. lecture</td>
<td></td>
<td>0.12 (−0.50 to 0.25)</td>
<td></td>
</tr>
<tr>
<td>Live v. lecture</td>
<td></td>
<td>0.01 (−0.37 to 0.35)</td>
<td></td>
</tr>
<tr>
<td>Adjusted</td>
<td>199</td>
<td>0.771</td>
<td></td>
</tr>
<tr>
<td>DVD v. lecture</td>
<td></td>
<td>−0.13 (−0.52 to 0.27)</td>
<td></td>
</tr>
<tr>
<td>Live v. lecture</td>
<td></td>
<td>0.01 (−0.39 to 0.37)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table D53</th>
<th>Summary of main responses to post-session open questions on participants’ views in post-session questionnaire: comparison of DVD and live groups</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Response (categorised)</strong></td>
<td><strong>Frequency of comments</strong></td>
</tr>
<tr>
<td></td>
<td>DVD (n = 74)</td>
</tr>
<tr>
<td>What participants liked best about the session</td>
<td></td>
</tr>
<tr>
<td>Hearing ‘real’ people</td>
<td>13</td>
</tr>
<tr>
<td>Hearing experiences ‘first-hand’</td>
<td>2</td>
</tr>
<tr>
<td>Hearing service user stories</td>
<td>21</td>
</tr>
<tr>
<td>Hearing carer stories</td>
<td>11</td>
</tr>
<tr>
<td>Hearing stories (type of person unspecified)</td>
<td>12</td>
</tr>
<tr>
<td>Question and answer session with service users and carers</td>
<td>N/A</td>
</tr>
<tr>
<td>What participants liked least/felt could be improved about the session</td>
<td></td>
</tr>
<tr>
<td>Should include coverage of other aspects of mental health or mental healthcare</td>
<td>36</td>
</tr>
<tr>
<td>Should include more different illnesses/not just focus on schizophrenia</td>
<td>22</td>
</tr>
<tr>
<td>Session should be shorter</td>
<td>24</td>
</tr>
<tr>
<td>Should have less repetition</td>
<td>13</td>
</tr>
<tr>
<td>Structure/quality should be improved</td>
<td>18</td>
</tr>
<tr>
<td>Include professional (especially nurse) experiences</td>
<td>12</td>
</tr>
<tr>
<td>Should include more, or more diverse, service users and carers</td>
<td>2</td>
</tr>
</tbody>
</table>

N/A, not applicable.
### Table D54: Responses to post-session question 'What type of emotions did the session you have just heard evoke in you?' by group

<table>
<thead>
<tr>
<th>Response (categorised)</th>
<th>Frequency</th>
<th>DVD (n = 63)</th>
<th>Live (n = 72)</th>
<th>Lecture (n = 58)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empathy (empathy/compassion/concern/understanding/touched/moved)</td>
<td></td>
<td>25</td>
<td>36</td>
<td>25</td>
</tr>
<tr>
<td>Sympathy (sympathy/feel sorry for/ptty)</td>
<td></td>
<td>11</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Sadness (sad/upset/heartful/distressed/sorrow)</td>
<td></td>
<td>34</td>
<td>22</td>
<td>8</td>
</tr>
<tr>
<td>Anger (angry/frustration/annoyed/sense of injustice/disgusted/its shameful)</td>
<td></td>
<td>15</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>Shock (shocked/taken aback/negatively surprised)</td>
<td></td>
<td>9</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Surprise (positively surprised, amazed)</td>
<td></td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Respect (respect/admiration/pride/awe/impressed)</td>
<td></td>
<td>1</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Motivated (inspired/want to help/eager/wake-up call/enthusiasm)</td>
<td></td>
<td>6</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Hopeful (hope/optimistic)</td>
<td></td>
<td>9</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Sense of blame on behalf of self/professional/society (guilty, uncomfortable, apologetic)</td>
<td></td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Happy (happy/glad/positive/pleased)</td>
<td></td>
<td>8</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Helpless (helpless)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interested (interested/intrigued/absorbed/enlightened/curious)</td>
<td></td>
<td>1</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Reassured (reassured)</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Other (surprised unclassifiable, humbled, caring, privileged to hear, worry)</td>
<td></td>
<td>7</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

### Table D55: Responses to 4-month follow-up question 'If you remember only ONE thing from the training session, what would you remember?' by group

<table>
<thead>
<tr>
<th>Response (categorised)</th>
<th>Frequency</th>
<th>DVD (n = 52)</th>
<th>Live (n = 63)</th>
<th>Lecture (n = 42)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stories</td>
<td></td>
<td>9</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>Service user story</td>
<td></td>
<td>2</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Carer story</td>
<td></td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Stories generally</td>
<td></td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Facts</td>
<td></td>
<td>34</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>People with mental illness can recover</td>
<td></td>
<td>19</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Not all people with mental illness are dangerous</td>
<td></td>
<td>13</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>People with mental illness are ‘still human’</td>
<td></td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>People with mental illness still face stigma</td>
<td></td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Culture plays a role in mental illness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental illness can happen to anyone</td>
<td></td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Role of/impact on family</td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Inaccuracy of media portrayals of mental illness</td>
<td></td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Prevalence of mental illness</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>People with mental illness are often victims of violence</td>
<td></td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>7</td>
<td>4</td>
<td>3</td>
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<tr>
<td>Recommendations</td>
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<td>Treat people with mental illness with respect</td>
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<td>See people with mental illness as individuals</td>
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<td>Treat people equally regardless of mental illness</td>
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<td>Don’t stop being ‘human’</td>
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<td>Families need to be listened to</td>
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<td>Other</td>
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Filmed v. live social contact interventions to reduce stigma: randomised controlled trial
Sarah Clement, Adrienne van Nieuwenhuizen, Aliya Kassam, Clare Flach, Anisha Lazarus, Melanie de Castro, Paul McCrone, Ian Norman and Graham Thornicroft
BJP 2012, 201:57-64.
Access the most recent version at DOI: 10.1192/bjp.bp.111.093120

Supplementary Material
Supplementary material can be found at:
http://bjp.rcpsych.org/content/suppl/2011/12/05/bjp.bp.111.093120.DC1

References
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