

Evaluation of Mental Health First Aid Training with Northumberland Fire and Rescue Service, May 2010

Report Authors:

Jenna Robson, Assistant Psychologist, NTW NHS Trust

Jan Bostock, Clinical and Community Psychologist, NTW NHS Trust

Expressions of interest

The first report author was a facilitator on the MHFA training, which was funded by Northumberland Fire and Rescue service.

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1. Executive Summary

1.1 Background

Mental health promotion in employment is important for two reasons: (1) to address negative beliefs and discriminatory practices toward people with mental health problems; and (2) to develop work environments that positively foster well-being. This study aimed to evaluate the impact of a Mental Health First Aid (MHFA) course on attitudes and well being at work.

Mental Health First Aid (MHFA) is a 12 hour training programme designed to inform members of the public about the signs and symptoms of mental health problems and ways of supporting someone who is experiencing difficulties.

The aims are to:

1. "To preserve life where a person may be a danger to themselves or others.
2. To provide help to prevent the mental health problem developing into a more serious state.
3. To promote the recovery of good mental health.
4. To provide comfort to a person experiencing a mental health problem.
5. To raise awareness of mental health issues in the community.
6. To reduce stigma and discrimination."

(MHFA England Manual, 2008, p.15)

1.2 Method

The course was delivered as mandatory training for managers in Northumberland's Fire and Rescue Service. It was evaluated as part of a random allocation study with two other training interventions: Looking After Wellbeing at Work (LWW) and an hour's leaflet session (LS). 176 line managers were randomly allocated to one of the three training conditions; 106 attended and 41 of these did the MHFA training and completed pre and post training questionnaires about their attitudes and learning.

1.3 Results

The results identified show that the MHFA training was significantly more effective than a leaflet session at promoting more positive attitudes towards people with mental health problems. The attitudes measure included items relating to views on mental health problems such as career and relationship prospects, and desired social distance. MHFA participants also showed statistically significant improvements in knowledge/efficacy scores which was identified as a reliable factor. Participants were also asked to rate their knowledge about mental health and stress, and say how confident they were that they could help a friend with mental health problems. The study also demonstrated that MHFA training was associated with participants' increased belief in their ability to help others with a mental health problem and an increased desire to help.

There were no significant differences between the MHFA participant and LWW participant scores on either attitudes or knowledge/efficacy, suggesting both the training interventions produced positive effects. All aspects of the

programme were rated between good and excellent, and the facilitators, the manual, the learning exercises and the course structure were rated particularly highly.

Fifteen telephone interviews after the MHFA courses identified the following two themes as influential: (1) recognising and responding to mental health problems; (2) changing attitudes and assumptions. Recognising and responding to mental health issues was useful for responding to others more confidently and practically, and also had relevance to participants' own needs. There was also the recognition of the need for individualised approaches. The second theme included more detailed themes: recognising the commonness of mental health problems; that mental health problems can happen to anyone; becoming more tolerant and hopeful; and building compassion. These themes are comparable with the quantitative findings. Course participants particularly valued the option to opt out if required, real-life illustrations on films, knowledgeable facilitators, good interaction and structure to the course.

Suggested improvements were that there is more discussion and fewer slides, more representation from managers on the course, and ensure a focus on the circumstances and personal issues for people with mental health problems.

1.4 Conclusions

The MHFA course trained participants in appropriate screening and supporting of people with signs of mental health problems and the LWW course took an organisational and occupational stress/wellbeing perspective. These findings suggest that the MHFA and LWW courses are complementary and their positive impact is comparable, while also meeting some different objectives.

Qualitative analysis and research showed that certain aspects of Mental Health First Aid contributed to its effectiveness in promoting understanding and tolerance: Explicitly discussing mental health problems as an issue at work, how to identify them, practical suggestions for intervening, and highlighting the commonness and universality of mental health problems. The manner in which the courses were run, using realistic illustrations, knowledgeable facilitators, and the facilitation of discussion, were important elements for changing attitudes.

2. Introduction

2.1 Why focus on mental health promotion in the workplace?

The Northumberland Tyne and Wear NHS community psychology department has been providing targeted mental health promotion interventions for Northumberland Employers since June 2008. The reasons are twofold (1) because the negative beliefs towards people with mental health problems in employment affect recovery and (2) the negative impact of stressful work environments can have a detrimental effect on people's mental health.

With regard to negative beliefs about people with mental health problems, the literature strongly supports this view. For example, only 4 in 10 employers said they would think about employing someone with mental health problems, compared with 8 out of 10 employers who said they would think about employing people who had been unemployed long term or people who were lone parents (Thornicroft 2006). Most members of the public (74%) think employers would discriminate against people with mental health problems (Read and Baker, 1996). In surveys, 8 out of 10 of employers state they have no guidelines on how to support people with mental health problems at work (Shaw Trust, 2006).

With regard to the negative impact of stress, there is a greater probability of employees developing a mental health problem in stressful work environments, suggesting a direct link between workplace management and mental health (HSE, 2000). In a 2008 survey, 17% of people rated their job as very or extremely stressful, the highest number since the surveys began in 2004 (HSE, 2008). There is convincing evidence that prolonged periods of stress, including work-related stress, have an adverse effect on health. Research provides strong links between stress and physical effects such as heart disease, back pain, headaches, gastrointestinal disturbances or various minor illnesses and psychological effects such as anxiety and depression. (HSE, 2007).

2.2 Stress and Mental Health in the Fire Service

In relation to the fire service in the UK, workplace stress has been highlighted as a particular problem. For example, a survey (Hawkins, 2005) of 202 fire service officers across the UK revealed that 45% were showing signs of emotional exhaustion. Nearly three quarters showed psychological symptoms of stress and mental health problems with anxiety, difficulty sleeping and physical symptoms of stress being the most common.

Whilst the traumatic nature of the work of the fire service is likely to play a part in these difficulties, the most common causes of workplace stress were seen as excessive demands and lack of support from senior managers. Nearly half the respondents said they could not cope with workloads or were letting jobs pile up. Most managers regularly took work home and felt this was affecting their home life. Further, a number of respondents felt that line managers would be sympathetic about concerns over workload, but do nothing about it.

Some of the questions in the questionnaire used by Hawkins were leading such as “do you feel the job is unnecessarily bureaucratic”. However, the findings supported the work of Brunnsden, Woodward and Regel (2003) who completed a questionnaire study with fire-fighters and control room staff (who take and direct the emergency calls) and found high levels of stress. Brunnsden et al noted relationships with superiors, poor consultation and lack of training contributed to this. Brunnsden, Woodward and Wilson (2003) suggest stress is a particular problem for union officials within the fire service with over half feeling worn out by the work and 94% saying they experienced additional stress or pressure because of their role as union official. Interviews with union officials suggested that strained relationships with senior managers contributed to this stress.

Evidence from the Department for Communities and Local Government (2008) further supports the suggestion that relationships with senior managers in the fire service are a source of stress. They received 1,869 questionnaires from fire-fighters across England, with the questionnaire sample demographically similar to the Fire and Rescue workforce across England. They found that whilst an overwhelming majority (80%) said relationships with their watch were good or very good, most reported relationships with senior managers to be poor or very poor. Further, many reported witnessing workplace bullying and 32% said they had been bullied themselves in the previous 12 months. More than half the cases were reported to have been committed by senior colleagues or line managers.

Another potential source of stress in the fire service, and potential source of conflict with senior managers, is the change and variety in roles carried out by fire service personnel. In the past the role of the fire service was towards rescuing people in emergencies. Publications from the fire brigade union suggest that this role is changing towards prevention of disasters (Labour Research department, 2008). As a result there is more time spent doing work such as checking fire alarms and awareness raising in schools and workplaces. The Fire Brigade union have argued that this has resulted in reduced and insufficient training to respond to emergency situations and suggest that this increases the risks for fire-fighters (Labour Research department, 2008).

The range of emergency response roles that are carried out by the service are varied and complex. A Fire Brigade Union Report detailed some of the typical emergency situations fire fighters attended in 2008. These included a house fire, a river rescue, road traffic accident, mud rescue, flood rescue, a potential suicide and rescue from potential building collapse. Research suggests increased levels of posttraumatic stress in fire-fighters compared with the population average (Mitani, Fujita, Nakata, and Sharikawa, 2006, Deahl, 1998, McCloy, 1992 and Regel, 2007). To help fire-fighters cope with this, the Fire Service use Critical Incident Stress Management (CISM). This involves pre-crisis education, assessment, defusing, stress debriefing and further psychological support if necessary (Regel, 2007). Whilst Psychological debriefing has been criticised in NICE guidelines (NICE 2005), Regel (2007) makes a strong case for how CISM differs from psychological debriefing, in

that CISM is seen as a mechanism for improving social support rather than a psychological intervention. Social support has been shown to be extremely valuable in alleviating acute and chronic stress in fire-fighters (Mitini et. al., 2006).

In terms of coping with stress, Hawkins (2005, mentioned above) suggests that some of the coping mechanisms available in other workplaces, such as time and workload management are more difficult in the fire service because of the nature of the work demands and the need to respond to emergencies. Further, the Department for Communities and Local Government report (2008) suggests that the “fire-fighter image” could affect people’s willingness to seek help for stress and mental health problems. The questionnaire returns suggested that being “emotionally strong” and “being brave” were seen as important traits in a fire-fighter. This is supported by interviews with union officials, carried out by Brunsdon, Woodward and Regel (2003) one theme was concern over acknowledging stress. One respondent said:

“some fire-fighters tease and demean men with stress, if not in front of them, then behind their backs” and “people do not give honest opinions in front of their colleagues”.

To summarise, workplace stress is a particular problem in the fire service. Research suggests this is related to excessive demands, strained relationships with senior managers, changing roles and exposure to traumatic events. Whilst the service offers some support in relation to coping with traumatic events, this does not cover stress resulting from organisational stressors and it is likely that the prejudices associated with stress and mental health could deter people from seeking help if they need it.

2.3 Mental Health First Aid (MHFA)

Mental Health First Aid (MHFA) is a 12 hour training programme designed to inform members of the public about the signs and symptoms of mental health problems and ways of supporting someone who is experiencing mental health difficulties. The aims of MHFA are:

1. “To preserve life where a person may be a danger to themselves or others.
2. To provide help to prevent the mental health problem developing into a more serious state.
3. To promote the recovery of good mental health.
4. To provide comfort to a person experiencing a mental health problem.
5. To raise awareness of mental health issues in the community.
6. To reduce stigma and discrimination.”

(MHFA England Manual, 2008, p.15)

MHFA looks at the most common mental health problems (anxiety and depression) and one of the more misunderstood mental health problems — psychosis. It covers what to do if you come across someone in crisis (e.g. having a panic attack, experiencing a delusion) and what to do if a colleague/friend were showing signs of a mental health problem. It discusses what treatments are available, where people can access help and the kinds of self-help available.

Betty Kitchener and Anthony Jorm originally developed MHFA in Australia in 2000. It was designed to improve mental health literacy (Kitchener and Jorm, 2005). Kitchener and Jorm (2005) describe studies designed to assess the effectiveness of MHFA with three groups: the public, the public in a rural area and those in a workplace setting. The last two studies involved random allocation to a waiting list control group and the three studies contained 1,264 participants in total, suggesting high reliability in the research findings. All studies showed statistically significant improvements post training in a range of areas including increased reported willingness to help others, more confidence in providing support and assistance to others and increased agreement with mental health professionals about effective treatments. One trial also found improved self-reported mental well-being among training participants.

These findings are supported by qualitative data from interviews with 191 training participants, 19-21 months following training. Most of the participants had been in contact with someone experiencing mental health problems within that time and were able to use the skills learnt on the course. Most said they felt more able to handle crises and were more understanding of the experiences of people in distress (Jorm, Kitchener and Mugford, 2005).

Since that time MHFA has been adopted and adapted by a wide variety of countries including Canada, Finland, Hong Kong, Singapore, Ireland, Scotland, Wales and England (Kitchener and Jorm, 2008). Each country has made some modifications to the original programme. England's MHFA training is very much based on the Scottish programme. The Scottish MHFA adapted the Australian content by changing some of the language, covering additional topics such as self-harm and recovery and the development of a DVD that includes testimonies from people who have experienced mental health problems.

The Scottish MHFA programme has been well evaluated (York Consulting, 2004). The researchers conducted pre and post questionnaire analysis, used participant and trainer diaries and interviewed 8 managers of participants who had attended the course. The pre and post questionnaire returns were relatively low, with 61 people returning pre (41%), and 75 returning post (50%), however, 292 completed course evaluation forms. The results should be viewed with caution because of the lack of comparison group. This makes it more likely that factors such as wanting to please the researchers and changes in participants' lives other than the training could have had an effect. Nevertheless, the range of research techniques used in this study increases the validity of the results. York Consulting found significant increases in

perceived levels of competence pre and post training and positive impacts on training participant's knowledge and learning about mental health. The results indicated a reduction in fear and increase in empathy towards people who experience mental health problems.

Whilst the focus of this report is primarily the evaluation of MHFA training, two comparison groups were used to assist in the evaluation: a leaflet session control group and another intervention aimed at raising awareness of mental health issues, Looking After Wellbeing at Work (LWW).

2.4 The Looking After Wellbeing at Work Training

The training lasts two days and the objectives are to: promote understanding of the influences on wellbeing at work; enable people to look after their own and others' wellbeing; increase awareness of the experience of mental health problems; and to promote positive approaches to others.

A Northumberland training development team included thirteen people from different organisations. The group included people with experience of mental health problems, whose contributions have been vital to the project's success.

The training development group developed the training based on a literature review by Robson, and Bostock, (in preparation, 2010). This review suggested the training should include 5 ingredients to enable it to be successful:

1. Focus on positive mental health and resilience as a way of introducing the topic. Mental health is not just about mental health problems.
2. Include people with experience of mental health problems in the design, delivery and review of programmes. Build empathy, understanding, notice the common human aspects and value difference.
3. Emphasise how social factors impact on our mental health and view biological differences within the social context.
4. Lay out the case for the preservation and promotion of mental health; include awareness of the law "education is not enough" (Sayce, 2003).
5. Challenge myths about mental health, particularly about dangerousness, work performance and recovery.

3. Method

The study involved participants engaging in one of the described training courses or a leaflet session about mental health. There were 3 conditions: Looking after Wellbeing at Work Training (LWW), a leaflet session (LS) and Mental Health First Aid Training (MHFA).

3.1 Participants

The training was advertised through the Northumberland Fire and Rescue Service Learning and Development team. It was advertised as mandatory training for all with line management responsibilities. All managers were grouped into managerial role (watch manager, control room officer, senior manager), then randomly allocated to one of the conditions to ensure an equal spread of managerial grades across the groups.

Each intervention was delivered 3 times throughout May and June 2009. Participants were allowed to choose which date they attended their allocated training.

Out of the 176 managers nominated for LWW, MHFA or LS, 106 attended. Out of those 106, 16 were unable to attend their allocated group and were offered an alternative allocation. Given this may have affected the randomisation, the results will check for differences between the groups at the pre-group stage.

106 participants completed pre intervention questionnaires, (42 MHFA, 32 LWW, 32 LS). Of this sample, most had not received training on stress or mental health awareness before (77%), most had known someone close to them with experience of a mental health problem (68%). Most reported they had not personally experienced a mental health problem (66%) and some reported they were either not sure or would rather not say (17%). Half of the respondents had been in contact with someone with a mental health problem in the six months prior to training (50%) and again some were not sure or didn't want to say (12%).

The most common age group was 38-48 years (55%), then 49-59 and 27-37 years. No participants were in the 16-26, 60-70 or 70 years plus categories. There were more men than women in the sample (84%:23%).

3.2 Measures

Each group was given a pre, post and 3 month follow up questionnaire in order to consider the impact on attitudes and approaches to people with mental health problems, and to their own well-being and confidence (see Appendix 1).

The questionnaire asked about basic demographic data and information regarding contact and experience of mental health problems, both of which have been shown to affect attitudes towards people with mental health problems (Corrigan, 2006).

The questionnaire contains two validated measures, firstly, the Attitudes to Mental Illness Questionnaire (AMIQ). Luty, Fekadu, Umoh and Gallagher (2006) tested this questionnaire on a random sample of 1079 members of the general public. They found the questionnaire to show good test-retest reliability, alternative test reliability, and face, construct and criterion validity. Each item on the AMIQ could be scored from -2 to +2 and higher scores relate to more positive attitudes to mental health. (See Luty et al 2006 for details of the scoring criteria).

The second validated measure is the Warwick-Edinburgh wellbeing scale (WEMWBS). This is a 14-item scale designed to measure positive mental well-being. The scale has been tested on student populations and in Scottish national mental health surveys (Tennant, Hiller, Fishwick, Platt, Joseph, Weich, Parkinson, Secker, and Stewart-Brown, 2007). The measure has shown good content validity (the items that are included are useful) good construct validity (all the items are measuring just one concept), good criterion validity (the questionnaire related well to other measures of mental health and well-being, such as the GHQ). It also shows good test-retest reliability. The WEMWBS was also tested against the Balanced Inventory for Desirable Responding (BIDR) designed to measure tendency to give the perceived "desired response" to a questionnaire. The correlations with this measure were low, suggesting the WEMWBS is not overly susceptible to desirable responding. Tennant et al conclude that the measure is a good assessment of mental well-being at the population level, however, they note that the scale's sensitivity to change has not been measured, suggesting that our pre and post results should be interpreted with caution. As this questionnaire asks about wellbeing over the previous 4 weeks, it will only be included at the pre test and three month follow up stage (the follow up data is not reported here).

The remaining question items were either taken from previous research (Sholl, Korkie and Harper, 2009; Matschinger and Angermeyer, 1996), taken from the 2008 attitudes to mental illness questionnaire (Prior and Carman, 2008) or were items developed by the training team to assess some aspect of the training (such as knowledge of different ways employers can manage stress). In the analysis of results, these questions will be analysed for their utility as measures, and grouped together as a factor for analysis where appropriate.

To control for outside influences on participants, the scores in the LS scores were measured against the scores in the training group.

We also aimed to measure whether the training has any impact on behaviour. To assist with this we are going to measure sickness absence rates for all participants individually, 3 months prior and 3 months post intervention. In addition, we aimed to assess the overall sickness absence rates for the

service before and after the training, given that the training also covers supporting others, it could have an impact on staff who work with the training participants.

One of the major complaints is that research has tended to focus on changes in attitude rather than changes in behaviour, when the two are not necessarily linked. Further, Thornicroft (2006) notes that much of the literature has asked about what people would do or most people would do in hypothetical situations. These do not tend to evoke real-life emotions which have been shown to affect discriminatory behaviour (Corrigan, Rowan. Green, Lundin, River, Wasowski, White & Kubiak, 2002). As Thornicroft (2006) writes:

“The stigma field has been, to a large extent, beside the point.” p24.

It is difficult to get a good representation of attitudes and behaviour change because of the lack of standardised measures used. However, the AMIQ includes social distance items, which could be seen as a measure of future behaviour, e.g. “I would be comfortable if (person with mental health problems) were my colleague”. As recommended by Link, Yang, Phelan and Collins (2004) we asked participants to rate their emotional responses to a vignette, which Link et al suggest would be likely to impact on behaviour. The emotional reactions were from Matschinger and Angermeyer, 1996. We have also used questions from the attitudes to mental illness research report (Prior and Carman, 2008) that have shown to result in mixed responses and be linked to negative beliefs about mental health problems such as “people with mental health problems are much less dangerous than most people suppose”.

In order to gain qualitative feedback, each training group participant was invited to volunteer for a telephone interview (procedure detailed below). An independent researcher with experience in running qualitative analysis was recruited to complete and analyse the interviews. Participants were contacted between 2 and 4 weeks following the training and were asked questions from the topic guide (see Appendix 2). The researcher took detailed notes and used participants' own words where possible in reporting the interviews.

3.3 Procedure

Mental Health First Aid Training (MHFA)

For the MHFA condition, each participant attended one of three MHFA training courses for two days, running from 9.00 am until 4.30pm. All groups were run by the same two lead facilitators and included a maximum of 18 participants.

Each participant was asked to complete a pre training questionnaire on arrival to the training and a post questionnaire and facilitation evaluation at the end of the training. They were also informed that they would be sent a 3 month follow up questionnaire. The participants were told that participation in the evaluation was voluntary, but as an incentive for completing the questionnaires, someone who completed all 3 questionnaires would be selected at random to win a £10 voucher. (See Appendix 1 for standardised instructions and pre, post and follow up questionnaires).

On the second day the group were also invited to volunteer for an evaluation interview. The groups were told that the interviews would be anonymous and would be carried out by a researcher independent of the training team. The groups were told volunteers would be selected at random and one of them given a £10 voucher. The facilitators left the room when participants volunteered to ensure anonymity.

Looking After Well Being at Work Training (LWW)

For the LWW training, each participant attended a group for two days, running from 9.00 am until 4.30pm. Each group contained a maximum of 18 people. (See Appendix 3 for a course outline). Three training courses were offered. All groups were run by the same two lead facilitators and four co-facilitators. There is a section of the course which relates to a “sharing experience session”, a chance for people with experience of mental health problems to talk about their experiences with the group.

The pre and post questionnaires and interviews were carried out as above.

Leaflet Session (LS)

This group were invited to attend a 1 hour briefing session. Three briefing sessions were offered and those nominated could choose a date to attend. During this session the participants were asked to complete pre-group questionnaires and informed about the post and follow up questionnaires, following the instructions given above. After this, participants were invited to view and read over a variety of leaflets around stress, mental health and physical health. They were also given the opportunity to speak to an assistant psychologist about any questions they had relating to stress and mental health and to a health trainer about any queries relating to physical health. The groups were also given the email address of the assistant psychologist should they have any queries after the briefing.

2 days after the briefing session, a Psychology administration worker emailed out a questionnaire and asked for it to be returned within the week. They were sent one reminder before the due date.

3.4 Analysis

All pre and post group comparison results were analysed using SPSS version 16.0. The items developed outside a validated questionnaire were analysed using exploratory factor analysis. This yielded one variable that was included in a within subjects MANVOVA, along with AMIQ stigma scores. All other results were analysed in a descriptive manner. The facilitation and content evaluation were collated separately in Microsoft Excel.

The interviews were collected and analysed by an independent researcher with experience of collecting and analysing qualitative research.

4. Results

4.1 Group characteristics

In the MHFA group 41 completed post group questionnaires and in the LWW group, 31 completed post questionnaires. In the LS group, 17 completed post group questionnaires. The LWW and MHFA groups completed their questionnaires on site following training. The leaflet session participants returned follow-up questionnaires by email or post, which is likely to contribute to these differing response rates.

In the LS, the characteristics of those who completed post group questionnaires and those who did not were similar in most respects, except that more of those who completed the questionnaire at follow up said they had not experienced a mental health problem (71%:33%). The frequencies suggest that this is due to the fact that more of the non-completers were either not sure or did not want to say whether they had experienced a mental health problem (40%: 18%). Because the expected frequencies are lower than 5 for some responses, it is not possible to complete a comparative analysis to assess whether these differences are significant. However, the means of the groups on the two measures involved in statistical analysis (AMIQ attitudes score and Knowledge/efficacy score) were similar.

4.2 Factor Analysis

A factor analysis was carried out to reduce the questionnaire items into concepts that could be more meaningfully analysed. All questionnaire items except the AMIQ and the Wellbeing Scale were entered into an exploratory factor analysis. Pre-group questionnaire responses from all three groups (n = 106) were used. The purpose of this was to reduce the items into factors that could be used for further analysis.

Assumptions

Factor analysis requires a normal distribution of data. Histogram plots were obtained for each item in the analysis to ensure that each item showed a good range of responses (for example, if everyone strongly disagreed with one item, it would be an unhelpful measure of change). The histogram plots suggested a suitably normal distribution of data across all items entered into the analysis.

Factor analysis also requires at least ordinal level of measurement, our items met this assumption. Further, as required, the number of participants exceeded the number of variables over and above a 2:1 ratio. There were also over 100 participants so more participants than factors, suggesting that factor analysis is a suitable technique for this sample (Field, 2005, Dancey and Reidy, 2002).

Factorability

The analysis began by completing a correlation matrix on all the items. Those items that did not correlate at 0.3 or above with any other item were removed from the analysis, as suggested by Field (2005). This is because, if the items do not correlate with anything, they will not help form a meaningful factor, therefore should not be included. This resulted in the items relating to causes of mental health problems (circumstances or biology) being removed from the analysis.

Then a Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) test was carried out an anti image correlation. This is a way of assessing the partial correlation between variables. A low KMO score indicates a large variability in the correlation which suggests factor analysis would be inappropriate. An anti image correlation can be carried out to assess whether individual items have correlations that do not match the overall correlation pattern (Field, 2005). The "own stress" variable was removed due to unsatisfactory anti image correlation scores. This improved the KMO score to 0.693 which suggests an acceptable level for factor analysis (Field, 2005). Further, the significant Bartlett's test ($B = 519.18$, $p = 0.00$) and the small residuals further indicate the suitability of the data for factor analysis.

Rotation

The direct oblimin rotation (an oblique rotation) was chosen due to the potential intercorrelation between factors, as all are attempting to measure some aspect of prejudice and negativity (Field, 2005).

Results

The following criteria were used to select reliable factors:

- A. With 100 people, variables that load on a variable at 0.512 level and above are considered reliable (Field, 2005, p387). All values under this were suppressed in the analysis.
- B. Each factor should have over 2 variables loading on a factor for it to be reliable (Dancey and Reidy, 2002)
- C. Need to keep factors with Eigen values over 1 only. Eigen values under 1 were suppressed (Dancey and Reidy, 2002; Field, 2005).

The analysis yielded three reliable factors.

1. Efficacy/knowledge around mental health. Comprising the items:
 - Knowledge of ways I can deal with stress.
 - Knowledge of ways employers can deal with stress.
 - Knowledge of mental health problems in general.
 - Knowledge of different types of mental health problem.
 - Knowledge of the signs of a mental health problem.
 - I could do something to help a friend affected by a mental health problem.

2. Empathy/emotional connection for people with mental health problems. Comprising the items:
 - I feel anxious about the person in the vignette.
 - I feel uneasy about the person in the vignette.
 - I feel sympathy for the person in the vignette.

3. Positive beliefs towards people with mental health problems
 - I could be friends with someone with a mental health problem.
 - People with mental illness are much less of a danger than most people suppose.
 - People with mental health problems should have the same rights to a job as anyone else.

To create the new factors, the items that loaded highly on the reliable factors were summed.

Summing scores in psychometrics is common practice and aids test evaluation, give scoring instructions and set standards (Rust and Golombok, 2000). Rust and Golombok suggest summing scores will give an accurate indication of overall score if you can be sure items are measuring the same construct. The factor analysis confirms the items are measuring the same construct.

4.3 Pre-training scores

Table 1 shows that the means for all groups' pre training were similar, although the LS mean scores were slightly higher:

Table 1: Mean scores on Attitude and Knowledge/efficacy at pre-test for each condition

Group	AMIQ attitude score	Knowledge/efficacy score
Looking After Wellbeing	16.68	16.34
LS	17.53	17.5
MHFA	16.68	16.17

The groups were normally distributed and showed homogeneity of variance for all groups on both measures at time 1. Therefore two ANOVAs were performed, which confirmed there were no significant differences between the groups in either AMIQ ($f = .789, p = 0.46$) or Knowledge/efficacy ($f = 2.24, p = 0.11$) at pre test.

4.4 Within Subjects MANOVA Time and Group

Only participants who provided pre and post questionnaires were included in the analysis (LWW = 31, LS = 17, MHFA = 41).

Box plots were used to identify outliers. One participant was identified as an outlier on Knowledge/efficacy at both T1 and T2. This participants knowledge

scores were removed as the box plots suggested his scores were not representative of the group being measured.

Given the small sample size in the LS group ($n = 16$) a within subjects MANOVA was selected to increase the power of the analysis (Dancey and Reidy, 2005). As this was a small sample size for a MANOVA, we needed to increase the statistical power of the test as much as possible. One way to do this was to reduce the number of dependent variables entered in the MANOVA. Therefore, only 2 dependent variables were entered into the MANOVA: AMIQ stigma score and knowledge/efficacy. The remaining factors identified in the factor analysis will be analysed using a comparison of means only.

Assumptions

Histograms and the Kolmogorov-Smirnov test suggested that the score distribution significantly differed from the normal distribution. Dancey and Reidy (2005) note that MANOVA is robust to assumptions if you have equal groups and reasonable numbers of participants in group (at least 22 participants in total for a within participant design). This is supported by Field (2005) who notes in MANOVA all tests statistics are relatively robust to violations of non-normality, especially with the assumption of homogeneity of covariance matrices.

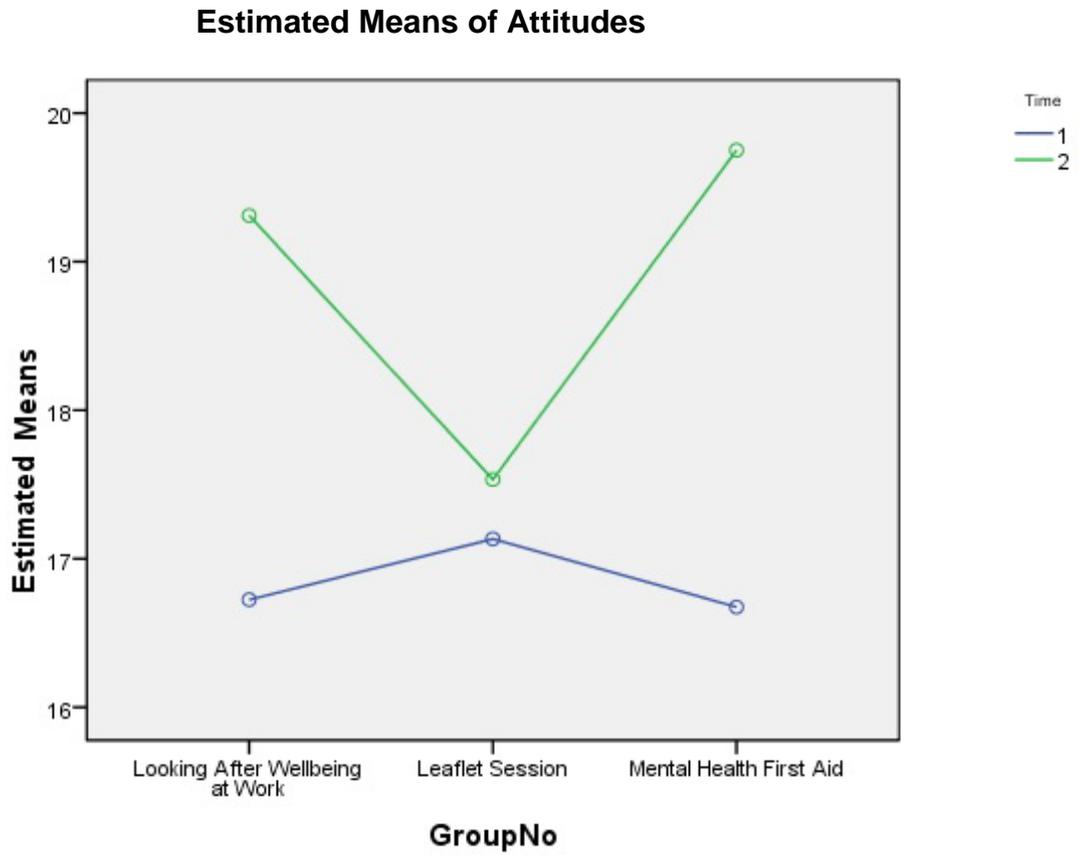
The results suggested normal homogeneity of covariance matrices (Levene's test and the Box's M test were non-significant). Also, the assumption of multicollinearity was met (the DVS did not correlate above 0.9). However, our sample sizes were unequal. This suggested that MANOVA results should be checked against non-parametric follow-up tests to check the validity of the results.

Results

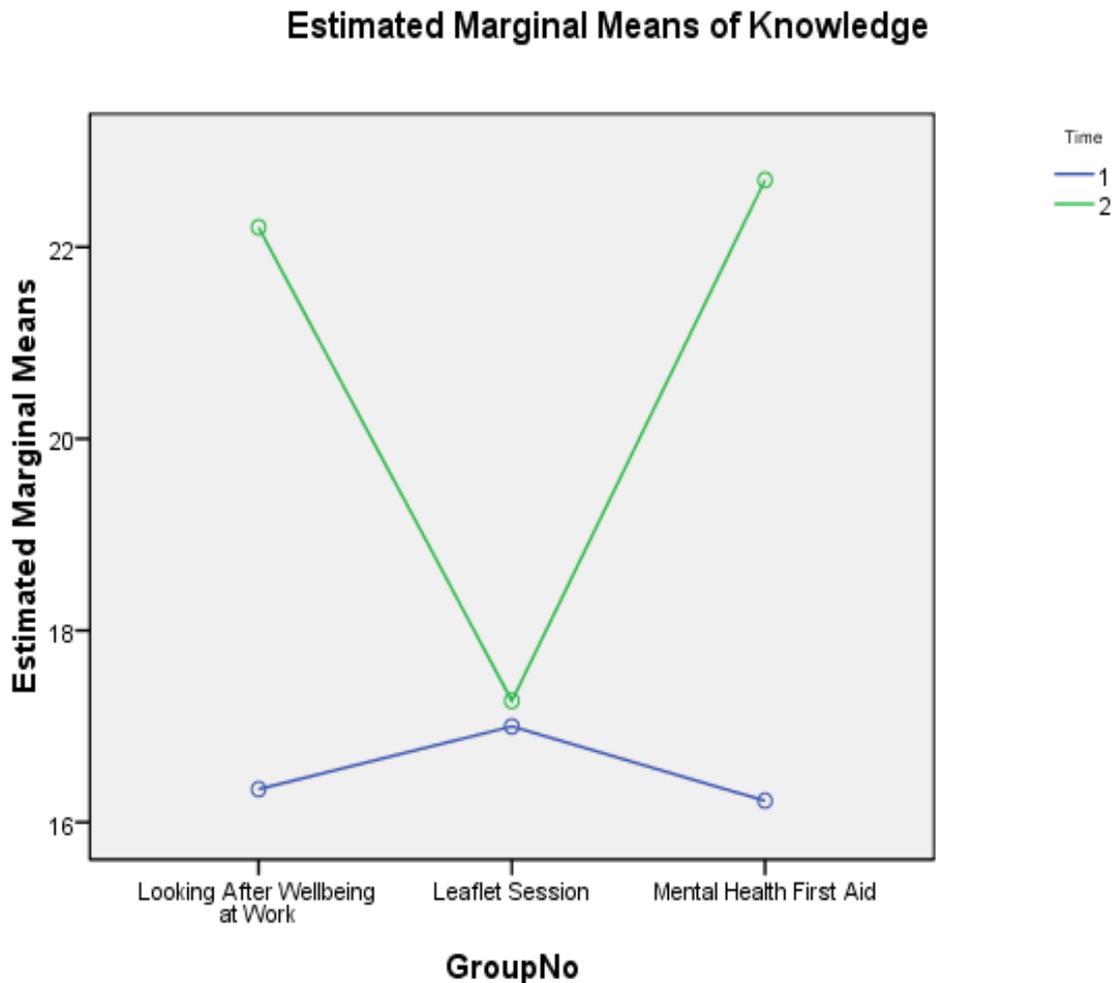
The MANOVA showed a significant main effect of time ($F = 68.00$, $p = 0.00$) suggesting an overall improvement in all groups in AMIQ and knowledge between Time 1 and Time 2. However, this was viewed with caution as the results also showed a significant interaction between time and group ($p = 162.00$, $p = 0.00$). This indicated that the improvement differed depending on which group were considered. The initial main effect of time could be affected by one or two groups exerting a greater influence on the overall scores. In other words, the initial main effect suggested an improvement across all groups, the interaction suggested that the change may be in a few groups only, and the main effects analysis should not be trusted (Dancey and Reidy, 2005)

Line graphs 1 and 2 revealed that whilst scores for all groups on both AMIQ attitude scores and knowledge/efficacy improved, the intervention group scores improved much more than the LS at Time 2.

Graph 1: Mean group scores on AMIQ attitudes questionnaire at Time 1 and Time 2



Graph 2: Mean group scores on knowledge/efficacy factor at Time 1 and Time 2



Post hoc tests

The MANOVA suggests that there are some significant improvements in the groups when comparing Time 1 scores to Time 2 scores. However, it does not tell us where the differences lie, which groups are significantly different. Whilst the graphs above suggest significant differences in LWW and MHFA but not the LS, this needs to be verified using post hoc tests. To check the validity of the MANOVA findings and the significance of the group differences, 6 Wilcoxon tests were completed (the non-parametric equivalent of the paired samples t-tests). Non-parametric tests were used because of the non-normal distribution of the time two data, as noted above.

The tests confirmed that for MHFA, comparing Time 1 and 2 there was a significant difference in attitude ($z = 5.52, p = 0.000$) and knowledge ($z = 5.52, p = 0.000$) scores.

The tests confirmed that for LWW, comparing Time 1 and 2 there was a significant difference in attitude ($z = 3.849$, $p = 0.000$) and knowledge ($z = 4.513$, $p = 0.000$) scores.

The post hoc tests showed for the LS, comparing Time 1 and 2 there was no significant difference in attitude ($z = 5.0$, $p = 0.617$) or knowledge ($z = 0.921$, $p = 0.357$).

The non-parametric statistics support the original MANOVA in that both intervention groups show a significant improvement in both attitude and knowledge scores and the LS does not. Further the detection of an effect and the power calculations from SPSS (between 0.7 and 1.0) further supports the validity of MANOVA for this sample.

4.5 Between Group Comparisons

The within subjects MANOVA suggests there was significant improvement in the LWW and MHFA groups at Time 1 and Time 2, but not in the LS. However, it does not tell us whether there were significant differences between the groups at Time 2 (post test). For example, were there any significant differences between LWW and MHFA at Time 2? Because the LS scores were slightly better at pre test, does this mean at post test differences in score for the LWW and MHFA will not be significantly different to the LS? To check for differences between groups at time 2, non-parametric independent tests were carried out (Mann Whitney tests). Non-parametric tests were used because of the non-normal distribution of time 2 data.

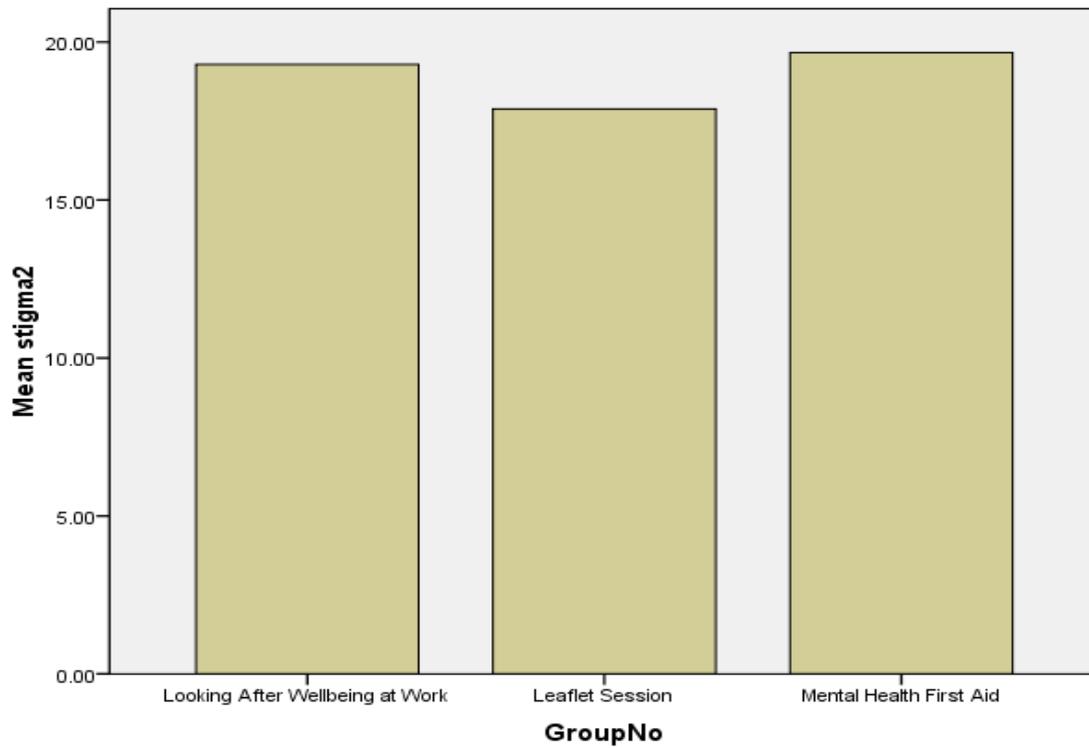
The comparisons showed there was a significant difference at Time 2 between MHFA and LS scores on attitude ($z = 2.34$, $p = 0.02$, $r = 0.31$) and knowledge ($z = 5.34$, $p = 0.00$, $r = 0.70$).

The comparisons showed there was a significant difference at Time 2 comparing LWW and LS scores on attitude ($z = 2.17$, $p = 0.03$, $r = 0.31$) and knowledge ($z = 4.86$, $p = 0.00$, $r = 0.70$).

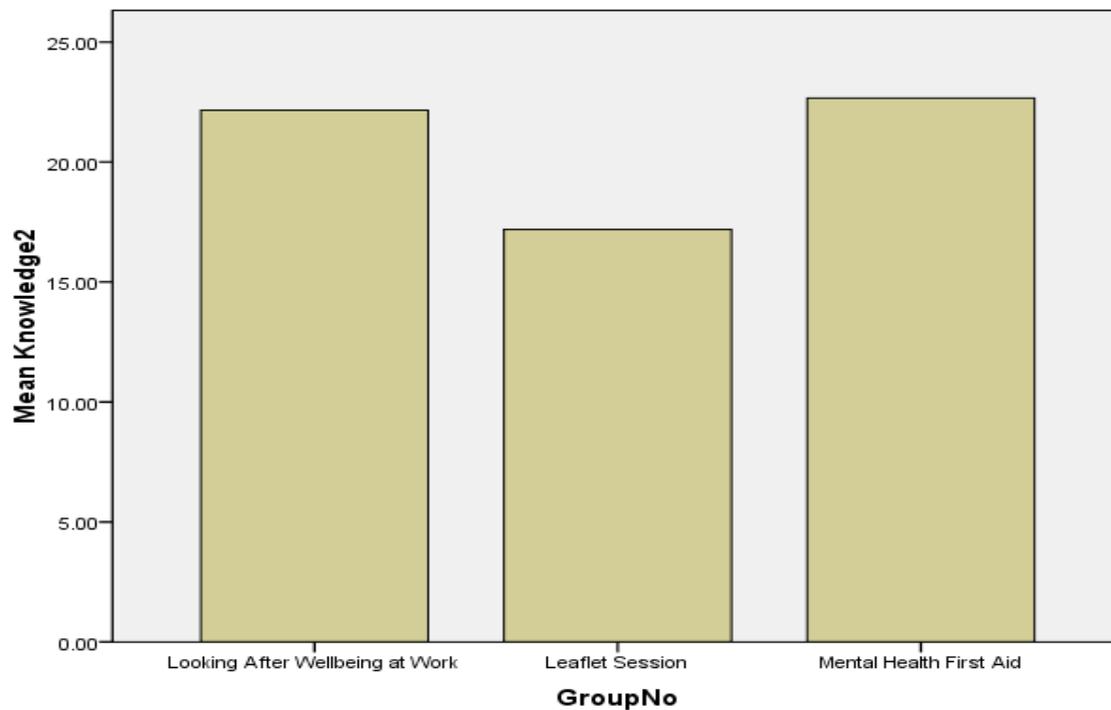
The comparisons showed no significant difference at Time 2 between the LWW and MHFA groups on attitude ($z = 0.29$, $p = 0.77$, $r = 0.03$) or knowledge ($z = 0.57$, $p = 0.57$, $r = 0.07$).

Graphs 3 and 4 show these between group differences.

Graph 3: Differences in mean AMIQ Attitude scores between groups at Time 2 (post group)



Graph 4: Differences in mean Knowledge/Efficacy scores between groups at Time 2 (post-group)



Descriptive statistics

No further statistical analysis could be carried out, as this would reduce the power of the statistical tests and increase the likelihood of making a Type 1 error.

However, the means for each group were analysed to try to provide some insight into why changes might have occurred. These changes in mean will only be viewed in conjunction with the qualitative analysis and past research.

Empathy/Emotional Connection & Possible Beliefs

The mean factor scores for empathy/emotional connection and positive beliefs are detailed in Table 2. The mean scores for the remaining items not included in the analysis are detailed in Table 3.

Table 2 Mean group scores at Time 1 and 2 on empathy and positive beliefs for each group:

Factor	LWW	LS	MHFA	Maximum score
Empathy 1	9.93	9.07	9.76	15
Empathy 2	10.12	8.86	9.56	15
Positive belief 1	10.96	12.07	11.70	15
Positive belief 2	13.71	12.36	13.15	15

This table shows that only the LWW group showed improved empathy/emotional connectedness scores at follow up. All groups showed and improvement in positive belief scores, but the two intervention groups more so.

Emotions

This was measured by asking participants to read a description of someone with mental health problems, then asking them to rate their emotions immediately after. As shown in Table 3, all three groups showed an improvement in desire to help across the time periods, with the MHFA group showing the greatest increase. Both intervention groups showed a decrease in self rated anger, and the LS group showed an increase in anger over the time period. However, the leaflet group had lower anger scores than either of the intervention groups at Time 1. There is a similar pattern with levels of irritation, with both intervention groups showing an improvement in irritation scores and the LS group remaining the same.

Table 3: Mean group emotion scores at Time 1 and Time 2 scores for each group.

Item	LWW	LS	MHFA	Maximum Score
Desire to help1	3.75	3.57	3.66	5
Desire to help2	4.0	3.79	4.34	5
Anger1*	4.25	4.86	4.54	5
Anger2*	4.68	4.71	4.71	5
Irritation1*	4.25	4.64	4.37	5
Irritation2*	4.50	4.64	4.61	5

*Reverse scored

Confidence in managing own stress

Table 4 shows average group scores in confidence in managing own stress at Time 1 and 2 for each group. Own stress scores were calculated by measuring responses to the question “I feel confident in my ability to manage my own stress”. Interestingly, the LS and MHFA group showed increased confidence in their ability to manage their own stress. The LWW group showed a very slight decrease in confidence in their ability to manage their own stress.

Table 4 Mean group scores for managing own stress scores for each group at time 1 and time 2

Item	LWW	LS	MHFA	Maximum Score
Ownstress1	3.82	3.86	3.80	5
Ownstress2	3.79	4.0	4.27	5

Causes of mental health problems

This was measured by asking the groups to respond to “mental health problems are mainly caused by biological problems in the brain” and “mental health problems are caused mainly by people’s circumstances”. Groups were asked to rate their answers from strongly disagree to strongly agree. Both intervention groups were more likely to reject biology as the main cause of mental health problems at time two, although the LWW group more so. The LS group stayed the same. All groups were more likely to accept that people’s circumstances were more likely to be the main cause of mental health problems, but more so in the LWW group.

Table 5 Mean group scores for beliefs about the causes of mental health problems

Item	LWW	LS	MHFA	Maximum Score
Biology1*	3.25	3.43	3.32	5
Biology2*	3.93	3.43	3.73	5
Circumstance1	3.39	3.21	3.49	5
Circumstance2	3.64	3.36	3.66	5

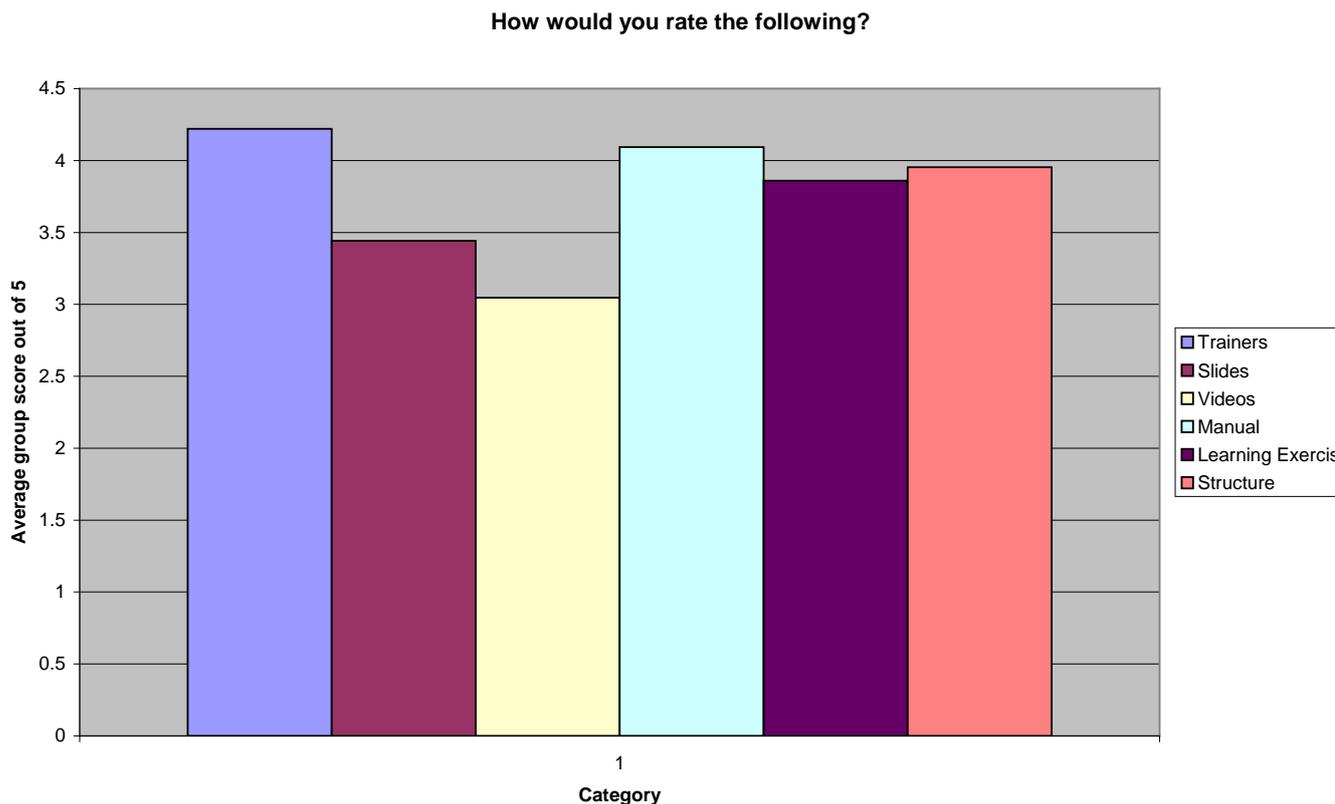
* Reverse scored

4.6 Facilitation and Content Evaluation

This section is based on the group average scores from the MHFA groups facilitation questionnaire ratings, n = 41.

Graph 5: Group average scores for different aspects of the training

1 = Poor, 2 = Fair, 3 = Good, 4 = Very Good, 5 = Excellent



Graph 5 shows all aspects of the programme on average rated between good and excellent. The videos and slides were rated the lowest and the facilitators, manual, learning exercises and structure rated the highest.

4.7 Qualitative Analysis

Fifteen people were randomly selected to be interviewed over the phone and all of these participated. Themes were extracted from the interviews and also from the responses to the qualitative post-course questions by an independent researcher and the report authors.

The interviews suggested that the participants were somewhat apprehensive or cynical about the training before delivery and they were surprised by the quality and usefulness of the course. They were asked what was most useful or effective, the key messages, and how the course had influenced them. The following themes were identified: (i) Recognising and responding to Mental Health Problems (ii) Changing attitudes and assumptions.

(i) Recognising and Responding to Mental Health Problems

Recognising the signs and symptoms of mental health difficulties was often mentioned as useful to the participants in supporting their friends and colleagues and also in responding to their own needs. Discussing how people experience mental health problems was seen as helpful:

“You can’t appreciate what people go through without going on a course like this”

Participants reported being more confident in recognising if someone had a problem and more orientated towards helping people.

“We were having chats with colleagues anyway before about their problems. But there was no structure before and now we can put names to what we were previously doing and have more people we can email, ring up...”

The course enabled people to give informed advice and provided steps for how to act. A number of them mentioned the helpfulness of the “ALGEE” model. One participant mentioned giving out a mobile telephone number for people to contact if they wished. A number of people distributed leaflets for staff to look at and mentioned the websites. Having information to tell people about where to go for help was seen as potentially useful.

In addition some participants reported that the course had personal relevance and found some of the strategies for relieving stress useful.

Finally an important point made was that there is not a “one answer fits all” solution to mental health problems but people needs individualised responses.

(ii) Changing Attitudes and Assumptions

There were a number of themes within this theme: Recognition of the commonness of mental health problems; mental health problems can happen to anyone; becoming more tolerant and hopeful; building compassion.

Recognition of the commonness of mental health problems

Participants realised that mental health problems are more common than generally appreciated and they affect *“not just the minority but the majority.”* Presenting facts about the prevalence of mental health problems seemed to be a valued means of conveying this message and one participant specifically mentioned their surprise at the suicide figures.

Mental health problems can happen to anyone

The recognition of mental health problems as commonplace was associated with also noting that mental health problems can be caused by a number of reasons at home and/or at work. So they can happen to “anybody” or even to “everybody” according to one participant *“I think everybody could fall in to that category at some point.”* This realisation seemed linked to increased empathy and sympathy for people in the workplace:

“Before it was a kind of taboo subject where people wouldn’t talk about it at work, but now we’re being educated a bit more, it is a lot wider and common in the workplace”.

This increased understanding of there being more people than anticipated who have mental health problems, helped people to see that mental health issues are *“more than just people being locked away.”*

Becoming more tolerant and hopeful

Many of the participants remarked on how they believed themselves to be less judgemental, more open-minded and keen to listen rather than making quick judgements about mental health issues.

“What it did it sort of gave you an idea that there is no normal. Every case has got to be taken on its own merits. It made you question what is normal and when they went round the room everybody’s normal was different”

Participants often mentioned that they had come to a view that suffering with mental health problems is normal and not necessarily associated with stereotyped views of people needing psychiatric treatment. Some of the participants had actively talked to other staff about coming to them if they had any problems. This suggested that attitudinal changes were linked with behaving differently as managers, colleagues and friends.

Participants also mentioned their increased insight into the prejudices against people with mental health problems for instance the jokes at their expense, and the way the media report mental health issues uncharitably. This awareness also engendered a sense of hope that mental health problems can be resolved, so one participant said that they had gained:

“...a greater awareness of people who have mental health problems and that they can be treated. People can be listened to and the majority of these can be sorted out.”

Participants' views suggested that people with mental health problems are not dangerous to others and that there is every reason that they can get on with their lives and maintain their employment.

Building compassion

A number of people described being affected personally by the course and that it encouraged sympathy and empathy for people so that they became more receptive and responsive:

“I think it encourage everyone to recognise these things and be a bit more community spirited. To help people, opening your eyes and seeing what's around you and providing support in knowledge that you've had some sort of input. So people get more involved and active”

The interviews suggested the following group processes helped the training to run well:

- The option to opt out of any exercises if required
- Confidentiality and the scope for participants to talk about themselves in a safe forum if they wished.
- Real-life illustrations conveyed the messages well, and having people with experience of mental health issues on the videos rather than actors.
- Knowledgeable facilitators made the course credible and interesting.
- Good interaction and participation, with opportunities to give feedback.
- Good structure to the course

The following suggestions for improvement were made:

- Less PowerPoint/more interaction and scope for discussion
- Include people with experiences of mental health problems in the training more
- Ensure more managers (junior and senior) attend the training
- Ensure a focus on the circumstances and personal issues associated with mental health problems

Whilst it could not be established as a theme, two participants commented that they would have liked to spend less time on the topic of suicide.

5. Discussion

5.1 Was the Training Effective?

Attitudes and Knowledge: Comparison of pre and post test scores showed that MHFA participants' attitudes became significantly more positive. The Attitude to Mental Illness measure included items relating to attitude to mental health problems and desired social distance. Desired social distance has been used in previous research as a measure of behavioural intent (Knifton, Walker, and Quinn, 2009). MHFA participants also showed statistically significant improvements in knowledge/efficacy scores. This score was established by asking participants to rate their knowledge about mental health and say how confident they were that they could help a friend with mental health problems.

The LS did not show these differences at pre and post test. Further, whilst there was no difference between the groups at pre-test, MHFA participants had significantly higher scores on attitudes and knowledge/efficacy at post-test.

These results suggest MHFA training had a positive effect on participants' attitudes, knowledge and behavioural intent relating to mental health problems. The use of a control group (the leaflet session) contributes to the evidence suggesting the MHFA training was effective as it helps control for practice effects. As the interventions were carried out over the same time period, the results also suggest that the improvement in scores for the MHFA participants is more likely to be due to the MHFA training, rather than any external influences such as newspaper stories or TV documentaries. However, these results should be viewed with caution because of the small sample size. Also, whilst there may have been social desirability bias for both groups, this could have been greater for the MHFA participants who spent more time with the course facilitators over the two days.

There were no significant differences between the MHFA participant and LWW participant scores on either attitudes or knowledge/efficacy, suggesting both the training interventions produced a positive effect.

Whilst the study design would not allow for meaningful statistical comparison of all questionnaire measures, comparing the means between the MHFA and LS groups provides further promising evidence about the effectiveness of MHFA training.

Emotional responses and desire to help: Each group was asked to rate their emotional responses to a description of a person with mental health problems, both before and after the training. Both the LS and MHFA group showed an increase in desire to help, although the MHFA group showed the greatest increase. Further, the MHFA participants showed a decrease in anger and irritation at post-test, whereas the LS control group scores either increased or stayed the same.

The above scores suggest an increase in positive helping emotions and a decrease in negative emotions. However, the empathy scores at pre and post test show a more complicated picture. Both the MHFA and the LS control group showed a decrease in empathy at post test. Empathy was a factor made up of the items “I feel anxious about the person in the vignette” “I feel uneasy about the person in the vignette” and “I feel sympathy for the person in the vignette”. This measure was taken from three questions developed for Mental Health First Aid evaluation but it is worth noting that they were difficult to interpret. The results could be positive because the participants are more confident in their ability to help the person and so less anxious/uneasy. Alternatively this decrease in score could be about negative emotions because it represents a reduction in strong emotion, in empathy, towards the person. The qualitative interviews suggest it is the former, as participants reported increased empathy with people with mental health problem illustrated by comments such as “It touched us personally” and “I don’t always think tolerating thoughts, I should now though”. The interviews also suggested participants felt more confident in supporting people with mental health problems.

Managing own well-being: Both the LS and the MHFA groups showed an improvement in their self-rated confidence in their ability to manage their own stress, but the MHFA group more so. Interviews with the MHFA course participants showed some participants thought the course helped them think about their own wellbeing. Previous research (Kitchner and Jorm, 2005) found improved wellbeing in participants in MHFA Australia training.

Training process: The post group questionnaire showed all aspects of the training were on average rated from good to excellent, with the videos and slides being rated as the lowest. The facilitators, manual, structure and learning exercises were rated the highest.

These results suggest that MHFA training was more effective than a leaflet session at increasing positive beliefs and behaviours towards people with mental health problems, for fire service managers. It also suggests the training increased participants’ confidence in their ability to manage their own and their colleagues stress and mental health problems.

5.2 What Contributed to Training Effectiveness?

Whilst this section will mainly focus on training content, the qualitative analysis suggests that knowledgeable facilitators, clear expectations, (using opt out and being clear about confidentiality), good group interaction and structure helped contribute to the training effectiveness. Four aspects of the training were important: (i) Dispelling myths; (ii) appreciating how common mental health problems are and that they can happen to anyone; (iii) real-life cases and information; (iv) awareness of negative public attitudes.

(i) Dispelling myths about recovery and dangerousness

The qualitative analysis suggested that participants appreciated information that helped counter myths about how dangerous people with mental health problems are and that people may never recover. In further support of this,

both the LS and the MHFA intervention showed improvement in positive beliefs about mental health scores, but the MHFA group participants more so. The positive belief scores included questionnaire items relating to beliefs about dangerousness, job rights and friendship with people with mental health problems.

This finding is consistent with Corrigan, Rowan, Green, Lundin, River, Uphoff-Wasowski, White & Kubiak (2002) who found education about dangerousness produced a positive effect on reported attitudes. Negative beliefs and behaviours towards people with mental health problems have also been linked with beliefs about recovery. For example, Mann and Himelein (2004) measured the effect of diagnosis, treatment beliefs, and psychiatric terminology on reported attitudes towards people with mental health problems. They used a sample of 116 undergraduate students (this may have skewed the results somewhat, given there was not a representative mix of different education levels), that were not controlled for culture or age (both having been shown to affect mental illness attitudes towards people with mental health problems). They found that more positive attitudes about treatment led to less stigmatised attitudes towards mental health.

(ii) Appreciating how common mental health problems are and that they can happen to anyone

The qualitative analysis showed participants valued information about how common mental health problems are and also suggested participants took away the message that people with mental health problems are not different to other people. This is supported by the post group questionnaire data that suggests participants showed an increase a belief in social causes of mental health problems (mental health problems as normal reactions to adverse events) and a small decrease in belief in biological explanations of mental health problems.

This could have contributed to the training effectiveness as research suggests negative beliefs and behaviours towards people with mental health problems are caused in part by a tendency to see people with mental health problems as “others” different from “ourselves” (Link, Yang, Phelan and Collins, 2004). Pinfold, Toulmin, Thornicroft, Huxley, Farmer, and Graham (2003) noted that in a group of school children, discussing the similarities between themselves and a person with schizophrenia was part of an effective way of reducing stigmatising attitudes, suggesting blurring the line between “us” and “them” can bring about positive changes. Although Pinfold et al used a small sample and did not differentiate between the different aspects of the programme in their evaluation, the effectiveness of noticing similarities has been replicated in other qualitative research studies (such as Scholl, Korkie and Harper, 2003). Further Read, Haslam, Sayce, and Davies (2006) and Walker and Read (2002) in their meta-analyses, suggest that there is “strong evidence” that viewing mental health problems as understandable psychological or emotional reactions to life events does reduce fear, social distance, and discrimination.

(iii) Real-life cases and information

The qualitative analysis suggested that people appreciated the opportunity to increase their understanding of what people with mental health problems experience. It is not clear what information specifically helped to enhance this understanding.

One explanation could be the use of realistic illustrations in the form of case studies, videos and disclosures from the course participants. The qualitative analysis suggested that participants appreciated these cases which were taken from actual examples. One participant also noted how helpful it was that people in the group could talk about their experiences of mental health problems in a safe environment. Many researchers have noted that social contact with a person with mental health problems is most effective in reducing negative beliefs and behaviours (Gale, Seymour, Keay, Gibbons, Farmer, and Pinfold, 2004, Thornicroft, 2006, Sayce, 2003, Knifton, Walker and Quinn, 2009). While the self disclosure of participants was a positive for these courses, it cannot be guaranteed or expected for all courses, suggesting that it would be beneficial to include people with experience of mental health problems as training facilitators.

Another explanation for the increase in empathy and understanding is the use of the learning exercises, which invite participants to imagine themselves in the shoes of someone with mental health problems. One participant noted "the learning exercises were very worthwhile, more so than the film clips". The learning exercises were also rated more highly at post group stage than the film clips. Research described in Robson and Bostock (in preparation) such as Myers (1999) Sayce (2003) Gale, Seymour, Crepaz-Keay, Gibbons, Farmer and Pinfold (2004) find support for building empathy to reduce negative beliefs and behaviours. Further creating emotional connections with the target group has been seen to be an important characteristic of social marketing in mental health promotion (Friedli, 2007).

(iv) Awareness of negative public attitudes

The qualitative analysis suggests that participants valued information about the extent of the negative beliefs and behaviours faced by people with mental health problems. Providing information on societal attitudes highlights why mental health promotion should be a priority, and why attitudes towards people with mental health problems need to change. The importance of presenting the case for change is noted both in social marketing research (Friedli, 2007) and in motivational interviewing techniques (Miller and Rollnick, 1999).

Sayce (2003) suggests that providing information on the case for change is not enough and outlining the law regarding mental health discrimination would help further reduce mental health discrimination (Robson and Bostock, in preparation).

5.3 How could the Training be Improved?

Interestingly, the qualitative analysis suggested that the MHFA participants were apprehensive about the training, and this was likely to be linked with the fact that the course was mandatory, they had not chosen to attend. These initial expressions of scepticism were dispelled by the training and show how effective the training was in promoting knowledge and positivity. This could have implications for the future delivery and advertisement of MHFA courses as it gives confidence in the course's acceptability.

Suggestions for improving the course were:

(i) Less PowerPoint and more interaction

The qualitative analysis suggests the training could improve by including more interactive sessions, having less PowerPoint and spending less time discussing suicide.

(ii) Ensure managers attend the training

Some of the participants commented that more managers should attend the training. One participant commented that this could help improve the workplace environment. Research also supports the need for senior managers to show support for training to give it credibility (Gale, Seymour, Keay, Gibbons, Farmer, & Pinfold, 2004).

(iii) Include people with experiences of mental health problems in the training

The qualitative analysis suggests the training participants would have liked to hear more from people who had experienced mental health problems for "face to face interaction" and to "(hear) how they coped". This feedback is consistent with research findings. Contact with people with mental health problems has been shown to be key in reducing negative beliefs and behaviours towards people with mental health problems (Gale, Seymour, Keay, Gibbons, Farmer, & Pinfold, 2004, Thornicroft, 2006, Sayce, 2003, Knifton, Walker and Quinn, 2009). Pettigrew and Trop (2000, in Corrigan, 2006) analysed 44 studies looking to reduce stigma and discrimination against a range of groups. The studies that enabled contact between the in-group and the out group and that ensured four conditions were met showed greatest reduction in prejudice. Those conditions were (Allport, in Corrigan, 2006):

- a. "Equal status between groups" — both the minority and the majority group should be seen as equal.
- b. "Common goals" — both groups working together towards a common goal.
- c. "No competition" — contact should be co-operative.
- d. "Authority for sanction of contact"— contact should be supported by senior management.

Research suggests that including people with experience of mental health problems in this way can increase empathy, help participants notice of the common human aspects, empower service users and combat myths and stereotypes (Robson and Bostock, in preparation).

(iv) Ensure causes of mental health problems are seen in the social context
The qualitative responses of the interviewees suggested that some of them saw mental health problems as an illness. Some of the content of the MHFA training is quite medical (such as the descriptions of serotonin levels), which could lead to a more biological view of mental health problems. In support of this, whilst the MHFA group did show some increase in beliefs about social causes of mental problems and some decrease in the biological causes of mental health problems, they did not show as much change as the LWW group participants.

Research does support a social model (Knifton, Walker and Quinn, 2009). Talking about mental health problems in terms of “an illness like any other” does not engender significant changes around negative beliefs about people with mental health problems. It could be that this is because viewing mental health problems as a biological illness creates the impression of a passive recipient, who has no control over their problem. In support of this, Read, Haslam, Sayce & Davies (2006) concluded that a biological “illness like any other” approach was related to increased perceptions of dangerousness, as people linked the word “illness” with unpredictability, which caused more fear and desire for social distance. Walker and Read (2002) echo this finding. Farina (in Corrigan, 2006) found that when given a disease-focussed explanation for mental health problems, participants rated a person with mental illness as less able to help themselves, compared to participants who were given psychosocial explanations.

This highlights the importance of viewing mental health problems with social perspectives. Social inequalities and discrimination are causes and consequences of mental health problems which are associated with the increased likelihood of debt, poverty, unemployment and social isolation. Whilst it is important to discuss the arguments relating to the biological and genetic factors that are linked with mental health problems, research suggests these should be viewed within the wider social context. Read, Haslam, Sayce and Davies suggest that biological viewpoints could be explored through the biochemical changes that occur as the result of psychosocial stressors. The British Psychological Society (BPS, 2000) state that for most psychotic experiences, research into genetics, brain structure and brain chemistry have yet to provide firm evidence for physical causes of mental health problems. The BPS also notes that, whilst there may be biochemical differences in those with mental health problems, thoughts involve chemical changes to the brain.

5.4 Study Limitations and Recommendations for Further Research

This training was carried out with Northumberland Fire and Rescue Service which could affect how applicable these results are to other organisations and other employers. The fire service differs from other organisations in that they support members of the public in crises as well as supporting colleagues, family and friends. This could result in the training being seen as more useful to Fire Fighters than it would be to other organisations.

However, there is promising evidence emerging to suggest that anti-discriminatory interventions can be effective in other workplaces (Knifton, Walker and Quinn, 2009).

The majority of the samples were men. The results of this study would have to be further researched to investigate the applicability of the findings to women, although current research suggests anti discrimination interventions can be effective with both sexes (Knifton, Walker and Quinn, 2009; Pinfold, Toulmin, Thornicroft, Huxley, Farmer, and Graham, 2003).

All the MHFA training was run by the same two facilitators. Their facilitation style and personal beliefs may have impacted on training effectiveness. For example, both trainers took social perspectives on mental health, which meant explanations about mental health problems had a social slant. It would be beneficial for MHFA to ensure that key messages are agreed with all trainers and that essential messages that have an impact on outcome are consistent across all delivery teams. This is a potential area for further research.

The study used a relatively small sample and the sizes of the intervention and control groups were unequal which affects statistical reliability. However, power analyses and qualitative evaluation were carried out to address this problem. As with all qualitative research, there is a limit to how far the findings can be generalised to other groups.

Only two of the questionnaire measures used were well validated tests (the AMIQ and Warwick-Edinburgh Wellbeing scale). However, methods such as exploratory factor analysis were used in this study to improve the validity of the use of summed scores. It would be helpful for future research to carry out further analysis on the validity of the measures used in this study. Our measures also used vignettes with discussions of particular types of mental health problem. As pointed out by Knifton, Walker and Quinn, 2009, research suggests the public attitudes to different categories of mental health problems vary, which may have affected our results and was not explored by this research. Future research could focus on interventions aimed at reducing negative beliefs and behaviour around specific mental health problems and effective measurement of these interventions.

6. Conclusions

This study suggests that in a group of fire service managers, the MHFA training was more effective than a leaflet session at reducing negative attitudes towards people with mental health problems. The study also suggests MHFA training is associated with improvement in intended behaviour towards people with mental health problems, improved knowledge of mental health issues, and an increase in participants' beliefs in their ability to help others with a mental health problem. There is also promising evidence to suggest MHFA training may have affected the participants' ability to manage their own stress. Whilst these results are promising, further research with a larger number of participants from a variety of workplaces would help test these findings.

Qualitative analysis and research suggest that certain elements of the MHFA could contribute to effective outcomes. These elements are:

- a focus on recovery and myths about dangerousness
- information on how common mental health problems are, and communicating the social causes of mental health problems
- the use of videos and learning exercises to increase empathy
- an environment that allows MHFA participants to discuss their own experiences of mental health problems
- awareness of the need for a change in attitudes towards people with mental health problems.

Qualitative analysis and research suggest the training could be improved in the following ways:

- Less PowerPoint, more interaction
- Less focus on the topic of suicide
- Ensure managers attend training
- Include people with experience of mental health problems in delivering the training
- Ensure causes of mental health problems are seen in the social context

Negative beliefs about people with mental health problems can have a devastating impact on people with mental health problems, can result in people being "robbed of rightful job opportunities" (Corrigan 2006) as well as housing and support. Discrimination and prejudice in employment are particular problems. This study provides promising evidence for the effectiveness of mental health first aid training to reduce negative beliefs and behaviours towards people with mental health problems in the workplace.

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