Title	Mental health First Aid in an Irish Context
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Prior to embarking on any new research into the MHFA training course, some consideration of methodological issues associated with research within the field of health promotion is warranted. As the previous research has highlighted, evaluations within field settings can be complex. Establishing causal inference requires consideration of research design including issues associated with sampling, measurement and analysis. The following section provides an introductory discussion of the literature around these issues. Further consideration, particularly of measurement and analysis of data can be found in the method section.

Evaluation of mental health promotion initiatives

Recall that the evaluation of mental-health promotion initiatives is directly influenced by how mental health is defined and conceptualised. Mental well-being is an individual experience expressed uniquely by each individual. It is influenced by (but not exclusively) personal, medical, economic, cultural and religious beliefs and traditionally it has been the absence of diagnosis of mental ill-health which has been the yardstick for outcome measurement (WHO, 2001).

The measurement of negative symptoms such as sadness or depression, anxiety or anger constitute many of the most commonly applied psychological measures of mental pathology (Beck, Beck & Jolly, 2001). Such approaches assume that the lack of these symptoms, identified by low response scores, represents wellness. Some questionnaires such as the General Health Questionnaire (Goldberg & Williams, 2004) identify positive and negative influences on health and utilise cut-off scores, above or below which an individual is categorised as being well or mentally ill (Stewart-Brown, 2002). These tools reflect approaches where mental ill-health is identified in terms of deficit, dysfunction or requiring treatment and cure (Perkins, 2002). These tools are, therefore, measuring mental ill-health and its prevalence within populations rather than positive mental health (Friedli, 2003). They take little consideration of non-medical influences and indeed it has been argued that

they may medicalise "the human condition" with all its social, cultural, developmental, spiritual (and others) experiences. The effect is an approach that disempowers the individual from living a unique functional life (Winston, 2000).

The challenge to mental health promotion is to develop measures which look beyond the assessment of ill-health prevalence to the assessment of well-being. The key objective of promoting strategies that positively impact on mental health will be critically influenced by the definitions used, the outcomes sought and the method by which the results are measured.

Fortunately, there are an ever increasing number of measures that attempt to quantify positive mental health. Several of these measures such as, the Affect Balance Scale (Bradburn, 1969) and the Affectometer 2 (Kammann & Flett, 1983) attempt to measure the individual's self perception of mental well-being. Measures of mental well-being, such as the General Health Questionnaire (Goldberg & Williams, 2004) measure a perception of well-being by identifying both positive factors, such as motivation, and the absence of negative factors, such as poor sleep. In addition, attempts to measure social influences on mental health have tended to focus on social factors that parallel an individual's sense of well-being. These indicators have included correlates such as crime statistics and perceptions of safety, community networks and participation and the sense of connectedness or belonging, to the level of service provision and the importance given to equity initiatives, to identify just a few (Doughty, 2005). Social measures while often used, do not measure mental well-being directly. Despite this, the influences of social factors on mental well-being is widely accepted (Friedli, 2009).

The interpretation of mental well-being is complex, and it is not unusual that a mix of measures and methods of analysis are adopted to explore questions of interest. National surveys (for example McLennan, 1998) have generally used quantitative or scaled data to quantify the relationships between factors. From the individual respondent's perspective, however, data that are more

qualitative or descriptive in content provide a different dimension of information. The qualitative or descriptive data in such circumstances provide contextual information about mental wellness factors rather than just "snapshot" data collected by the quantification of mental health indicators (Pawson, 2002).

The collection of qualitative data reflects an implicit change in focus of mental well-being initiatives away from the medicalised/ experimental models toward more contemporary or holistic models of mental well-being (see for example, Barry & Freidli, 2008; Braunholtz, Davison, & King, 2004). Often in more contemporary approaches to health promotion, individuals become involved with processes aimed at maintaining and enhancing their own mental health. Arguably, this style of qualitative investigation reflects a move toward an acknowledgement of the importance of self and community responsibility rather than reliance on prescribed treatment approaches as has been the focus of more medicalised strategies. A further challenge to health promotion initiatives is to find ways that are not only effective in safeguarding mental well-being but are also considered valuable and accessible to the individuals and communities for which they are intended. An approach which is not valued by the recipient is unlikely to have the desired outcome of eliciting behaviour protective of mental health. By encouraging independence and enhancing an individual's capacity to cope with the stresses of life, wide ranging, inclusive, effective and economically sound service provision is potentially possible. This is a fundamental challenge for mental health promotion.

Research design

The initiatives designed to address the deficiencies and enhance the positive elements of mental well-being are complex. The personal, social and structural influences are significant, not only on the experience of mental well-being, but on the programmes designed to ameliorate distress. The evaluation of mental health promotion initiatives is correspondingly complex.

While outcomes of health promotion of initiatives are commonly cited (see for example Doughty, 2005; Taylor, Taske, Swann &Waller, 2007) more recently the mechanisms of how change actually occurs have also been investigated (Herrman, et al, 2005). Meta analyses of the programmes or processes associated with meaningful change, have attempted to measure factors describing the complex conceptualisation of mental health for individuals, communities and society and the approaches necessary to ameliorate mental ill-health. The two most common research designs utilised to achieve this in the field of social sciences are experimental and quasi-experimental evaluations.

Experimental approaches rely on systematic, randomised exposure of study populations (or other units of interest) to factors of interest, with the expressed intention of identifying causal inference (Shadish, Cook & Campbell, 2002). Experimental approaches dictate that exposure to a desired treatment occurs at random, hence, any outcomes identified occur as a result of exposure to the experimental treatment and are not due to other influences. Further, when certain assumptions are met, a randomised experiment provides an indicator of the treatment effect and estimates of the probability that the effect achieved falls within a defined confidence level. Such approaches are highly prized and are often considered to be the "gold standard" in treatment outcome research (Shadish, Cook & Campbell, 2002). Well designed experimental approaches have the advantage of allowing close control over the factors that interact allowing for reliable causal inference to be drawn. They achieve this often, however, at the expense of understanding the full complexity of the interactions that occur. Indeed, they do not offer an advantage when the area of interest falls outside the understanding of causal relationships found within a controlled experimental setting (Cook & Campbell. 1979; Millsap & Maydeu-Olivares, 2009).

Quasi-experimental designs offer an approach to analysis where generalisations of causal relationships are investigated in field settings. As field-based research settings often occur with health promotion activities,

quasi-experimental designs are common in this field. Quasi-experimental approaches also have treatments, outcome measures, experimental populations (or units) but do not utilise random assignment to create comparisons from which conclusions are drawn (Shadish, Cook & Campbell, 2002). Quasi-experimental evaluation is commonly used where individuals are investigated as part of the research, as self-selection or experimenter selection of participants is a defining characteristic of this approach (Cook & Campbell, 1979). With the lack of random allocation of participants control over potentially erroneous influences can be weakened. Consequently researchers attempt to control some of these potential influences. The factors that can impact on quasi-experimental evaluations may include (but are not limited to): 1) the situation in which the experiment is conducted (such as a training environment); 2) the application of the treatment to which the participants are exposed (such as course content); and 3) the characteristics of the participants (such as their age or gender). Controlling such influences is desirable to rule out threats to valid causal inference. Further, the methods used to control these areas of potential error in an evaluation are an important consideration for the design and implementation of any analysis. While no single or group of approaches will control for all of the threats to the validity of the outcomes identified, there are some approaches that can be readily identified to minimise some of the most obvious threats (Shadish, Cook & Campbell, 2002).

When attempting to control factors associated with the experimental situation, the researcher usually attempts to control the environmental influences to which the participants are exposed. For example, within this study, delivering a training course using educational facilities specifically designed for that purpose will limit environment influences not associated with learning. Similarly, the second threat to validity associated with the application of the experimental conditions on the participants (for example, the impact of training) can, as far as practicably be controlled for, by utilising standardised delivery methodology and learning materials. While the environment in which the training is conducted and the delivery methodology can be controlled within this study by the researcher, the third influence that is associated with the characteristics of the experimental population, adds

considerable complexity to the potential inferences that can be made from the research.

As study populations are not randomly assigned within quasi-experimental approaches, the factors that result effect the allocation of a participant to the experimental or control condition must be considered in the design and analysis of the study. Within the design, internal validity is established by considering the relationships between research operations, such as the interactive influences of the research question, the characteristics of the experimental population and the data collection and analysis (Shadish, Cook & Campbell, 2002). Simply, there are input, collection, processing and interpretive influences to be considered. Quasi- experimental design can not rely on randomisation to eliminate the influence of external factors on internal validity, so the experimenter must estimate internal validity by systematically identifying and considering how each threat may impact on the data. By controlling for these identified threats and acknowledging the influence of threats that can not be controlled for, the strength of probable causality can be argued (Shadish, Cook & Campbell, 2002).

The method section contains a discussion of the factors that have impacted on the data collection and analysis in this particular study. The implications of these for this study are considered in the discussion section.

The current study

This study addresses some of the shortcomings of previous research and adds to our understanding of why MHFA seems to be a valued course across cultures. The exact course under consideration is adapted for application in the Republic of Ireland, and its value to the participants is investigated. The study examines if MHFA is more than just a promising early intervention programme for the recipients of MHFA assistance. It also assesses if the participants who complete training experience mental health benefits.

The Kitchener and Jorm (2004) study suggests there are positive benefits for the mental health of participants as a result of completing the course. Unfortunately the methodology in that study appears to have been flawed. However, that there might be a positive impact on the mental health of people undertaking MHFA training is of interest. If such a positive impact is experienced, then consideration whether the finding represents a fall in mental ill-health symptoms or an enhancement of mental well-being is of interest. Exploring this outcome could also add to our understanding of mental health and well-being models such as the Dual Continuum Model (Tudor, 1996) or the Complete State Model of Mental Health (Keyes, 2007). In this study the impact of MHFA on participants' mental health will be investigated. If MHFA does have a positive impact on the mental well-being of participants, then the role of the programme may change from just that of an early intervention, designed to train participants to care for the mentally distressed, to a programme with tangible benefits for the participants as well. Should MHFA have positive mental health benefits for participants, the mechanism for producing this outcome clearly warrants investigation. In addition to identifying if MHFA has a positive benefit on the mental well-being of the participants, this study will also attempt to identify the mechanism by which any benefit occurs.

The mechanism enhancing participants' mental health may be linked to the same factors that have thus far resulted in favourable evaluations of the course. Jorm et al., (2005) described feedback from participants which included increase empathy, confidence and tolerance of those trained in MHFA toward people in distress. It is has previously been identified that knowledge of mental ill-health alone is not enough to reduce stigmatising attitudes towards those with mental ill-health (Link, Phelan, Bresnahan, Stueve & Pescosolido, 1999) yet personal experience and contact with people who are unwell does reduce stigma (Angermeyer & Matschinger, 1996; Sayce & Morris, 1999). A program which prepares people for assisting those in mental distress may also result in a decrease in social

distance, resulting in a willingness to assist those in crisis. The mechanism, by which this may occur, has not previously been investigated. The authors of MHFA suggest that the structuring of MHFA in a format similar to physical first aid courses is appropriate and a strength of the design. They state that physical first aid courses are a "well established way of improving the public's handling of medical emergencies" (Kitchener & Jorm, 2002, p.1). The authors of MHFA also contend that as the content of the course reflects the prevalence of mental ill-health in the community (from the National Survey of Health and Well- being, Andrews et al., 1999), it is relevant for Australian applications. The international research that is available indicates the content based on the Australian data of mental ill-health within the community is salient in other developed countries (Kitchener & Jorm, 2008). Beyond these areas, there has been no research into the characteristics of the course, such as, its structural content or educational methodology, which may influence its evaluation by the course participants. Indeed, one study (Jorm et al., 2005) that evaluated a general population sample of mental health first aid responses (these people had not completed MHFA) found that many people would encourage professional assistance to someone in mental distress and listen and support the person without having the benefit of training. This raises the question as to whether MHFA increases knowledge and skills to respond to mental health emergencies beyond what people already know. Indeed, it may be that MHFA is more closely aligned to standard first aid courses than realised, in that it provides a method for responding, rather than its value resting on the knowledge it provides. It may be that it is the learning to act, rather than the factual knowledge gained that is empowering to participants. If this were the case then MHFA as a programme in the vanguard of mental health literacy is potentially compromised.

How the participants learn, and why this learning is valued becomes an important question. While a full discussion is beyond the scope of this thesis, Johnson (2001) suggests that matching learning to social experiences and expectations assists students to access relevant social information by framing what they have learned, so that they understand the importance of these factors on their own lives. In this way learning becomes more relevant, meaningful

and valued, and consequently its benefits are enhanced beyond the information provided.   It is in effect an interaction between what is already known, what is taught, and what is valued.

Alternatively, Seeman (1999) suggests that personal control beliefs, whether defined as "locus of control" or "personal mastery" beliefs, reflect an individual's beliefs regarding the extent to which he or she is able to control or influence outcomes. Many theorists maintain that a desire to control the world around us, a concept summarised by the term "mastery", is a fundamental characteristic of human beings (for example, Haidt & Rodin, 1995; Schultz, Heckhausen, & O'Brien, 1994). Mastery is defined as: "the extent to which one regards one's life chances as being under one's control in contrast to being fatalistically ruled" (Robinson, Shaver & Wrightman, 1991, p.304). Pearlin, Menaghan, Lieberman and Mullan (1981) further suggest an individual experiences a reduction in personal stress and anxiety following the attainment of control, and this stress reduction is a characteristic of mastery. If this occurs for the participants of MHFA, as a consequence of mastery over the course content, they may achieve enhanced mental well-being as a result of reduced anxiety.

The present study will utilise a quasi-experimental design to evaluate the value of MHFA training in an Irish context. The learning that occurs as a result of completing the course and the impact of the course on the participants' mental health will be evaluated. The content of the course will also be assessed to identify what characteristics of the course content are valued by the participants.

It is intended that the participants selected for this study will be a heterogeneous sample. This will be achieved by not targeting any specific participant population. The sample will not be restricted to "work groups" nor to populations with expected higher levels of education. It will attempt to capture a more representative sample of participation by utilising open marketing methods and existing health promotion and adult education

structures. Furthermore, the control sample will be drawn from non MHFA participants, using the participants of standard physical first aid courses. These control group participants will also be recruited using similar marketing techniques to those used to access MHFA participants. By utilising matched standard first aid course participants as a control group cross contamination between samples will be minimised and a more heterogeneous sample, representative of a population sample will be obtained (Shuttleworth, 2009).

Specifically, the hypotheses to be addressed by this study are:

1. MHFA will be positively evaluated by course participants. A positive evaluation will demonstrate an increase in knowledge about mental ill-health, the intention of the participants to use that knowledge to assist individuals in distress and the positive subjective evaluation of the course with respect to the participants' capacity to be able to apply the learning.

2. As MHFA course participants will display an increase in mental health knowledge and literacy, their willingness to engage with those in mental distress will increase. This will be demonstrated by an increase in their level of preparedness to apply MHFA.

3. The participants' own mental well-being will be enhanced by undertaking the course. It is predicted that following MHFA training improvements in positive mental health (as measured by the Energy and Vitality Index, RAND-36, Ware et al., 1993), improved mental well-being (as measured by the Warwick Edinburgh Mental Well-being Scale, (Tennant et al., 2007) and reduced levels of psychological distress (as measured by the Psychological Distress Scales from the RAND SF-36, Ware, et al., 1993) will be identified in the participant group responses when compared to the responses of the control group.

4. It is expected that participants' sense of mastery will be enhanced following completion of the MHFA training course when compared to control group. This will be measured using Pearlin and Schooler's (1978) Mastery Scale.

5. As mastery is associated with mental well-being (Pearlin and Schooler, 1978) ratings for mastery will increase in MHFA course participants following training, as will the proportion of variance accounted for by the mastery within the mental health and well-being scales, in comparison to the control group.

6. The relevance and salience of the MHFA course will be indicated by the positive evaluation of the course elements by MHFA course participants.

    The following chapter outlines the approach to implementing the study. The chapter considers the design of the study, the identification recruitment and matching of participants in the sample, the measures used to collect the data and procedures for collecting and analysing the data.

2. Method

Method

The research design addresses the critical methodological issues overlooked in the previous studies. This section outlines the methods and procedures employed in this research study. Information on the recruitment, matching and training of the study participants, the delivery of the course materials and their adaptation for an Irish audience is provided. The procedures influencing the design of the study, the development of the research measures, the data collection, the rationale for the analysis and the statistical analysis undertaken are described.

Design

This study employs a quasi-experimental design, with pre-post evaluations conducted at four time points; at pre-intervention and immediately following implementation of the MHFA training and at two and six months, post training. The course was delivered in response to the needs identified as a consequence of the marketing undertaken. The marketing elicited responses from individuals and groups who wished to undertake the MHFA training. Consequently, a random allocation of participants into training and control groups was not appropriate as preventing those who expressed interest in the training from undertaking the training (or delaying their training) was not desirable. Groups of up to 20 individuals were trained over a period of 18 months and in a variety of locations (such as universities, community halls and workplace training venues). The diversity of locations also limited the opportunities for a randomised design using a wait list control group. A quasi-experimental approach, using a matched subjects design was chosen to maximise the experimental rigour of the research, given the limitations on participant selection. A fuller discussion of the selection of the sample and the matching of the participants occurs later in this chapter. Using such a design requires careful consideration and the need for caution when drawing causal inferences from the results. The choice of design, by virtue of the study's engagement with individuals in real training settings, is a balance between

not wishing to influence the responses of participants due to factors associated by the research design, while still gathering meaningful information. Simultaneously, throughout this process, there is the need to be mindful of the potential confounding influence of factors not controlled for within the study as a result of the characteristics of the design.

The follow-up assessment times, at two and six months post the MHFA training, allowed for comparisons between the results of this study and those from previous studies (such as Kitchener & Jorm 2002, 2004). Kitchener and Jorm (2002, 2004) followed up MHFA course participants at six months and five months after training. A two month follow-up was added into this study as one of the factors of interest was the robustness of the learning over time. A two month follow-up allowed for more careful consideration of any change in the retention of the learning over time. Further, there appeared to be value in maintaining closer contact with the course participants after training than waiting six months after training had been completed. Such an approach potentially enhanced the retention of participants who may otherwise exit from the study.

Internal validity

Internal validity refers to the causal inferences that can be drawn from the observed relationships between two variables with consideration as to the form in which the variables were manipulated or measured (Shadish, Cook & Campbell, 2002). That is, internal validity occurs when a researcher controls all extraneous variables and the only variable influencing the results of a study is the one being manipulated by the researcher. This means that the variable the researcher intended to study is indeed the one affecting the results and not a confounder. While it was anticipated that training in MHFA would impact on the responses of participants as proposed, other factors could also influence the responses provided. Potential threats to the internal validity of the study need to be considered as they are relevant to the interpretation of the results. These

include changes that may have occurred to the participants within the duration of research which were external to the MHFA training, such as influences on mental health knowledge and skills attained from other sources and/or direct experiences with mental ill-health. Such historic factors may have influenced the reported outcomes from the study. There are also possible effects due to the influence of the personal development of participants over the time of the study (which is often referred to as maturation; Shadish, Cook & Campbell, 2002). This may include, for example, events that impact on an individual's mental well-being (such as illness or accidents) or other learning experiences. The influence of factors such as these on the results is unknown, and assumed to be essentially random, in that they are unforeseen and not predictable. However, such potential influences must be acknowledged given the six month duration of the evaluation process.

Similarly, the repeat application of the test materials over six months could influence the data. Repeated applications of a questionnaire can result in practice effects being reflected in the outcome data.   Within this study MHFA participants were tested on four occasions (pre-test, post training, and at two and six month follow-ups). Despite each questionnaire at each time point containing slightly different content (such as the course content questions at the post training assessment and the different vignettes at the two and six month follow-ups), significant elements of the questionnaires remained unchanged throughout. As a consequence there is some potential for repetition effects in the collected data. Attempts to minimise repetition effects included alternating the vignettes, and having an assistant administer the follow-up assessments to limit response bias associated with trying to please the presenter of the training.   There may also have been an influence on the obtained data due to the first two questionnaires being completed directly by the participants and the follow-up questionnaires being presented by an assistant over the telephone. The influence of this change of questionnaire presentation is unknown, and it are assumed to not cause any bias in the results.

For the control group, testing occurred twice (before and immediately following physical first aid training). The physical first aid training course was 18 hours in duration (the MHFA was 12) so there is a possibility of an unforeseen effect due to the variation in duration of the training received. The net impact of this variation on the results is unknown. The post training questionnaire for the control group had no questions on MHFA course content, but the omission of irrelevant questions is unlikely to have influenced responses obtained. Figure 3.1 illustrates the timing of the data gathering procedure used in the study.
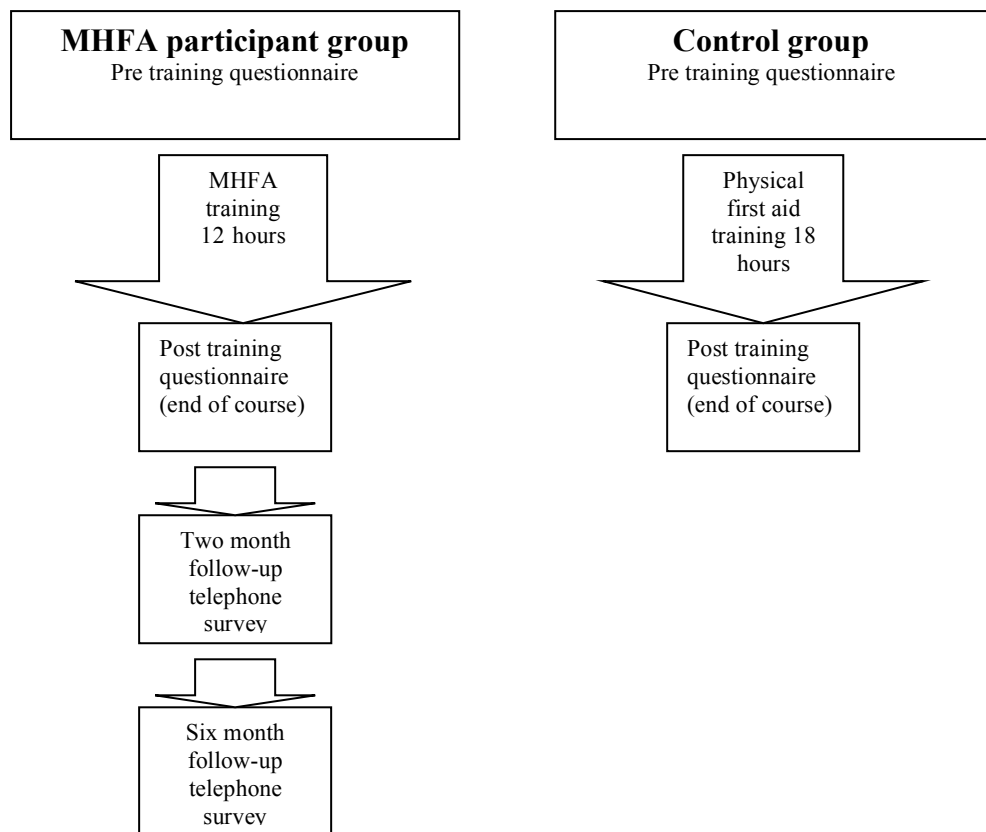

Figure 3.1 Timing of the data gathering procedure used in the current study.

As with all questionnaires that rely on scaled items with limited options for choice, there was always a possibility of ceiling or floor effects being obtained if significant changes occur over time. The care taken in the construction of these items is described in a section following. There did not appear to be any discernable narrowing of the points of the scale as a result the labels used which could result in these effects.

Sample

A sample of 216 course participants, gathered over a period of 16 months, were matched for age, gender, employment and educational attainment to an equal number of control participants ($N = 432$). Participants for training were recruited via a marketing exercise concentrating on environments where interest was expected, such as, tertiary education institutions, non-government organisations in the welfare sector and to community groups. Resources did not allow for a broader approach to marketing which may have enhanced the generalisation of the characteristics of the sample. In the approach used no specific group or workplace was targeted in the marketing process. It is of note that several participants identified interest in undertaking the course as a result of experience with suicide within their communities.

Recruitment

Marketing of the course was initially aimed at groups which were thought to have an interest in the subject area. The groups consisted of professionals, such as the managers of the organisations working with homeless people in the southern counties of Ireland, equity and welfare officers in tertiary education facilities, Gardai, and secondary school teachers. Approaches were also made to adult and community education coordinators for inclusion of MHFA in community focused evening courses. Health Promotion Officers at the Health Services Executive (HSE) in the southern area, whose job it is to encourage health initiatives

in the community, were briefed as to the course content and the intention of the study. It was through the interest of the Health Promotion Officers that many of the Community Group based courses were identified.

The course was marketed as an intensive skill-based learning opportunity for non-clinicians. The twelve hours of the course were delivered as either two, six hour sessions or as four, three hour sessions. Although the intrinsic structure of the course was not modified, the course was marketed to highlight its benefits to the particular interests of each group. For example, its benefits for people assisting homeless people or students, were taken into consideration during delivery to ensure relevance of the training.

Examples of marketing materials used to promote the course appear in Appendix A.

MHFA participants

Marketing of the course continued for ten months and occurred concurrently with the commencement of training for the initial courses. The marketing identified interest in the course from groups and individuals, and from this interest, delivery times and locations were negotiated. The Australian authors of the course placed some limitations on participation in the course. For example, participants could not have an active mental disorder. This restriction was to protect the interests of these individuals, as discussions within the course may have been inappropriate under such circumstances. The discussions within the course may have caused individuals distress, and also they may have put the individual at risk of harm due to the inappropriate disclosure of personal information. The course authors also suggest that attendees be adults over 18 years of age. Despite this, two 17 year old final-year school students attended one of the courses with their parents. This occurred following discussions with the researcher who interviewed the students prior to the commencement of

the course. The students were deemed to have sufficient maturity and attended with supportive parents, so attendance was approved.

During session one, participants were given an introduction to the research being undertaking and their consent was sought, to contact them two and six months after the course (A copy of the consent form appears in Appendix B). Written consent was received, together with information about the "best time to contact you". Participants were advised they could withdraw their consent at any stage and that any information provided was anonymous, identifiable only by number. Their contact information was destroyed following completion of the data collection.

The courses that were delivered represented a cross section of the community including:

- Managers and staff employed within a university college (two courses - two sessions of six hours duration, $n = 26$)
- Evening classes at an adult community education venue (one group - four sessions of three hours duration, $n = 16$)
- Managers and staff of non-government organisations working with homeless people (four groups - two sessions of six hours duration, $n = 71$)
- Community groups (four groups - four sessions of three hours in duration, $n = 72$)
- Secondary school teachers (two groups - four sessions of three hours in duration, $n = 34$)

A total of 219 MHFA course participants completed the initial questionnaires. There were no refusals to complete the initial questionnaire. Some 216 (99 percent) completed questionnaires at the conclusion of 12 hours of training. The three participants who did not complete the post training questionnaire were eliminated from the data set.

Two months after training 196 (90 percent) of participants were successfully followed-up and 178 (81 percent) at six months following training. A description of the demographic characteristics of the participant group can be found in Table 4.1 on page 139.

Control group

The control group was recruited from participants of physical first-aid courses (18 hours in duration) conducted by the Irish Red Cross and St John's Ambulance Service. The courses were run in adult education community settings (eight courses), for community groups (five courses), in workplaces (five courses) and for entry level volunteers within non-government organisations (five courses). Arrangements for data collection were made following personal approaches to senior managers of the Irish Red Cross and St John's Ambulance Service, who subsequently distributed pre-first-aid training and post-first-aid training questionnaires to trainers. Collection of the completed questionnaires was undertaken by physical first-aid course trainers who forwarded the completed questionnaires directly to the author of this study. The information protocol including consent statements and the script distributed to trainers of the physical first aid courses appears as Appendix C. A total of 411 pre and post course responses were collected from the physical first aid courses of which 401 were fully completed (98 percent). There were no known refusals to complete the questionnaires.

Matching procedure

From the return of 401 complete questionnaires from individuals who had completed a physical first aid course a control group was identified by individually matching the characteristics of the MHFA participant group ($n = 216$) to the characteristics on the questionnaires of those who had

completed physical first aid training. Responses from individuals in the control group and the MHFA participant group were matched for age (matched to within one year), gender, education (matched to within one level of education categorisation) and vocation (matched to within one occupational category). Ethnicity was not identified as a relevant factor for matching. That is, the participants in this study were of white Irish background. Non-matching and excess returns ($n=195$) from the individuals who had completed physical first aid training were discarded. The size of the control group was equivalent to the size of the MHFA participant group as this was considered appropriate to support statistical comparison. While a smaller control group might have been acceptable, such an approach may have resulted in groups too small for some statistical comparisons when sub-groups were being analysed or variables were being controlled for. Therefore, a control group matched for size and the characteristics of the MHFA participant was chosen.

Individuals who were completing physical first-aid training were chosen as a control group because it was likely that such individuals were similar to the MHFA participants in terms of their interest in learning and assumed interest in helping others. This "educational interest" was not a measurable construct within this study and could only be assumed. In contrast, the factors of age, gender, education and occupation (with the implied association of socio- economic status) can be specifically defined and measured (thus improving their reliability as factors for consideration within the analysis). These factors are also known to impact on mental health (for example, see Barry et. al., 2009, Van Lente et al., 2011 and Compagni, Adams, & Daniels, 2006). Matching MHFA participants and the control group participants means that regression artefacts (the scores associated with these factors that might impact on the subsequent results) are minimised, providing greater statistical power in the analysis (Shadish, Cook & Campbell, 2002). This is a more reliable approach to design than one that is uncontrolled, and from which causal inference is difficult to establish (Shadish, Cook & Campbell, 2002). The matched design

approach in this study was considered to be preferable to approaches in previous studies where uncontrolled or unmatched designs potentially contributed to multiple variables, other than the training, impacting on the results (Hossain, et al., 2009; Kitchener & Jorm, 2002). Nonetheless, matching the MHFA participant group and the control group does not solve all the problems of confounding factors. Despite controlling for factors that are known to impact on mental health, other, "uncontrolled" factors may have been present, and these could impact on the results. Nor does this approach take into account variations in the groups after the initial matching process (such as variations in personal history), so the reliability of this approach over time is weakened. Shadish, Cook and Campbell (2002) maintain that matching objective variables, using groups that are as similar as possible before matching, such as in this study, optimises the effectiveness of the procedure within quasi-experimental approaches.

Statistical Power

The minimum number of participants required to ensure adequate statistical power in the research was determined using the statistical package G*Power 3 (Faul, Erdfelder, Lang & Buchner, 2007). Using a two tailed multiple regression statistical approach with a moderate effect size (0.15) an error measure of 0.5, a 95 percent confidence level, with a calculation for six predictor variables, a minimum total of 89 participants was required to achieve 0.95 actual power. The recruitment of 216 participants to the intervention and control groups within this research (N = 432) easily exceeds this minimum requirement.

External validity

Factors that impact on the generalisability of the findings to a wider population, beyond the circumstances under which they are observed

within the research, must also be acknowledged (Cook & Campbell, 1979).

The characteristics of the MHFA participants dictated the selection characteristics of the matched control group. The open marketing approach utilised in this study attempted to secure a heterogeneous study sample. Such marketing approaches were likely to be of interest to certain groups within the population, therefore, potentially biasing the research sample. Both the MHFA participants and the control group paid for their respective courses. This too may well have biased the characteristics of the groups. In effect, the marketing process and the need to pay for the training may have created a selection bias, resulting in a more homogeneous sample than desired. Not all participants of the MHFA training paid as individuals. Those who undertook training as part of a work group generally had the course fees paid by their employer. The impact of these issues will be considered in the discussion of the findings.

A strength of the selection approach in this study was the use of multiple groups, rather than a single large occupational group as used in previous studies (e.g. Kitchener & Jorm, 2002). The use of multiple groups is likely to have minimised within-group effects, such as the influence of discussions and interactions between participants in the periods between training sessions. While some of the groups in this study did have participants who worked together, most did not, and indeed, many of the groups consisted of individuals unknown to each other before the training and who were unlikely to engage outside the training sessions.

The specific characteristics of the participant and control populations could also influence the responses obtained. "Statistical regression toward the mean" occurs when a sample population rates a pre-test score higher or lower than a population mean for the same item, making subsequent responses unreliable as the subsequent scores move toward the population mean (Cook and Campbell, 1979). This particularly occurs when samples are selected on criteria such as pre-test scores. In effect, the initial

measurement is inaccurate, resulting in false conclusions being drawn from subsequent data (Cook and Campbell, 1979). The impact of change might be underestimated if the initial score was inflated (perhaps due to over-confidence) or overestimated if the initial score was low (perhaps due to a lack of confidence) or there could be no change when there is a balancing of low and high pre-test scores within the group. Within this study, participants were not allocated to groups (as MHFA participants or controls) based on pre-test scores but on their interest, which of course, could impact on the pre-test scores obtained. MHFA participants self-selected based on responses to open marketing, and by extension, interest, and the control group was matched to characteristics (age, gender, occupation and education) of the MHFA sample. It is more likely in this study that factors such as knowledge of mental ill-health will be higher, due to the participants' interest in the area, so improvement may indicate a stronger association between the training and the learning achieved than in the wider population. If this is so, subsequent declines on the ratings of factors of interest will suggest responses still higher than the general population. Thus, care will be required in interpreting responses obtained and generalising the findings from the MHFA participant group.

Measures

Questionnaire rationale and construction

This study used a series of questionnaires administered four times. The questionnaires consisted of specific questions requesting participants to rate their understanding of the course content and their subjective experience of their learning. These questions were constructed by the present author as no previous research had been undertaken to evaluate the impact of the course content on the learning experience of the participants. Further, this study was concerned primarily with the impact of the learning experience on the participants' mental well-being. A number of standardised tests were utilised to assess the participants' mental well-

being and mastery together with a more subjective evaluation by the participants of their own mental well-being. Where standardised measures existed, they were used. These standardised measures predominately rely on graded responses using Likert scales. Consequently, to increase the depth of the information gained, additional open ended and descriptive questions were developed. These constructed questions addressed the unique areas of interest in this study. Combining standardised and constructed items a single questionnaire containing both standardised was complied for this study. A pre-course questionnaire collected baseline data and a questionnaire completed immediately following training was used to evaluate the immediate impact of the learning and the effect of the course on the participants' attitudes towards aspects of mental ill-health and their own mental well-being. The post training questionnaire also collected evaluative feedback on the course content and delivery methodology. Two further questionnaires were completed via telephone by a research assistant at two and six months after training. These questionnaires evaluated the sustainability of the learning, the application of the learning and any enduring impact on the participants' attitudes to aspects mental health. Additionally, any perceived effects of changes in the participants' rating of mental well-being were evaluated. Details of the construction of the questionnaire appear the section "questionnaire content" on page 118.

In constructing new questions, several elements important to the successful application and completion of the research were considered. The reaction of the respondents to the overall questionnaire was one element considered carefully. As the survey was in part seeking responses to the participants' evaluation of perceived changes in their own mental health and well-being as a result of training, the questions needed to be clear without being confronting. This was important given the stigma associated with mental ill-health (as described previously). For example, if the questions had been

worded poorly, or deemed to be too personal or direct, the completion of the questionnaire and, therefore, the quality of the results obtained could have been detrimentally effected. Ensuring the questions were interpreted as an enquiry of mental well-being rather than mental ill-health, was important.

The reaction of the respondents to the length of the instrument, particularly when considering its completion via telephone interview, was also considered. The use of Likert scales in telephone interviews is difficult, and indeed, the script for the interview process incorporated a suggestion for respondents to write down the scales used, in an attempt to minimise routine response bias, and maximising the responses against the designated scale values. The repetitious nature of the responses for the mental health scales in particular had some bearing on the length and complexity of the other elements of the questionnaire. A balance was sought between rating scale items and open questions seeking attitude or opinion based responses.

Measurement reliability and construct validity

Reliability is the extent to which items within the questionnaire consistently and repeatedly measure the factors of interest (Carmines & Zeller, 1979). Such consistency is fundamental to the internal validity of an instrument, as causal inferences are made from the associations between the factors being measured and the conditions being manipulated. If the measuring tool is not reliable then the internal validity of the study can be challenged. Internal validity can be enhanced by having multiple items measuring the same factors and identifying the level of corroborative association between those items. Within scales this is commonly measured using the Cronbach alpha correlation (Cook & Campbell 1979). However, as previously described, it was deemed appropriate that the questionnaire remain a relatively quick and non repetitive instrument for the respondents to complete, which limited the opportunity for the

duplication of items. Cook and Campbell (1979) suggest that some indication of internal validity of novel items can be established by identifying the relationships between well validated items and the constructed items. Where possible, correlations between the items constructed by the author of this study and similar items within the established and validated Mastery Scale (Pearlin & Schooler, 1978) scale were undertaken This scale was chosen because mastery, skill, confidence and competence would seem to be associated (Murphy, 1995). The correlations testing these associations in this study appear in Appendix D. There are some associations identified between particular items within the Mastery Scale and the constructed items associated with the rating of skill, confidence, and competence. For example, the statement "What happens to me in the future depends on me" from the Mastery Scale is statistically significantly correlated with the constructed items of "skill" and "confidence" in the context of managing a mental health emergency. The correlations suggest that some of the items constructed for this study are corroborated by similar items within the well validated Mastery Scale, however, it is likely that variations between the items still exist. For example, the wording of the items is not exactly the same, and despite the apparent face validity and supporting correlations, this form of construct validation should be considered as only a guide to the concurrent validity of the constructed items within this study (McIntire & Miller, 2005).

Some of the other constructed evaluation items addressing the course content (depression, suicide, anxiety, psychosis and drug and alcohol use) had no comparative items in the validated mental well-being scales used (Mastery: Pearlin & Schooler, 1978; EVI, MHI-5: Ware et al., 1993 and WEMWBS: Tennant et al., 2007) in this study. No similar comparative items were known to have been used in any other research, so no correlations between these constructed items and any other items were possible. Given their lack of corroboration, the items requiring that the participants rate their knowledge in these more negative areas should be interpreted with care.

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There is also a general point to be made with respect to the number of measures, uniquely constructed for this questionnaire. There are relatively few items used to test the participants' evaluation of their learning and their subjective evaluations of their own mental well-being. Therefore, the risk of variation in responses is higher than if there had been multiple statements measuring the same constructs. Consequently the standard errors may be inflated which could increase Type 1 errors (i.e. rejecting the null hypothesis when it is true). In the context of this study, increasing the number of statements to measure the same subjective evaluation constructs was not practical as the time taken to complete the questionnaire was an important consideration in development and application of the questionnaire.

The use of inter-rater reliability measurement to verify constructed test material reliability was minimal. Much of the constructed material sought to elicit subjective evaluations of the course, its content and its effect (both for the individual and its application to those in distress). The reliability of the major scales was established by their respective authors, and their use in conjunction with the constructed items was a valid approach. The use of both formally validated measures and subjective or experiential evaluations of the participants improved on the data collection approaches of previous studies.

Questionnaire content

Demographic information

Questionnaires were constructed incorporating questions from several sources. Four questions from the SLÁN 2007 National Survey of Social Well-being (Barry et al., 2009), collecting demographic information on age, gender, education levels and occupation.

Method

Mental Health First Aid knowledge

One question containing the five items relating to the specific subject areas of mental health first aid knowledge (i.e. depression, suicide/ self harm, anxiety, psychosis and drug and alcohol use) were constructed by the present author.   This was done as no questions relating to the evaluation of the content of the learning had been undertaken in previous research. While evaluation of the content of the course is important, there are no corroborating variables within this study or in previous research to validate these items.

The questions asked the participants to rate their knowledge of the key subject areas of the course (depression, suicide/ self harm, anxiety, psychosis and drug and alcohol use) on five point scales from "none" through "some", "adequate", "good" to "complete".   The labels attempted to create a balanced rating scale (Freidman & Amoo, 1999) where the third (middle) item suggested a neutral position between not knowing enough about a subject area (none, some) and having sufficient knowledge about and area (good, complete). The use of "verbal" labelling can impact on measurement quality (ie labels reflecting magnitude quantification such as numbers, are generally considered to generate better statistical information) but have the advantage of ease of explanation and familiarity, particularly for respondents who are not academically orientated (Rohrmann, 2007). As the questionnaire was trying to generate responses about mental health knowledge from heterogeneous and generally non academic or clinical populations, such modifications of the language used in the scales was considered to be appropriate. The questionnaires for the pre and post MHFA training appear Appendix E.

Subjective evaluation of MHFA learning

In addition to the evaluation of the learning associated with the content of the course the subjective experience of the participants and their

application of what they had learned was evaluated. The content of these seven questions was largely taken from questionnaires developed by the authors of the MHFA course in their analysis of the Australian MHFA experience (Kitchener & Jorm, 2002, 2004; Jorm, et al., 2004) with some concepts also taken from the Scottish evaluation (Scottish Development Centre for Mental Health, 2004).

The content and rating scale for the question taken from Kitchener and Jorm (2002) were modified from the original (from: "How confident do you feel in helping someone with a mental health problem?" 1. Not at all, 2. A little bit 3. Moderately, 4. Quite a bit, 5. Extremely, to , "How confident are you that you could manage a mental health crisis?" 1. Not at all, 2. Somewhat, 3. Adequate, 4. Good, 5. Completely). The wording associated with the scales was modified despite there being a possibility of eliciting altered responses from the original questions with different scale labels (including as a result of cultural variations associated with meaning). The modification was considered appropriate, however, as the altered question not only increased the specificity of what was being asked (managing a crisis v's helping someone with a problem) but also the specificity of the response (eg "good" as being more specific that "quite a bit"). Such a modification, however, means that directly comparing the ratings of the questions in the two studies is not appropriate.

Additional questions, modified from the Scottish pilot study (Scottish Development Centre for Mental Health, 2004) addressing an individual's knowledge of mental health first aid issues, skill at managing mental health, and competence in managing a crisis were added. A list of original questions and the modifications made to them for this study appear in Appendix F. The authors of the Scottish pilot study provide no information about the source or statistical reliability of their measures other than "these tools were suggested by the project commissioners and were developed by the researchers" (Scottish Development Centre for Mental Health, 2004,

p.5). Potential concerns about the reliability of these constructed items have been discussed previously, as has the lack of corroborating measures. A question relating the application of the learning at the two and six month follow-up was modified from Kitchener & Jorm, 2004 (Originally the question was: "In the last 6 months have you had any contact with someone with a mental health problem? Yes/No/ Don't know. This was changed to: "Have you had the opportunity to use your Mental Health First Aid skills? Not used, Used Once, Used 2/3 times, Used 4/7 times, Used more than 7 times).   This modification was undertaken to identify if the learning was actually being applied, and if so how often, rather than acknowledging the identification of mental ill-health. It improves on previous studies (Kitchener & Jorm, 2002, 2004) where application of the learning was assessed by questions focusing on "intention to treat" responses. Attempts to quantify the number of times the training was used is a reasonable question (Freidman & Amoo, 1999) however, it is acknowledged that there was no other objective form of data to corroborate the application rates of the learning within the questionnaire. An individual's confidence in applying the MHFA skills in the future, as opposed to current confidence, was assessed with the question "Would you feel confident in applying your MHFA skills in the future?' (Response choices were: Very confident, Confident, Somewhat confident, Not confident). A follow-up question of "What would need to happen for you to feel confident in applying the skills?" was asked of individuals who provided a response other than "Very confident" to the previous question.

As previously discussed, caution is advised when interpreting the results from this study, due to issues of modest statistical reliability and the validity of the constructed questions.   While there appears to be reasonable face validity of the items, the rigour of content validity, established by the review of the items by people with subject knowledge, was limited. Most of these questions could not be assessed using criterion validity methods (comparing with "gold standard" corroborating items) although an attempt was made to do so within the limitations of the current

study. Many of the constructed questions sought responses to individual elements of interest (ie there were not multiple factors assessing the same construct) and consequently the use of factor analysis to improve construct validity was not appropriate (Fink & Litwin, 1995).

Measures of psychological well-being

In this study it was decided to measure mental well-being focusing on identifying psychological well-being rather than pathology. Psychological well-being or positive mental health, includes self assessment of elements of personal concepts such as functional affect, managing the demands of life, maximising potential and the ability to contribute to the community. It incorporates affective and cognitive factors taking into consideration their influence on well-being and contribution to social functioning (Barry et al., 2009). This approach was adopted as an alternative to the measures commonly used to identify psychological distress, which frequently use diagnostic criteria to guide the content and application of the tool. These diagnostic measures tend to be medically orientated towards the identification of clinical populations, with a diagnostic orientation reflected in the content and language of the measures. For non-clinical populations, such as participants in MHFA courses, clinical measures are not appropriate to identify attitudes associated with wellness. Further, such direct clinically focused measures, were considered likely to result in significant non-completion by participants who were likely to have considered them invasive or confronting.

Positive mental health and well-being

Prior to, and immediately following completion of the course, participants were asked to rate their current mental health ("How would you generally rate your mental health?" Very poor, Poor, Neither good nor poor, Good, Very good). Following training they were asked if their attitude and

approach to their own mental health had changed. Participants were asked to rate any change (Significant change, Some change, No change) and to describe any change that they had identified in their approach to managing their mental health. In addition to these short questions, two scales measuring mental well-being were utilised to identify the impact of training on mental well-being.

The RAND SF-36 (Ware et al., 1993) was developed as a 32 item, eight scale profile, measuring generic functional health and well-being (Ware, 2009). It was developed from a synthesis of the most frequently measured concepts in the most widely used health surveys. It included health indicators such as: behavioural function and dysfunction, distress and well-being, objective reports and self ratings and favourable and unfavourable self evaluations of general health status (Ware et al., 1993). Of the eight scales generated four refer to mental health (energy and vitality; EVI, psychological distress; MHI-5, Social Functioning and Role-Emotional functioning). These four subscales respond most to drugs and therapies that target mental health (Ware, 2009). The scale has been refined over time and is now one of the most widely used short form health surveys. It has been applied in studies in over 4000 publications (Ware, 2009). It has been repeatedly tested for internal and retest reliability demonstrating a Cronbach Alpha consistently over 0.70 (see examples in Tsai, Bayliss & Ware, 1997, McHorney et al., 1994). It has also been systematically assessed for content validity against other well-known health surveys and within a variety of populations with factor analytic studies performed on the internal items of the eight summary scales (Ware et al., 1993).

The energy and vitality (EVI) sub-scale from the RAND SF-36 (Ware et al., 1993) measures the positive construct of mental health associated with energy and vitality. The EVI was selected in this study in part because it was used previously with a nationally representative Irish sample in the SLÁN 2007 study (Barry et al., 2009). Thus, its use in this study potentially allows for comparisons to be made between the profile of

respondents in this study and the SLÁN study. The EVI scale was included as a measure of positive mental health (Lavikainen, Fryers & Lehtinen, 2006) and measures the occurrence and extent of energy and vitality during the previous four weeks. It consists of a six point rating scale from "all of the time" to "none of the time". Scores are presented as a summed score, ranging from 0 to 100 with higher score indicating higher levels of energy and vitality (Mc Dowell & Newell, 1996). Within this study the Cronbach's alpha of the EVI is 0.73 suggesting sound internal validity despite the relatively few number of items (four) within the subscale (De Vellis, 2003).

The second scale used to measure mental well-being was the relatively new Warwick-Edinburgh Mental Health and Well-being Scale (WEMWBS; Tennant et al., 2007). It was developed by an expert panel using contemporary literature, qualitative research, focus groups and psychometric testing of an existing scale (the Affectometer 2; Tennant, Fishwick, Platt, et al., 2006) to guide its construction. It was validated on representative student and population samples. Its content was validated using confirming factor analysis with Cronbach Alphas ranging from 0.89 to 0.91. The scale correlates highly with other mental health and well-beings scales and less so with general health scales. It has produced a normal distribution and had high retest reliability after one week (0.83). It shows no ceiling effects and indicates a social desirability bias similar to that of comparable tests (Tennant et al., 2007).

The scale contains only positively worded items relating to different aspects of positive mental health including affective-emotional aspects, cognitive evaluative dimensions and psychological functioning.   Its positive approach was intended to be supportive of assessment of mental health promotion activities and to be free of ceiling effects often associated with measures with negatively focused scales (Tennant et al., 2007). It is a 14 item scale covering hedonic (subjective experiences of happiness and life satisfaction) and eudemonic (focusing on psychological functioning

and self realisation) factors. It is rated on a five point scale from "none of the time" to "all of the time" providing a summed score from a minimum of 14 to a maximum of 70 where higher numbers reflect a higher level of mental well-being. The Cronbach's Alpha for the WEMWBS within this study is 0.87 suggesting sound internal validity (De Vellis, 2003).

Psychological distress

In addition to the scales measuring mental well-being, psychological distress was measured with the five item Mental Health Index (MHI-5) from the RAND SF-36 questionnaire (Ware et al., 1993). Similar to the Energy and Vitality Index, this measure was selected in part to allow comparison with data obtained in SLÁN, 2007 (Barry et al., 2009). This non diagnostic measure of psychological distress measures the participant's distress during the previous month associated with the two most common mental disorders (anxiety and depression) within the community (Lavikainen et al., 2006). Responses are presented as a summed score ranging between 0 and 100 (Mc Dowell & Newell, 1996) with low scores indicating greater distress. Despite discussions (Kelly, Dunstan, Lloyd & Fone, 2008) about appropriate cut off points, Lavikainen (et al., 2006) recommend that a cut-off score below 52 is likely to indicate a "probable mental health problem". This cut off point was previously used in SLÁN 2007 (Barry et al., 2009), by Holmes (1998) when identifying depression and by the European Opinion Research Group (2003) in its report of mental health in Europe. The Cronbach's alpha for the MHI- 5 within this study is 0.73 which is sound despite the limited number of items (five) comprising this subscale (De Vellis, 2003).

Mastery

The Pearlin Mastery Scale (Pearlin & Schooler, 1978) was used in this study. This seven item self-reported measure assesses the degree to which people believe themselves to be in control or to be able to influence

outcomes. This measure was chosen as previous research suggests that people are less likely to display help-focused behaviour if they judge themselves not to have the skills to assist others (Jorm, Kitchener, Kanowski & Kelly, 2007). A measure of perceived mastery was employed to identify if change in perceived control occurs following MHFA training. If mastery is enhanced following training it may be associated with an increased willingness to assist others in a crisis. If mastery is maintained over time it may provide an indication of the durability of learning that was associated with its enhancement. Skills that are mastered subsequent to their learning are likely to be more durable than behaviours not associated with causal knowledge (Klien, 1987). In addition there is significant evidence linking a sense of control to better psychological health (Rodin, 1986; Rodin, Timko & Harris, 1985; Haidt & Rodin, 1995), physical health (Marmot, Bosma, Hemmingway, Brunner & Stansfeld, 1997), self-rated health and functional status (Seeman & Lewis, 1995), better maintenance of cognitive function (Seeman, Rodin & Albert, 1993) and lower mortality risk (Seeman & Lewis, 1995). Therefore, increased scores on a mastery scale following training may suggest improved psychological well-being as a result of completing the course.

Pearlin's Mastery Scale (Pearlin & Schooler, 1978) items are rated from one (strongly disagree) to four (strongly agree) with total scores ranging from 7 to 28 and higher scores indicating a greater belief of the individual being in control (White, Poissant,, Cote-LeBlanc & Wood-Dauphine, 2006). The Cronbach's alpha for Pearlin and Schooler's Mastery Scale in this study is 0.68 which is slightly below a preferable level of 0.70 (Pallant, 2007). One could argue that care is required in the interpretation of the results from this scale. However, Pearlin and Schooler's Mastery Scale is a widely used scale (Rosenfeld, 2004) and has previously provided internal construct validity scores as high as 0.85 (Majer, Jason & Olson, 2004).

Evaluation of the MHFA course content

Five questions to evaluate the course content (presented in the post training evaluation questionnaire) were constructed by the author. Information was requested in a variety of forms including, for example, rating of elements of the content of the course on a five point scale from "needs attention" to "perfect". Qualitative responses were also elicited from questions such as "If you have discussed the course with others can you briefly describe the exchange?"

The pre and post training questionnaires were completed by the MHFA participants immediately before and immediately on completion of training and are presented in Appendix E.

Follow-up at two and six months

Vignettes

Two month and six months after the training follow-up questionnaire vignettes were used to assess if MHFA participants were able to identify common mental health problems. Two vignettes previously used in the National Survey of Mental Health (Andrews et al., 1999) and subsequently by Kitchener & Jorm, (2002, 2004) and Jorm, et al., (2004) were used in this study. Unlike the studies of Kitchener & Jorm, (2002, 2004) and Jorm, et al., (2004) where closed questions were used to assess a participant's response to the description (such as "How willing would you be to……Make friends with John?" Definitely willing, Probably willing, Probably unwilling, Definitely unwilling) in this study a more narrative approach was used. This required the participants to explain their reasoning and the steps they used in the process of providing MHFA was utilised (Bruner, 1991). The participants' responses were recorded using a template identifying diagnosis that measured the application of the course mnemonic ("ALGEE"), including the identification of any specific

professional assistance, self help strategies or assistance they would have provided. A copy of this recording template appears in Appendix G. This approach was undertaken to encourage the respondent to work through the process of applying his or her learning to the vignette rather than restricting the individual's response by using closed questions as had been done previously (Kitchener & Jorm, 2002; Jorm et al., 2005).

Assessing the application of Mental Health First Aid knowledge has been problematic since the inception of assessments of the course (Kitchener & Jorm, 2002; Jorm et al., 2005). This is because the exposure of people who are experiencing mental distress to those trained in mental health first aid is in reality, serendipitous. Any attempt to construct a study to assess the value of an intervention in real situations with people who are unwell and distressed is likely to be considered unethical. Even if such exposure were possible, collecting baseline and effect data would be extremely difficult as it would be to obtain sufficient volumes of data necessary for rigorous analysis.

Follow-up questionnaires

Follow-up questioning at two and six months was undertaken by telephone interview conducted by an assistant not known to the course participants. This approach was adopted in an attempt to maximise response objectivity as it was deemed likely that an approach by the author and course presenter may have resulted in a positive response bias. The script followed by the assistant and the questionnaires completed at the two and six month follow-up is provided in Appendix H. Participants were presented with two vignettes describing two mental health crises over the six months; one at the two months following the training and the alternate six months completing the course. The assistant conducting the interviews was required to assign the initial vignette (by way of a pseudo–random coin toss for the first respondent within each group) and vignettes were applied alternately through the group. The vignette applied initially was

recorded for each individual so that at the six month follow-up the second vignette could be presented. This approach was used to ensure that approximately 50 percent of each group received each vignette at each time of assessment.

The assistant was directed to attempt to contact the participants on three occasions at each follow-up point. If a participant could not be contacted after three attempts, at their preferred time, it was assumed that consent was withdrawn and no further attempt was made to contact that individual. The responses to the questionnaires to the point of being "uncontactable" were entered into the data set. Missing data beyond the time when contact was lost, was coded as "missing data" in the data set.

Although an assistant conducted the follow-up interviews after the training there still may have been an effect of respondents "trying to please the interviewer". Using an assistant unknown to the course participants was considered likely to lessen this effect. The difference between the pre training and post-test training procedure and the follow-up interviews was that before and after training the participants read and completed the questionnaires with the course facilitator present, and at follow-up the questions were read over the telephone by an assistant.

Piloting of the measures

A preliminary study was undertaken in the first three months of the research to:
- test the clarity and easy of use of the test materials (the pre training and post training questionnaires);
- identify the time taken to complete the questionnaires;
- obtain feedback about the course materials used during training;

- offer some insight into the quality of the data collected and the coding of the data, and to assist with determining the sample size required for the study.

Although not a complete pilot study (Thabane, et al., 2010) the intention of the preliminary study was to obtain feedback on the test materials, and processes of collecting data, not to collect preliminary data for the study.

One preliminary study consisted of the responses from 19 managers from non-government organisations who provided community-based services to clients from low socio-economic backgrounds. These data were not included in the final analysis. The individuals in the preliminary study were given the pre -course questionnaire and asked to complete the questions, before being asked for their feedback on the content, style and layout of the questionnaire. They identified that several of the questions associated with the subjective rating of knowledge, confidence, competence and skill were similar in format and had to be read carefully to ensure their meaning was understood. They did not identify any difficulties or concerns with the open-ended questions.

The participants had several general questions regarding the relevance and/or intention of the mental well-being and mastery scales, however, only a general non-specific response was provided so as not to unduly influence responses. The general explanation that "they just inform one of the research questions" was deemed sufficient for respondents to complete the questionnaire. The only other highlighted issue was the need for further space in which to write responses. Following this feedback questions with some similarity had the key words within the statements highlighted (eg "how **confident** are you that you could manage a mental health emergency?") and more space was provided for written answers. The post course questionnaire contained these modifications and further feedback was requested. The respondents were asked to complete the vignette responses at the conclusion of training. Despite the timing of the

presentation of these materials not being as presented in the final research (ie there was no two or six month delay and the questions were not presented by an assistant), participants found the interview process easy to follow and engaging. The questionnaires were considered acceptable in length (taking about 20 minutes for the initial questionnaire and an additional 15 minutes for the two and six month follow-up interviews; Warwick & Lininger, 1971). No further changes were identified as being necessary.

Data from the preliminary study were coded and entered into a data set. This data set was not included in final study. The data were screened for outliers and normal distribution. No concerns about the data set that may have impacted on the evaluated data used in the study were identified.

Procedure

Adaptation of the course materials for the Irish context

The course materials used in the delivery of the course were adapted when necessary to reflect the Irish context. The most current available data was used and incorporated into the training materials and resources provided to the participants. The focus and structure of the course did not change, but where possible, Irish statistics and Irish examples of services and responses were incorporated. Where equivalent data for Ireland were not available, such as within some areas illustrating drug use, regional data was incorporated with appropriate explanations provided. For some discussions, such as comparison of rates of suicide, European comparisons were used in addition to Irish data. The data were from identified reputable sources such as the National Office for Suicide Prevention and the National Parasuicide Registry. For some sections of the course, directly comparable Irish data were not available (such as burden of disease statistics, statistics for individual illnesses such as depression, anxiety,

schizophrenia and co-morbidity statistics). For burden of disease information the original Australian course data was used to illustrate the concept of burden of disease with a clear explanation to the participants of the lack of an Irish source of comparable information. For the specific illness data and the co-morbidity data, the Australian statistics were not presented but the concepts of varying prevalence rates, and the associated bio-psychosocial correlates were discussed. A full list of modifications to the slides used during the presentations is in Appendix I.

The Australian course manual was used in the presentations (Kitchener & Jorm, 2002a). Supplementary Irish resource lists were given to each participant as an addition to the resource lists found at the end of each chapter in the manual (see Appendix J). These provided Irish specific information about local resources to assist in the identification of care options.

One case study used in the course was subject to minor modification (see Appendix K) to contextualise the case appropriately for the Irish setting. This was undertaken to maintain the interest of the participants, and as a link to the identification of local and appropriate care options.

The audio-visual materials were not modified from the Australian course.

Course delivery methodology did not vary significantly from the Australian structure. The delivery modes used included lecture style information provision together with small and large group discussions. Active learning was encouraged by having the participants' complete case studies and quizzes. The Australian manual was used as a reference source and concepts and mental ill-health experiences were presented using audio visual materials.

Participants in the study were presented with questionnaires before and after attending a 12 hour MHFA course. The questionnaires were

distributed and collected by the course presenter. The initial questionnaire collected information about the participants' attitudes towards, and knowledge of, mental health issues and their self assessed confidence and competence to manage mental health emergencies. It also presented measures of mental well-being and mastery. The post training questionnaire sought similar information to identify any changes that had occurred. The participants were also asked to give their views on the most influential elements of the course and to identify the most salient elements of the learning. The participants' retention of the learning, the application of the skills learned and the longer term affect of the training on the participants' mental well-being over time was assessed at two and six months after the training. Assessments at two and six months were completed by a research assistant.

The control group received the same pre training questionnaire that was presented to the MHFA participants before and after completing an 18 hour physical first aid course. The post training control group questionnaire omitted questions rating the course content. The control group did not receive two or six month follow-up questionnaire, as this was considered unnecessary, as they had not been exposed to the MHFA training. These questionnaires were presented and collected by physical first aid course instructors and appear in Appendix L.

Reliability of treatment implementation

There is some variability in the characteristics of the factors impacting on the completion of the questionnaires. The participant groups varied with respect to the individual characteristics of the participants making up each group, the numbers attending the groups, the locations and numbers of sessions attended. These variations could potentially inflate error variance. The effect on the results of the completion of the questionnaire directly by the participants immediately before and following training, and then via telephone interviews at two and four months is not known.

Possible influences are considered in the discussion. Every attempt was made, however, to keep the protocols consistent across groups. It is unlikely that there were significant differences in these elements between any of the courses.

Ethical approval

Ethical approval for the study was granted by the Research Ethics Committee of the National University of Ireland, Galway.

The course presenter

All the courses were delivered by the present author of this study. She holds a Masters degree in Clinical Psychology, and has experience working clinically in adult, adolescent and child mental health services within community based, forensic and educational environments. The author study also has significant experience within the education sector. She undertook five days training to become a facilitator of the MHFA course in 2006 under the guidance of the course author, Betty Kitchener from the Orygen Research Centre, Department of Child and Adolescent Psychiatry, University of Melbourne, Australia.

Evaluation

Considerations for data analysis

Statistical models were chosen to reflect the questions identified by the major hypotheses. Changes in the ratings of the key learning elements of the course (depression, anxiety, suicide, psychosis and drugs and alcohol) were compared between the groups before and following training, using a one-way repeated measures analysis of variance (ANOVA). One-way repeated measure ANOVA were considered to be appropriate as the matching of the MHFA participants and control group members results in

the groups being treated like a repeated measures design (that is, the groups are correlated as a result of matching). The variance between the groups is reduced by matching, resulting in increased sensitivity within the evaluation. The critical analysis is the differences between the groups as the variability between participants and control group is reduced (Shadish, Cook & Campbell, 2002). The weakness of the approach is that the magnitude of any training effects on individuals within the groups is lost as the analysis utilises the means within and between the groups (Cook & Campbell, 1979).

Using independent samples t-tests, pre training ratings of the core elements of the course were compared to identify differences between the groups before undertaking training. This was done to assist with the interpretation of the changes in knowledge subsequent to training. Potentially, differences in pre training ratings between the groups could indicate statistical regression toward the mean (ie where low or high pretest scores are an artifact that subsequently distorts the post-test scores by reverting back toward the population mean. That is, the post-test scores become higher or lower respectively depending on the fallacy of the initial score). Thus, identifying this potential threat to internal validity was important so as to consider any influence this may have when interpreting the outcomes measuring learning over time. This approach was also undertaken for the subjective areas of evaluation of the course (rated knowledge to manage a mental health emergency, competence, skill and confidence to do so).

One-way repeated measures ANOVA were then used to compare the MHFA participant group and control group ratings before and after training on the core learning elements and subjective ratings of the course. Repeated measures ANOVA were chosen as they are appropriate for use in longitudinal studies. Repeated measure ANOVA minimize error variance estimate when there is variability of responses within the group and because within matched sample designs measurement across

conditions is treated like repeated measures within a repeated measure ANOVA (Pallant, 2007).

Following training, one way repeated measures ANOVAs were used to evaluate the robustness of learning and subjective evaluation factors within the participant group over four time periods (before and following training, and at two and six months following training). The frequency of the use of the central mnemonic (ALGEE) that guides the engagement of a MHFA provider with someone who is potentially unwell was evaluated, as was the preparedness of the participants to apply that learning. Non parametric tests were used in these instances as the data were categorical.

A major focus of this study was to investigate the influence of training on the MHFA participants' mental well-being. One way repeated measures ANOVAs were again utilised to evaluate the changes in mental well-being (EVI, WEMWBS) including variations in psychological distress (MHI-5). Subjective measures of mental well-being were also analysed.

A sense of personal mastery has previously been associated with mental health and, therefore, can be considered as a mediating factor (Pearlin & Schooler, 1978). A one-way repeated measures ANOVA was used to identify changes in rated mastery across the four assessment times. With a change in mastery identified, the influence of mastery on mental well-being was investigated. The use of multiple regression analysis involving the proportion of variance accounted for by mastery (and other factors) within each mental well-being scale, could provide some evidence of how well mastery predicts mental well-being. A relevant finding would support the association not only between mastery and mental health, as proposed by Pearlin & Schooler (1978), but potentially between mastery and mental well-being, depending on the variance within each scale. The responses for mastery and other factors known to impact on mental health, specifically, age, gender, education and employment status were analysed. An additional element, prior learning was included because it was

considered to be potentially influential. These factors were entered simultaneously into the regression equation as no individual factor was assumed to have more influence over the predicted variance within the mental health scales (Pallant, 2007).

Potentially, such an analysis could identify if mastery is important predictor of self evaluation of energy and vitality, psychological distress or enhanced mental well-being. The interest in the influence of mental well-being is that this factor is evaluated using positive statements unlike the use of mental deficit measures as found within most measures of mental health. If mastery does account for significant variance within the mental health and well-being scales, then a subjective sense of mental well-being, and not just mental health (or the absence of diagnosed mental ill-health), could be associated with a sense of mastery. If rated mastery is also increases following MHFA training, then it may be possible to suggest that MHFA training could have a positive influence on mental well-being by influencing a participant's sense of mastery. Mastery would also potentially seem to be associated with the application of the skills learned and such an association may offer a way forward in addressing stigma. Stigma has previously been associated with poor knowledge, understanding and isolation of those who are unwell (Byrne, 2000). Although it is beyond the scope of this study, further research could test if the associations between improved knowledge as a result of training, and the corresponding increases in mastery and well-being, result in increased assistance being provided to those experiencing mental ill-health. If so, then an evaluation is warranted to identify if these actions have an influence on reducing stigma within the community as a consequence of improving understanding and connection between individuals.

Statistical analysis

The data types collected included continuous, ordinal, categorical and descriptive data.   Prior to analysis the data were screened for normality,

linearity, homoscedasticity and outliers.   Taken at face value the five point Likert scale measures could be problematic if these data were to be analysed using parametric statistical techniques which assume a continuous data set (Pallant, 2007). However, previous investigations with scaled data in the social sciences suggests that measures with five or more scale points can be considered as continuous data for analysis (Glass, Peckham & Saunders, 1972). The use of parametric approaches was preferable as parametric data analysis is traditionally considered to be statistically more rigorous (Pallant, 2007). The number and variety of parametric tests is also greater than the number available for non-parametric analysis, meaning, the use of parametric tests allows for more sophisticated and more robust approach to analysis. As a further check, the non-parametric tests equivalent to the parametric tests reported in this study for the relevant scales were run and were found to produce comparable results.

SPSS version 18.0 was used to undertake univariate, bivariate and multivariate analysis. Univariate analysis was undertaken for each variable during the initial screening process and in identifying descriptive information. Bivariate analyses were used to highlight patterns in variable means and percentages categorised by demographic variables such as gender, occupation and education. One way repeated measure ANOVAs were used to compare variables between and within groups over time. Multivariate analyses, including the use of multiple regression, were used to predict factors which impacted on the participants' rating of mental health. Within the multiple regression analysis of the variable mastery, the mental health scales were entered simultaneously as no theoretical hierarchy of the scales was assumed. Non parametric tests were used where categorical data were analysed.

There were two forms of incomplete data in the analysis. All of the data were screened to identify any trends in the missing responses. The first form of missing data occurred randomly and was associated with entry

errors or omissions, for example, a missed response within a scale requiring multiple responses. Within the analysis, randomly missing data were excluded on a pairwise basis to maximise data retention. Although single imputation could have been used as an alternative, such an approach could have created unexpected effects on the randomness of the responses within sample. Multiple imputations of missing data were not appropriate, as only one data set was used in the analysis (Multiple imputation requiring the combining of results from multiple data sets to produce results that incorporate data uncertainty; Rubin, 1987.). Pairwise exclusion was undertaken despite the fact that this can impact on the sample size and standard error within the analysis, making some direct statistical comparisons potentially difficult (Graham, 2009). However, as some attrition was expected over the six months after training, pairwise exclusion was adopted to maximise the final data set (Howell, 2009). The second form of missing data came from the attrition of participants who, by leaving the study, did not complete the full series of questionnaires. Responses from these individuals were added to the analysis to the point of last contact. After the point of last response, data were coded as missing data. This approach assumed no change in participant's responses to the impact of MHFA training after their last contact. This approach was adopted to maximise the use of the collected data. No bias was expected to be introduced into the sample by this approach, as the data were screened for any systematic omissions prior to entry into the data set.

Qualitative data (responses to open ended questions) were included where appropriate, to contextualise the findings. These were evaluated using thematic analysis. Such data were used where quantitative analysis was unwarranted and to provide further insight into the quantitative data.

In summary, this study brought together a study sample recruited from the wider Irish population. The course was run to meet the needs of the participants and as such, was delivered utilising the flexible delivery options inherent in the programme. This approach, while potentially

increasing the risk of uncontrolled influences impacting on the quasi-experimental process, has the advantage of testing the training under the conditions in which it is designed to be delivered. The questionnaire contained both standardised and novel items. This provided a balanced approach to data collected eliciting both standardised and personalised responses from the sample to the areas of interest within the study. Factors known to influence mental health that were common between the two groups and that could be a potential source of variability were reduced using a matching process for those characteristics. Analysis of the data was conduced over a six month period to give an indication of the robustness of the findings over time.

The findings from the data analysis are presented in the next chapter. The results chapter addresses the analysis of each hypothesis.

3. Results

Results

This chapter presents the study findings as they relate to each of the study hypotheses. Demographic data illustrating the characteristics of the study population are presented first, followed by an account of the impact of MHFA training on knowledge of mental ill-health. Comparisons are made between the participant and control groups over time. Data are presented to describe the course participants' subjective evaluation of the course, including their rating of the course content. Changes in measures of the mental well-being of MHFA course participants following the completion of the course are examined. Finally the participants' evaluation of the course content and delivery are presented.

Demographic Characteristics of the Study Population

Thirteen MHFA courses were conducted in the southern and western counties of Ireland during an eighteen month period to 2008. The average age of MHFA course participants ($n = 216$) was 41.2 years ($SD = 11.64$, range 17-67) of whom 26.4 percent were male and 73.6 percent female. Some 74.2 percent of course participants had post school qualifications (17.6 percent diploma level, 24.1 percent degree, 25.5 percent held post graduate qualifications) and 79.6 percent ($n = 198$) were employed. Only 20.6 percent stated they were undertaking the course for work purposes (46.1 percent identified self development as their motivation for undertaking the course and 28.9 percent stated they undertook the course to help others).

The control group ($n = 216$) had an average age of 40.94 years ($SD = 11.53$, range 17-66) of whom 25.9 percent were male and 74.1 percent were female. Some 61.6 percent had post school qualifications (24.1

percent diploma level, 26.9 percent degree level and 10.6 percent held post graduate qualifications), and 78.6 percent were employed.

There was no statistically significant difference between the course participants and the control group for age, gender, education or employment status. Table 4.1 presents the descriptive data of the groups in more detail.

Table 4.1. Demographic characteristics of the MHFA course participants and control group.

Age (years)	MHFA Participants n = 216			Control Group n = 216		
	Mean	SD	Range	Mean	SD	Range
	41.19	11.64	17-67	40.94	11.54	17-66
Gender	Males		Female	Males		Female
	n (%)			*n* (%)		
	57 (26.4)		159 (73.6)	56 (25.9)		160 (74.1)
Education*	Frequency (%)			Frequency (%)		
None	1	(0.5)		-	-	
Primary	7	(3.2)		11	(5.7)	
Junior	28	(13.0)		37	(17.1)	
Leaving	35	(16.2)		35	(16.2)	
Diploma	38	(17.6)		52	(24.1)	
Degree	52	(24.1)		58	(26.9)	
Post Grad	55	(25.5)		23	(10.6)	
Employment Status	Frequency (%)			Frequency (%)		
Paid employment						
	172	(79.6)		170	(78.6)	
Not paid employment						
	44	(20.4)		47	(21.4)	

Education categories were taken from SLÁN 2007 (Barry et al, 2009)

*Highest level of education achieved as indicated by participants

Of the MHFA course participants 68.5 percent ($n = 216$) identified their own mental health as good or very good prior to undertaking the course. A further 25.5 percent stated it was neither good nor bad, 5.1 percent identified themselves as having poor mental health and 0.9 percent thought they had very poor mental health.

Prior to training, 82.8 percent ($n = 169$) of MHFA course participants indicated that they had previously undertaken some training in the area of mental health. The remaining 27.2 percent of participants indicated that they had no previous mental health training experience. Details of the content of training undertaken prior to MHFA training were not recorded. Within the group who identified they had undertaken prior training one third (33 percent) identified that had undertaken one session of training, 30 percent identified one to three sessions and 19.8 percent had undertaken more than three sessions of training. When occupation was collapsed into two categories, employed and not in paid employment, there was a medium sized statistically significant effect (Cohen, 1988, pp. 284-287) for prior training and employment (x^2 [2, $n = 216$] $=19.28$, $p < .001$, phi $= 0.30$). This indicates that MHFA course participants who were employed were more likely to have undertaken mental health related training prior to undertaking the MHFA course than those in this group who were not in paid employment. There was also a statistically significant effect for gender and prior training, with 73 percent of employed men and 51 percent of employed women indicating that they had undertaken prior training (x^2 [2, $n = 216$] $= 6.86$, $p = 0.03$, phi $=0.18$). There was also a statistically significant effect for education with 72 percent of participants who had post school education also having prior training and 74 percent of participants with school level education having no prior training (x^2 [2, $n = 216$] $= 33.88$, $p < .001$, phi $= 0.40$). The MHFA course participants had undertaken statistically significantly more training prior to committing to the MHFA course than the control group ($U = 10661.50$, $z = 4.76$, $p < .001$, 2 tailed).

Results

Within the control group, 79.7 percent ($n = 172$) indicated having undertaken previous training associated with mental health. The remaining 20.2 percent of control group participants indicated that they had undertaken not previous mental health training. Of those who had some training experience, 51.4 percent identified having participated in one session of training addressing mental health, 25.5 percent had undertaken one to three sessions and 2.8 percent identified having completed more than three sessions of training. Compared with the MHFA participant group more of the control group had undertaken one session of mental health related training and fewer of the control group had undertaken more than three sessions of training prior to completing their physical first aid courses. That the control group indicated that they had training in mental health may not be unusual as one could reasonably suggest that people undertaking physical first aid could be more socially focused than a standard population group who may not be as altruistically focused. Thus, training in physical first aid may be attractive to people with an interest in helping others, and is consistent with them also seeking some basic training in mental health, as confirmed in the pre-training assessment. As with MHFA course participants, those within the control group who had prior training in mental health there had a statistically significant correlation with employment (x^2 [2, $n = 215$] = 8.49, p =0.01, phi = 0.20) and education (x^2 [1, $n = 216$] = 12.32, p = .002, phi = 0.24). This suggests prior training was again more likely to have occurred in those with paid employment and additionally, 44 percent of the control group who had post school education also had prior training with 80 percent of those with school level education having no prior training. Unlike the MHFA training group, however, there was no corresponding effect of gender and prior training within the control group.

Within the MHFA course participant group 87.3 percent ($n = 206$) stated they undertook "some" activities or "consistently" engaged in activities, to manage their own mental health. Figure 4.1 illustrates the activities identified by participants to manage their mental health. "Other"

techniques included methods such as, engaging in training such as the MHFA course, and moderate consumption of alcohol. Multiple responses identified a combination of management strategies being utilised by individuals to manage their mental health.
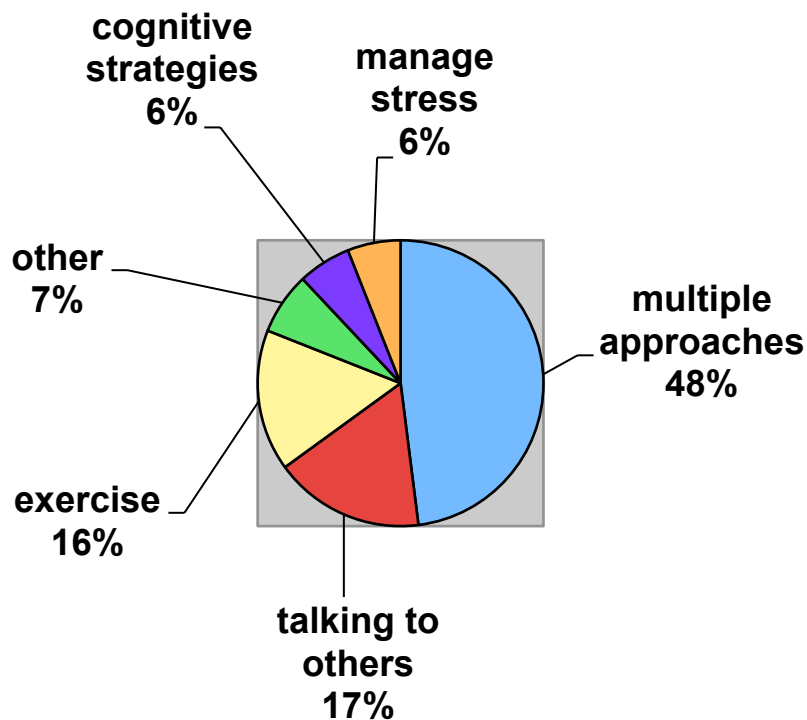

Figure 4.1. Activities undertaken by course participants to manage their own mental health.

When asked what would ease their concern if they were worried about their mental well-being, 80.2 percent (n =184) of participants stated they would they would approach someone to talk to about their concern.

"Other" responses included gaining knowledge about, or having a better understanding of, mental health. All of the course participant responses are shown in Figure 4.2. These results suggest that the MHFA course participants have some existing knowledge of the management of mental health issues. The response of 34 percent of participants indicating they would see their G.P. if they were concerned about their mental health is low, when compared to previous studies, where up to 74 percent of respondents have indicated, that if they were concerned about their mental health, they would approach their G.P. (Health Service Executive, 2007).
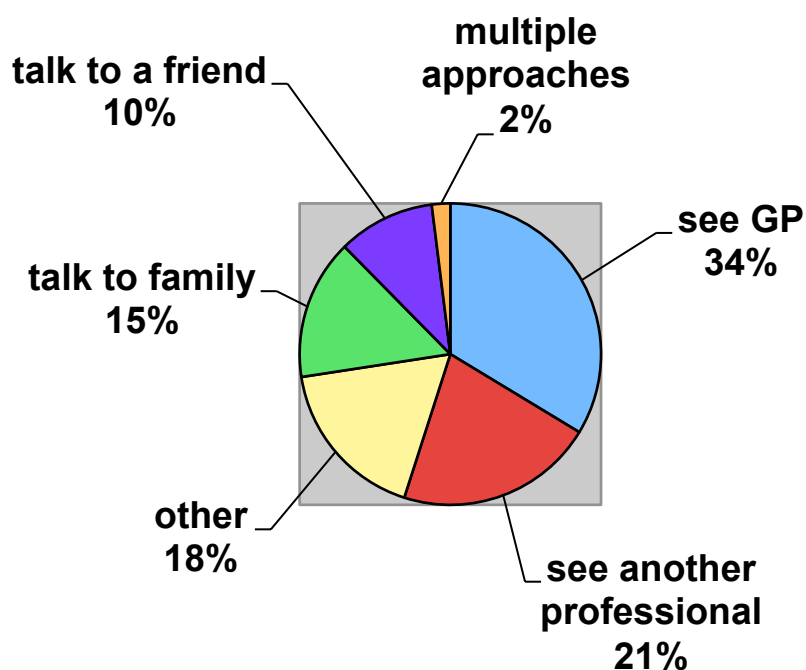

Figure 4.2. MHFA course participant responses of actions they would undertake to ease concern about their own mental health.

When course participants were asked to identify what they expected to achieve from completing MHFA, 41.9 percent ($n = 203$) expected to gain knowledge, 34.5 percent expected to develop skills in managing mental heath crises, 17.7 percent expected to be more confident having undertaken the course and 5.9 percent had other expectations.

In summary, the study sample largely consists of females of approximately 40 years of age. The majority have post-school education and are employed. Similarly, the majority of the sample has undertaken some other mental health training prior to MHFA training.

The first of the six hypotheses addresses the evaluation of the learning achieved by MHFA participants. It assesses the preparedness of participants to apply that knowledge including their subject evaluation of their capacity to do so.

Hypothesis 1

MHFA will be positively evaluated by course participants. A positive evaluation will demonstrate an increase in knowledge about mental ill-health, the intention of the participants to use that knowledge to assist individuals in distress and the positive subjective evaluation of the course with respect to the participants' capacity to be able to apply the learning.

Prior to training, MHFA course participants and the control group were asked to evaluate their understanding of the key subject areas of the course. The MHFA course participants were again asked to rate their understanding immediately after completing the training and at two months and six months after completing the course. The control group were also asked to rate their understanding of the key MHFA subject areas before, and after having completed a standard first aid course. The

correlations illustrating associations between the key subject areas of the MHFA course and demographic factors such age, gender, education and employment status of the participant and control groups were undertaken. The descriptive data appear in Appendix M.

Key elements of MHFA knowledge

Knowledge of key subject areas of MHFA as rated by course participants and the control group before and after training.

MHFA course participants and the control group were asked to rate their knowledge of the key areas of MHFA, specifically, depression, anxiety, suicide, psychosis and the effects of drugs and alcohol on mental health. A series of repeated measure analysis of variance (group by time ANOVA) were conducted to compare the impact of the MHFA training on the measured level of knowledge of the key areas within MHFA before and following training for each group. For each ANOVA procedure, preliminary checks were conducted to ensure the assumptions of normality, linearity, homogeneity of variance were met. Visual inspection of the data, assessments of kurtosis, skew and Levene's test of homogeneity were sound (Field, 2009; Glass, Peckham & Sanders, 1972; Stevens, 2002). Effect sizes were identified following the guidelines proposed by Cohen (1988, p 22).

The mean rating scores of the control and course participant groups for knowledge of the key areas of the MHFA course measured before and following training, are presented in Table 4.2.

Table 4.2. Knowledge ratings* of the key areas of training rated prior to training (T1) and immediately following (T2) training.

| Key areas | Participant | Control | T1 | | T2 | |
| | | | Participant | Control | Participant | Control |
	n^1		Mean(SD)		Mean(SD)	
Depression	214	216	2.7 (1.00)	2.55 (0.63)	3.74 (0.63)	2.52 (0.63)
Anxiety	214	216	2.70 (0.91)	2.57 (0.60)	3.6 (0.74)	2.57 (0.57)
Suicide	215	216	2.47 (0.96)	1.99 (0.73)	3.67 (0.68)	2.06 (0.73)
Psychosis	214	216	1.76 (0.82)	1.53 (0.58)	3.46 (0.70)	1.58 (0.61)
Drugs and alcohol	215	216	2.82 (0.97)	2.94 (0.66)	3.75 (0.76)	2.92 (0.65)

* Ratings: 1= none, 2 = some, 3 = adequate, 4 = good, 5 = complete

n^1 < 216 due to incomplete data

Comparisons of differences between the mean response scores provided by each group, before and after training, were undertaken. This process identified if the groups had similar levels of knowledge for the key content areas of the course before training, and the changes that occurred in that knowledge after MHFA training.

Depression

When knowledge of depression was rated prior to training the MHFA participant group indicated that they had statistically significant more knowledge of depression than the control group (t[59.56]= 2.31, p =0.02, two tailed). The magnitude for the differences in the means (mean difference 0.19, 95 percent, CI: LL 0.03 to UL 0.34) is small (eta squared = 0.02). A one way repeated measures ANOVA comparing knowledge of depression between the groups before and following MHFA training indicated a statistically significant effect for group by time (Wilks'

Lambda = 0.76, *F* [2, 428] = 135.59, *p* <. 000) with a small group interaction effect size (multivariate partial eta squared = 0.24). Therefore, despite having a greater knowledge of depression prior to training the knowledge of depression was rated higher in the MHFA participant group following training.

Anxiety

For anxiety there was no significant difference in the rating of knowledge of anxiety between the groups prior to training (*t* [369.86] = 1.79, *p* = 0.07, two tailed). The magnitude for the differences in the means (mean difference 0.13, 95 percent, CI: LL 0.01 to UL 0.28) is very small (eta squared = 0.009). A one way repeated measures ANOVA comparing knowledge of anxiety between the groups before and following MHFA training indicated a statistically significant effect for group by time, (Wilks' Lambda = 0.78, *F*[2, 428] = 124.55, *p* <. 000) with a small group interaction effect size (multivariate partial eta squared = 0.23). Thus, despite no statistical difference in the knowledge of the groups for anxiety before training, following training the knowledge of anxiety was rated higher in the MHFA participant group.

Suicide

For knowledge of suicide there was a statistically significant difference in the rating of knowledge of suicide between the groups prior training (*t* [401.12] = 5.96, *p* < .001, two tailed) with MHFA participants indicating more knowledge about suicide than the control group. The magnitude for the differences in the means (mean difference 0.49, 95 percent, CI: LL 0.33 to UL 0.65) is moderate (eta squared = 0.08). A one way repeated measures ANOVA comparing knowledge of suicide between the groups before and following MHFA training indicated a statistically significant effect for group by time (Wilks' Lambda = 0.67, *F*[2, 429] = 214.85, *p* <. 001), with a small group interaction effect size (multivariate

partial eta squared = 0.33).   So although the MHFA participant group had a greater knowledge of suicide prior to training, they rated their knowledge as having been further enhanced as a result of MHFA training.

Psychosis

For knowledge of psychosis there was a statistically significant difference in the rating of between the groups prior training (t [385.15] = 3.45, p = .001, two tailed), indicating that MHFA participants had greater knowledge of psychosis than the control group. The magnitude for the differences in the means (mean difference 0.24, 95 percent, CI: LL 0.10 to UL 0.37) is small (eta squared = 0.03).   A one way repeated measures ANOVA comparing knowledge of psychosis between the groups before and following MHFA training indicated a statistically significant effect for group by time, (Wilks' Lambda = 0.60, F[2, 428] = 289.09, p <. 000), with a small group interaction effect size (multivariate partial eta squared = 0.40). This indicates that despite the participant group having a greater knowledge of psychosis prior to training, MHFA training was rated as increasing knowledge within this area.

Drugs and alcohol

For drugs and alcohol there was no statistically significant difference in the rating of knowledge of drugs and alcohol between the groups prior training
(t [379.38] = 1.39, p = 0.17, two tailed). The magnitude for the differences in the means (mean difference 0.11, 95 percent, CI: 0.27 to 0.05) is very small (eta squared = 0.005). A one way repeated measures ANOVA comparing knowledge drugs and alcohol between the groups before and following MHFA training indicated a statistically significant effect for group by time (Wilks' Lambda = 0.73, F[2, 429] = 126.13, p <. 000), with a small group interaction effect size (multivariate partial eta squared = 0.23). As with anxiety, despite there being no difference between the

groups in their knowledge of the impact of drugs and alcohol on mental health prior to training, as a result of training participants rated their knowledge of the impact of drugs and alcohol on mental ill-health as being enhanced.

In summary, except for rated knowledge about drugs and alcohol and anxiety MHFA course participants rated their pre course knowledge to be higher for the key areas of the MHFA course, than the control group. MHFA participants' pre course rating of knowledge for depression, suicide and psychosis was significantly higher than the control groups' rated knowledge within these areas. Controlling for pre training differences between the intervention and control groups, MHFA training was associated with a statistically significant increase in knowledge within the MHFA participant group within the key areas of course content immediately following training.

Knowledge of key subject areas of MHFA as rated by MHFA course participants to six months

In addition to group comparisons, MHFA participants rated each key subject area within the MHFA course four times throughout the study commencing before the course and up to six months following the training. This was undertaken to demonstrate the effect of time on learning attained by MHFA training. The results showing the maintenance of knowledge in the key course areas over six months, and the effect sizes for this knowledge compared to the pre-training responses of participants, are listed in Appendix N. The intention of the measurement over time was to identify the robustness of the learning up to six months following the training. MHFA course participants' rated their knowledge of the subject areas prior to commencing the course, immediate following completion of the training, two months following the completion of the course and again six months after completing the course. Table 4.3 provides the ratings by

the MHFA course participants' of the key areas of the course from before the course to up to six months following the course.

Table 4.3. Participant ratings of key content of MHFA prior to training (T1), following training (T2), at two month follow-up (T3) and six month (T4) follow-up.

Key area	$n*$	T1 Mean (SD)	T2 Mean (SD)	T3 Mean (SD)	T4 Mean (SD)
Depression	178	2.70 (0.98)	3.7 (0.65)	3.63 (0.63)	3.38 (0.65)
Anxiety	177	2.68 (0.89)	3.5 (0.77)	3.57 (0.65)	3.34 (0.72)
Suicide	179	2.45 (0.94)	3.63 (0.69)	3.44 (0.69)	3.26 (0.64)
Psychosis	178	1.75 (0.76)	3.44 (0.68)	3.21 (0.69)	2.98 (0.60)
Drugs and alcohol	178	2.80 (0.96)	3.69 (0.78)	3.70 (0.74)	3.50 (0.71)

*$n < 216$ indicates the final number of complete responses at T4.

The robustness of the learning of the key subject areas in the MHFA course by the MHFA participant group was undertaken. Comparisons were made across the four time points, to identify overall gains and losses of knowledge from the pre-training level of rated knowledge. Where changes were identified between individual time points, additional analysis was undertaken to identify the effect size of the change.

Depression

A one way repeated measures analysis of variance (ANOVA) was undertaken to identify changes in participants' rating of knowledge of depression before and up to six months following training. From before training to six months following training, there was a small statistically

significant effect for group by time ($F[1.95] = 130.88$, $p < .001$, partial eta squared = 0.43), indicating an increase in knowledge of depression following training that was retained for six months. Post hoc pairwise comparisons of the individual time periods indicate that immediately following training there was a statistically significant increase in knowledge of depression and no statistically significant loss of knowledge of depression to the two month follow-up. There was, however, a statistically significant loss of knowledge of depression from immediately following training to the six month follow-up. Figure 4.3 illustrates the rated knowledge of depression, and the changes over six months, as identified by the MHFA course participants.
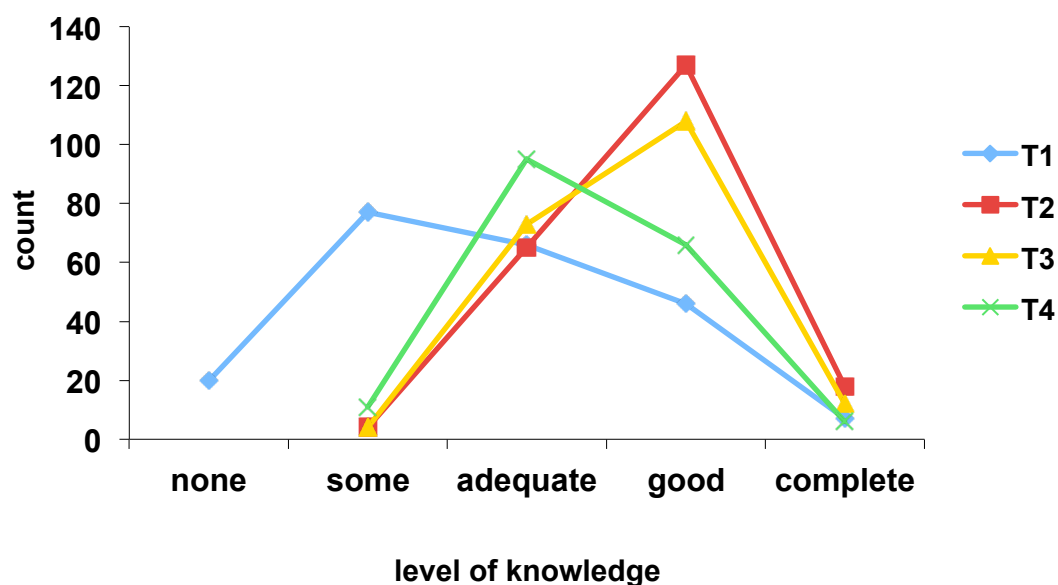

Figure 4.3. MHFA course participants' rating of knowledge of depression prior to training (T1), immediately following training (T2) and at two (T3) and six months (T4) following training.

Suicide

A one way repeated measures analysis of variance (ANOVA) was undertaken to identify changes in participants' rating of knowledge of suicide before and up to six months following training. From before training to six months following training there was a small statistically significant effect for group by time, (F[2.05] = 166.58, $p < .001$, partial eta squared = 0.48). This indicates a significant increase in knowledge of suicide following training that was retained for six months. Post hoc pairwise comparisons indicated a statistically significant difference between ratings at each assessment. Rated knowledge of suicide increased with training with losses of knowledge when rated two months later and at the six month follow-up compared to the rating immediately following training. Figure 4.4 illustrates the rated knowledge of suicide identified by the MHFA course participants at the four assessment points.
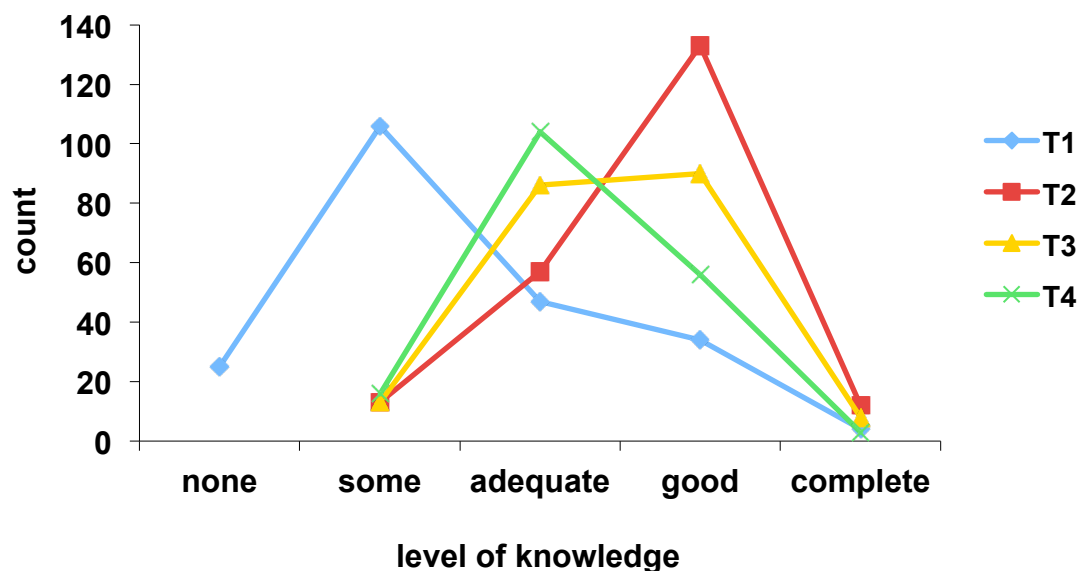

Figure 4.4. MHFA course participants' rating of knowledge of suicide prior to training (T1), immediately following training (T2), two months following training (T3) and at six month follow-up (T4).

Anxiety

A one way repeated measures analysis of variance (ANOVA) was undertaken to identify changes in MHFA course participants' rating of knowledge of anxiety before and up to six months following training. From before training to six months following training there was a small statistically significant effect for group by time (F[2.29] = 94.16, $p < .001$, partial eta squared = 0.35), indicating an increase in knowledge following training that was maintained to the six month follow-up. Post hoc pairwise comparisons of the individual time periods indicated that there was a statistically significant increase in knowledge following training. There was no statistically significant difference in the rating of anxiety from immediately following training to the rating provided at the two month follow-up. There was a further loss of knowledge from immediately after training to the six month follow-up. Figure 4.5 illustrates the rated knowledge of anxiety by course participants over time.
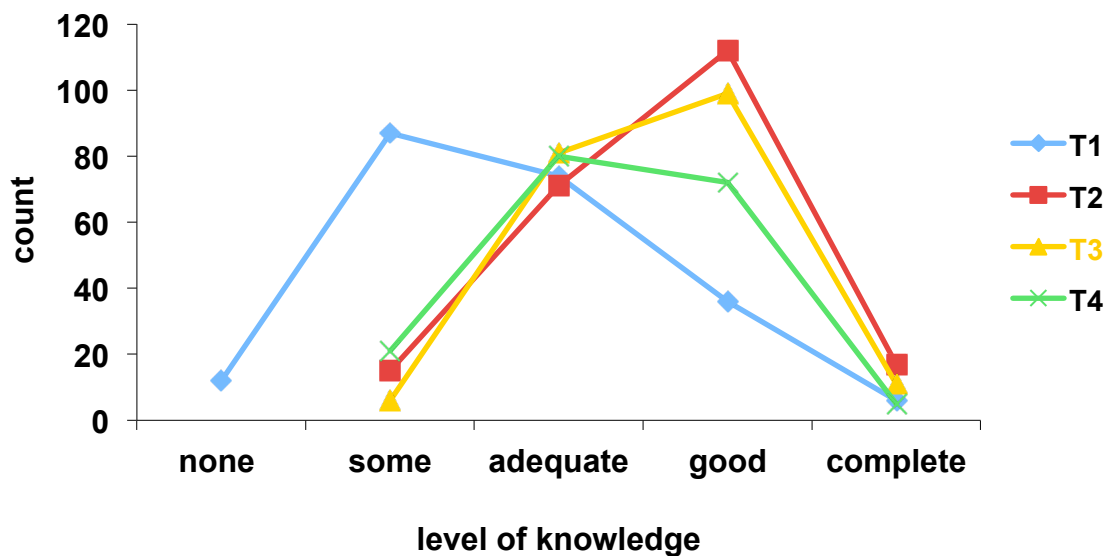

Figure 4.5. MHFA course participant rated knowledge of anxiety prior to training (T1), following training (T2), at two month (T3) and six month (T4) follow-up.

Psychosis

A one way analysis of variance (ANOVA) was undertaken to identify changes in participants' rating of knowledge of psychosis before and up to six months following training. From before training to six months following training there was a medium statistically significant effect for group by time ($F[2.36] = 401.17$, $p < .001$, partial eta squared = 0.69), indicating an increase in knowledge for psychosis following training that was maintained to six months following training. However, post hoc pairwise comparisons of the individual time periods indicated that knowledge of psychosis was rated statistically significantly lower at the two month and six month follow-up compared to the rating of psychosis provided immediately following training. Knowledge of psychosis as rated by the MHFA course participant group before training and up to six months following training is illustrated in Figure 4.6.
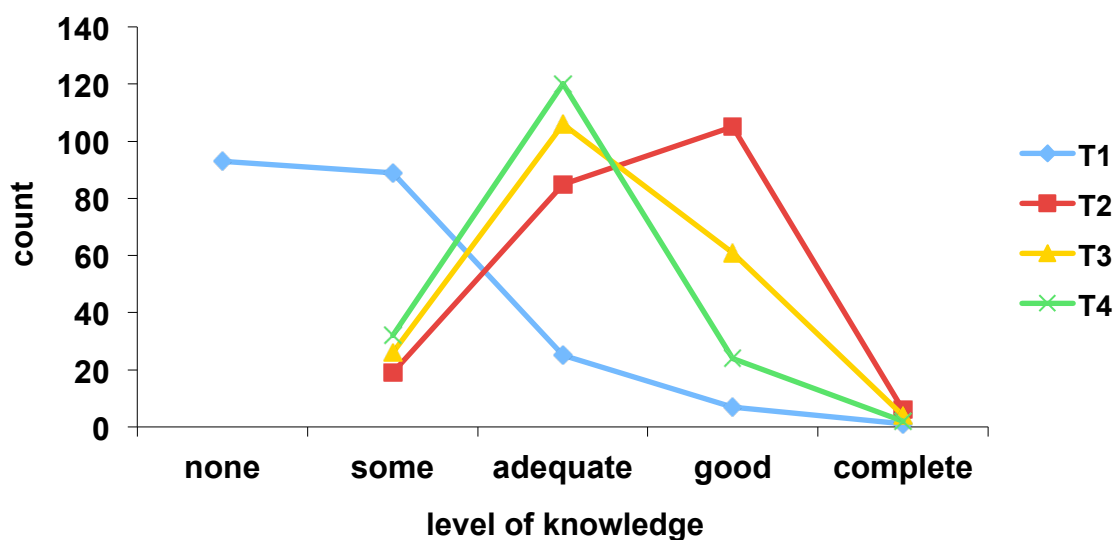

Figure 4.6. MHFA course participants' rating of knowledge of psychosis before training (T1), following training (T2) at two month (T3) and six month (T4) follow-up.

It is interesting to note that in the responses for psychosis, pre-training levels of knowledge appear to be low. This is of interest because although psychosis represents only a very small proportion of mental illness in the community (less than one percent; Australian Bureau of Statistics, 2007) it tends have significant stigma attached to it. This may support the argument that ignorance about the nature of psychosis contributes to the attitudes held by people about the nature of the illness.

Drugs and alcohol

A one way analysis of variance (ANOVA) was undertaken to identify changes in participants' rating of knowledge of drugs and alcohol and their affects on mental health before and up to six months following training. From before training to six months following training there was a small but statistically significant effect for group by time ($F[2.18] = 110.68$, $p <$ .001, partial eta squared $= 0.39$), indicating increased knowledge of drugs

and alcohol after training that endured for six months. Post hoc pairwise comparisons of the individual time periods indicated that the rating for knowledge of drugs and alcohol following training did not significantly reduce to the two month follow-up. There was, however, a statistically significant loss of knowledge from the completion of training to the six month follow-up. Figure 4.7 illustrates the rated knowledge of drugs and alcohol by MHFA course participants' over time.
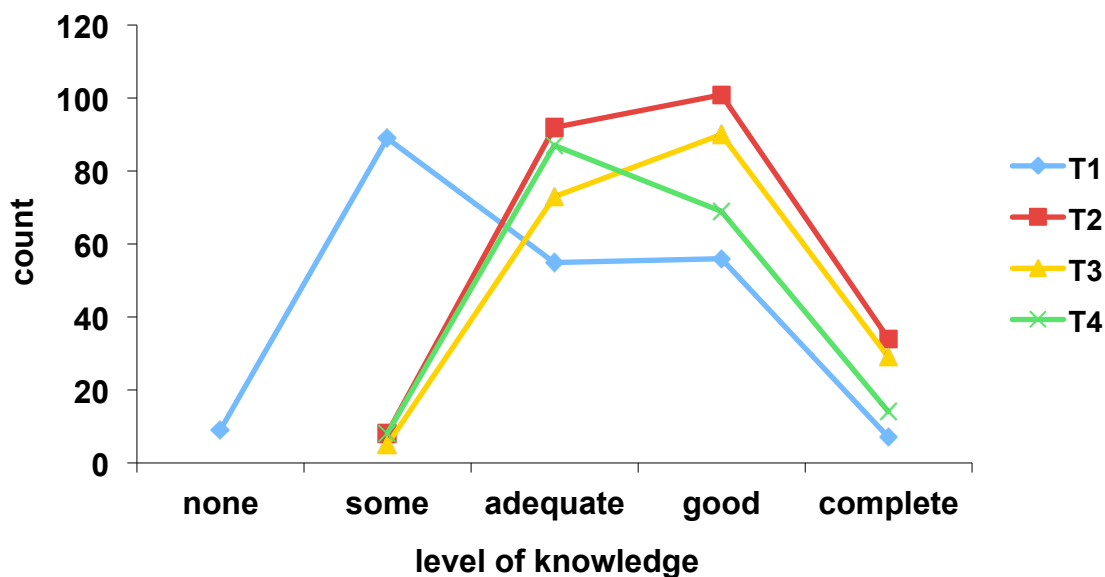
Figure 4.7. MHFA course participant knowledge of the effects of drugs and alcohol prior to training (T1), following training (T2) at two months (T3) and six months (T4) post training.

In summary, for all the major subject areas of the course, MHFA participants identified a significant increase in their knowledge following training. In all areas there was some perceived loss of knowledge over time. The loss of knowledge did not, however, return knowledge back to pre training levels, but rather participants rated their knowledge as "adequate" after six months.

Application of learning

Having learned more about the major mental health concerns within the community and a framework to assist people in distress, an evaluation was undertaken to identify if the participants could apply the knowledge they had learned. Participants were asked to recall the elements of the framework "ALGEE" two and six months after training. ALGEE is the mnemonic for the central action framework used to assist people in potential crisis and is described in the literature review section on page 52.

MHFA participants were also presented with vignettes of mental health situations found within the community and asked to apply the ALGEE framework to the cases described within the vignettes. At two months ($z = 10.73, p < .001, r = 0.78$) and six months ($z = 6.67, p < .001, r = 0.53$) statistically more ALGEE elements could be recalled than applied by the participants in response to the conditions described in the vignettes. When assessing the application of ALGEE to the vignettes, the participants revealed a loss of capacity to recall ALGEE and apply it to the vignettes over time. Statistically fewer elements of ALGEE were recalled and could be applied to the vignette at six months ($z = 8.47, p < .001, r = 0.63$) than at the two month follow-up ($z = 5.21, p < .001, r = 0.40$). Figure 4.8 illustrates the number of ALGEE elements recalled and their application to the vignettes at two and six months after training.
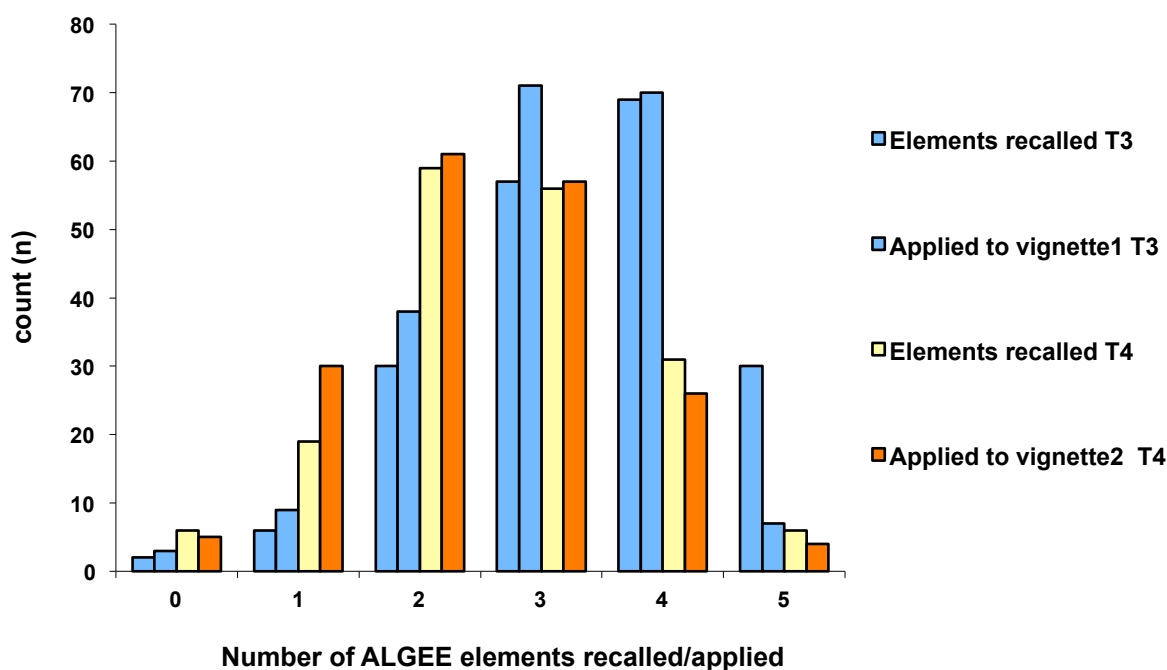

Figure 4.8. Recall of ALGEE elements and its application to vignettes two months (T3) and six months (T4) following training.

Figure 4.8 illustrates that two months after training 58 participants could recall three elements of ALGEE, and 71 participants could apply the learning in response to the scenario presented in the vignette. This dropped to 30 participants recalling all five elements of ALGEE, with only eight being to apply the framework to the vignette. After six months, the recall and applications rates were fewer in total but more consistently aligned in the levels of recall and application. Most participants recalled and could apply two or three elements of ALGEE after six months. This suggests some consolidation of elements of the learning framework for use in application over time.

The individual elements within ALGEE were investigated to identify if any element was more readily applied by participants to address the distress of the person described in the vignette. When the data from both vignettes were combined for comparison of the total responses at two and six months, there was a statistically small decrease in the number of professionals identified as being able to offer assistance from the two month to the six month follow-up ($z = 2.03$, $p = 0.05$, $r = 0.15$). There was no decrease in number of personal actions that the MHFA course participants would undertake to assist the person described in the vignette between the two and six month follow-up. That is, participants were consistent in their use of "give reassurance and information" at two months and six months following training. The quality and quantity of the information provided was not identified. Course participants were asked if they felt prepared to apply the principles of MHFA and the mnemonic ALGEE. Figure 4.9 illustrates the course participants' reported preparedness to apply ALGEE. A Friedman test indicated a small statistically significant positive effect for preparedness from immediately after training to six months after training (x^2 [2, $n = 167$] = 24.71, $p < .001$, $r = 0.15$). Wilcoxon tests indicate no difference in preparedness from immediately following the training to two months following but a statistically significant increase in preparedness to apply MHFA from the two month to the six month follow-up ($z = 5.21$, $p < .001$, $r = 0.40$). This

indicates that over time, following training, participants felt more prepared to apply MHFA.
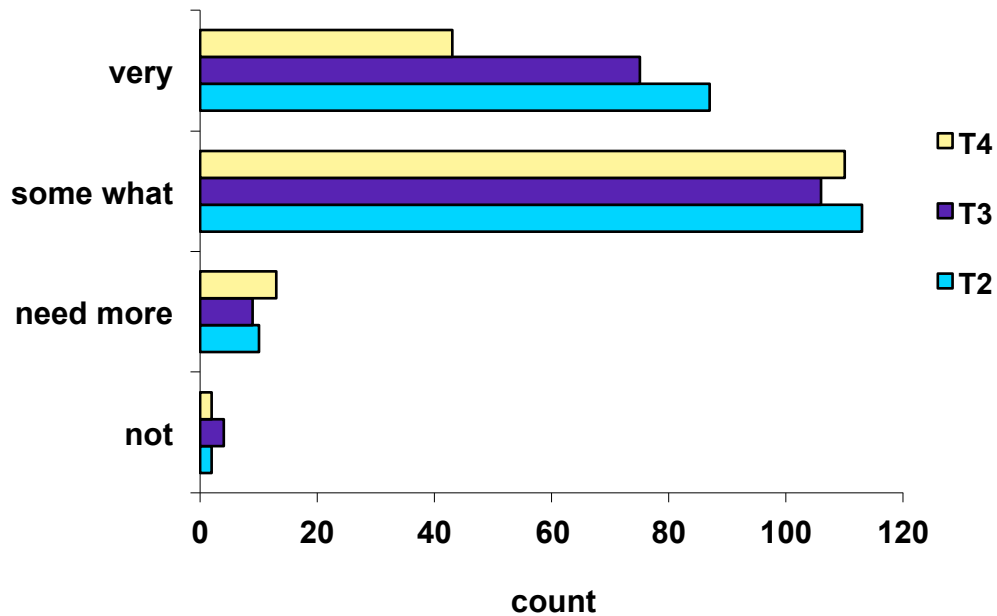
Figure 4.9. Preparedness to apply MHFA immediately following training (T2) at two month follow-up (T3) and six month follow-up (T4).

Subjective evaluation of MHFA capacity

As the MHFA participants appeared to become more prepared to apply MHFA over time it is important to assess if there were any characteristics within the groups (other than MHFA training) that might have influenced this. Similar to the evaluation of the key subject elements of the course, participants and the control group rated their overall knowledge of managing a MHFA emergency and their confidence, competence and skill to apply MHFA. This evaluation attempted to identify the personal capacity of course participants to engage with people in mental distress and to apply the learning attained during training. Correlations of demographic variables (age, gender, education and employment status)

and their association with the subjective areas of evaluation (knowledge, skill, confidence and competence) as rated by the MHFA course participant and control groups prior to training were undertaken. These associations appear in Appendix P.

These correlations suggest that prior to training males in both the participant and control groups rated themselves more confident than females to manage a mental health emergency. Within the control group, however, males considered themselves to be more competent and skilful than females to manage a crisis. In both groups those with post-school education considered themselves as having more knowledge, skills and competence to manage a crisis and within the control group, those with post-school qualifications were also more confident. In both groups those who were employed rated themselves as being more confident, competent, skilful and knowledgeable to manage an emergency. These correlations suggest that those undertaking the MHFA training, despite their pre-existing knowledge, lacked confidence in comparison to the control group population.

Within the control group there was a small, statistically significant effect on rated skill to apply MHFA and confidence, before and following training. This indicates that despite completing, physical first aid training rather than MHJFA training, the control group rated themselves more skilful and confident to apply MHFA than before their training. Within the control group there was no change in the rating of knowledge of MHFA or competence to apply MHFA before and following training.

In summary, MHFA course participants rated themselves consistently "somewhat prepared" to apply MHFA over time. Although they could often recall elements of the mnemonic "ALGEE" they had more difficulty in applying the framework over time. When they did apply their learning their focus was on what actions they could do to assist (such as involving family, taking the person to help etc) and giving reassurance and

information rather than listening non-judgementally, assessing the risk of the situation or suggesting self help strategies. Being employed and having a post school education appears to enhance an individual's self - rated capacity to assist someone in distress yet the confidence to do so appears to be enhanced by training. The impact of the training on these factors is further assessed in what follows.

Subjective evaluation

Subjective evaluation of MHFA training by the control and MHFA course participant groups before and after training.

Previously, the key subject content of MHFA was evaluated to identify if learning of these elements had occurred in MHFA participants. Further, the participants' ability to recall the central action framework and their preparedness to apply their learning was assessed. This section assesses the participants' subjective evaluation of their knowledge to manage and emergency and their skill, confidence and competence to do so.

A series of one way repeated measures analysis of variance (group by time ANOVA) was conducted to compare the ratings provided by the MHFA participant and control group on these subjective factors before and following MHFA training. Preliminary checks were conducted on the data to ensure the assumptions of normality, linearity, homogeneity of variance were met. Visual inspection of the data, and the statistical assessments of kurtosis, skew and Levene's test of homogeneity were sound (Field, 2009; Glass, Peckham & Sanders, 1972; Stevens, 2002). Effect sizes were identified following the guidelines proposed by Cohen (1988, p 22).   Table 4.4 presents the mean subjective ratings for knowledge to manage MHFA emergency, skill, confidence and competence in applying MHFA as rated by MHFA course participants and the control group participants before and following training.

Table 4.4 MHFA course participant and control group subjective rating of knowledge, skill, confidence and competence to apply MHFA prior to (T1) and immediately following (T2) training.

Evaluated capacity	Participant Control		T1		T2	
			Participant	Control	Participant	Control
	n*		Mean (SD)		Mean (SD)	
Knowledge	215	216	2.18 (0.95)	2.20 (0.70)	3.62 (0.67)	2.25 (0.63)
Skill	215	216	2.29 (0.91)	2.01 (0.65)	3.25 (0.80)	2.08 (0.65)
Confidence	215	216	2.33 (0.92)	1.87 (0.67)	3.37 (0.75)	1.91 (0.65)
Competence	215	216	2.29 (0.90)	1.89 (0.67)	3.35 (0.83)	1.91 (0.68)

*n < 216 is a result of incomplete/missing data

Knowledge to manage a MHFA emergency

When knowledge to manage a MHFA emergency was rated prior to training there was no statistically significant difference between the ratings provided by the participant and control groups, (t [394.82] = 0.29, p = 0.73, two tailed). The magnitude of the differences in the means (mean difference 0.23, 95 percent, CI: -0.18 to 0.13) is very small (eta squared = .004). A one way repeated measures ANOVA comparing knowledge to manage a MHFA emergency between the groups before and following MHFA training indicated a statistically significant effect for group by time (Wilks' Lambda = 0.53, F [2, 429] = 382.93, p <. 001) with a large effect size (multivariate partial eta squared = 0.47). This suggests that adjusting for baseline group differences, participants who undertook MHFA training rated their knowledge to manage a MHFA emergency as more complete than the control group following the completion of the training.

Skill at managing a MHFA emergency

When skill at managing a mental health emergency was rated prior to training the MHFA course participants rated themselves as more skilled to manage a mental health emergency, (t [388.64] = 3.70, p < .001, two tailed). The magnitude of the differences in the means, however, (mean difference 0.28, 95 percent, CI: 0.13 to 0.43) is small (eta squared = 0.03). A one way repeated measures ANOVA comparing skill at managing an emergency between the groups before and following MHFA training indicated a statistically significant effect for group by time (Wilks' Lambda = 0.66, F[2, 429]= 225.41, p <. 001) with a large effect size (multivariate partial eta squared = 0.34). Therefore, despite the MHFA participants indicating a higher level of skill to manage a mental health emergency prior to training, following the completion of training MHFA participants still rated their skills at managing an emergency higher compared to the ratings provided by the control group.

Confidence at managing an emergency

When confidence at managing a mental health emergency was rated prior to training, the MHFA course participant group rated their confidence at a statistically significant higher level than the control group (t[391.55] = 6.01, p < .001, two tailed). The magnitude of the differences in the means (mean difference 0.69, 95 percent, CI: 0.32 to 0.62) is moderate (eta squared = 0.08). A one way repeated measures ANOVA comparing between the groups' confidence in managing an emergency before and following MHFA training indicated a statistically significant effect for group by time (Wilks' Lambda = 0.64F[2, 429] = 243.26, p< 001). This difference was also accompanied by a large effect size (multivariate partial eta squared = 0.36). Thus, despite a higher rated level of confidence to manage an emergency before training in the MHFA participant group, MHFA participants' confidence was still rated higher after training compared to the control group.

<center>Results</center>

<center>*Competence at managing an emergency*</center>

When competence at managing a mental health emergency was rated prior to training there was a statistically significant difference between the rating provided by the MHFA course participants and people in the control group. The MHFA course participants rating their competence at managing an emergency higher than the control group, (t [429] = 5.29, $p <$ .001, two tailed). The magnitude of the differences in the means (mean difference 0.40, 95 percent, CI: 0.25 to 0.55) was large (eta squared = 0.52). A one way repeated measures ANOVA comparing competence at managing an emergency between the groups before and following MHFA training indicated a statistically significant effect for group by time, (Wilks' Lambda = 0.59, F [2, 428] = 300.82, $p <$ .001) with a large effect size (multivariate partial eta squared = 0.41). Thus, the MHFA participant group, despite rating their competence to manage a mental health crisis higher than the control group before training, also rated their improvement in their competence following completion of MHFA training as greater than those of the control group.

<center>*Control groups' subjective evaluation of MHFA training*</center>

The control group within this study completed a standard physical first aid course following the initial assessment and the post MHFA course training assessment. It is possible that the subjective evaluation of their knowledge, confidence, competence and skill to manage a mental health emergency was influenced by the training. A series of repeated measure ANOVAs were undertaken to compare their evaluation of these subjective elements before and following their physical first aid course training.

Knowledge of how to manage a mental health emergency did not significantly change within the control group (Wilks' Lambda = 0.98, F[1,215] = 3.90, p = 0.05, partial eta squared = .02) nor did their rated

competence to be able to manage a mental health emergency (Wilks' Lambda = 0.99, $F[1,215]$ = 0.73, $p = 0.40$, partial eta squared = .003). However, the control group rated their confidence to manage a mental health emergency (Wilks' Lambda = 0.98, $F[1,215]$ = 5.51, $p = 0.02$, partial eta squared = .03) and their skill to manage such an emergency (Wilks' Lambda = 0.96, $F[1,215]$ = 8.63, $p = .004$, partial eta squared = .04) at statistically significantly higher levels after undertaking training in physical first aid.

In summary, the subjective ratings provided by the participants and control groups about their knowledge of MHFA, and their skill, competence and confidence in managing mental health emergencies, suggested that the MHFA training was beneficial for the course participants. This result was identified after taking into account the p-re-training baseline differences between the groups. Within the control group, they rated their confidence and skill to manage a mental health emergency as being enhanced by completing a physical first aid course.

Knowledge to manage a MHFA emergency to six months

The participants' subjective rating of their capacity to attend to a mental health emergency including their skill, confidence and competence to do so, to six months following the course is presented in Table 4.5.

Table 4.5. Participant ratings of subject elements associated with their capacity to manage a mental health emergency prior to training (T1), following training (T2), at two month follow-up (T3) and six month (T4) follow-up.

Evaluated capacity	$n*$	T1 Mean (SD)	T2 Mean (SD)	T3 Mean (SD)	T4 Mean (SD)
Knowledge	178	2.18 (0.95)	3.59 (0.69)	3.46 (0.65)	3.25 (0.64)
Skill	178	2.29 (0.88)	3.21 (0.81)	3.20 (0.76)	3.07 (0.63)
Competence	178	2.28 (0.88)	3.30 (0.85)	3.21 (0.71)	3.13 (0.74)
Confidence	179	2.31 (0.90)	3.36 (0.73)	3.26 (0.73)	3.09 (0.66)

* $n < 216$ indicates complete data available at the six months evaluation

A series of one way repeated measures analysis of variance (ANOVA) were undertaken to identify changes in course participants' ratings from before to six months following training. Each subjective area of evaluation analysed using repeated measures ANOVA were subject to standard test assumptions. For each series of ANOVA in this study the results of test assumptions appear in Appendix O.

Repeated measures ANOVA for knowledge to manage a MHFA emergency from before training to six months following training, identified in the course participant group a small statistically significant effect for the group by time interaction ($F[1.94] = 237.57$, $p < .001$, partial eta squared = 0.57). This suggests that knowledge to manage a mental health emergency was enhanced by training and remained above pre training levels up to six months following training. Post hoc pairwise comparisons of the individual time periods indicate that following training there was a statistically significant loss of knowledge at the two month follow-up compared to the knowledge rated immediately following

training. Rated knowledge was also statistically significantly less at the six month follow-up when compared to knowledge rated immediately following training, but remained higher than baseline pre training levels. Figure 4.10 illustrates the rated knowledge to manage a MHFA emergency by the MHFA course participants to six months following training.
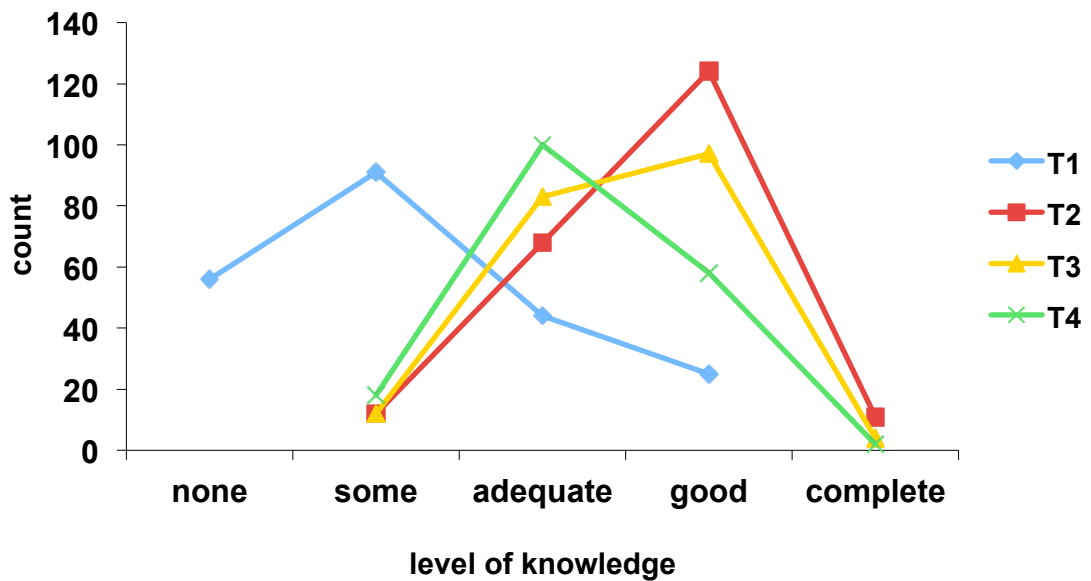
Figure 4.10. MHFA course participants' rated knowledge to manage an MHFA emergency before (T1) and following (T2) training, and at the two month (T3) and six month (T4) follow-up.

Skill to manage an emergency to six months

A one way repeated measure analysis of variance (ANOVA) was undertaken to identify changes in participants' rating of their knowledge of skill to manage a mental health emergency before and six months following training. From before to six months following training there was a small statistically significant effect for group by time, (F [2.34] = 137.24, $p < .001$, partial eta squared = 0.44), indicating an increased rating

for skill as a result of MHFA training that was maintained for six months compared to the pre training skill rating. Post hoc pairwise comparisons of the individual time periods indicate that following training there was no significant reduction in rated skill at the two month follow-up but a statistically significant loss of rated skill to manage a mental health emergency at six months compared to the skill rating identified immediately following training. Ratings did, however, remain higher than the rating provided prior to training. Figure 4.11 illustrates skill to manage a mental health emergency as rated by the course participants.

Figure 4.11. MHFA course participants' rated level of skill to manage mental health crises prior to training (T1), following training (T2) at two month (T3) and six month follow-up (T4).

Confidence to manage an emergency to six months

A one way repeated measures analysis of variance (ANOVA) was undertaken to identify changes in MHFA course participants' rating of confidence to manage a mental health crisis before training, following

training to six months after training.   From before training to six months
after there was a small statistically significant effect for group by time (F
[2.11] = 142.33, $p < .001$, partial eta squared $= 0.44$), suggesting that the
participants' confidence was maintained for six months following training
at a level higher than that indicated before training. Post hoc pairwise
comparisons of the individual time periods indicate that from the rating
immediately following training there was a statistically significant
reduction in rated confidence when assessed at the two month follow-up,
and a further statistically significant loss of rated confidence at the six
month follow-up. Ratings at the six month follow-up did remain higher
than those provided prior to MHFA training. Figure 4.12 illustrates
confidence to manage a mental health emergency as rated by the course
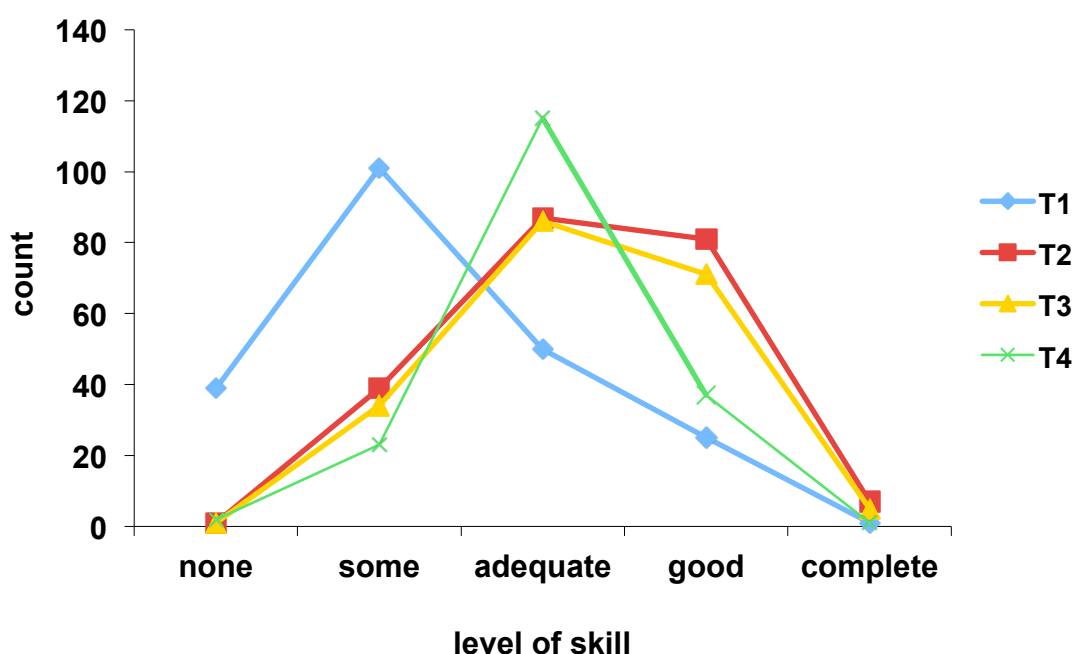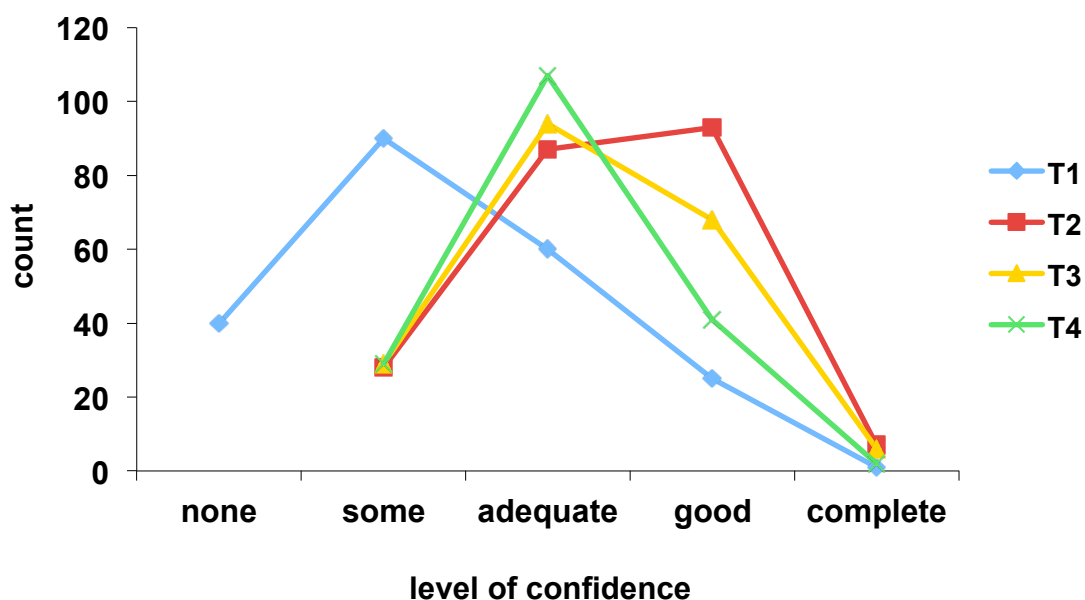participants.

Figure 4.12. MHFA course participants' confidence in managing mental
health emergency before training (T1) following training (T2) and at the
two month (T3) and six month (T4) follow-up.

Competence to manage an emergency to six months

A one way repeated measures analysis of variance (ANOVA) was undertaken to identify changes in participants' rating of competence to manage a mental health emergency before, immediately following, and at two and six months following training. From before to six months following training, there was a small statistically significant effect for group by time, (F [2.33] = 149.04, p < .001, partial eta squared = 0.46). Post hoc pairwise comparisons of the individual time periods indicate that immediately following training there was no reduction competence at two months, but a statistically significant loss of competence to six months, from the level of competence as rated immediately following training. However, there was no significant loss of rated competence to manage a mental health emergency between the two month and six month follow-up.

Figure 4.13 illustrates competence to manage a mental health emergency as rated by the course participants.
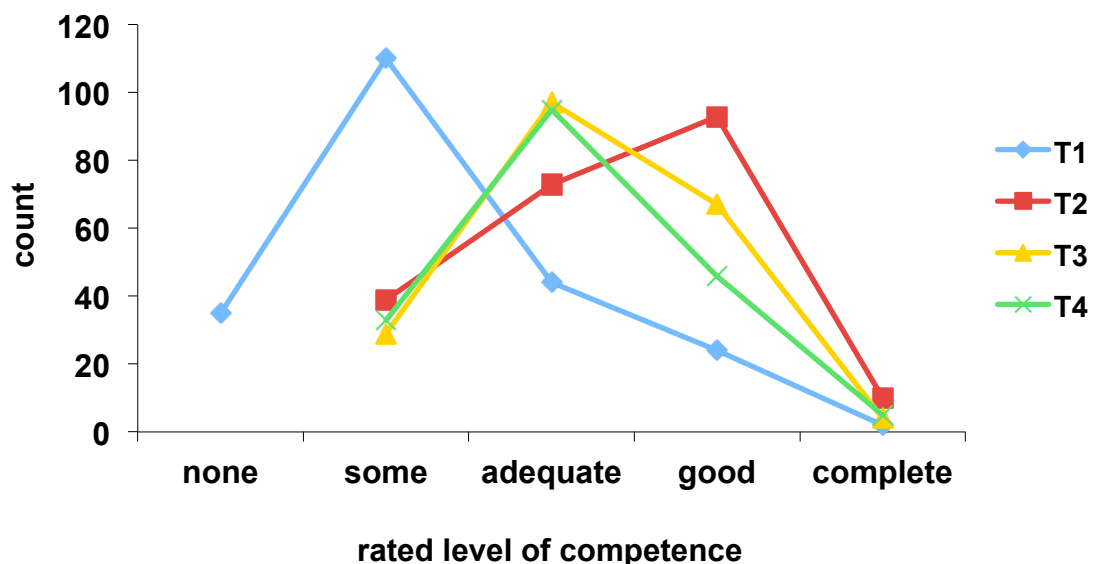

Figure 4.13. MHFA course participants reported competence at managing mental health crisis prior to training (T1), following training (T2) at two (T3) and six month (T4) follow-up.

In summary, the participant group rated their knowledge of MHFA, their skill, competence and confidence in managing a mental health emergency higher after MHFA training. Knowledge decreased over time when rated two months and six months following training. However, despite a drop in rated competence immediately following to two months after training, competence remained unchanged between two and six months following training. Skill at managing emergencies and the confidence to do so, remained unchanged at the two month follow-up before declining at six months. Ratings of all the subjective areas of evaluation remained higher after six months than the ratings obtained prior to training.

Hypothesis 2

As MHFA course participants will display an increase in mental health knowledge and literacy, their willingness to engage with those in mental distress will increase. This will be demonstrated by an increase in their level of preparedness to apply MHFA.

Mental health literacy is in part identified as being the knowledge held by an individual about mental ill-health and well-being (Jorm, 2000). In addition to mental health knowledge, mental health literacy is associated with a willingness to apply knowledge and to engage with people with mental ill-health (Kelly et al., 2007). Mental health literacy has the potential, therefore, to contribute to the reduction of stigma by increasing communication about mental health (Rusch, Angermeyer & Corrigan, 2005).

Participants were asked about their preparedness to apply the learning of MHFA. Preparedness was measured on a four point scale from "very prepared" to "not at all prepared". Preparedness to apply MHFA immediately following training was rated ($M = 1.70$, $SD = 0.91$) and remained unchanged at the two month follow-up ($M = 1.80$, $SD = 0.83$) and at the six month follow-up ($M = 1.81$, $SD = 0.82$). Therefore, the rated

preparedness to apply the training was maintained over time, showing no statistically significant change in ratings from immediately following training to the six month follow-up (x^2 [2, n = 125] = 4.74, p = 0.09).

Although there was no change in the rating of preparedness to apply the learning over time there was a statistically significant increase in the application of MHFA over time, (t[184] = 10.15, p = .001, eta squared = 0.36). Figure 4.14 illustrates that at two months 38 percent of course participants stated that they had not used the training. This dropped to 16 percent after six months. At six months 48 percent of course participants had used the training at least once and 25 percent had used the training on at least two or three occasions.
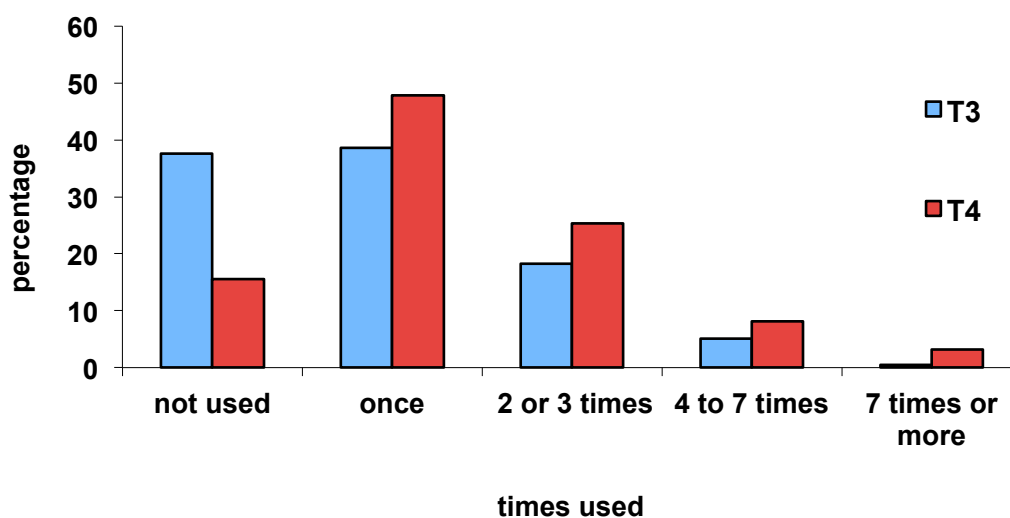

Figure 4.14.   percentage of course participants who indicated applying MHFA training at the two month (T3) and six month follow-up (T4).

Course participants were asked what barriers they identified to being able to apply the MHFA learning. The majority stated that situations that involved violence (55.6 percent at two month follow-up and 54.9 percent

at six month follow-up) or psychosis (19 percent at two month follow-up and 22.1 percent at six month follow-up) would limit their involvement. When then asked what would need to be done to enable them become involved in applying their learning 86 percent of course participants identified that they required practice and /or experience using MHFA with people in mental distress before they would be comfortable in applying it to all situations.

Six months following the training, course participants did not report discussing mental health more with family and acquaintances as a result of training (x^2 [154] = 1.34, p = 0.18, two tailed). Those who indicated that they had discussed the course, described themes relating to the practical nature of the course, the prevalence of mental ill-health in the community, the need to be mindful of their own mental health, and their general enthusiasm for the course. The major messages of the course identified by the participants included the encouragement of confidence (30 percent); to be able to help people in distress (19 percent); the course's influence in generating an acceptance of people with mental ill-health in the community (13 percent); by identifying the prevalence of mental ill-health (13 percent); and the value of having a framework to apply to mental health emergencies (22 percent).

In summary, MHFA participants did not indicate that they were significantly more prepared to apply the MHFA over time having completed the training. Despite this, participants were using the skills and knowledge learned to assist others, but were hesitant to do so in situations involving violence and psychosis citing a lack of practice and experience. The main messages contained within the course were identified as encouraging confidence in assisting people in distress, the value of using the framework provided, while emphasising the imperative of accepting those with mental ill-health because its prevalence in the community. A fuller discussion of these findings will be presented in the discussion.

Hypothesis 3

The participants' mental well-being will be enhanced by undertaking the course. It is predicted that following MHFA training improvements in positive mental health (as measured by the Energy and Vitality Index,

RAND-36, Ware et al., 1993), improved mental well-being (as measured by the, Warwick, Edinburgh Mental Well-being Scale, Tennant et al., 2007) and reduced levels of psychological distress (as measured by the Psychological Distress Scales from the RAND SF-36, Ware, et al., 1993) will be identified in the participant group responses when compared to the responses of the control group.

In interpreting the impact of the MHFA training on the course participants, it is useful, firstly, to describe the mental health profile of the study participants within the context of existing datasets on the mental health status of the Irish adult population. One of the most comprehensive mental health datasets on the Irish adults is reported as part of the SLAN, National Survey of Lifestyles, Attitudes and Nutrition in Ireland study, commissioned by the Department of Health (Barry et. al., 2009).

The SLÁN 2007 survey included measures of population mental health and well-being and utilised the same subscales of the SF-36 (Ware et al., 1993) as used in the present study. Further, SLÁN 2007 compared the results of previous population studies and European measures of mental health and well-being arguing that with appropriate caveats the results could be compared to other international studies (p. 28, Barry et al., 2009). Comparisons of the mental well-being of respondents in this study and those of previous studies including SLÁN 2007 appear in Table 4.6.

Results

Table 4.6. Comparisons of mental health and well-being mean scores on EVI and MHI-5 of SF-36 (Ware et al., 1993) from this study and the findings from previous studies of mental well-being.

Study	Description	Publication Details	EVI (mean)	MHI-5* (mean score and/or percent with probable mental health problem)**
Current study	Irish sample 432 participants completing self report survey with 96 percent response rate		Prior to training 57	Prior to training 60 (23%)
SLÁN 2007	Irish sample. Face to face interviews with 10364 adults with a 62 percent response rate	Barry et al., 2009	68	82 (7%)
Eurobarometer 58.2	European sample from 15 countries of 16230 people with a response rate of 23 percent to 84 percent	European Opinion Research group, 2003	(mean of 61 across 15 countries) Irish response 62 (response rate of 33%)	no mean MHI-5 score provided (23%)
Blake et al.	Irish sample. Postal survey of 295 people with a 37 percent response rate	Blake, Codd & O'Meara, 2000	65	78 (% unknown)

*Note: higher numbers indicate less distress

** A score of 52 or less is taken to indicate that a respondent has a "probable mental health problem" (Lavikainen et al., 2006)

Comparing of the findings of the current study and previous research using the SF-36 subscales (Ware et al., 1993), suggests that the current study sample had less energy and vitality and more psychological distress that the population evaluated in SLÁN 2007 (Barry et al., 2009). Note that within the current study, the control group participants' scores on the EVI

and MHI-5 are significantly lower than the scores of the MHFA participants group (see Table 4.6) and this would appear to partially account for the lower overall scores on these measures.   The percentage of participants in the current study with a "probable mental health problem" (Lavikainen et al., 2006), appears to compare favourably with the results obtained by the Eurobarometer 58.2 study (European Opinion Research Group, 2003). When considering these comparisons these, the differences in the study methods do need to be borne in mind.

The WEMWBS (Tennant et al., 2007) is a new scale and has not been previously incorporated into SLÁN or Europe wide population surveys. However, the Scottish Government has utilised this scale to determine responses to mental well-being and mental health problems in the adult Scottish population (Scottish Government, 2010). In the most recent Scottish survey of 6465 respondents (mean age 47, males 47.8 percent, females 52.2 percent) the mean response score on the WEMWBS was 50.65 (SD = 8.82). This compares well with the mean age of the sample in this study and the mean score of 53.58 (N = 432, SD 6.41) on the WEMWBS by this group.

Within the current study, mean mental health and well-being scores were examined prior to analysis, to detect any change in mental health as a result of MHFA training. Scores on the three mental well-being scales were examined categorised by the recorded demographic characteristics of the respondents. Table 4.7 presents the demographic characteristics of the MHFA participant group and the associated descriptive data on the mental health scales.

Care should be taken when interpreting this table as, for example, occupational categories have been amalgamated to "in paid employment" and "not in paid employment" due to the small numbers in some of the occupational groups. Recall too that the mean age of the study population

is 41years of age, with 44 percent of females and 37 percent of males being 45-64 years of age. The relatively mature age of the study sample makes the direct comparison of this study with population representative samples difficult. For example, SLÁN found only 29 percent of the population to be aged 45-64 (Barry et al, 2009). A breakdown of the ages for each group in the present study and their mean scores on each mental health scale appears in Appendix Q. Briefly, the mean scores for the demographic characteristics suggest that within the MHFA participant group, females aged 30-44 reported experiencing the most psychological distress but energy and vitality and mental well-being scores increased with age across the group. For MHFA male participants psychological distress scores decreased with age and recorded mental well-being and energy and vitality increased with age across the group. Within the control group, for both men and women the measures remained steady across the age groups with the exception of women who reported increased energy and vitality with age.

Demographic characteristics of the groups for the mental health scales, categorised by education level and paid and not paid employment were also identified and appear in Table 4.7. Briefly, prior to training, on average the MHFA participant group experienced less psychological distress and more energy and vitality and mental well-being that the control group. Within the MHFA participant group men with post-school third level education reported the least psychological distress and highest level of energy and vitality and mental well-being. For women, a similar finding of lower psychological distress and enhanced mental well-being was recorded for those with high school, second level education. These women reported, on average, less energy and vitality than those women with primary education. Within the MHFA participant group, men who were employed reported the least distress on average, the greatest energy and vitality and mental well-being scores.

Table 4.7 Demographic characteristics of the MHFA participant group and the control group for the mental health scales.

	n	MHI-5* Mean (SD)		EVI Mean (SD)		WEMWBS Mean (SD)	
		Participant	Control	Participant	Control	Participant	Control
Gender							
Male	113	67.30 (14.33)	51.71(8.86)	59.47 (15.46)	52.86 (6.73)	52.84 (8.14)	52.68 (4.47)
Female	319	66.75 (12.29)	53.60 (7.67)	60.75 (14.54)	52.90 (8.13)	54.82 (5.99)	52.63 (4.68)
Total	432	66.90 (12.83)	53.11 (8.02)	60.42 (14.76)	52.89 (7.77)	54.29 (6.66)	52.45(4.62)
Education							
Primary	16	68.00(16.49)	56.00 (6.20)	66.88 (11.93)	51.82 (7.17)	53.67 (6.47)	52.00 (6.78)
Secondary	135	66.52(14.99)	53.44 (7.61)	60.71 (14.36)	53.62 (8.04)	54.21 (6.10)	54.54 (7.93)
Third level	278	67.01(11.70)	52.69 (8.35)	59.93 (15.07)	52.94 (7.70)	52.48 (3.77)	52.79 (4.84)
Employment status							
Paid employment	337	67.42(11.98)	54.49 (7.75)	60.76 (14.33)	52.65 (7.30)	54.49 (6.07)	52.92 (4.26)
Not in paid employment	99	62.28 (19.19)	53.00(10.61)	57.92 (17.11)	53.19 (9.66)	52.37 (8.70)	52.19 (4.96)

*higher number = less psychological distress

The strength of the correlations between the demographic factors and the mental health and well-being measures were analysed and interpreted following the guidelines Cohen (1988, pp 79-81). A series of correlations identified that within the whole study population (N =432) age was weakly correlated to scores obtained on the EVI ($r = 0.24$, $p < .001$) and the MHI-5 ($r = 0.14$, $p =.005$). Education was also weakly correlated with MHI- 5 ($r = 0.11$, $p = 0.02$). There were no statistically significant correlations within the total sample for gender or employment status and the mental health measures.

When the participant and control group were analysed separately, within the MHFA participant group age was weakly positively correlated with all three measure of mental health (EVI, $r = 0.25$, $p < .001$; MHI-5, $r = 0.23$, $p < .001$; WEMWBS, $r = .16$, $p = .02$.). It was not unexpected to also find that in both groups age was also weakly correlated with employment (participants: $r = 0.18$, $p < .007$, control: $r = 0.19$, $p = .006$) and education (participants: $r = 0.21$, $p = .002$, control: $r = .25$, $p < .001$) and education and employment were correlated (participants: $r = 0.53$, $p = < .001$, control: $r = .47$, $p = .006$).   These results although statistically significant, only suggest that as age increases mental well-being is enhanced along with educational and employment status. There were no other significant correlations.

Measuring mental health and well-being

Rating of mental health and well-being by MHFA participant and control group before and following training

The levels of mental health reported by the control and participant groups were assessed before and following training. A series of ANOVAs were conducted to compare the impact of the MHFA training on the rated level of mental well-being before and following training for each group. Preliminary checks were conducted on the data to ensure the assumptions of normality, linearity, homogeneity of variance were achieved. Visual inspection of the data, assessments of kurtosis, skew and Levene's test of homogeneity revealed the distribution of the data was within acceptable bounds for parametric analysis, (Field, 2009; Glass, Peckham & Sanders, 1972; Stevens, 2002). Effect sizes were identified using the guidelines proposed by Cohen (1988, p 22).

The mean scores for the control and participant groups on the positive and negative measures of mental well-being, are presented in Table 4.8. These were assessed using the Energy and Vitality Index (EVI) and Psychological Distress Scales (MHI-5) from the RAND SF-36 (Ware, et al., 1993) and the Warwick, Edinburgh Mental Well-being Scale (WEMWBS, Tennant et al., 2007) measures, both before and following training.

The relatively high standard deviations of the ratings scores of the MHFA participant group indicate that there is significant variability in their responses using the scales from the RAND SF-36 (Ware et al., 1993). This seems to reflect variability in the mental health characteristics of individuals in the participant group. Low levels of mental health (for common mental disorders) are found commonly in women aged 45-64, and this is often associated with lower socio economic status (NHS Information Centre, 2009). Within the study group, almost 75 percent of the participants are women, with a similar proportion having post-school education (indicating possibly higher socio economic status). It is likely that the reported scores represent the spread of mental health across the group which differs from the profile of population samples in other Irish mental well-being research (such as SLÁN, 2007, Barry et al. 2009). That is, within the MHFA participant group there are likely to be individuals of both high and low mental health status characterised by older women who represent an atypical profile due to their good mental health as well as those with a profile of mental ill-health more representative of a standard population profile. That this large standard deviation does not occur in responses to the WEMWBS (Tennant et al., 2007) suggests that mental well-being is generally sound within this group. Such a divergence in responses could also be providing support for the Dual Continuum Model of mental health (Tudor, 1996) where mental ill-health and mental well-being are considered to be separate but interacting elements of mental health.

Table 4.8. Ratings by the course and control group participants on the mental health and well-being scales (EVI, MHI-5 and WEMWBS) prior to training (T1) and immediately following (T2) training.

Measure	Participant	Control	T1 Participant	Control	T2 Participant	Control
	n*		Mean(SD)		Mean(SD)	
EVI	216	213	60.42 (14.76)	52.89 (7.77)	64.05 (13.46)	53.08 (7.24)
MHI-5**	214	216	66.90 (12.83)	53.11 (8.02)	70.76 (11.59)	53.26 (8.78)
WEMWBS	208	211	54.29 (6.66)	52.65 (6.62)	56.26 (6.12)	52.31 (5.10)

* $n < 216$ indicates missing data
**higher numbers = less psychological distress

Energy and vitality

When energy and vitality was rated prior to training, the MHFA participant group on average indicated statistically significantly more energy and vitality than the control group (t [326.61] = 6.62, $p < .001$, two tailed). The magnitude of the differences in the means is small (mean difference 7.53, 95 percent, CI: 5.29 to 9.77; eta squared = 0.02).   A one way repeated measures ANOVA comparing energy and vitality between the groups before and following MHFA training indicated a moderate statistically significant effect for group by time (F[1, 418] = 9.80, $p < .001$, partial eta squared = 0.02). This indicates that despite having higher energy and vitality scores before training, energy and vitality scores were enhanced in the participant group after training compared to the control group scores.

Psychological distress

When psychological distress was rated prior to training, the MHFA participant group recorded statistically significantly less psychological

distress than the control group $t[356.78] = 13.35$, $p < .001$ (two tailed). The magnitude of the differences in the means (mean difference 13.79, 95 percent, CI: 11.76 to 15.82) was moderate (eta squared = 0.06). A one way repeated measures ANOVA comparing psychological distress between the groups before and following MHFA training indicated a statistically significant effect for group by time ($F[1, 419] = 12.52$, $p <. 001$) with a small effect size (partial eta squared = 0.03). This indicates that although the participant group recorded lower psychological distress before training, as a result of training their psychological distress decreased compared to the psychological distress recorded by the control group.

Mental well-being

When psychological well-being was rated using the Warwick-Edinburgh Mental Well-being scale (Tennant et al., 2007) prior to training the MHFA participant group revealed that their well-being was statistically significantly higher than that of the control group ($t [368.06] = 2.94$, $p = .003$, two tailed). The magnitude of the differences in the means (mean difference 1.65, 95 percent, CI: 0.55 to 2.75) was very small (eta squared = 0.007). A one way repeated measures ANOVA comparing mental well-being between the groups before and following MHFA training indicated a small statistically significant effect for group by time ($F[1, 392] = 19.71$, $p <. 001$, partial eta squared = 0.05). This suggests that psychological well-being despite being recorded as higher in the participant group prior to training was still rated higher following training, compared to the control group.

Ratings of mental health and well-being by the MHFA participant group to six months

To identify if the positive effects of training were maintained over time, the measures of mental health were assessed six months after training.

Measuring over time was intended to identify the sustainability of any changes to mental health and well-being up to six months after the training. Table 4.9 provides the rating by the course participants of the mental well health and being from before the course up to six months following the course.

Table 4.9. Course participant ratings of their mental health prior to training (T1), following training (T2), at two month follow-up (T3) and six month (T4) follow-up.

Measure	n*	T1 Mean (SD)	T2 Mean (SD)	T3 Mean (SD)	T4 Mean (SD)
EVI	216	60.42(14.76)	64.05(13.46)	62.05(12.50)	62.23(12.23)
MHI-5**	214	66.90(12.83)	70.76(11.59)	69.13(11.20)	66.66(12.07)
WEMWBS	208	54.29 (6.66)	56.26 (6.12)	57.35 (5.58)	57.83 (5.13)

n* < 216 indicates incomplete data
** higher numbers = less psychological distress

Energy and vitality to six months

A one way analysis of variance (ANOVA) was undertaken to identify changes in participants' rating of energy and vitality before and six months following training. There was a small statistically significant effect for the group by time interaction (Wilks Lambda = 0.91, F [5, 167] = 5.48, p = 0.001, multivariate partial eta squared = 0.09). Post hoc pairwise comparisons of the individual time periods indicated a significant increase in energy and vitality immediately following training. There was no significant difference in energy and vitality rating following training to the two or six month follow-ups. Energy and vitality remained higher than the pre-course rating at the six month follow-up.

Psychological distress to six months

A one way repeated measures ANOVA was undertaken to identify changes in the course participants rating of psychological distress before and six months following training. There was a small statistically significant effect between the groups over time (Wilks Lambda = 0.80, F [5,165] = 14.06, p <.001, partial eta squared = 0.20). Post hoc pairwise comparisons of the individual time periods indicated a statistically significant decrease in psychological distress immediately following training. After training to the two and six month follow-ups, psychological distress increased. At the six month follow-up psychological distress was statistically significantly higher than immediately following training and statistically significantly higher than when rated two months after training. At the six month follow-up psychological distress was rated higher, but not to any degree of statistical significance, than when rated prior to training. This suggests an immediate but unsustained benefit to the reduction of psychological distress due to training, an effect that decreases overtime, until there is a return to pre-training levels of measured distress.

Mental well-being to six months

A one way repeated measures ANOVA was undertaken to identify changes in participants' rating of mental well-being before and six months following training. There was a large statistically significant effect between the groups over time (Wilks Lambda = 0.71, F [5,145] = 20.35, p <.001, partial eta squared = 0.29). Post hoc pairwise comparisons of the individual time periods indicated a significant increase in mental well-being immediately following training and further significant increases in rated mental well-being at the two and six month follow-ups from post-training levels.

In summary, the scales which measured positive and negative mental health and well-being indicated a benefit to the participants who completed the MHFA training. For energy and vitality the effect occurred immediately following training and was maintained until the six month assessment. Mental well-being as measured by WEMWBS (Tennant et al., 2007) indicated a statistically significant improvement immediately following training and suggested that mental well-being continued to be enhanced up to six months following training. Psychological distress decreased statistically significantly following training, but increased back to near pre-training levels by the six month follow-up.

Subjective rating of course participants' mental health

In addition to the use of formal rating scales, course participants were asked directly to rate their own mental health before and following training using a single item measure. This single item correlated significantly with the formal mental health and well-being scales used in this study (MHI-5, $r = 0.30$, $p <.001$; EVI, $r = 0.36$, $p <.001$; WEMWBS, $r = 0.36$, $p <.001$) and recorded a statistically significant but small effect following training ($z = 2.96$, $p = .003$, $r = 0.21$). As this single item is has a statistically significant correlation to the formal mental health and well-being scales, its use as a rating of quality of mental health and well-being and change as a result training appears to be valid. Following training 75.9 percent of MHFA participants rated their mental health as good or very good (68.5 percent before training) and 24.1 percent rated their mental health as neither good nor bad. Following training none identified themselves as having poor or very poor mental health. Additionally 77 percent of MHFA participants ($n = 213$) indicated that their attitude to their own mental health had either changed "significantly" or "somewhat" following training. This change in rated attitude to their own mental health increased at two month follow-up ($n = 201$, 81.6 percent) and was statistically

significant at the six month follow-up ($n = 196$, 84.9 percent, x^2 [2, $n =$ 191] = 6.13, $p = 0.05$). When asked how their attitude to their own mental health had changed as a result of training, written responses included statements such as: "Seeing it more like any other illness", "I think ALGEE is a good idea to run by in relation to my own mental health", "More aware of my own capabilities and limitations", "I would have denied depression in my life but now I would not be as afraid to face it".

In addition to the mental health measures indicating that undertaking MHFA training resulted in an increase in energy and vitality and improved mental well-being while also decreasing psychological distress, course participants indicated that their subjectively rated mental well-being improved following training. The course participants indicated that their attitude to their own mental health had changed as a result of training, with comments indicating a greater awareness of their own vulnerabilities and need to protect their well-being. One such written comment being: "Alcohol….need to look at my consumption".

Hypothesis 4

It is expected that participants' sense of mastery will be enhanced following completion of the MHFA training course when compared to the control group. This will be measured using Pearlin and Schooler's (1978) Mastery Scale.

The importance of mastery on mental well-being is investigated in to identify a possible mechanism that explains improvement in mental well-being. A sense of mastery has previously been identified as important to mental health (Pearlin & Schooler, 1978).

Preliminary checks were conducted on the data to ensure the assumptions of normality, linearity, homogeneity of variance and homogeneity of

regression slopes. The checks proved satisfactory. Visual inspection of the data, assessments of kurtosis, skew and Levene's test of homogeneity were found to be sound (Field, 2009; Glass, Peckham & Sanders, 1972; Stevens, 2002). Prior to MHFA, participants average rating for mastery was statistically significantly higher than the control group, ($M = 19.91$, $SD = 2.21$; t [408.54] $= 7.88$, $p < .001$ (two tailed)). The magnitude of the differences in the means (mean difference 1.78, 95 percent, CI: 1.34 to 2.22) was large (eta squared $= 0.13$). A one way repeated measures ANOVA comparing mastery between the groups before and following MHFA training indicated a small but statistically significant effect for group over time, (Wilks' Lambda $= 0.96$, F [2, 408] $= 15.44$, $p <. 001$, multivariate partial eta squared $= 0.04$). This indicates that within the participant group, mastery was enhanced following MHFA training.

A one way repeated measures analysis of variance (ANOVA) was undertaken to identify changes in participants' rating of mastery before and six months following training. From before to six months following training there was a small statistically significant effect for time (F[2.58] $= 5.69$, $p = .002$, partial eta squared $= 0.03$), indicating an increase in rated mastery from before, to six months following training. Pairwise comparisons of the individual time periods indicated significant increase in rated mastery immediately following (pre training $M = 21.79$, $SD = 2.44$ and after training $M = 22.56$, $SD = 2.46$) training and there was no further significant change at the two month ($M = 22.40$, $SD = 2.70$) or the six month follow-up ($M = 22.23$, $SD = 2.34$). This suggests that mastery, once attained, was enduring up to six months following training.

It is reasonable to conclude, therefore, following MHFA training the participants' sense of mastery was enhanced and this effect was maintained up to six months following training. A further discussion of this finding will be presented in the discussion.

Hypothesis 5

As mastery is associated with mental well-being (Pearlin and Schooler, 1978) ratings for mastery will increase in MHFA course participants following training, as will the proportion of variance accounted for by mastery within the mental health and well-being scales, in comparison to the control group.

Multiple regression analysis was conducted to assess the influence of mastery on the ratings provided by course participants on the mental health scales (energy and vitality, psychological distress and mental well-being). To ensure the validity of the statistical approach, preliminary analyses were conducted to ensure there were no violations of the assumptions of normality, linearity, multicollinearity and homoscedasticity (Pallant, 2007). These assumptions were met.

Prior to training the influence of mastery was assessed for both the MHFA participant and control group ($N = 432$). There was a moderate statistically significant correlation between mastery and the scores obtained on the MHI -5 ($r = 0.37$, $p < .001$) and the EVI ($r = 0.31$, $p < .001$). A small correlation was identified between the scores provided on the Mastery and WEMWBS measures ($r = 0.29$, $p < .001$). The correlations for each group and the mental health measures appear as Appendix R.

A series of regression analyses to identify the contribution of mastery within the mental health scales was undertaken. Other factors known to influence mental health, specifically, age, gender, level of education and employment were also added to detect any possible contribution by these factors on the measured variance accounted for (for example, see Barry et. al., 2009 and Compagni, Adams, & Daniels, 2006). In addition, prior learning in the area of mental health was included to the regression as this was a factor of interest. The factors were entered simultaneously; there

was no assumption made as to the relative contribution of the factors. The measured variance accounted for by all the factors (mastery, age, gender, education, employment and prior learning) within each of the mental health and well-being scales before and following training appear in Table 4.10. The findings suggest that before and following training the variance accounted for by the entered factors was statistically significant. However, the same factors were more influential on the variance accounted for after training in the reduction of psychological distress and mental well-being (as measured by the WEMWBS). The proportion of variance accounted for in the EVI, while still statistically significant, reduced after MHFA training.

Table 4.10. Total variance explained within the mental health scales prior to and following MHFA training.

	EVI		MHI-5		WEMWBS	
	Total R²	p	Total R²	p	Total R²	p
Participants						
Before training	0.14	<.001	0.15	<.001	0.16	<.001
After training	0.11	<.001	0.19	<.001	0.18	<.001
Control						
Before training	0.06	0.03	0.02	0.48	0.04	0.10
After training	0.03	0.28	0.09	.002	0.03	0.21

The influence of each of the factors within the regression analysis before and following training is presented in Table 4.11. Within the MHFA participant group, mastery and age were statistically significant predictors within all the mental well-being scales both before and following training. Although mastery declined in its influence on the EVI mental well-being

scale following training, it contributed more after training to the psychological distress scores and the improvement in mental well-being measured by the WEMWBS scale. Age accounted for less variance following training on the EVI mental well-being scale and in the psychological distress scale, but accounted for more mental well-being, measured by the WEMWBS, after training.   In the control group, mastery was the only statistically significant predictor within the energy and vitality scale (using the WEMWBS) prior to training and within the psychological distress scale after training.   In the control group, age was a statistically significant contributor to the variance explained in the WEMWBS before training.

Table 4.11. Variance explained by each predictor variable within the mental health scales (EVI, MHI-5 and WEMWBS) before and following training

	EVI				MHI-5				WEMWBS			
	T1		T2		T1		T2		T1		T2	
	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p
Participant												
Mastery	0.27	.001*	0.19	0.02*	0.31	<.001*	0.32	<.001*	0.34	<.001*	0.36	<.001*
Age	0.27	.001*	0.20	0.01*	0.24	.003*	0.21	.006*	0.14	0.08*	0.22	.006*
Gender	0.01	0.90	0.05	0.55	0.04	0.57	0.08	0.33	0.12	0.12	0.04	0.65
Occupation	0.05	0.60	0.13	0.15	0.03	0.72	0.09	0.31	0.08	0.34	0.01	0.90
Education	0.04	0.88	0.16	0.10	0.1	0.29	0.18	0.05	0.01	0.91	0.02	0.81
Prior training	0.07	0.41	0.12	0.19	0.12	0.17	0.05	0.55	0.07	0.45	0.10	0.24
Control												
Mastery	0.19	0.02*	0.16	0.05	0.09	0.24	0.28	<.001*	0.17	0.04*	0.14	0.08
Age	0.08	0.83	0.02	0.86	0.02	0.83	0.08	0.35	0.07	0.04*	0.06	0.46
Gender	0.03	0.74	0.03	0.73	0.09	0.25	0.02	0.78	.002	0.98	0.04	0.59
Occupation	0.13	0.15	0.03	0.71	0.01	0.93	0.04	0.67	0.08	0.35	0.07	0.44
Education	0.01	0.88	0.06	0.53	0.05	0.63	0.05	0.55	0.02	0.84	0.04	0.64
Prior training	0.10	0.21	0.07	0.39	0.08	0.32	0.12	0.11	0.04	0.65	0.06	0.50

*Statistically significant at $p<0.05$

Before drawing any conclusions from these results it should be noted that the percentage of variance accounted for by mastery and age is small, both before and after training. This means that factors other than those associated with mastery and age, have a significant influence on mental health and well-being. Why there is a reduction in the variance contributed by mastery and age in the energy and vitality index following training is not clear, however, it does support the contention that the EVI and WEMWBS may be measuring different elements of mental health and well-being. From the limited information provided by this analysis it does appear that within the MHFA participant group, the ratings of mastery increased following training in MHFA and this was also reflected in, and may have contributed to, their measured reduction of psychological distress and the enhancement of mental well-being following training.

This appears to support Pearlin and Schooler's (1978) model of stress and mastery which states that a sense of mastery is in part explained by a reduction is stress, and stress reduction is associated with mental health. The implications of this finding will be considered in the discussion.

The enhancement of mastery as a mediating factor between MHFA training and participant mental health and well-being is one potential influence on participant responses to the training. There have been no previous investigations of the influence of the content or delivery methodology of the course upon the learning experience of participants. To investigate this, participants were asked evaluate the course content, delivery methods and the influence of the course facilitator upon their learning experience.

Hypothesis 6

The relevance and salience of the MHFA course will be indicated by the positive evaluation of the course elements by MHFA participants.

The course content and delivery style were evaluated to identify course elements which may have contributed positively to the participants' satisfaction with the training. The previously described evaluations indicate that learning about mental ill-health, and how to assist someone in distress, did occur as a result of training. Furthermore, undertaking the course appears to have been beneficial to the participants' own mental well-being, however, why or how these positive outcomes have been achieved remains undetermined.

Some 85 percent of participants ($n = 206$) indicated that the course was very relevant to their learning needs (some relevance = 14.1 percent, not really relevant = 1 percent) with 86.2 percent ($n = 196$) indicating the objectives of the course had been met (objectives not met = 9.2 percent, partially met objectives = 4.1 percent). The participants were asked to identify the elements of the course content which were new to them. Their responses appear in Figure 4.15. Items identified as "other" responses within the Figure included, "statistics in relation to all topics", "self harm", "asking someone directly if they are suicidal", "first aid emphasis".
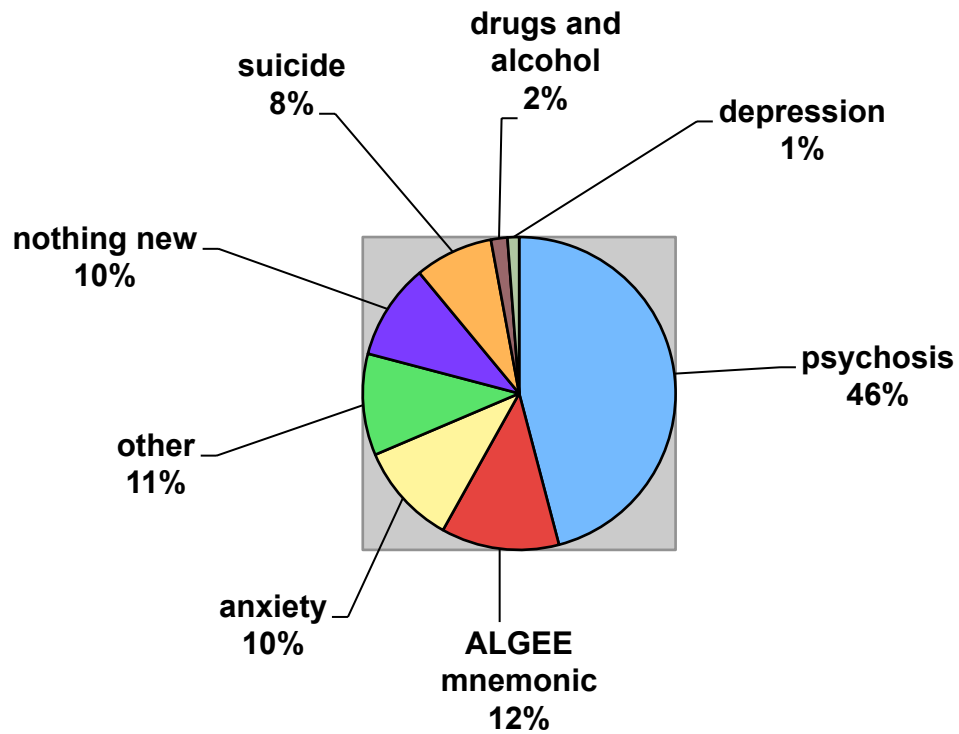
Figure 4.15. Elements of the MHFA course identified by the participant group (*n* = 172) as "new" to them.

In an attempt to provide some weighting or value to the elements of the content of the course, MHFA participants were asked to identify how "useful" the elements of the course were to their learning. The percentage responses appear in table 4.12.

Table 4.12. Usefulness (percent) of course content as rated by participants following MHFA training.

Element	$n*$	Useful (%)	Very useful (%)	Essential (%)
ALGEE mnemonic	212	4.7	29.7	65.6
Depression	215	5.6	40.9	53.5
Suicide/self harm	215	6.5	35.8	57.7
Anxiety	214	9.3	42.3	48.4
Psychosis	214	6.5	30.4	63.1
Bipolar	213	9.4	34.3	56.3
Drugs and alcohol	215	10.7	43.7	45.1

$n* < 216$ indicates missing data

The ALGEE mnemonic and the topics associated with complex and often confronting mental health presentations (psychotic disorders and suicide and self harm) appear to have been identified as areas considered most useful by the participants. Despite this not being new information (as illustrated in Figure 4.15), depression, anxiety disorders and drugs and alcohol were still identified as being useful content.

Presentation and structural elements of the course were also evaluated in to identify if any component of the course was considered especially useful by the participants. Table 4.13 provides the ratings of the elements of the course as provided by the participants following training.

Table 4.13. Participant rating ($n = 212$) of the value of course elements immediately following training.

Element	Needs attention (%)	Fair (%)	Good (%)	Great (%)	Perfect (%)
Content	-	0.5	9.8	53.5	36.3
Timeframe	0.9	0.9	35.3	44.2	18.6
Teaching materials	-	0.5	17.2	49.3	33.0
Venue	0.9	6.0	34.9	33.0	25.1
Video	-	1.9	17.2	56.7	24.2
Case studies	0.5	3.3	24.2	50.7	21.4
Lecture presentation	-	0.9	11.2	43.9	43.9
Group discussion	0.5	0.9	28.8	51.2	18.6
Small group work	0.9	2.8	30.7	49.8	15.8
Quiz	0.5	7.0	31.8	41.6	19.2
Presenter's knowledge	-	0.5	6.5	36.7	56.3
Support of contributors	-	0.9	8.4	46.7	43.9
Delivery style	-	0.5	4.7	36.7	58.1
Administration	-	0.5	13.7	56.1	29.7

Note: rows may not add up to 100 due to rounding

These results suggest that the presenter's delivery style, knowledge of the subject area and the lecture style presentation format were highly regarded by the course participants. The use of audio visual material and the encouragement of contributions from the participants, though group activities, was also well received.

MHFA participants were asked to identify areas where they believed modification could be made to the course. Of 85 respondents, 37 percent indicated some negative elements that included sessions being too long, particularly given the sometimes challenging nature of the content; a desire for "fewer statistics and facts and more "softer skills"". Some felt there

was not enough time to get through the content and there were some general comments about the venues and catering arrangements. Some 47.5 percent suggested they would like information about eating disorders, more about substance use, more case studies or practice opportunities and "day-to day self help strategies". One participant suggested direct audio visual examples of ALGEE being applied might have been useful. The need for refresher courses, more time to complete the course and more access to the courses within the community, were additional suggestions made. Overall, the course content and delivery were well received by participants. The participants did not identify any particular aspect of the content and delivery to be more important than another. The course was clearly challenging for some, but others indicated a desire for even more relevant content.

In conclusion the results found that after completing MHFA training participants had increased knowledge about the most prevalent mental disorders in the community. They also reported having more knowledge to manage a mental health emergency and had increased confidence, competence and skills to do so. Despite some decline over six months in rated mental health knowledge and the personal skills to deliver the learning, the rating of knowledge and personal skills remained above pre - training levels.

The participants' rated level of preparedness was not rated higher immediately after training, but this did increase over time. Participants also reported using the skills they had learned to assist others more over time. After completing the course the participants own mental health and well-being was rated as having improved. On one mental well-being scale participants' to reported increasing levels of mental health and well-being after six months. The findings suggest that an enhanced sense of mastery was a possible mediating factor completion of training and improved

mental health and well-being. There did not seem to be any factor in the course content of delivery that contributed to this effect.

In addition to presenting the implications of the findings in the discussion, consideration will be given to the learning retained and lost. A comparison of the findings for MHFA and physical first aid courses will be presented. The implications of the use of MHFA as a tool to moderate stigma will also raised. The contributions and vulnerabilities of the current study and the opportunities for further research are discussed.

4. Discussion

Discussion

Introduction

The purpose of this study was to evaluate the implementation of the Mental Health First-aid (MHFA) course in an Irish context. Specifically, this study investigated the course's applicability within the Irish community as a mechanism to increase participants' knowledge and skills to manage mental health emergencies. Further, the effect of MHFA training on the mental health of the participants was investigated. MHFA was designed as an early intervention training course to assist those in mental distress, however, the value of the course as a health promotion initiative and as a preventative or a protective resource for the mental health and well-being of participants has been less well researched. The key hypotheses were to evaluate the learning provided by the course, and the impact of the learning on the participants' personal capacity to apply it.   Applications of the learning were also measured. The impact of the learning on the participants' own mental health and well-being was evaluated and a mechanism by which the learning occurred, was evaluated.

This chapter presents a discussion that addresses the key findings of the study and their implications. It addresses the subjective evaluation of the course by the participants, and the possible association between the attitudes to learning as a result of completing MHFA and stigma. This is particularly relevant as the reduction in stigma is likely to enhance the outcomes for people with mental ill-health. It compares and contrasts the findings in this study to findings for physical first-aid courses where there is a greater body of research addressing influences on physical first-aid training and application. This is undertaken to identify similarities and differences that may influence future development and delivery of the MHFA course. The implications for the participants' own mental health and well-being as a result of completing the course is also

addressed. The final sections of the chapter identify the contributions and limitations of the study, and raise the opportunities for future research.

Major findings

The initial hypothesis sought to identify the learning that occurred as a result of completing the training and the robustness of that learning over time. Some 219 individuals undertook MHFA training. Of these, 216 completed the pre and post training questionnaires with 90 percent ($n = 196$) being followed up two months following training and 81 percent ($n = 178$) being assessed at six months following training. Training was provided to 13 groups by the author of this study with four groups receiving a two day intensive course (six hours per day) and nine groups receiving four sessions of training (three hours each induration). Course participants included managers, staff of universities and homeless shelters, teachers, parents and individuals involved in adult community education and some from community groups.   The MHFA course participants were matched for age, gender, occupation and education to members of a control group who had completed a standard physical first-aid course. Where relevant within the analysis, data were collapsed in the categories of occupation (employed, not in paid employment including students, retirees, individuals on government funded schemes and home makers) and education (primary, secondary and third level).

Evaluating the key subject areas of the MHFA course

This study found that the participants who undertook MHFA training increased their knowledge of depression, suicide, psychosis, anxiety, the effects of drugs and alcohol on mental health and how to assist someone in distress. The most dramatic increase in learning occurred for the topic of psychosis. This is potentially important because although generally found in less than one percent of the population (Andrews, Henderson & Hall, 2000) psychotic disorders are associated with significant levels of stigma and discrimination (Crisp & Gelder,

2000). People with psychotic symptoms are often evaluated as being dangerous or unpredictable (Royal College of Psychiatrists, 1999). This assumption was well illustrated when several of the participants identified situations where they felt that applying MHFA would be difficult. The two areas most regularly identified were those associated with violence or psychosis. Deconstructing the stereotypes that underpin stigma is desirable, as this is likely to encourage increased help seeking behaviours in those who are unwell (Thornicroft, 2006). MHFA provides one step toward this goal, by presenting accurate, evidence based information, that challenges commonly held negative stereotypes.

However, it has been suggested that more than just accurate information is required to deconstruct stigmatising responses (Day, 1987). Day proposed that contact with people who are mentally unwell is also a crucial factor in reducing stigma and indeed, participants in this study identified the lack of experience or practice as inhibiting their intention to apply the training. Additionally, the lack of opportunity to apply their learning may have led to some decay in their learning, with this loss of knowledge over time affecting the participants' willingness to apply the learning. For all the key areas of content within the course, except anxiety, there was a reduction in rated knowledge at the six month follow-up and participants were less able to recall elements of the central mnemonic (ALGEE) over time. Despite this, the level of rated knowledge at the six month follow-up remained higher than rated knowledge within these areas prior to the training. Additionally, participants identified the increased use of the training over time. For psychosis, and also for suicide, there was a reported loss of knowledge between completing the training to the two month follow-up. This is perhaps unsurprising, for if the learning in these two areas was new, unlike the areas of depression, anxiety and drugs and alcohol where some pre training knowledge was indicated, not having the opportunity to apply the learning immediately following training would likely result in the quicker deterioration of the learning after training.

Of the other key content elements within the course, depression, anxiety and the effect of drugs and alcohol showed no loss of reported knowledge at two months.   It would appear reasonable to suggest that retention of this knowledge, in contrast to the losses at two months reported with suicide and psychosis knowledge, illustrates a familiarity with, or exposure to, the content in these areas. That is, within daily experiences the understanding of variations in affect, arousal and the use of alcohol and or drugs is generally familiar. Therefore, the knowledge gained in these areas was more easily integrated into existing knowledge and because it was less novel or unique, it could be integrated and retained efficiently, thus providing an explanation for its apparent retention. Learning theorists such as Klein (1987) would support the notion of learning being a process of integration of new information with existing knowledge, with learning via experience and application of knowledge being powerful tools to consolidate new learning. In effect, the enhanced learning in these more familiar areas could occur as a result of ongoing exposure. Given the prevalence in the community and potentially, the personal experience that many people have, directly or indirectly with fluctuations in affect, arousal and drugs and alcohol, serendipitous application of the learning could be expected. Further, unlike psychosis and suicide, which are relatively uncommon events with high impact, exposure to depression, anxiety and drug and alcohol use is relatively common and may result in lower psychological impact for those exposed to those circumstances. Thus the commonality and potential low intensity of the exposure may result in a greater willingness of someone trained in MHFA to engage with a person in distress. This would result in the application of the learning and consequently, the practice required to retain the learning. Certainly it would be reasonable to suggest that these more common domains of mental distress are likely to be perceived as less threatening, thus encouraging the application of the learning achieved by MHFA training.

The significant psychological impact of exposure to psychosis and suicide and the participants' stated hesitancy to engage with circumstances involving potential violence and threat might to some extent reflect the gender balance of

the training group. It is not unreasonable to suggest that women may find circumstances which have the potential for violence more confronting (Brody & Hall, 1993). As this finding was expressed in the qualitative data, statistical analysis of this possible gender difference could not undertaken to clarify this assumption. This response may have been elicited due to the high proportion of the women in the MHFA participant sample or alternatively the women in the group might have been more likely to express their concern. It, therefore, remains unknown if the response provided is a gender effect or a general hesitancy across the study population to engage in situations associated with suicide and psychosis. Sartore et al., (2008) also identified hesitancy in those trained in MHFA to apply the learning. In that case, the hesitancy was described as associated with the application of MHFA potentially being outside expected vocational roles.

In summary, analyses of the key areas of the MHFA programme within this study reproduce some of the findings from previous research. Knowledge of mental health or mental health literacy (Jorm, 2000) was enhanced by the training as course participants were more able to identify common mental disorders when the disorders were presented in vignettes following MHFA training. Unlike previous studies this research revealed that the acquisition and retention of knowledge of the mental disorders was not even, with psychosis and suicide showing high levels of initial learning which decayed over time. In contrast, knowledge of the more familiar areas of depression, anxiety and the use of drugs and alcohol was also enhanced by the training but knowledge gained within these areas appeared to be more robust. Rated knowledge in these areas declined less after six months than the rating for psychosis and suicide knowledge six months following training.

Evaluation of course structure and delivery

To test if the course structure was influential in the learning achieved, the elements of the course were assessed by the participants. It does not appear

from the results about the structure and delivery of the course, that any single feature of the course had a significant positive impact on the learning; or that any parts required remediation. The content, delivery and administration appeared to be received positively and were widely appreciated.   There was a suggestion, however, that for people with little experience in the area, the course was demanding and at times confronting. There was the suggestion that there was too much information presented in the 12 hours.   Conversely, there were also requests for additional content. It appears, therefore, that the content and delivery of the course are sound, but that some care might be required to ensure that those with less mental health experience are able to optimise their learning. Again, this would appear to be an important finding as MHFA is fundamentally designed for non-clinicians and therefore, overly complicated presentation would be counter productive.

Although, there was an attempt in this study to have a sample that was more representative of the general population than had been the case in previous studies (Kitchener & Jorm 2002, 2004), those who did show interest in the course and who were subsequently trained, did generally have enhanced knowledge and skills in the area of mental health prior to training, when compared to the control group. This is not unexpected as it has been identified previously that those who recognise a deficiency in their knowledge about mental health are more likely to be drawn to the course (National Institute for Mental Health in England, 2010). This notion of having attracted people already interested in mental health issues is further supported by the circumstance that some of the individuals paid course fees to attend the training. While this is a consideration with respect to the generalisability of the findings of this study, it is useful to note that many of the MHFA participants had their fees paid by employers, and similarly, the control group participants paid course fees to attend their training. While this suggests some sort of equity between the groups in their motivation to attend training it should be acknowledged that individuals within both the MHFA and control groups were unlikely to represent naïve participants. This of course, is one of the difficulties with quasi-

experimental designs in that the motivation and prior knowledge of participants is difficult to control and this in turn may reflect on the interpretation of the results obtained. As MHFA appears to attract those with interest in mental ill-health and mental well-being, some consideration as to how to encourage those with less experience and fewer skills to recognise the value of the course would appear appropriate. Encouraging individuals with little knowledge in the area to engage in a training and skill development programme would be a reasonable objective of all successful mental health promotion activities.

In an attempt to ensure the current study reflected the variations in delivery options of the course, both the two day intensive course (six hours per day) and the four session (of three hours each) courses were delivered. Of the 13 delivered courses four were delivered in two, six hour days, and the remainder over four, three hour sessions. Despite the intensive two day courses being delivered predominantly in work places, the analysis of the data identified no statistically significant differences between the modes of the delivery.

Effect of prior knowledge

As the course structure may have been influential in the learning achieved, so too, could have been the level of knowledge that the participants had before undertaking MHFA training. Within the areas of depression, anxiety and drugs and alcohol, the MHFA course participants possessed a greater understanding of the topics prior to training than for the topics of psychosis and suicide. Over two-thirds of the participants identified having received up to three sessions of training in the area of mental health prior to undertaking MHFA. This reflects the nature of the participant group who were generally female, well educated and employed. Those in the group who had only school level education and were female were less likely to have received prior training. Despite attempts to encourage a population representative sample in this study, the demographic similarities between the participants in this study and in previous studies (Jorm et al., 2004, 2005, 2007) are clear. This may reflect a gender bias prevalent in

western society where females often assume nurturing roles, and are attracted to courses based on communication and early intervention, such as MHFA.

Despite this similarity between the populations of this and previous studies, there was a fundamental difference between the participants in this study from those previously researched. Only 20.6 percent of the participants in this study stated they were undertaking the course for work purposes. In contrast, much of the foundation research for MHFA was conducted within workplaces (Jorm et al, 2007; Kitchener & Jorm, 2004). The wider range of participants in this study seems to suggest that MHFA is of potential value in the wider community, external to workplace demands.

Within this study many participants indicated that they had prior knowledge of mental health issues. While prior training is likely to have positively impacted on the learning retained from the MHFA course, it cannot be absolutely stated that this prior knowledge was the only influence on the learning retained.

The analysis suggests that learning did occur despite participants' identifying prior knowledge. This is a similar finding to that of Hossain et al., (2009), who identified that farm advisors with previous experience and training in mental health achieved similar learning outcomes after undertaking MHFA training, to their colleagues with little pre-training knowledge. Unfortunately, the content of the prior learning was not analysed in this study, so the direct comparisons of the influence of prior learning on the achieved learning cannot be accurately made. In addition, it is likely that those without formal prior training had experienced some situations associated with depression, anxiety and drugs and alcohol. Almost 90 percent of participants indicated that they actively employed strategies to manage their own mental health, suggesting some understanding of the relevance of the issues raised in their own life. Many people would have exposure to, and experience in, managing these concerns, so the exact influence of existing knowledge on the learning achieved through MHFA training and the precise level of learning retained remains unknown.

Indeed, investigating the influence of prior knowledge on the quantity, quality and validity of MHFA training offers an opportunity for future investigation. However, the rating of knowledge following MHFA training was in all areas similar to the rated learning for psychosis and suicide where less prior knowledge was identified. Despite existing knowledge prior to training, after six months measured knowledge of anxiety, depression and drugs and alcohol had declined similarly to the knowledge for suicide and psychosis. Only the rated knowledge of anxiety remained unchanged from immediately after training to six months following training. Therefore, in the main, prior training or consistent exposure seems to have accounted only for the short-term maintenance of knowledge. This was similar to that attained after finishing the course within the areas of depression, and drugs and alcohol. The impact of prior knowledge and familiarity appears to have lasted for up to two months rather than an enduring for a longer period. However, despite the internal variations associated with knowledge acquisition and loss, most importantly, rated knowledge of the key areas of the course at six months remained higher than the rated knowledge of these areas prior to training.

Comparing the knowledge of MHFA key areas between the control and participant groups before training, suggests that despite matching the participants on gender, age, education and occupation, there were significant differences between the two groups. The MHFA participants had more knowledge of the key areas of the course except for anxiety, drugs and alcohol where there were no differences in knowledge between the groups prior to training. The control group also identified less prior training in mental health issues (50 percent indicating they had only one prior training experience in mental health), but similarly to the participant group those without post school education and employment were less likely to have received prior training. Despite only 20.6 percent of participants stating they were undertaking the training for work related purposes, there was evidence of significant prior knowledge in the MHFA participant group. It is interesting, however, that 80 percent of MHFA participants undertook the course for reasons other than work.

Unlike previous studies (Kitchener & Jorm, 2002, 2004; Jorm et al., 2004, 2005, 2007) where training of MHFA occurred in environments directly related to health, the characteristics of the MHFA participant group seem to be suggesting a genuine interest within the wider population in the subject area. No health specific environment was targeted for training in this study. Despite this, the level of pre training knowledge varied between the groups, perhaps indicating a self-selection bias in the MHFA participant group. The results seem to suggest that age, gender and education may play a more important role in course selection that does occupation.

Recall of the training framework "ALGEE"

Of course identifying the learning achieved is important to justify the continued delivery of MHFA, but the value in the course lies in its use to assist people in distress. Measuring the knowledge that could and would be applied in such circumstances was also undertaken.   Interestingly, despite reports that participants felt more prepared to apply MHFA and evidence that the learning was increasingly applied over the six months, the recall of the elements of the mnemonic (ALGEE) decreased over that period. This is despite participants indicating that the ALGEE framework was central to the course content.   At two months following training more people could remember the whole mnemonic, and more of the framework could be applied in response to the description of a mental health emergency presented in a vignette. Unsurprisingly, at six months, fewer elements of the mnemonic could be recalled and applied to the vignette. The elements most commonly omitted at six months were those associated with assessing risk, encouraging self help strategies and providing reassurance and information. Thus, at six months the emphasis was on listening non-judgementally and encouraging appropriate professional assistance. However, despite recalling "encourage appropriate professional assistance" there was a decline in the number of professionals identified as appropriate help. In effect, it appeared that the step became truncated with limited options of professional help cited after six months as

course participants relied more on directing those in distress to general medical practitioners, than at two months following training. It appears that at six months the application of areas of the mnemonic requiring knowledge and judgement had declined while participants' relied on perhaps more intuitive skills associated with listening and encouraging help seeking.

While it is certainly potentially beneficial that those in distress receive any form of assistance, the apparent loss of some of the steps of the mnemonic could be of importance. The original authors of the course have attempted to validate the steps of the model using the Delphi method of prioritisation (Kitchener & Jorm, 2008), however, what is deemed to be structurally valid, and the steps that are actually retained and applied, may be divergent.   To investigate this is beyond the scope of this study, however, it would appear to be an important area of future analysis. If elements of the framework are being omitted or minimised, one would seek to know why this is occurring. One could reasonably question the relevance of the elements as an aid to learning or the way in which they are being presented. The circumstances under which the learning is being applied may also have an influence, as the research thus far has relied on recognition and application of the learning using prepared vignettes rather than real life situations. Within this study, unlike previous research, course participants received different vignettes at the two and six month follow-ups to which to apply their learning. The alternating of vignettes was undertaken to avoid practice effects, and was a methodological improvement on previous studies. Such an approach, however, may have resulted in decreased performance as the application of the learning to manage the circumstance was novel in each case. Thus, MHFA participants may have had more difficulty recalling the ALGEE response in the novel situation, as apposed to one that was more familiar because of practice effects, as has occurred in previous studies (Kitchener & Jorm, 2004; Jorm et al, 2004).

Jorm et al., 2005 stated that the MHFA course was based on the training framework utilised by standard physical first-aid courses, as the characteristics

of standard physical first-aid courses were easily recognisable and widely accepted. There has been no attempt in previous research to explore the assumption that MHFA and physical first-aid courses are comparable. There are some significant differences in the way in which the two courses are presented which may potentially impact on the learning outcomes for MHFA. For example, physical first-aid courses use a mnemonic that has some meaning directly associated with the topic of the course. "DRABC" with its connotations of medical approaches (i.e. DR) and "first steps" to assist (i.e. ABC) is quite different to a mnemonic which has no subject or content reference as within MHFA. Indeed, in collecting the data for this study it was the initial remembering of "ALGEE" and then the breakdown of the elements which was reported as problematic. If the mnemonic was recalled, the meaning of the framework was not easily remembered for it appeared that the elements had to be reconstructed rather than flowing from an established memory construct. Further, "DRABC" utilises nouns and has one word descriptors directly attached to the mnemonic. Danger, Response, Airway, Breathing and Circulation are simple and direct starting points for response. Within MHFA the uses of verbs such as; A = assess the risk of suicide or harm, L = listen non-judgementally, G = give reassurance and information, E = encourage the person to get appropriate professional help and E = encourage self help strategies, describe the actions to be undertaken. Standard physical first-aid courses with their statement based requirements for care rely more on the technical application of specific skills. MHFA in contrast, tends to require a more interpretive or subjective evaluation and application of the skills that have been learned. Such variations in the application of the action frameworks of the physical and MHFA approaches may be justified. The overt nature of physical injury, with the associated somatic pain and signs of injury (such as blood) may lend itself to the more technical application of assistance with the recipient being more inclined or willing to accept intervention. In contrast, those in mental distress may lack insight into their condition and maybe more difficult to engage, justifying a more interpretive action based framework where circumstances are assessed and actions tailored accordingly.

As a result of the required flexibility of the interpretation and application of "ALGEE" the steps are potentially complex to remember. Contributing to this difficulty in recall may be the phraseology, and/or the number of points to be remembered. Remembering that five points falls within the maximum memory capacity for most people, which is seven elements plus or minus two elements (Klein, 1987). Additionally, the application of the mnemonic is likely to occur under situations of stress, which is known to detrimental to memory recall (Kramer, Buckhout, Fox, Widman & Tusche, 1991). ALGEE might thus be too great a cognitive burden to recall accurately and apply under high stress circumstances. While it does provide a framework, the application of the mnemonic is taught to be adaptable in emphasis depending on the presenting situation. It is, therefore, less concrete as a memory prompter that the hierarchical "DRABC" tool. ALGEE probably reflects well the complexity of mental distress, but in turn this flexibility may impact on a person's capacity to remember and appropriately apply the framework. In effect the participants quite reasonably suggested that their lack of experience or practice using the tool, over time limited their capacity to remember the mnemonic, and so impacting on their capacity to apply it.

There is a further factor that should be considered. Satore (et al., 2008) identified hesitancy in farm advisors to apply their MHFA learning, as it was potentially outside their standard employment duties. There seems, therefore, some suggestion that there is a need for "permission" to be obtained before ALGEE is applied. This permission might be implicit in the employment role of the person offering assistance (and might account for the apparent self-selection bias of those attending the training) or alternatively it might be elicited from the person who is in distress. This is important, for if a person who is mentally unwell lacks insight into his or her condition or is fearful of the impact of the stigma associated with mental ill health, then that person may avoid or deny the application of MHFA. Additionally, if the person who is trained in MHFA lacks the confidence to apply the learning as a result of personal, vocational or other influencing factors, or if he or she is denied permission to do

so, the skills learned are likely to be lost over time. These circumstances may provide an argument for course updates to rekindle the social importance of the learning after a period of time following initial training.

Course participants' subjective evaluation of the course

The initial hypotheses identified that learning about mental ill-health and approaches to assist someone in distress occurred as a result of training. Some of the previous research suggested that those who complete the training are hesitant to apply the learning, so identifying factors associated with a willingness to use the training to assist others is important. According to the ratings provided by the participants, their knowledge of how to manage a mental health emergency and their skill, confidence and competence to do so, all showed improvement following training. This expands on the findings of previous research (Jorm et al., 2005) that has indicated training in MHFA resulted in increased confidence and willingness to engage with people in mental distress. In this study, course participants rated their level of skill and competence as unchanged in the period immediately following training to two months later. Indeed, rated competence also remained unchanged when compared between the two and six month follow-ups, but in all the subjective areas, rated knowledge declined when evaluated immediately following training and six months later. Despite the decline, the ratings of the subjective elements of the course remained above pre-training ratings. This is similar to the participants' rating of the key course content areas and is suggestive of an enduring positive influence of the course on the participants' subjective capacity to apply the learning of the course.

Within the control group, the findings suggest that self-rated confidence and skill to manage a mental health emergency was enhanced as a result of completing a standard physical first-aid course. This result suggests that training in "helping skills" whether they are specific to mental health care or to physical health care, enhance a person's belief that he or she is able to assist

another person in distress. It is unlikely that the control group misinterpreted the questions as they did not indicate that their knowledge or competence to manage a mental health emergency was enhanced by physical first-aid training. This finding would appear to require further investigation.

Six months after training 84 percent of the participants reported applying MHFA. Over this time, the participants correspondingly rating themselves as more prepared to apply MHFA. The level of self-rated preparedness remained unchanged immediately following training to the two month follow-up but then increased at the six month follow-up, suggesting an increase in the willingness of participants to apply their learning over time. This was despite a drop in the number of ALGEE elements that could be recalled or applied to vignettes. Course participants had previously suggested that their intention to apply the learning was in part dependent on practise and experience, and this finding may reflect the validity of that statement.   The reported increase in rated preparedness was in contrast to a decline in rated knowledge and skill to manage a mental health emergency and confidence and competence to do so. Thus, the rating of preparedness might be suggesting an integration of the learning into memory constructs that are more enduring as opposed to the more subjective elements of self-evaluation subsequently described. A sense of mastery, as opposed to just skill acquisition with an associated sense of confidence, was proposed as a potential mechanism associated with learning and participant mental well-being.

Capacity and the application of learning

Pearlin and Schooler (1978) state that an improved sense of mastery is associated with decreased anxiety and improved mental health.   They suggest that as mastery increases, improved performance and enhanced mental well-being occurs as a consequence of a decrease in personal distress. Within this study, the application of Pearlin and Schooler's approach may suggest that the knowledge to manage a mental health emergency, and the skill, confidence and

competence to do so as a result of training, may have resulted in a decrease in anxiety, leading to an increase in the rates of applied learning. The use of the training, therefore, may have resulted in an evaluation by the participants that they were more prepared to apply the learning over a period of time. In effect, changing the attribution of the participants from believing their personal characteristics such as confidence and competence was responsible for the successful application of MHFA to one where their technical skills, as a result of learning, demonstrated their mastery may have enhanced their subsequent preparedness to apply their learning. Such an explanation would be consistent with the apparent association between enhanced mastery due in part to anxiety reduction, rated mental well-being, and an increased preparedness to apply the training. Directly testing the associations between participants' subjective evaluations of their capacity to successfully deliver MHFA, their sense of mastery, and the actual rate of application, provides an area for further research.

MHFA is based on the delivery style of physical first-aid courses and has a similar objective of encouraging assistance to people in distress. Therefore, some consideration of the research of these more established physical first-aid courses may be of value when exploring factors that influence the application of learning. Within physical first-aid courses the application of skills learned is relatively low despite the direct evidence that applying first-aid saves lives (Oxer, 1999). Khangure (1998) suggested 7 percent of people injured in road traffic accidents were saved as a result of immediate first-aid while Oxer (1999) and Larson, Markensson and Alexanderson (2002) suggested 23 percent had received some form of assistance prior to hospital admission. In a more recent study of a population sample Arbon and Hayes (2007) identified only an 11 percent application rate of first-aid skills to road accidents despite 77 percent of respondents having some form of prior first-aid training. Note too, it was an email survey (773 respondents from a sample of 12,000 people indicating a 6.2 percent response rate) in the Australian Capital Territory. They found that administering first-aid was directly associated with confidence in the skills respondents had learned, and significantly, that the holding of a first-aid

qualification and rendering assistance was directly correlated to holding a health care qualification, being female and being aged over 25. This current MHFA study could potentially be reflecting a similar set of population characteristics, as the mean age for the MHFA participant group is approximately 40, 74 percent are women and up to 83 percent indicate that they had mental health training prior to engaging in the MHFA course. Larson, Markensson and Alexanderson (2002) in a postal survey of 2800 (61 percent response rate) found that individuals who had completed higher education courses were more likely to undertake physical first-aid training and subsequently take fewer risks with their driving following training. In this study 74 percent of course participants held post school qualifications and 77 percent indicated that the training had a positive impact on their attitude to their own mental health. Peterson and Russell (1999) linked the intention to provide assistance with the recency of training suggesting up to six months following a course there was a greater likelihood that trained participants would offer assistance. Conversely, Goniewicz (1998) in a Polish study identified that participants' feelings of inadequacy (expressed as a lack of skills) inhibited the provision of assistance. Similarly, Kendrick and Marsh (1998) identified a similar hesitancy for parents of children while Mabbott (2001) established that the fear of personal harm and the risk of litigation inhibited care. In addition, Arbon and Hayes (2007) identified fear of making mistakes and the lack of debriefing following intervention as important considerations. Arbon and Hayes' study built on Axelsoson et al's (1998) previous findings that debriefing after rendering assistance was vital to interpreting the circumstances as a positive experience, which in turn had direct ramifications for the future application of skills. These studies are consistent with the findings presented here, and suggest several avenues for future research. Significantly, outcome data associated with the impact of the direct application of MHFA to people in distress is not yet available.

The physical first-aid course outcome research highlights a major concern in the pool of research undertaken to date on MHFA. Aside from one study (Jorm,

2004) involving a retrospective interview of previous course participants, little is known about the effectiveness of the MHFA programme for those who receive care, or the impacts it has on the providers of care who use the MHFA framework. For physical first-aid courses it is known that most of the first-aid rendered is in the form of adjusting the posture of a patient, airway maintenance and provision of reassurance (Arbon and Hayes, 2007) of which only one element (airway maintenance) is directly taught within the course using the mnemonic D = danger, R = response, A = airway, B= breathing, C = circulation. Similar to the findings in this study, where the specificity of the recall of the ALGEE mnemonic decreased over time, within physical first-aid courses remembering a mnemonic to guide intervention may not be the most crucial element to measure when evaluating the application of the care provided. Attempting to measure the outcomes of the course by measuring the ability of participants to remember the mnemonic might be a methodological error. Similarly, the measurement of "intention to treat" in previous studies (Kitchener & Jorm, 2002, 2004; Jorm et al., 2004, 2005, 2007) does not measure the actual application of treatment. This study, however, also measured the self-reported application of the skills, which appears to provide a more optimistic and realistic way of assessing the use of the training.

From the physical first-aid course research there appears to be multiple factors that impact on the application of knowledge in an emergency situation such as, the immediacy of need, or lack of access to others who might be able to assist, which seem to influence an individual's willingness to become involved. Research into factors that affect the application of physical first-aid learning include age, employment, gender, responder support and follow-up, and protection from litigation. These factors are all as relevant in the decision to render assistance as personal resources or intentions (Mabbott, 2001; Arbon & Hayes, 2007; Axelsoson et al., 1998)   Additionally, from the physical first-aid course application research, it does appear that for some, the training may be of less value in guiding the response, than having the confidence to approach someone in distress to provide reassurance and comfort. This is a likely

explanation for the control groups' improved rating of skill and confidence in managing mental health emergencies following training, despite having not undertaken MHFA.

Interestingly, prior to training, the members of the participant and control group did not differ in their identified level of knowledge of MHFA despite the MHFA participant group having received more mental health training. This lack of difference between the groups could be reasonably explained by the participant group having some knowledge of mental health issues, but with the insight that their understanding of mental health was not complete (hence their interest in the course). The control group, in contrast, may not have been as conservative with their own self -evaluation. Despite their apparent lack of knowledge, MHFA participants considered themselves to be more skilled, confident and competent to manage a crisis; something which potentially reflects their greater level of prior mental health learning. Following training, the control group, which had completed a standard physical first-aid course, reported significantly increased skill and confidence in managing a mental health emergency. However, the difference between the groups for knowledge, confidence, competence and skill at managing a mental health emergency was large following training. It was large in favour of those who completed MHFA, suggesting MHFA training had a strong influence on these factors.

 It should be noted, however, that the results suggest that any training received which results in a person learning skills to assist others, may potentially have a positive effect on a person's capacity to want to assist. Of course, this is a simplified argument as confidence and skill may not result in action, and indeed a person may not know how to progress if faced with a mental health emergency without having received training in the area. However, the results suggest that building a person's capacity to assist those in distress might be achieved by the development of more universal or generic helping skills, rather than the development of knowledge and skills in a specific area of interest. An investigation of what constitutes generic helping skills when considering

capacity building in mental health promotion or if, in fact, generic skills exist, could provide an interesting area of future investigation. Such exploration could be beneficial for the efficient broad based application of future mental health and health promotion initiatives.

In summary, the MHFA course has a positive influence on the course participants' subjective evaluation of their knowledge of mental health, their skills to be able to manage an emergency and their confidence and competence to do so. Participants reported applying the learning from the course (at six months 48 percent of the participants had used the learning at least once and 25 percent had used it two or three times), and their perceived preparedness to apply their learning seemed to parallel the increased rate of application. This is despite participants citing the fear of violence or being confronted by someone with psychosis as possible inhibitory influences. Participants identified the messages of the course as being, encouraging of confidence; that talking about mental disorders was acceptable (although they did not report increased discussions); that mental ill health was prevalent in the community and that by applying the AGLEE framework, a helpful response could be provided to those in distress.

MHFA training appears to provide a mechanism by which individuals gain the skills and self belief to be able to assist others in mental distress. Despite the finding that participants in this study were applying the learning, there remain questions about the effectiveness of MHFA for those who receive care. A brief discussion considering the difficulties in collecting these outcome data is presented.

Effectiveness of MHFA

The current lack of outcome data as to the effectiveness of MHFA is a crucial omission in the understanding of the effectiveness of the course. As previously described, collecting such data is difficult for pre-testing of mental health, and

the application of MHFA with the intention of measuring its effects, is ethically fraught. Currently, even identifying that MHFA has been applied is problematic, for unlike applications of physical first-aid, there is very little objective evidence of the use of MHFA, or of its impact. In the application of physical first-aid, for example, providing cardio-pulmonary resuscitation does have an identifiable outcome and can be quantified, as does stopping bleeding by bandaging, but no such direct evidence is immediately identifiable for MHFA responses (preventing a suicide or self harming behaviour notwithstanding). Further, people in mental distress may not be able to report appropriately their care experience and, therefore, the potential use of retrospective evaluation is limited. This is a serious consideration, for although the value of MHFA seems logically clear, the evidence to support this claim is not. At an extreme, one could argue that the outcome evidence of MHFA efficacy is actually not important. As long as the application of training causes no harm and encourages assistance to those in distress, then the course has served its purpose.

The evidence from research into the efficacy and validity of physical first-aid training courses suggests that the learning of generic skills that encourage assistance might be a valid field of endeavour. Axelsosen et al. (1998) and Arbon and Hayes (2007) suggest that the capacity of persons trained to deliver physical first-aid to apply their knowledge on more than just one occasion, is directly associated with the opportunity to debrief about their experience and to have their efforts acknowledged. This is in contrast to the belief that the successful application of the skills learned is the central motivator for the ongoing use of the skills. This suggests that another factor, such as the impact of the care experience on the provider of the care, is an important influence on the decision to become involved with assisting someone in distress. MHFA does briefly present the value of self care after rendering assistance but it is beyond the scope of the course to encourage an organisational or structural approach to the care of the participants, following the application of their skills. The evidence provided from research into physical first-aid courses tends to suggest

that a thorough approach to the application of MHFA in the community should also include some follow-up support for those who have applied MHFA. There appears to be an opportunity, therefore, for not only refresher courses in MHFA focussing on practical applications to assist in the consolidation of the initial learning, but also to provide advice or training to organisations and groups within the community as to how to encourage the application of that learning. The development of systems and approaches that support those who do render care would appear to be necessary. Such a focus may address some of the strategic goals implicit in comprehensive mental health promotion initiatives, such as, encouraging early intervention and community capacity building, rather than just rendering remedial care.

MHFA and stigma

Investigating the impact of MHFA training on stigma was beyond the scope of this study. The reduction of stigma is, however, a critical goal of mental health promotion activities. A brief discussion on the importance of stigma reduction in reducing the impact of mental mill-health and the possible influence of MHFA in this process is presented.

One of the implicit aims of MHFA is the reduction of stigma; something which has previously been identified as the single most significant barrier to mental well-being in the community (WHO, 2001). The negative
impact of stigma prevents those who are unwell from seeking assistance, and inhibits the rendering of care, with the effect of potentially compromising their long term well-being. Mechanisms to reduce stigma and enhance well-being remain unclear, with authors such as Rusch, Angermeyer and Corrigan (2005) suggesting strategies involving protest about the inequities caused by stigma, education to reduce its occurrence and contact with those with mental ill-health are central to the reduction of stigma.

In this study the participants' knowledge of the most prevalent mental disorders within the community was enhanced by MHFA training. The training was applied and over time participants felt more prepared to apply their knowledge, seemingly suggesting some increase in contact with people experiencing mental distress. It may also be the case, that more people in mental distress were not approached as a result of training. Instead it may be that the participants could more readily identify their interactions with those with mental ill-health due to the strategic knowledge now available to them. Indeed, previous research has suggested this outcome (Kitchener & Jorm, 2008). Similarly, participants did not indicate that they engaged in more discussions about mental health as a result of training. This is disappointing, for would be hoped that by discussing the content and learning achieved by attending the course, poorly informed attitudes and responses to mental ill-health could be challenged. If stigma in part involves problems with knowledge about people who are different from us, then it would be hoped that MHFA training offers an opportunity to address that poor knowledge base. Investigating the influence of such discussions on attitudes associated with stigma could be an interesting area for research.

Stigma may also be represented by the poor quality of the behaviour directed toward those with a mental disorder. Positively, MHFA participants did report applying their learning and that their attitude to their own mental health was enhanced as a result of completing the course.

The participants' attitude to their own mental health might be an important consideration, for if participants identify similarities between their own well-being and the characteristics associated with the stereotypical and stigmatising attitudes applied to those who are mentally unwell, then perhaps the development of a more generous understanding towards those in distress is achievable. This potential attitudinal shift in perspective may
have the potential to ultimately result in less prejudice and discrimination towards those who are mentally unwell and could be explored.

One of the explanations as to why research into stigma reduction generally remains under- researched, is the difficulty in the definitions and the associated constructs of stigma. The original authors of MHFA have argued that measuring social distance is a measure of stigma (Jorm et al., 2007, 2004) yet this too seems be an inadequate approach. Social distance may be an indicator of the presence of stigma, yet the measuring of the presence of stigmatising attitudes would appear to require a more comprehensive approach. The use of a specific measure of stigma associated with mental ill health is therefore required to consolidate the understanding of MHFA's influence on stigma.

Participants' mental well-being

The second major focus of this study was to investigate if MHFA contributes to mental well-being within the population of MHFA participants. One study (Kitchener & Jorm, 2004) has reported previously that completing MHFA could be beneficial to the course participants' mental health. This original study used a single measure (SF-12; Ware, Kosinsk & Keller, 1996) on a small study sample that identified that participants had improved mental health. The sample generally had, however, poorer mental health than the population from which they were drawn. Their mental health improved following training in MHFA. Within the current study, the positive evaluation of MHFA by participants and the corresponding increase in the subjective measures of evaluation could be indicative of an improvement in the participants' own mental well-being. Mental well-being as previously described has been correlated with many factors (for example, see Barry et. al., 2009 and Compagni, Adams, & Daniels, 2006). In psychological terms, mental well-being is associated with the use of personal resources that enable the individual to manage daily struggles and indeed, excel at these same challenges if well equipped. It is associated with cognition and the interpretation of events, with feelings, both subjective and physiological, and behaviour which can serve to reinforce interpretations of competence and well-being. Conversely, a person who is less able to cope with

life's challenges is at risk of becoming psychologically overwhelmed, which may potentially result in mental distress.

Capacity building need not be remedial in focus; indeed, the concept of health "promotion" would suggest a proactive orientation. Developing skills to recognise the early signs and symptoms of mental distress and to then apply a problem solving approach to address those presentations, using a framework to minimise any potential mental harm, is the major goal of MHFA. The intention of MHFA is of course, that the skills be applied by those who undertake training to assist others in distress.

Within this study the positive changes on the measures of mental well-being of the MHFA course participants suggest personal, as well as, community capacity building as a result of completing the course. The enhancement of personal mental well-being might be of critical consideration explaining people go on to apply MHFA. Corrigan et al., (2005) stated that one of the reasons the reduction of stereotypes and stigma was so important in the management of mental health was that the application of stigma, prejudice and discrimination towards those who were unwell resulted in shame and avoidance which had the effect of prolonging distress and poor personal function. Theories for the development of stigma range from a biological shunning of difference as an aspect of the maintenance health within the human species, to the externalisation of prejudice to hide personal insecurities about the nature and course of mental ill health. If participants felt reassured about their own mental well-being as a result of completing the course, then their willingness to help others may be enhanced. This would follow from either a heightened recognition of the familiarity between themselves and those who are unwell, or because of an increased sense of confidence. Or alternatively, the deconstruction of stereotypes as a result of receiving accurate evidence-based information and skills-based learning might contribute to the reassurance of participants of the value of providing assistance.

Discussion

MHFA was developed to assist people to provide care to others in mental distress. This study has shown an increased in knowledge about mental ill-health and well-being amongst the participants who completed MHFA. It has identified an increase in the participants' knowledge about managing mental health emergencies and their belief that they are more skilful, confident and competent to deliver such care. It has also demonstrated the delivery of care with an increase preparedness to do so over time. These are important findings, however, the most important evaluation of this study was its investigation of the impact of MHFA training on the participants' mental health and well-being. This was evaluated because, the link between MHFA training and mental well-being in the participants had not previously been adequately established. Further, such a demonstration establishes the value of the training as being more than a tool to assist others. By enhancing the participants' mental health ane well-being, it offers potentially a protective advantage to those who complete the course.

Within this study two measures of positive mental health status and one of psychological distress were selected for assessment. The Energy and Vitality Index (EVI) and Psychological Distress Scale (MHI-5) of the RAND SF-36 (Ware et al., 2003) and the Warwick Edinburgh Mental Well-being Scale (Tennant et al., 2007). The SF-36 scales were employed as they were previously used successfully in the SLÁN 2007 national Irish survey of mental health and well-being (Barry et al., 2009). This allowed for some comparison between the samples in both studies. The SF-36 scales also provide more comprehensive information than the data generated from the SF-12 version of the scale (Ware, Kosinsk & Keller, 1996). When comparing the findings from SLÁN 2007 (Barry et al., 2009) and the previous Irish (Blake, Codd and O'Meara, 2000) and European studies (Eurobarometer 58.2; European Opinion Research Group, 2003) the participants within this study rated their energy and vitality lower than that of respondents found in previous Irish studies, but similar to the levels of participants in other European studies. SLÁN 2007 (Barry et al., 2009) identified that the higher EVI obtained in their research

might have been as a result of the young population profile in Ireland relative to other European countries. Further, the authors identified that men indicated higher energy and vitality than women. Within this study the mean age of participants was 41 and 74 percent of the participants were female which potentially supports the explanation of variations in scores provided by SLÁN 2007 and the European studies.

Despite these variations between studies, the notable feature of the obtained results is that energy and vitality scores within the participant group, despite being higher than the control group before training, increased significantly following training. Energy and vitality was elevated level immediately following training and remained above pre-training levels to at least six months following training. Given the challenging nature of the content, and the interactive nature of the presentation of the course, this result is unlikely to be due to factors such as the physical rest afforded by attending training.

Similarly, and in direct contrast to the, at times confronting content of the course, psychological distress scores decreased in the MHFA participant group immediately following training, despite their being lower that the control group prior to training. The level of psychological distress in the entire study group (N = 432) was higher that the mean score obtained by SLÁN 2007 (Barry et al., 2009). A similar discrepancy applies to the proportion of participants within this study group with a probable mental health problem. Lavikainen et al. (2006) suggested that a cut-off score of 52 or less on the Psychological Distress Scale indicated a "probable mental health problem" on that measure. Using this cut-off score within this study 23 percent of the population could have had a mental health problem. This "probable mental health problem" in the total study population is higher than the proportion of the population who may have a mental health problem identified within SLÁN 2007 (Barry et al., 2009) but equivalent to the result found for the Irish population within the Eurobarometer 58.2 study (European Opinion Research group, 2003).

Unfortunately, the Eurobarometer 58.2 study did not provide a mean EVI score for the Irish population so a direct comparison of the findings in this study to those in the Europe wide survey is not possible. Interestingly, within this study, only 7 percent of the MHFA participant group potentially had a mental health problem before training (compared to 39 percent in the control group) and this remained stable following training. This is despite there being greater variability in the standard deviation in the MHFA participant groups' rating of the SF-36 subscales. The finding that 7 percent of MHFA course participants are likely to have a mental health problem is equivalent the findings in SLÁN 2007 (Barry et al., 2009) and suggests that despite participants rating their psychological distress as higher than the general Irish population in SLÁN 2007 it appears unlikely that they had higher levels of pathology. This illustrates a discrepancy between the use of such cut-off scores based on statistical means for research purposes, and the variability of individuals when considering clinical pathology where individual characteristics and functional capacity are more generally considered. In the participant group, their rating of higher psychological distress may reflect sensitivity to their psychological state due to the context in which the measurement occurred. In effect, the discrepancy between the psychological distress score and the "possible mental health problem" score may reflect more circumstantial characteristics. For example, being asked to reflect on their well-being as part of the study (ie a Hawthorn effect, Landsberger, 1958) or an awareness of the fragility of the personal mental health, perhaps due to previous training, or indeed, the impact of external factors associated with the social milieu, such as the economic downturn that was underway at the commencement of this study. It may not necessarily reflect clinical need. Certainly within the MHFA participant group there was an awareness of personal mental well-being as a high number of participants (87 percent) indicated they actively managed their mental health.

Regardless of the starting scores for energy and vitality and psychological distress, what is of importance is the increase in energy and vitality scores and a reduction in psychological distress following training. Additionally

the gains in energy and vitality were maintained over the six months following training, but in contrast, psychological distress returned to near pre-course levels after six months, suggesting some of the psychological benefits gained by undertaking the course dissipated after six months.

Significantly, the second measure of positive factors associated with mental well-being, the Warwick, Edinburgh Mental Well-being Scale (WEMWBS, Tennant et al., 2007), also indicated a positive outcome for participants as a result of completing MHFA. This relatively new scale was included as an alternate measure to the SF-36 scales. The WEMWBS utilises only positively worded items to assess mental well-being and is therefore, potentially a useful tool to assess positive elements of mental well-being rather than deficits associated with ill health. Within this study, the results obtained on this scale compared favourably with those found in Scottish survey populations (Braunhotz et al., 2004; Scottish Government, 2010). Despite the MHFA participant group indicating a higher level of well-being than the control group prior to training, their mental well-being statistically increased significantly following training. At the two and six month follow-ups mental well-being had increased further from the level rated immediately after training. This consistent improvement in mental well-being potentially provides an argument that following the integration of the learning associated with MHFA training, enduring psychological benefit is afforded to those who undertake training. This result also parallels the result of increased preparedness of the participant group to apply the training over time. Regardless of the cause such positive outcome suggests the need for further research into this effect.

The three measures used in this study (EVI, MHI-5, WEMWBS) all indicated that mental well-being was enhanced following training in MHFA. MHFA course participants provided mental well-being scores before undertaking training that differed from the scores obtained on previous studies of the Irish population. However, despite this, MHFA training does appear to have positive benefits on the mental well-being of those who undertake the training. The

extension of those benefits to the wider population needs to be tested further in studies with more heterogenous populations. This is because the MHFA training participants had higher levels of mental well-being before training than the control group. Presumably, those with lower levels of mental well-being in the wider community would have more margin for improvement in this area that the MHFA participants. Some 77 percent of MHFA participants stated their attitude to their own mental health had changed "somewhat" or "significantly" as a result of training. The mechanism, by which this occurred, however, remains unclear. Pearlin and Schooler's (1978) Mastery Scale indicated an increase in the MHFA participants' sense of mastery that was sustained to six months following training. This was despite the participant group indicating a greater sense of mastery prior to training than the control group. The sustained increase over six months following training parallels the gains identified in energy and vitality and mental well-being. Consequently, one could reasonably suggest that there appears to be an association between mastery, energy and vitality and mental well-being. However, there appears to be no evidence of any enduring positive influence of mastery on levels of psychological distress.

The Psychological Distress Scale (MHI-5) of the SF-36 (Ware et al., 1993) which uses positive and negative statements to identify a person's current psychological state appears to be measuring significantly different components of mental health than the WEMWBS. The genesis of the MHI-5 scale is as a component of a general health scale. Its focus is as a screening measure for populations with suspected mental health deficits. Indeed, Ware (2009) suggests that the MHI-5 component of the scale is valuable as a screening tool for psychiatric disorders. If this measure identifies the psychological state by exploring constructs associated with deficit, then it would be reasonable to expect a different outcome from the results obtained on the WEMWBS (Tennant, et al., 2007) which is constructed to measure psychological well-being. In effect the WEMWBS potentially focuses on hedonic and eudaimonic influences of mental well-being rather than on the presence of mental health problems. Thus, the use of the WEMWBS as a tool for measuring mental well-

being may be of significant added value. This may also explain why ratings on the WEMWBS continued to improve following training where the ratings on the MHI-5 tended to revert to pre-training levels when evaluated six months after training.

In addition to variations in the mental well-being scales as a result of training, mastery was also enhanced following MHFA training. Mastery increased immediately following training and this increase endured to the six month follow-up. Mastery was a statistically significant predictor of mental health and well-being within the three scales used here. The proportion of variance accounted for by mastery within the psychological distress and WEMWBS increased following training.   This means that after training, mastery was associated with a decrease in psychological distress and increase in mental well-being as measured by the WEMWBS. The drop in variance accounted for by mastery in the energy and vitality index following training appears to suggest that although energy and vitality is associated with mental well-being, it is not the same construct. This finding may indicate that following training, participants are better able to differentiate between mental well-being and having energy, which indeed, might suggest an improvement in their knowledge about mental health as a result of training. Mastery and mental well-being as measured by the WEMWBS were enduring over the six months of assessment, whereby psychological distress and energy and vitality ratings tended to move back toward pre-training levels after six months. The reasons for the differences in the associations between mastery and the mental health and well-being scales is not clear, but would make an interesting area for further research.

Within the MHFA participant group age was also a statistically significant predictor of mental health and well-being before and following training.
The proportion of variance accounted for by age decreased from before to after training in the energy and vitality index and the psychological distress scale.
Age accounted for more variance from before to after training in the WEMWBS. The finding that the variance associated with age dropped in one

measure of mental well-being and rose in another suggests potential variability within the scales, in terms of the constructs being measured. As the variance accounted for by age also falls in the psychological distress scale, the focus of the SF-36 (Ware et al., 1993) as a general health screening tool could be measuring different mental health well-being constructs than the WEMWBS. Exploration of this variability could contribute to the discussion surrounding the Dual Continuum model of mental health and well-being (Tudor, 1996). That is, if mental health and mental well-being are associated but different constructs, then the difference may be reflected in the variability in the results obtained by the different scales for the different factors examined in this study.

Within the control group, the reduction of the variance accounted for by age and mastery in the WEMWBS ratings after training suggest that the MHFA training received by the participant group may be influential in the development of mental well-being. This result suggests that the content of training is important in the association between mastery and mental well-being and it is not just training per se influencing the result. Within the control group, the percentage of variance accounted for by psychological distress did increase following training. The association may be, therefore, that a reduction in psychological distress is more aligned to skill attainment and a sense of competence, where mental well-being is associated with knowledge about mental health and well-being, and skill attainment. Of course, this argument is not demonstrated in this finding and a path analysis would be needed to fully test this argument.

It should also be acknowledged that despite the statistically significant contributions of mastery and age to the variance accounted for within the mental health scales, the total variance accounted for with the proposed models is small. This means that there are other factors not identified in this study that contribute to the total variance within the mental health scales. Nonetheless, isolating the concept of mastery as a significant contributing factor is a useful finding, and one not previously reported in other MHFA studies.

The results suggest that the impact of MHFA training on the participants might be twofold. The training may enhance the mental well-being of MHFA participants directly, and secondly may enhance a sense of mastery and well-being by the immediate reduction of psychological distress. It may also follow, that enhanced mastery due to improved mental well-being and decreased psychological distress leads to a willingness to apply the learning to assist others. That mastery continued to be enhanced (compared to their pre-training levels) up to six months following training and psychological distress returned to pre course levels during the same period, suggests a sense of mastery rather than decreased psychological distress influenced the application of the learning over time. Care needs to be taken with this interpretation, however, as the definitive association of the impact of mastery on learning, mental well-being, and application of learning remains elusive. Clearly, further research is required to clarify these potential associations.

It is worth considering if the MHFA participants' rating of mastery could have been influenced by the lack of practice and experience in applying MHFA or by the negative attributions associated with potentially violent situations. Despite the increased rating of mastery following training, participants may have exercised caution when interpreting their level of mastery to apply the learning. The intuitive suggestion that this might have been an effect of the female gender weighting within the participant group, as women potentially could be more concerned about their capacity to deal with violence, was statistically unfounded. Mastery did not appear to be influenced by gender. Further, the rate of application of the learning increased to the six month follow-up, with mastery remaining stable over the same period, suggesting that practice had little influence on rated mastery.   It is important to acknowledge that the sense of mastery measured by Pearlin and Schooler's Scale (and a similar argument exists for the other subjective measures of confidence, competence etc) is an overall sense of mastery and not specific to mastery over the management of mental health emergencies. Despite this, MHFA was reported to be

increasingly used over time with a corresponding increase in preparedness to apply the learning over time. Future research may consider approaches that more directly measure the specific factors associated with the perceived efficacy of application of MHFA knowledge rather than attempting to measure factors associated with course learning and integration via the application of generic questionnaires. This is likely to require the development of MHFA specific assessment tools.

Contributions of the current research

This study is the first evaluation of its type within the Republic of Ireland, using materials adapted to reflect an all-of-Ireland response to mental ill health. The current research provided an evaluation of MHFA using a heterogenous study population and was not targeted at any particular vocational group, age or gender within the population. Unlike some previous studies where delivery of the MHFA course was aimed at specific work groups and using one delivery format, this study delivered the MHFA course to best utilise the flexibility inherent in the course and its likely practical application. This study incorporated mixed delivery modes (two and four sessions), and was not targeted at any vocational or work setting to secure a diversity of participation more closely representing a population sample. Note that the mode of delivery had no significant influence of the ratings provided by the course participants and unlike previous studies only 21 percent of participants in this study undertook the course for work purposes. This improves on the often more homogeneous populations previously used in MHFA research whose responses have tended to validate the programme. It also improves on previous international studies which have generally only addressed participant satisfaction with the course content. Further, the current study sought to identify the influence of the course content on participant satisfaction and learning and presented a possible mechanism by which the learning occurred. Finally, the primary focus of this study on the benefits to participants' mental well-being as a result of undertaking the course was unique to this study. As

there is some disparity between the baseline measures of mental well-being scores within this study, in comparison to those from some population based Irish studies, the extrapolation of the benefits of MHFA training to the wider Irish community remains to be established conclusively. This is because, within this study, there is some evidence of some self-selection bias among the participants towards those with interest and prior knowledge of mental health issues. However, improvements in knowledge of the key areas of the course, positive evaluations of the course and mental health improvements of the participants still occurred following training. While the results would have been enhanced if the study population more closely represented the Irish population profile, the obtained results are still important. They potentially support the use of MHFA as contributing to the building of community capacity by enhancing mental health literacy, and by supporting mental health and well-being of the course participants. The results provide a first step in the gathering the evidence to support this.

The current research supports and extends on the previous findings of MHFA research.   As a result of training, participants' knowledge of the most common mental disorders in the community was enhanced. Participants identified enhanced knowledge and skills to manage mental health emergencies and reported being more confident and competent to do so, as a result of training. As with previous studies, participants within this study were able to successfully apply the mnemonic "ALGEE" to vignettes. However, this study identified that the participants' memory for the mnemonic decreased over time. Previous research (eg Jorm & Kitchener, 2004) suggested that participants who completed the training had an increased "intention to treat" those in distress. Within this study participants rated themselves as more prepared to apply the learning over time and reported that they did apply the learning. This is despite an understandable hesitancy to engage in situations deemed violent or involving people with psychosis.

Evaluation of the content of the course, the delivery methodology and the learning of participants of the specific areas addressed within the course, had not previously been researched. Previously, justification of the content of the course was based on epidemiological data and the delivery methodology on familiarity with physical first-aid courses. Within this study, no single element of the course or its mode of delivery was identified by participants as enhancing learning. The subject areas of suicide and psychosis generated the greatest increase in knowledge from pre-training levels, yet this knowledge was also most quickly lost over time. This may because the learning associated with these areas was novel to the participants and, therefore, less likely to be integrated into long-term memory. Conversely, participants already had some knowledge of the areas of depression, anxiety and the effect of drugs and alcohol on mental health and a serendipitous practice effect may have occurred. Within the participant group, as a result of the commonality of these conditions, retention of learning may have occurred due to practice or familiarity.

One interesting finding from this research was that participants had a great deal of difficulty recalling the entire ALGEE mnemonic over time. The elements of the mnemonic "give reassurance and information" and "encourage appropriate professional assistance" were most frequently recalled and applied. This seems to parallel the experience of learning application within standard physical first-aid courses where offering comfort and reassurance and maintaining a person's airway are the elements of DRABC most frequently applied. This may suggest that the value of first-aid courses, either physical or mental health in focus, is that they encourage people to approach those in distress, contrary to the argument that the impetus for assisting someone in distress is based on having the appropriate formal skills and knowledge to do so. In another finding similar to standard physical first-aid courses, MHFA appears to attract adult women who are well educated and who potentially possess an interest in health.

The major finding of this study was the positive benefits the course had on the positive aspects of the participants' mental well-being. Using measures of

positive mental well-being rather than measures of mental deficit, the enhancement of mental well-being following training was demonstrated. Significantly, unlike psychological distress, mental well-being did not return to pre training levels after six months. Indeed, the WEMWBS (Tennant, et al., 2007) scores of mental well-being continued improving to six months following training. Despite the 87 percent of participants indicating that prior to training they took active steps to manage their mental well-being, 77 percent stated that following the completion of the course their attitude to their own mental health had changed. Further, following training, participants identified increased knowledge and skills to manage a mental health emergency and improved confidence and competence to do so. This evaluation may also be indicative of the improved mental well-being of the participants who not only applied their learning but considered themselves to be more prepared to apply the learning over time. Pearlin and Schooler's (1978) mastery model would suggest that there is association between increased mastery and decreased anxiety. Regression analysis suggests that following MHFA training there is an association between mastery, decreased psychological distress and increased mental well-being. This would appear to support Pearlin and Schooler's theory of mastery.

The use of the relatively new WEMWBS (Tennant, et al., 2007) was also a positive contribution of this study. The use of such a new measure of positive mental well-being arguably provides a useful contribution to the wider field of mental health promotion.

Limitations of the current research

Study design

There are some potential methodological concerns with quasi-experimental approaches (Shadish, Cook & Campbell, 2002). Such is the case in this study. Research performed in field settings is prone to be influenced by factors

external to the research intentions. Ideally, randomly allocating study participants to the MHFA course or the control group would have enhanced the findings of this study. This was not practical, however, as it would have required a much larger pool of participants willing to engage in such a process. The need for marketing the MHFA course to secure sufficient course participants precluded the option of a random design, therefore, a matched control group approach was utilised. The matching of the control and participant group was done to control for some of the known and most measurable influences; age, gender, education and occupation (potentially representing socioeconomic status) on mental health. Despite this matching, however, there were still some significant differences in the mental health ratings provided by the groups before training. This suggests additional factors such as prior training in mental health might have been relevant but were not controlled for within the study. Attempts to identify and control for some of these factors were undertaken during the analysis. In future research diminishing the variability between the groups before training would improve the clarity of the findings.

The internal validity of the study must be considered. When completing an assessment process over a six month timeframe there are likely to be potential influences other than those of interest to the study than influence the results. For example, differential changes within the individuals with respect to their personal histories, development and experience are likely to occur. While most likely to be essentially random and of little systematic effect, it is nonetheless possible, such changes may influence the results obtained. Such impacts are more likely to occur the longer the duration of the assessment process. Data collected before and immediately after training may be relatively un-impacted by such events, given the temporal proximity of the testing to the training, the two and six month assessments are more likely to have been influenced. This becomes more important when considering, for example, the reasons why people did not complete the evaluations. Potentially those individuals could have withdrawn from the study, or omitted some responses,

due to reasons relevant to the study, such as their own mental health status. If this was the case (the reasons for not completing remain unknown) then the finding that MHFA training is a valuable tool protecting and/or enhancing mental well-being is slightly weakened.

Considerations such as these, potentially impact on the strength of any generalisation of the findings in this study to the broader population. The external validity of the study is open to criticism because of the self - selected nature of the study population. Payment of a course fee may have been one issue that excluded participation, particularly those from lower socio economic back grounds. As lower socio economic status is known to correlate with mental ill-health (Barry et al. 2009) this could partially explain the higher levels of mental well-being in the MHFA participant group prior to training compared to the control group. The control group also paid for their physical first-aid course, so the importance of the influence of payment on the study population may be reduced. It should also be acknowledged that the predominance of well-educated, employed middle-aged women with potentially better mental health than their peers within the population (NHS Information Centre, 2009) make the generalisation of the findings of this study to the wider population somewhat problematic. However, as these same participants seem to represent a similar profile to participants who attend physical first-aid courses (Arbon & Hayes, 2007), one must consider if courses designed to assist others generally attract such a demographic profile. If this is the case, then finding the mechanism to broaden the interest of the wider population in such courses, could be a useful investigation.

In summary, the design of the study was suitable for purpose. While not as rigorous as an experimental design, it accommodated the practical complexities of evaluating a training course in a community setting. The matching of course participants and the control group controlling for factors previously identified to impact on mental health and well-being enhanced the reliability of the findings.

Sample

While the methodological quality of this study improves on those studies that have gone before, the participant population in this study was not as heterogeneous as desired. While not targeting adult women who were well - educated, it appears that these women were drawn to the course. Although the proportion of men in the MHFA training group was less, they too tended to be well educated and well informed about mental health matters prior to training. This self-selection bias was exposed in some of the pre-training measures where, despite matching the participant and control group participants for gender, age, occupation and education, the MHFA participant group rated themselves as having more knowledge about depression, suicide, psychosis than the control group and as possessing more skills to manage an emergency, and with greater confidence and competence to do so. The MHFA participant group also had higher energy and vitality ratings, less psychological distress and rated their mental well-being higher than the control group prior to training. As such, the MHFA group displayed dissimilar characteristics to the standard population where middle-aged women tend to have poorer mental health than the rest of the population (NHS Information Centre, 2009; Barry et al., 2009). There was some suggestion, however, of variation in mental health status within the MHFA group as the standard deviation on mental health measures within this group was large compared to the control group. Thus, within the MHFA participant group there both individuals with sound mental health who might be considered "flourishing" and some who had lower levels of mental well-being, who could be considered to be "languishing" (Keyes, 2007). This makes logical sense as a course on mental health would likely be attractive in part, to those who had concerns about their own mental well-being.

Further evidence of the experience and knowledge of the MHFA participant group is reflected in the response that only 34 percent indicated that they would talk to their GP about mental health concerns. This is quite different from results obtained from population based surveys where up to 74 percent of

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respondents indicated that contacting their GP would be their response to managing mental ill-health (Health Service Executive, 2007). These variations between the participant and control group populations, and those from the wider population, suggest that the baseline characteristics of the MHFA participants are different to those of both the control group and the wider population. The statistical analysis employed in this study, i.e. use of repeated measures analysis of variance, controlled for these baseline differences between the intervention and control group. The measured improvements in the MHFA participant groups' ratings after MHFA training, despite their enhanced mental health status before training, make the results of this study of interest. It could be argued, that due to the even lower levels of mental well-being in the wider population, MHFA is useful in improving mental well-being in the community. However, further research using a broader range of population groups is required to establish this confidently.

Measures

The quality of the data collected is a significant consideration for this study. There are few tools available to measure concepts such as MHFA effectiveness, therefore, much of the questionnaire content came from other sources (such as the mental health scales, the vignettes and the demographic information questions) or were developed or modified from other studies. As such, there are small, but potential issues with the validity of some of the measures employed. For example, there were many single item constructs and questions; something which raises a question of their validity, due to the lack of corroborating evidence. Similarly, some of the modifications from previous questionnaires included changing the numeric labelling on the scales to verbal descriptors. This was done to improve the accessibility of the scales, particularly for less academic audiences. However, given the high level of post-school educated individuals within this study, this may not have been required, and similarly could not have been easily predicted prior to the study. In addition, the detail of information gathered, such as, the type of "reassurance and information" within

the ALGEE response provided by the course participants could have been improved, as this information could be valuable in providing insight into the integration and application of the course content.

It could also be argued that some of the assessment tools that were used, such as the Mastery Scale (Pearlin & Schooler, 1978), are conceptually too broad to accurately measure the attainment of specific skills within MHFA. Ideally, what is required is the development of a tool that is specifically constructed and validated to measure the learning and skills provided by MHFA. Nonetheless, the measures of positive mental health and well-being that were used are well validated. Their use contributes to the body of knowledge associated with these scales and the impact of MHFA training on participants' mental health. There remains, however, a need for further research to identify if the gains identified in this study's measures of mental health are maintained, and to identify if such positive improvements provide any protection from mental ill-health in the participants. It would also be interesting to identify if an increase in the positive elements of mental well-being result in the early identification and intervention by the participants on their own behalf, should they become unwell. With the appropriate investigations, it should be possible to assess whether MHFA assists not only in reducing stigma when considering the status of others, but also reduces self-stigmatisation which in turn inhibits help seeking behaviours.

Some of the key measures within this study tended to revert towards pre-training levels after six months. Despite this, all of the measures of the key areas of knowledge, and the subjective measures of evaluation stayed above pre-course training levels for up to six months after the course. The rates of application of the training also increased during the six months of evaluation, so despite some loss of knowledge over time, there appears to have been sufficient knowledge and skills retained to ensure the application of assistance to those in distress. That some knowledge was rated as having been lost over time is not unexpected. While specific areas of the learning may have been lost, the

application of the skills appears to suggest that the practical application of the learning was retained.

There were differences in the measured trends on the mental health scales. The two SF-36 scales (EVI, MHI-5; Ware et al., 1993) both reverted toward pre-training levels; the MHI-5 ratings did reach pre-training levels after six months. In contrast, the WEMWBS (Tennant et al, 2007) continued to rise over the six months that assessment was conducted. The different outcomes on the three scales are likely to reflect the different qualities of each scale. The SF-36 scale (Ware et al., 1993) is a general health survey of which the EVI and MHI-5 make up nine items. Both sub- scales contain a mixture of positive and negatively worded statements requiring some consideration by respondents to complete accurately. The intention of these scales is to identify the mental health status of an individual in a form that can track individual progress and be compared to population norms (Ware, 2009). The scales, therefore, are measures that identify deficits in mental health as well as strengths. Completing scales which have both positively and negatively worked statements over the telephone may also be difficult. Respondents were encouraged to write the scales down before completing the statements, however, it is possible there was some confusion or lack of concentration when completing these scales. Such a circumstance may have impacted on the responses received.

In contrast, the WEMWBS (Tennant et al., 2007) is a positively worded scale with no reversed statements. It does not attempt to identify deficits but rather it measures dimensions of positive mental well-being such as the subjective experiences of happiness (hedonic influences) and psychological functioning and self-realisation (eudaimonic influences). On this scale MHFA participants indicated consistent improvements over the six months after training. This may be suggesting first, that the WEMWBS is measuring different constructs of mental well-being than the mental health constructs within the SF-36 (and this would be the argument supported by the literature) or second, that the MHFA training has had some positive enduring influence on mental well-being, as

opposed to mental distress, in the participant group. While this would be the preferred interpretation, other influences may also have contributed. Specifically, the positive and negative items of the EVI and MHI-5 may have made responding to those measures more complex. In contrast, the positively worded items in the WEMWBS may have made responding "too easy", with repetitious positive responses being provided rather that individually considered responses being nominated, leading to a acquiescent response bias.   The WEMWBS was also the last scale within the questionnaire so there may have been an incentive for respondents to complete the scale quickly. However, given the responses on this scale continued to improve over the four assessments, rather than remain consistent or reverting to the pre-course levels, suggests some enduring positive benefits following MHFA training on individual mental well-being.

Data collection procedures and analysis

The course was delivered completely by the author of this study. This provides the benefit of consistency in the delivery of the training, something which has previously been identified as problematic when multiple presenters had been engaged (Jorm et al., 2004). Nonetheless, the potential influence of having the same researcher give the delivery and collect the pre and post surveys must be acknowledged. An attempt was made to make survey responses at the two and four month follow-ups more objective, by having data collected by a research assistant. However, this too may have resulted in a positive response bias, as participants may have felt obliged to respond positively during the telephone contact. The final influence of the questionnaires being completed in the presence of the presenter (before and following training) and subsequently by an assistant over the telephone (at two months and six months following training) is not known.

Potentially there may also have been a small issue because of the influence of the multiple applications of the questionnaire over four time periods. Multiple

presentations of the same or similar materials always carry the possibility of practice effects influencing the data. In this study, if such a practice effect were to occur, it is most likely to have occurred within the responses to the mental health and well-being scales, because of the repetitive nature of the scales and the potential familiarity of respondents to that repetition. Thus, the responses, particularly to the questionnaires completed over the telephone at two and six months may contain such an artefact. Similarly, the telephone completion of the questionnaires may have created other unexpected effects such as "automatic" responding rather than considered responses which could have been a more likely expectation if the respondents were completing the questionnaire independently. Overall, however, the influence of these factors is likely to be relatively small.

The follow-up assessment of the impacts of MHFA training could have been strengthened by increasing the time frames chosen for assessment. Although a six months follow-up was valid, in terms of providing comparisons to previous research, questions were raised as to whether the improvements identified are truly robust over time. Although the measures of achieved learning remained above pre-training levels there were also declines, as there were in the measure of energy and vitality, with a corresponding increase in psychological distress. The reversion to pre-training levels of rated function were not universal, however, as mental well-being (measured by the WEMWBS), preparedness and the use of the skills increased over time. Exploration of these variations in the outcome findings over an extended time period could have strengthened the results.

In addition to the methodological issues raised with the collection of the data for this study, some elements of data analysis also require discussion. The study sample, while not being clearly representative of the wider Irish adult population, did provide a data set that was normally distributed. This means that the use of parametric tests, based on interval level data, were appropriate and the results obtained by these analyses are considered to be valid. Similarly,

where categorical data was analysed, non-parametric tests were used. Repeated measures ANOVA was employed to adjust for baseline group differences between the intervention and control groups in determining the impact of the MHFA training. This statistical test is also deemed appropriate when dealing with matched samples, as in this study.

With regard to the regression analysis, while the finding that mastery accounts for a statistically significant proportion of variance within the mental health scales is important, there remains a large proportion of variance unaccounted for. This suggests that there are other unidentified factors that contribute to a sense of mental well-being in the study population. It is also of interest that other factors previously identified as being influential on mental health and well-being, such as gender, education and occupation, did not significantly account for variance within this study, nor did prior learning account for a statistically significant amount of variance. Also, regression analysis does not take into account variations within the factors chosen for analysis. There is, for example, no way of identifying the type of prior training that individuals may have undertaken, and such specific information may be useful in better understanding the associations of interest.

Future research

No research is perfect. Future evaluations of the MHFA course should attempt to address some of the shot comings of the present study. For example, if well-educated adult women are drawn to this course, then perhaps, deliberately recruiting participants who do not fit this profile could identify areas within the course that may require modification to suit the needs of the broadest populations to which it could be applied. Mental ill health is known to be associated with lower socio economic status, youth, and poor social connectedness to name just a few risk factors, yet aside from youth, MHFA has not been adapted to address the needs of participants with these characteristics. For application within Ireland, for example, a programme designed specifically

to encourage the participation of men could be advantageous given the high suicide rate within this population. It would appear reasonable to suggest that capacity building within populations requires resources to meet the needs of those populations, rather than expecting populations at risk to adapt to the resources provided. It is also relevant to note that MHFA in Ireland is a relatively new concept and one which is likely to draw a wider audience the more the course is delivered. Therefore, the "novelty" of MHFA within this study, is likely to have had an influence on participation, with those more keenly interested, making themselves available for training.

There is also a need for the effectiveness of MHFA to be assessed employing rigorous study designs and reliable and valid measures of process and outcome. To date there are no data as to the impact of applying MHFA to those in distress. Similarly, there are no data identifying the impact of applying MHFA on the providers of care. If physical first-aid courses are any indicator, people trained to deliver MHFA may be reluctant to do so if there is inadequate follow-up care and support provided. From the data in this study, it appears that situations involving violence or psychosis may inhibit involvement and there appears to be evidence of a decline in learning over time, presumably due to lack of practice. This suggests that follow-up contact with course participants, perhaps via refresher courses or network linking, could be value adjunct worth exploring.

Similarly, the impacts on training on specific groups within the community, such as those representing ethic minorities or those with low levels of education may provide useful information as to the specific applicability of MHFA training.

Further, more comprehensive measures of the concept of mental health literacy are needed to fully determine the impact of MHFA training. The course authors suggest that completing the course reduces stigma (Kitchener & Jorm, 2002), however, this is assumed on the basis of measures of "social distance". While

social distance measures may contribute to an understanding of stigma, more specific measurement of this concept is required and should be included in future research. This appears to be a valuable pursuit not only in the evaluation of MHFA, but also in the evaluation of other programmes which make similar claims to affect attitudes towards those with mental ill health.

There are also findings from within this study that require further investigation. This study identified that training in MHFA improves the mental health and well-being of the course participants and a sense of mastery may be the mechanism that drives this improvement. Further investigation of the role of mastery and potentially other factors that contribute to the development of mental health and well-being is obvious area for further investigation. The variation between the results on the mental health and well-being scales is also interesting. To date, there has been an assumption that scales with positively and negatively worded statements "balance out" the influence of the weighting of the statement to provide a "neutral" influence across a scale. This may still be the case, however, the continued improvement in mental well-being measured by the WEMWBS does indicate the value of a scale that specifically measures mental well-being. Further study into the perceived interactive nature of mental health and mental well-being and the scales used to measure these factors is also needed.

In a general sense there is also a need for appropriate research addressing areas such as the opportunity costs, cost benefit analyses and relative effectiveness studies, in comparison to other early intervention programmes that remain outstanding in the MHFA research.

Conclusions

The findings from this study suggest that MHFA is a useful training resource leading to positive benefits for course participants. However, it also appears that the course MHFA may be addressing only some of its original goals.

Increased knowledge of mental health issues and being able to identify the signs and symptoms of mental ill health are important contributors to mental health literacy and are enhanced by MHFA training. Arguably, improved mental health literacy may be one factor that ameliorates the stigma, prejudice and discrimination associated with mental disorders (Thornicroft, 2006). However, according to Day (1987), contact with those with mental ill health is also required to eliminate stigma. This study suggests that there may be a barrier between having knowledge and learning skills, and the use of those skills. Although the participants in this study reported that their knowledge of mental conditions, their strategies to manage emergencies, their skills, their confidence and competence were all enhanced by completing MHFA training, they also indicated some hesitancy in applying their learning. After six months, however, presumably as a result of knowledge consolidation and practice, participants indicated they were more prepared to offer MHFA assistance than immediately following training, and indeed, were applying their learning to assist others.

The enhancement of mental well-being in the MHFA participant group was an important finding of this study. This suggests that MHFA training, as well as enabling participants to assist someone in distress, also leads to enhanced mental well-being of those who undertake training. MHFA arguably contributes to building capacity in the community by encouraging individuals to help others while protecting the mental well-being of those with the potential to provide assistance.

The evidence of the effectiveness of MHFA in assisting those in mental distress is still underdeveloped. There is a need to assess the benefit of approaches such as MHFA in minimising distress and maximising outcomes for those who are unwell or at risk of becoming mentally unwell. As previously mentioned, the exposure to people who are unwell to MHFA for research purposes is fraught with ethical concerns, yet an understanding of the influential mechanisms within the programme is required. Despite there being gaps in the research evidence on the effectiveness of MHFA, the results from this study suggest that improved

mental health knowledge, skill, confidence, competence and a sound sense of one's own mental well-being may go someway to ensure that a person who is capable will choose to assist someone in mental distress.   However, the suggestion from physical first-aid course research indicates that without appropriate support, the continued application of the knowledge may be compromised, as the psychological cost to an individual applying the assistance becomes a burden. Therefore, further research is needed to determine if the enhanced mental well-being attained by those undertaking MHFA training can serve as a protective influence. Encouragingly, the course participants suggested improvements in the delivery of the course could include the development of visual aids showing the application of ALGEE, having a person with a mental disorder come to speak to them and consideration of refresher courses, suggesting a desire to enhance and maintain their engagement. Such additional support following the initial training may well be crucial to the future longevity of the goals and application of MHFA.

This study has identified the value of MHFA as a tool to teach participants how to respond to a mental health crisis. It goes beyond this, however, as by completing the course, the participants' own sense of mastery and mental well-being is enhanced. These findings suggest that MHFA could be not only as an early intervention programme which can assist others in distress, but a useful community mental health promotion programme to enhance personal and community capacity and mental well-being. As the spending on mental health in Irish economy continues to decline, the need for sustainable contributions to mental well-being continues to increase. MHFA may be one approach that is available to successfully contribute to that need.

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Appendices

Marketing Materials

 ....Would you know what to do in a crisis?....

Dear

Mental Health First Aid is an exciting new course designed for non- mental health clinicians. It is a skills based course* which teaches participants how to assist someone developing, or experiencing a mental health crisis. Previous participants have included lecturers, nursing students, prison guards, front of house counter staff, in fact anyone who interacts with others in their work or leisure time.

The course explores depression, anxiety, suicide and self harm, psychosis and the effect of drug and alcohol on mental health. It uses videos, role plays, group and individual work to explore the issues associated with these areas and provides a frame work for action to assist someone until help arrives.

The 12 hour course can be tailored to suit specific groups and can be run over 2 full days or 4 half days. The cost per participant is €60 and includes a manual, all teaching materials and a certificate of completion. Costs such venue hire and travel will be charged at cost and can be negotiated directly with the course presenter.

The accompanying brochure contains further details.

Please feel free to contact me to discuss the course or to arrange delivery.

I look forward to hearing from you soon.

Yours sincerely

Lisa Shanahan
Senior Clinical Psychologist   lisashan@chariot.net.au
CAMHS   087 9662568
Avenue de Rennes
Mahon, Blackrock
CORK

* This is NOT a therapeutic course and is unsuitable for people with current mental illness.

Consent forms - Provided to participants prior to data collection

Mental Health First Aid

Dear Participant

The Course you are about to undertake is new to Ireland and is undergoing evaluation.

I would like to encourage you to be part of this evaluation. It is hoped the evaluation will identify if the course is effective in an Irish context and will lead to further improvements in its design, content and outcomes.

If you consent being part of the evaluation process you will be asked to:
- Complete 2 questionnaires (will take 5 to 10 minutes each)
- Will be asked to be available for 2 brief follow up phone interviews 2 and 6 months after completing the course.

All information is anonymous and the details you provide here will only be used to contact you for the follow up telephone interview. Once complete your contact details will be destroyed. You can decline further involvement at any stage of the process at which point your contact details will be destroyed.

If you have any questions, please feel free to speak to the course presenter.

I, _____ (please print) give my consent to be part of

the evaluation of the Mental Health First Aid training course. I understand I can withdraw my consent at any point, by contacting the course presenter.

Signed   Date

Contact number for follow up interview
        _____

Alternate number
_____

Do you have a preferred time for contact?
        _____

Thank you for your assistance

Script for physical first-aid course instructors

Guidelines for completion of questionnaires

First aid course participants

Dear instructor,

Thank you for your assistance with the completion of the attached questionnaires. There are two questionnaires; one to be **given and collected before the first class** (labelled pre course questionnaire) and one for **completion and collection at the conclusion of your final class** (labelled post course questionnaire).

I would be grateful if you could read the following statements before handing out the questionnaires.

Statement for questionnaire 1

Before we begin, I would like to invite you to complete a questionnaire. The questionnaire is to identify your current knowledge about mental health issues and the data will be used as a control sample for research evaluating a mental health course that is being evaluated by a PhD student through the Department of Health Promotion NUI Galway.

There is no way of identifying your responses and it is your choice as to whether you complete the questionnaire. I will now hand out the questionnaire and collect it when you have completed it. It should take about 5 minutes. Thank you for your assistance.

Please collect the questionnaire upon completion

Statement for questionnaire 2

Before we finish .....do you recall the questionnaire you completed before the first session? For those of you who completed the first questionnaire, I would ask you to complete another questionnaire now.

The information will fed into the same Department of Health Promotion NUI Galway study as the previous information. Your participation is purely voluntary and responses are anonymous. Your assistance is very much appreciated.

Hand out the questionnaires and collect them when completed.

I will contact you on………………………………to make arrangements to collect the questionnaires.

Any questions can be forwarded to me on 087 445567
Thank you very much for your assistance.

Regards,

Lisa Shanahan
PhD student NUI Galway

Appendix D

Table D.1 Spearman rho correlations between items constructed for this study and items from the validated the Mastery Scale (Pearlin &Schooler, 1978).

Mastery scale items	Items constructed for this study					
	Skill[1]	(*p*)	Confidence[2] (*p*)		Competence[3] (*p*)	
Mastery Q1	0.15	(0.001)**	0.15	(0.002)**	0.18	(<.001)**
Mastery Q2	-	-	-	-	-	-
Mastery Q3	0.14	(0.003)**	0.15	(0.002)**	0.15	(0.003)*
Mastery Q4	-	-	-0.11	(0.03)*	-0.12	(0.02)*
Mastery Q5	0.1	(0.03)*	-	-	-	-
Mastery Q6	-0.2	(<.001)**	-0.16	(0.001)**	-0.16	(0.001)**
Mastery Q7	0.14	(0.004)**	0.19	(<.001)**	0.12	(0.14)*

Note: Missing values (-) indicate no correlation between these items.

* significant at $p < 0.05$
** significant at $p < 0.01$

Statements as they appear in the constructed rating scales:
(ratings: 1 = none, 2 = some, 3 = adequate, 4 = good, 5 = complete)

Skill[1] - How skilful are you at managing a mental health emergency?
Confidence[2] - How confident are you that you could manage a mental health crisis?
Competence[3]- If you encountered a mental health emergency today what would be you level of competence to deal with it?

Items from Pearlin and Schooler's (1978) Mastery Scale

Mastery Q1 – There is really no way I can solve some of the problems that I have.
Mastery Q2 – Sometimes I feel I am being pushed around in life.
Mastery Q3 – I have little control over the things that happen to me
Mastery Q4 – I can do anything I really set my mind to.
Mastery Q5 – I often feel helpless in dealing with problems in life.
Mastery Q6 – What happens to me in the future depends on me.
Mastery Q7 – There is little I can do to change many of the important things in my life.

Validation of constructed items against items in a previously validated scale as per the discussion provided by Cook and Campbell (1979).