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Abstract

An examination of student mental health was conducted using the five item Mental Health Index (MHI), a subscale of the widely used SF-36 (Short Form Health Survey). Results support the use of the MHI, which was found to be to be a valid and reliable measure of mental health in Irish third-level students. As anticipated, females reported significantly higher levels of symptoms than males on the MHI. It was also noted that final year students report significantly worse mental health than other students. Comparison with a general population mean for a corresponding age group indicate significantly lower mental health status being recorded by the students in this study. Suggestions for further research are made.

Introduction

An evaluation of student mental health was conducted in an Irish third level College to assist in-house policy developments in this area. This research was undertaken under the guidance of the College's Working Group on Mental Health. A number of examinations of student health have been undertaken in Ireland (e.g. Tyrell, 1992; Gleeson & Houghton, 2000), with the College Lifestyle and Attitudinal National Survey (CLAN) (Hope et al., 2005) being the most comprehensive. However it is notable that the other major national health studies which were also funded by the Department of Health & Children (such as the Health Behaviour in School-aged Children studies (HBSC) (Nic Gabhainn et al., 2007) and the SLÁN surveys (Survey of Lifestyle, Attitudes and Nutrition in Ireland) (Morgan et al., 2008)), have each been repeated multiple times. The CLAN study was unfortunately only conducted once.

Early adulthood is a vulnerable time for many people. It is a time of growth, change, transition and development. Third-level students are no exception to this process and research indicates that rates of mental ill-health reach a crest in early adulthood, developing on from a gradual escalation from childhood to adolescence (Newman et al., 1996). Students may be at particular risk of mental ill-health, as several studies have noted significantly worse psychological health among this population than general population norms (Webb et al., 1996; Roberts et al., 1999; Stewart-Browne et al., 2000; Roberts & Zelenyanski, 2002). Recent research also indicates that there has been an increase in the absolute rate of mental ill-health and psychiatric disorders in children, adolescents and young adults (Connell et al., 2007; Singleton et al., 2001).

According to the UK Royal College of Psychiatrists (RCP) (2003) rates of psychiatric illness amongst students at third level will rise in the years to come as a result of a range of factors (Connell et al., 2008). The reasons include widening levels of

participation in third level education and additional stressors such as concerns over finances, pressure to excel and raised expectations (Cooke et al., 2006). The situation in Ireland is likely to be similar, particularly in relation to financial stressors. As a result of policy changes introduced by the Irish Government students have experienced significant increases in registration fees. For example these have risen by 33% between 2010 and 2011 alone. At the same time changes in eligibility criteria for grants mean that from 2011 qualification for the non-adjacent grant rate has increased from 24km to 45km. Recent dramatic increases in unemployment have also reduced the availability of part-time work for students. At the same time there will be a 4% decrease in student maintenance grants in 2011 on top of the 5% cut already implemented in 2010. The RCP (2003) also note the adverse impact of formal and distant academic organisations on students. The issue of widening levels of participation is particularly important in Ireland. Recent research has indicated that not only has there been a significant expansion in third-level education, in line with government policy around equity and economic competitiveness (HEA, 2004; 2005; Department of the Taoiseach, 2008), but that the number of students attending third level colleges with disabilities has also increased significantly (AHEAD, 2005).

This study aimed to explore mental health among students in a third-level Irish College and to explore the utility of short mental health measures among such a population, including the five item Mental Health Index (MHI, Ware et al., 1993).

The Mental Health Index (MHI) & the SF-36
Health functioning is composed of varied domains of health, including the physical, psychological and social domains. A standard tool for exploring these different domains is the SF-36 (Short Form Health Survey) (Ware, 1993), which is one of the most widely used self-report health measures (Jenkinson, 1998; Stansfeld et al., 1998). Although initially designed as an assessment tool to evaluate the outcomes of medical interventions, the SF-36 has also been identified as a reliable and valid instrument in population based studies (Stewart et al., 1988).

The SF-36 has been the subject of continuous development for almost twenty years. Interest in short health surveys emerged during the Health Insurance Experiment (HIE) in the US, in which a number of participants refused to complete the lengthy health survey measure then being used (Ware et al., 1980). As a result of this non-participation, a very short health survey was developed, which could be administered in approximately five minutes during a telephone interview. This shortened health survey achieved a much higher response rate, and spurred interest in the development of short health scales. This concise health survey was used successfully in a number of studies throughout the 1980s (Brook et al., 1987; Davies & Ware, 1981; Fowler et al., 1988; Lurie et al., 1984; Nelson et al, 1983; Read et al., 1987; Spiegel et al., 1988).

Further analysis of the data collected in the Health Insurance Experiment, however, revealed that single-item measures had lower validity than multi-item measures in predicting subsequent medical costs (Manning et al., 1982). This finding demonstrates the trade-off inherent in any choice between scales of different lengths (Ware, 1993). In view of this, a more comprehensive, and yet relatively short health survey was developed. This short-form measure, which had 18 items, was developed by 1984 and was used in several studies (Montgomery & Pananjpe, 1985). The Medical Outcomes

Study (MOS) also developed the twenty item measure, the SF-20, which although useful, was not as comprehensive as its authors wished. Two health dimensions in the SF-20 were measured by single items, and this was found to be unsatisfactory (Wright, 1994). The SF-36 however was designed to be more comprehensive than the SF-20, and also to enhance construct validity (Ware & Sherbourne, 1992).

The SF-36 comprises eight subscales that assess functioning across three spheres, the physical, psychological and the social (Ware and Sherbourne, 1992). The eight subscales are physical functioning (10 items); social functioning (2 items); role limitations due to physical problems (4 items); role limitations due to emotional problems (3 items); mental health (5 items); energy/vitality (4 items); pain (2 items) and general health perception (5 items). The Mental Health Index used in this study is the five item mental health subscale extracted from version 1 of the Rand Corporation's SF-36 (Ware et al., 1993).

The MHI therefore has an established pedigree (Ware et al., 1993; Ayuso-Mateos et al., 1999; Friedman, 2005). This measure has independently been found to be a quick, accessible, valid and reliable marker of mental health (McCabe et al., 1996). The MHI and the wider SF-36 were considered as part of a battery of suitable measures for the developing European Health Survey System (Working Party Morbidity and Mortality, 2004), and evidence of the influence of the SF-36 can be seen in two of the three questions finally adopted in the Minimum European Health Module (MEHM; Eurostat, 2011).

The MHI used in this study was extracted from the UK version of the SF-36. Although there are slight differences between the use of English in the UK and Ireland, upon examination these did not appear to affect the interpretation of the UK version of the SF-36. A number of research groups have been involved in developing the UK adaptation of the SF-36 (Brazier et al., 1992).

Table 1: The 5 MHI Items

MHI Index item
Have you been a very nervous person?
Have you felt so down in the dumps that nothing could cheer you up?
Have you felt calm and peaceful?
Have you felt downhearted and low?
Have you been a happy person?

After coding, adding and transforming, MHI scores range from a possible 0, indicating the worst health possible, to 100, indicating the best health achievable. Ware (1993) notes that a high score on the MHI index denotes feelings of peace, happiness and calm all of the time, whereas a low score would indicate constant feelings of nervousness and depression. Table 1 details the five questions included in the MHI. Six response categories were given to each question: All of the time; Most of the time; A good bit of the time; A little of the time; and None of the time.

Irish norms for the SF-36 and its subscales, including the MHI, were originally provided by Blake et al. (2000). However, this study suffered from both a poor response rate and small sample size. More recent and reliable norms have been

provided by Morgan et al. (2008), but it should be noted that these norms are based on general adult population samples, rather than students. The European Opinion Research Group (EORG; 2003) used the MHI in the 2002 Eurobarometer survey. This group explored appropriate 'caseness' cut-offs to differentiate those with marked levels of symptomatology among the general population.

This paper focuses on the results and utility of the MHI to explore the issue of mental health of students in an Irish third-level college.

Methodology

1,000 questionnaires were distributed during lectures in an Irish tertiary level college. The college involved has in excess of 5000 students spread across two campuses mostly studying ordinary or honours level degrees. A quota sampling frame was used designed to achieve a representative sample of the various Schools in the College, course years, and an even gender split. The survey included a short battery of measures including the five-item Mental Health Index from the Rand Corporation's SF-36 [Version 1] (Ware et al., 1993), the Brief Symptom Inventory 18 (BSI 18; Derogatis, 2000), the Clinical Outcomes in Routine Evaluation Short Form-B (CORE-SFB; Gray & Mellor-Clark, 2007), as well as a brief section on tobacco, alcohol and drug use and misuse.

Data was collected from a total of 763 participants, yielding a response rate of 76%. These participants ranged in age from 17 to 63 years of age. The mean age was 22.2 years (sd=5.65), while the median age was 20. Of the 742 participants that gave their gender 52 percent were male (386) and 48 percent (356) were female.

Results

Table 2 details mean results of the MHI by gender. An independent sample t-test was conducted to explore gender differences in MHI scores. The results indicated a statistically significant difference on the basis of gender, with women recording lower, i.e. worse, scores (t= 4.644, df= 730, *p*<.001).

Table 2: Mental Health Index Scores by Gender

Mental Health Index	Total	Males	Females
Mental Health Index	72.68 (sd=17.59) N=753	75.54 (sd=17.04) N= 384	69.57 (sd=17.71) N=348

Sixteen point two per cent of respondents (11.5% of males and 21.6% of females) scored 52 or less on the MHI in this study. The figure of 52 or less was used by The European Opinion Research Group (EORG; 2003) in the 2002 Eurobarometer Survey to identify 'caseness'. The 2007 Survey of Lifestyle, Attitudes and Nutrition in Ireland (SLÁN; Morgan et al., 2008) incorporated the MHI and provides valuable normative data on a sample in excess of 10,000. This survey reported mean MHI scores ranging from 80 to 84 across four different age groups from 18 years and upwards (Morgan et al., 2008). The youngest age group in the SLÁN survey was 18-29, who had a mean MHI score of 82. A subsample of all participants in this survey aged 18-29 (N=675) was used to explore differences with the SLÁN group of the same age. Results from a one-sample t test indicate significantly lower reported scores

among the present study's student sub-sample which had a mean score of 73.0 (t= -13.400, df= 674, p<.001).

Table 3: Mental Health Index Scores by College Year & Gender

College Year	Total	Males	Females
Not In Final Year	73.98 (sd=17.35) N= 530	76.17 (sd=16.63) N= 274	71.80 (sd=17.33) N= 231
In Final Year	68.86 (sd=17.88) N= 210	73.40 (sd=17.72) N= 100	64.83 (sd=17.29) N= 106

Table 3 details mean scores by gender on the basis of whether respondents reported that they were in the final year of their current course. Analysis using an independent sample t-test revealed final year students reported significantly lower, i.e. worse, scores, as measured by the MHI, than non-final year students (t= -3.593, df= 738, *p*<.001).

Internal consistency for the 5 items of the MHI was acceptable (Cronbach alpha was .783). The MHI was readministered to one group of participants four weeks after the initial survey to investigate the test-retest reliability of this measure. Results of the test-retest administration among 28 participants who took part in this element of the study show a significant correlation over this period (r= .403, n=28, *p*=.006).

Exploratory factor analysis using Principal Components Analysis with varimax rotation was used to explore components of the Mental Health Index. As only one component with an eigen value over one was extracted the solution could not be rotated. This finding is consistent with other analysis of the MHI (Ware et al., 1993). This component explained 54.56% of the variance. Details of the loadings of each question are given in Table 4.

Table 4: Factor Analysis of the MHI Items

MHI Index item	Loading
Have you been a very nervous person?	.691
Have you felt so down in the dumps that nothing could cheer you up?	.818
Have you felt clam and peaceful?	.645
Have you felt downhearted and low?	.798
Have you been a happy person?	.727

Convergent validity of the MHI was indicated in this sample of Irish third-level students through its association with the other mental health measures being used. The Spearman rank correlation coefficient between the MHI and the Global Severity Index of the Brief Symptom Inventory 18 (Derogatis, 2000) was -.653 (N=747, p<.001), and was -.711 (N=751, p<.001) between the MHI and the CORE SFB (Gray & Mellor-Clark, 2007) mean score.

Conclusion
The MHI proved to be a valid, quick, acceptable and reliable measure of mental health in Irish third-level students. Consistent with the mental health literature,

females reported significantly higher levels of symptoms than males on the MHI, and thus may require additional supports. However it may be true that females report more symptoms and thus may potentially be better able to access supports. Gender differences in the reporting of mental health difficulties has long been a source of concern (Nolen-Hoeksema & Girgus, 1994). This finding has been noted before in Ireland many times (Houghton et al., 1998; Houghton et al., 2003; Houghton et al., 2004). On one hand the reporting of symptomatology has frequently been acknowledged as higher among females. However, with rates of completed suicide higher amongst males, the issue is somewhat confounded (Clarke et al., 2003). The present study does not offer any unique insight into this debate, other than to re-assert that females appear more willing to acknowledge, in self-report studies, the presence of distress. Further research might usefully explore the level of help seeking engaged in by female students in distress and compare this with male students that are also reporting distress.

Of particular significance is the finding within the present study, as noted elsewhere (Webb et al., 1996; Roberts et al., 1999; Stewart-Browne et al., 2000; Roberts & Zelenyanski, 2002), that students report a greater degree of symptomatology compared to general young adult population norms. The pressures of combining study and paid employment, accompanied by personal, social and developmental issues, may well be taking its toll. Comparisons with both the 2008 SLAN survey (Morgan et al., 2008) and the 2003 Eurobarometer Survey confirmed this (EORG, 2003). In order to explore this phenomenon further, a parallel investigation of referral rates to college counselling/medical services may be helpful. In light of the significant changes both culturally and economically within Ireland in recent years such research may well reveal the increased pressures on students.

However the task now becomes, how might these issues be best addressed? This challenge is particularly difficult in the context of an extremely adverse economic backdrop, where services are already stretched to capacity and shrinking rather than developing in many areas.

The issue of more significant distress amongst final year students must be looked at in greater detail, as this may be a temporary fluctuation which is more normative than pathological in nature. It would require a more in-depth study to shed light on the impact of final year status relative to more long-term enduring mental health difficulties. However, from a more preventative and health promoting perspective, this finding may suggest a greater role for stress management courses for students particularly at this stage of their academic career. Such courses are being developed currently in the form of 'Mindfulness' interventions with school age children in both the UK and the USA (Huppert & Johnson, 2010) and could potentially offer significant benefits to tertiary level students also.

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