

Prevalence rates and risk factors for mental health difficulties in adolescents aged 16 and 17 years living in rural Ireland

D. Martyn^{1*}, L. Andrews² and M. Byrne¹

¹ Department of Psychology, Health Service Executive West, Roscommon, Ireland

² School of Health and Human Sciences, University of Essex, UK

Objective. This study sought to ascertain the prevalence rates and risk factors for a range of mental health difficulties, including suicidal ideation/self-harm among 16 and 17-year-old rural Irish adolescents, a vulnerable group in transition from childhood to adulthood.

Method. Adolescents ($n = 237$) took part in this cross-sectional study. Participants completed a questionnaire compendium consisting of generic questions on demographic information, use of mental health services and four normed questionnaires: The Youth Self-Report, the Children's Depression Inventory, the Coping Inventory for Stressful Situations-Adolescent and The Family Assessment Device.

Results. We found that 16.9% of adolescents reported clinically significant mental health difficulties. Significant gender differences were found on internalising and externalising difficulties. There were no gender differences in suicidal ideation or self-harm. Only 3.4% of adolescents were receiving professional help for mental health difficulties. Multiple regression analyses revealed that family dysfunction, emotion-focussed coping and poor academic competence were significant predictors of poorer mental health difficulties in both genders. Family dysfunction was the strongest predictor of mental health difficulties in males. Among females, emotion-focussed coping was the strongest predictor of internalising difficulties and depression. Social diversion (social support) was predictive of less internalising difficulties and depression for females.

Conclusion. The study shows that a significant number of Irish 16 and 17 year olds have mental health difficulties, yet very few are receiving treatment. Emotion-focussed coping, family dysfunction, poor academic competence and less social support were important predictors of mental health difficulties. A new finding is the stronger association that family dysfunction has with poorer mental health in males than females, when controlling for academic competence and coping skills. The findings may have implications for psychological interventions.

Received 2 August 2013; Revised 15 April 2014; Accepted 22 April 2014; First published online 19 May 2014

Key words: Adolescence, depression, gender differences, internalising difficulties/externalising difficulties, risk factors, self-harm, suicidal ideation.

Introduction

A significant number of youth have mental health difficulties (Costello *et al.* 2005), but are not receiving treatment (Ravens-Sieberer *et al.* 2008). A major research review reported a prevalence rate of 12% for child and adolescent mental health disorders (Costello *et al.* 2005), but it is difficult to ascertain rates specifically for adolescents as many studies include children and adolescents (Patel *et al.* 2007).

In the literature different terminology is used to describe adolescent mental health difficulties

depending on whether a dimensional or categorical approach was used in the study (Ford 2008). Some studies report general emotional and behaviour difficulties, which indicate the young person may be at risk of a mental health disorder (e.g. Barkman & Schulte-Markwort 2005), while other studies report rates of clinically diagnosed mental disorders (e.g. Costello *et al.* 1996). In keeping with the dimensional approach, two groups of emotional and behavioural problems, termed internalising and externalising difficulties have been recognised by Achenbach and Rescorla (2001). Internalising difficulties are defined as 'problems mainly within the self' and denote emotional problems such as anxiety and depression, (Achenbach & Rescorla 2001, p. 24). Externalising difficulties can be defined as conduct problems such as aggression and rule-breaking behaviour. These groupings of emotional and behavioural

* Address for correspondence: D. Martyn, D.Clin.Psych, Clinical Psychologist, Department of Child And Adolescent Psychology, Health Service Executive West, Roscommon Primary Care Centre, Roscommon, Ireland.
(Email: deirdre.martyn@hse.ie)

problems are indicative of potential long-term mental health problems and clinical disorders (Gyllenberg *et al.* 2010; Morcillo *et al.* 2012). They also cause disruption to social life and academic success (Patel *et al.* 2007). This study aims to identify those adolescents who are experiencing mental health problems, as opposed to those actually diagnosed with a mental health disorder, and thus will utilise a dimensional approach to assess mental health problems.

Adolescent depression, deliberate self-harm and suicide

Depressive disorders increase in prevalence in adolescence and this is also the period of time when a gender difference emerges, for example there are greater rates of depression among girls around the age of 13–14 years (Nolen-Hoeksema 1990; Duggal *et al.* 2001). A meta-analysis of epidemiological studies found that 5.6% of adolescents received a diagnosis of depression (Costello *et al.* 2006). Suicidal thoughts are among the key symptoms of depression (DSM-5; American Psychiatric Association 2013). Adolescent females generally report more suicidal ideation and deliberate self-harm (DSH) than males (Morey *et al.* 2008), yet males are significantly more likely to die by suicide [National Office for Suicide Prevention (NOSP) 2009]. As depression is a significant risk factor for adolescent self-harm and suicide (Pagliaro 1995; Hawton *et al.* 1999; Fliege *et al.* 2009), early identification and treatment programmes are vital (Kessler *et al.* 2005). Community studies on the prevalence of adolescent DSH are essential as most episodes of adolescent self-harm do not come to hospital attention (Hawton & Rodham, 2006; Madge *et al.* 2008). In terms of accessing services, adolescents may fear seeking help for mental health difficulties due to concerns about lack of anonymity, and the stigma attached to mental illness (Booth *et al.* 2004; Boyd *et al.* 2007).

Risk factors for mental health difficulties in adolescents

While it is important to quantify rates of mental health difficulties, we also need to identify risk factors in order to deliver appropriate interventions (Weisz & Hawley 2002). Some of the factors that are found to be associated with poorer mental health include certain coping skills, family dysfunction and academic difficulties (McWilliams *et al.* 2003; Ford *et al.* 2004; Mykkestad *et al.* 2012).

Coping strategies

There is a growing body of international research linking particular coping strategies with poorer mental health (e.g. Endler & Parker 1990b; McWilliams *et al.* 2003).

Specifically, emotion-focussed coping (i.e. rumination, self-blame, anger and crying) has been linked to depression (McWilliams *et al.* 2003) and anxiety (Endler & Parker 1990b).

Academic competence

Another area of influence on mental health is competence (Cole *et al.* 2001). A lack of academic competence has been a suggested risk factor for the development of externalising problems (Reinke & Herman 2002). A longitudinal study in Norway found academic difficulties were a significant risk factor for mental health difficulties in adolescents (Mykkestad *et al.* 2012). Specifically, reading difficulties have been shown to contribute to the development of conduct disorder (Bennett *et al.* 2003). A competency based model of depression (Cole 1991) proposed that negative perceptions of competence starting in childhood are linked to future depression. According to this model, negative feedback in childhood about ones competence prevents the development of positive self-schema, causing the negative thought processes that are central to depression (Cole 1991). There is now significant research evidence to endorse this model (e.g. Cole *et al.* 2001; Uhrlass & Gibb 2007; Herman *et al.* 2008).

Family functioning

Additionally, there is a large body of international research linking family dysfunction to various mental health difficulties such as conduct difficulties (e.g. Chang 2003; Ford *et al.* 2004), depression (e.g. Keitner & Miller 1990), anorexia (Wallin & Hansson 1999) and schizophrenia (Leff & Vaughan 1985). Social learning theory has been prominent in relation to conduct difficulties (Bandura & Walters 1959) suggesting that children learn to be aggressive by modelling aggressive parents (Bandura & Walters 1959). Research has shown that youth with conduct disorder come from homes where aggression and coercive cycles of interaction between parents and children predominate (Dadds *et al.* 1992).

There is a dearth of mental health research on the 16 and 17-year age group, a vulnerable cohort in transition from childhood to adulthood, who are dealing with many stresses associated with this change, for example, exam pressure, making career choices and possibly leaving home for the first time. In Ireland, this is the age range when many adolescents sit their final secondary school state exams. In terms of mental health, this is also the age at which adolescent suicidal ideation increases (Fedorowicz & Fombonne 2007) and there is the greatest risk of youth suicide attempts (Boeninger *et al.* 2010). An additional rationale for the study arose from deficits in Irish mental health services for this age group.

For years, this cohort has fallen between child and adult mental health services, arguably, without adequate provision from either. Until recently Child and Adolescent Mental Health Services (CAMHS) would only see new adolescent cases up to the age of 16 years. Adult mental health services reluctantly filled the gap, seeing 16–17 year olds as outpatients and in the community. However, this was often in inappropriate and non adolescent friendly settings. As a result of the Mental Health Act 2001 (which defines childhood as ending at 18 years) and was fully implemented in 2006, CAMHS services have now been obliged to take on this age group. During this transition, these youth could remain in a vulnerable position. In order to plan for a comprehensive adolescent mental health service we need accurate data on the current level of service demand.

While there have been some prevalence studies on the rates of mental health difficulties and suicidal ideation among Irish children and adolescents spanning different ranges (e.g. Lynch *et al.* 2004; 12–15 years; Martin *et al.* 2006, ages 0–18 years); to date, no Irish study has focussed exclusively on the 16 and 17-year age group at one point in time. The prevalence study by Lynch *et al.* (2004) found 19.4% of 12–15 year olds were at risk of a psychiatric disorder, while a subsequent study by Martin *et al.* (2006) found that 18.7% of children under 18 years had psychological difficulties. The last prevalence study on 16 year olds was conducted over a decade ago (Lawlor & James 2000), with a 1 year follow-up study published in 2004 (James *et al.* 2004). The study by Lawlor & James (2000) found that 21% of 16 years olds had psychological problems which persisted from age 16 to 17 years (James *et al.* 2004). However, there have been no Irish studies which have combined measures of mental health, depression, suicidal ideation/self-harm among this cohort within one study. Therefore the present study is methodologically different from all previous studies. In terms of risk factors for adolescent mental health difficulties, there are no Irish studies that have examined the relationship between coping skills, competence, family functioning and mental health, among this age group. Studies which have included risk factors have not explored them in depth and were primarily concerned with prevalence rates (e.g. Lynch *et al.* 2004; Martin *et al.* 2006). Therefore this study is broader in focus than previous work. Although there is a growing body of international research on risk factors for adolescent mental health (especially coping skills and family factors), Irish studies have not been forthcoming. Studies on adolescent mental health in rural settings are extremely limited. Therefore the present study sought to address these gaps in the literature and help point to areas of potential clinical intervention. Based on

previous literature it was hypothesised that: (1) females would report more internalising difficulties, suicidal ideation and self-harm than males and that males would report more externalising difficulties; (2) family dysfunction and emotion-focussed coping would predict mental health difficulties and depression when controlling for other variables.

Method

The sample

The population of interest consisted of all Secondary schools and Youth Reach training centres (YRC's – which cater for adolescents who have dropped out of school) in one county in the west of Ireland. In terms of socio-economic class, the county is generally comparable to the national profile but has fewer managers and higher professionals and more farmers than the national percentage (Census 2011).

Of a total 663 adolescents invited to participate in this study, 286 returned consent forms and participated (response rate 43%). Even though schools were asked to invite only those adolescents aged 16 and 17 years to participate, 21 cases were found to be outside the age range. Excessive missing data on some questionnaires led to the removal of a further 28 cases. The final sample consisted of 237 adolescents, corresponding to a final response rate of 36%, (91 males, 146 females) of predominately Caucasian ethnicity. One hundred and forty (59.1%) were aged 16 years, 97 (40.9%) were aged 17 years. The vast majority (85.7%) lived in two parent families. Most students were in their 5th year (52.2%), followed by transition year (26.4%), and leaving cert year (17.2%). The remainder (3.8%) were either on a 'Fetac' training course (training offered in YRC's), doing the leaving cert applied course, or in junior cert. Only 3.4% of participants were receiving professional help (attending a therapist/psychologist) for psychological problems.

Procedure

The study received ethical approval from the ethics committee of the Health Service Executive (HSE, West) in Ireland and the University of Essex, UK. Principals of the eight schools and two YRC's in one county were approached to participate. One school declined to participate due to limited resources. This did not affect the demographic makeup of the sample. Consent to participate was obtained in writing from parents and adolescents. Questionnaires were completed anonymously in classroom settings with one of the researchers available to answer questions. A debrief and psycho-education session was provided to all

schools and YRCs on completion of the data collection. Psychological support was available on site if needed.

Measures

The questionnaire compendium consisted of generic questions relating to demographic information, use of mental health services and four standardised questionnaires.

The Youth Self-Report (YSR) (Achenbach & Rescorla 2001) measures a young person's competencies and mental health. It contains 119 questions including two on suicide ideation/self-harm. Respondents rate each problem on a three-point scale as follows: 0 = not true, 1 = somewhat/ sometimes true, 2 = very/often true. The YSR can assess eight problem areas (subscales), which are grouped into internalising, externalising difficulties and a total problem score. It also provides a measure of competence (social and academic). Only academic competence was used in this study. The YSR has satisfactory reliability and validity (Achenbach & Rescorla 2001). Cronbach's α of the YSR total score in this study was 0.946. Cronbach's α s for the internalising and externalising scales were 0.895 and 0.905, respectively. Scores on the YSR were collapsed into three categories: normal range (T Score \leq 59, percentile 83); borderline range (T Score 60–63, 84th – 90th percentile); and clinical range (T Score \geq 64, percentile 90), for the total score, internalising scale, and the externalising scale, according to Achenbach and Rescorla (2001).

The Children's Depression Inventory (CDI) (Kovacs 1992) was used to measure depression. It can be used to measure depressive symptoms up to the age of 17 years. It contains 27 items, one of which asks about suicidal ideation. Respondents pick the sentence that best describes them in the past 2 weeks, for example, 'I am sad once in a while' (scored 0), 'I am sad many times' (scored 1), 'I am sad all the time' (scored 2). The CDI has good internal consistency, validity (Knight *et al.* 1988) and reliability (Smucker *et al.* 1986). The CDI had a Cronbach α of 0.85 for the total depression score in this study. The CDI does not categorise borderline scores, thus there were two categories 'Normal' and 'Clinical'. The cut-off score for the clinical range was T Scores $>$ 65, percentile 93 (Kovacs 1992). The American norms quoted in the CDI manual by Kovacs (1992) were used to establish clinical cut-off scores.

The Coping Inventory for Stressful Situations-Adolescent Version 2nd Edition (CISS-A; Endler & Parker 1999) was used to measure coping strategies. It has 48 items, comprising four scales: task-focussed coping (focussed efforts to solve the problem) emotion-focussed coping (ruminating, self-blame, crying) and avoidance coping – subdivided into social diversion (social support) and distraction. Respondents indicate

the frequency with which they cope with stressful situations in the way outlined in each item on a five-point Likert scale, for example, 1 = not at all to 5 = very much. High internal consistency and moderate-high test-re-test reliability are reported (Endler & Parker 1999). Cronbach's α s for the CISS-A scales ranged from 0.702–0.901 in this study.

The General Functioning Scale of the Family Assessment Device (FAD; Epstein *et al.* 1983) was used to measure family dysfunction. The 12 items of the general functioning subscale of the FAD can be used as a measure of global family functioning. Respondents rate how well each statement describes their family on a four-point Likert scale, ranging from strongly agree to strongly disagree, which are scored 1–4. The scale has good reliability and validity (Byles *et al.* 1988). Cronbach's α for the FAD in this study was 0.90.

Data analysis

Data was analysed using SPSS v. 16. A sample size was estimated using Soper's (2014) online sample size calculator for multiple regression. For six predictors, power of 0.80, α of 0.05 and a medium effect size (based on previous literature) 97 participants would be required. Descriptive statistics were used to report percentages of clinical levels of total problems, internalising, externalising, depression and suicidal ideation/DSH. Between subjects analyses were used to analyse gender differences. Correlation and multiple regression were conducted to identify potential risk factors for mental health difficulties. The assumptions of multiple regression were explored for each model, before the analysis. Multicollinearity was not evident. A couple of outliers were found but this did not significantly affect the models.

Results

Prevalence of mental health difficulties

As expected in this community sample (see Table 1 below) the majority of participants fell in the normal category on all three scales of the YSR. Total problem

Table 1. Numbers (percentages) within the normal, borderline and clinical ranges on the YSR

YSR	Clinical range	Borderline range	Normal range
Total problems	40 (16.9%)	31 (13.1%)	166 (70%)
Internalising	39 (16.5%)	23 (9.7%)	175 (73.8%)
Externalising	43 (18.1%)	35 (14.8%)	159 (67.1%)

YSR, Youth Self-Report.

Table 2. Depression, suicidal ideation and self-harm

CDI	Clinical range		Normal range	
Total depression score	13 (5.5%)		224 (94.5%)	
Responses to suicidal ideation question 9 on the CDI			<i>n</i>	%
I do not think about killing myself			190	(80.9%)
I think about killing myself but would not do it			43	(18.3%)
I want to kill myself			2	(0.9%)
Total			235 ^a	(100%)
Suicidal ideation and self-harm on the YSR Q91 and Q18				
Question	Not true	Sometimes true	Very true/often true	
91: I think about killing myself	214 (90.3%)	20 (8.4%)	3 (1.3%)	
18: I deliberately try to hurt or kill myself	220 (92.8%)	15 (6.3%)	2 (0.8%)	

CDI, Children's Depression Inventory; YSR, Youth Self-Report

^a2 cases missing, *n* = 235.

Table 3. Youth Self-Report gender differences

Scale	Male mean rank (<i>n</i> = 91)	Female mean rank (<i>n</i> = 146)	Mann-Whitney U Score	<i>z</i>	<i>p</i>
Total problem score	118.71	119.18	6617	-0.051	0.960
Internalising	100.65	130.44	4973	-3.257	0.001**
Externalising	138.75	106.69	4846	-3.504	0.000**

** *p* < .01.

Table 4. Child Depression Inventory (CDI) gender differences

Scale	Male mean rank (<i>n</i> = 91)	Female mean rank (<i>n</i> = 146)	Mann-Whitney U Score	<i>z</i>	<i>p</i>
Total CDI	104.37	128.12	5312.00	-2.597	0.009

score, *M* = 46.73, (*s.d.* = 24.19), Median = 42, internalising score *M* = 12.84 (*s.d.* = 8.97), Median = 10 and externalising score *M* = 13.97 (*s.d.* = 9.32), Median = 12.

The prevalence of depression, suicidal ideation and self-harm

As shown in Table 2, the percentage of adolescents with depression scores within the clinical range was 5.5% (*M* = 8.72, *s.d.* = 6.40, Median = 7.00). Also in Table 2 we see that 19.2% of adolescents expressed suicidal thoughts on the CDI (18.3% had thoughts of suicide, although only 0.9% had possible suicidal intent). On the YSR, 9.7% reported suicidal thoughts. Additionally, 7.2% reported self-harming sometimes or often.

Gender differences in mental health difficulties, suicidal ideation/self-harm

Due to the skewed distribution of scores, Mann-Whitney between groups analysis was used to test for

gender differences on the YSR and CDI (Tables 3 and 4). On the YSR there was no statistically significant difference between males and females on total problem score (*U* = 6617, *z* = -0.051, *p* = 0.960). However, females had significantly higher scores than males on the internalising scale (*U* = 4973, *z* = -3.257, *p* = 0.001) and males had significantly higher externalising scores than females (*U* = 4846, *z* = -3.504, *p* = 0.000). In addition females scored significantly higher than males on CDI depression scores (*U* = 5312, *z* = -2.597, *p* = 0.009).

Suicidal ideation and self-harm

On the CDI, 18.9% of males reported suicidal ideation, versus 19.3% of females. Whereas, on the YSR 9.9% of males reported suicidal ideation, versus 9.6% of females. Slightly more females (8.9%) reported self-harm than males (4.4%) but none of the χ^2 analyses indicated a significant gender difference.

Table 5. Pearson's correlations between coping strategies, competence, family functioning and mental health difficulties for the total sample and males and females

	Internalising difficulties (YSR)			Externalising difficulties (YSR)			Total problem score (YSR)			Total depression score (CDI)		
	Total sample	Males	Females	Total sample	Males	Females	Total sample	Males	Females	Total sample	Males	Females
	Coping scales											
Task	-0.195**	-0.212*	-0.178*	-0.213**	-0.244*	-0.232**	-0.263**	-0.291**	-0.253**	-0.341*	-0.353**	-0.332*
Emotion	0.558**	0.475**	0.593**	-0.261**	0.265*	0.374**	0.516**	0.440**	0.613**	0.547**	0.422**	0.626**
Distraction	-0.010	-0.071	-0.036	0.095	0.010	0.158	0.075	-0.032	0.153	-0.021	-0.056	0.008
Social diversion	-0.194**	-0.145	-0.249**	-0.088	-0.079	-0.065	-0.184**	-0.158	-0.203*	-0.234**	-0.153	-0.309**
Competence scale												
Academic	-0.201**	-0.352**	-0.051	-0.340**	-0.452**	-0.285	-0.360**	-0.475**	-0.248**	-0.338**	-0.469**	-0.198*
Family functioning												
FAD	0.354**	0.583**	0.224**	0.464**	0.493**	0.459**	0.494**	0.601**	0.412**	0.570**	0.677**	0.510**

YSR, Youth Self-Report; CDI, Children's Depression Inventory; FAD, Family Assessment Device.

*Significant at 0.05 level (two-tailed test), **significant at 0.01 level (two-tailed test).

Factors associated with mental health difficulties

Due to the gender differences found on the YSR and CDI, we ran all further analyses on males and females separately to explore whether the predictors of mental health difficulties were the same for both genders. Correlation analyses were used to initially explore the relationship between coping, competence, family functioning and mental health difficulties. Due to some subscales being non-normally distributed when split by gender both Pearson's and Spearman's correlations were conducted. There were only two significant associations found for the Spearman's analyses that were not identified in the Pearson's analysis; for females, the distraction subscale significantly correlated with externalising ($r_s = 0.193$) and total problem scores on the YSR ($r_s = 0.211$). Only Pearson's correlations are reported in Table 5 due to the similarity in findings. The main findings were that emotion-focussed coping, poor academic competence and family dysfunction were significantly associated with poorer mental health in adolescents.

Risk factors for mental health difficulties

Multiple regression analyses were conducted, using variables that had significant bivariate associations with the dependent variable (from the Pearson's or Spearman's correlation). Results are shown in Tables 6 and 7.

Males

Predictors of YSR total problem score

Family dysfunction (FAD) made the largest unique contribution to the overall variance, $\beta = 0.444$, $p < 0.001$, followed by academic competence, $\beta = -0.381$, $p < 0.001$, and emotion-focussed coping, $\beta = 0.323$, $p < 0.001$. Task-focussed coping did not make a significant unique contribution to the overall variance. This model explained 58.8% of the variance in total YSR scores for males $F(4,86) = 30.669$, $p < 0.0005$.

Predictors of YSR internalising difficulties

Family dysfunction (FAD) made the largest unique contribution to the total variance, $\beta = 0.459$, $p < 0.001$, followed by emotion-focussed coping, $\beta = 0.350$, $p < 0.001$ and academic competence, $\beta = -0.269$, $p < 0.001$. Task-focussed coping did not make a unique contribution to the variance. This model accounted for 51.9% of the total variance in internalising scores for males, $F(4,86) = 23.167$, $p < 0.001$.

Predictors of YSR externalising difficulties

Family dysfunction made the largest unique significant contribution to the total variance in externalising

Table 6. Summary of multiple regression results for predictors of mental health problems in males

Predictor	YSR total			YSR internalising			YSR externalising			CDI depression		
	β	<i>T</i>	Significance	β	<i>t</i>	Significance	β	<i>t</i>	Significance	β	<i>t</i>	Significance
Task	0.006	0.075	0.940	0.046	0.498	0.620	0.060	0.586	0.599	-0.033	-0.420	0.676
Emotion	0.323	4.335	0.000	0.350	4.345	0.000	0.153	1.694	0.094	0.293	4.240	0.000
Academic competence	-0.381	-5.068	0.000	-0.269	-3.313	0.001	-0.390	-4.294	0.000	-0.345	-4.957	0.000
FAD	0.443	5.396	0.000	0.459	5.169	0.000	0.399	4.028	0.000	0.516	6.792	0.000
<i>R</i> ²	0.588			0.519			0.399			0.647		
Adjusted <i>R</i> ²	0.568			0.496			0.371			0.630		
<i>F</i> ratio	<i>F</i> (4,86) = 30.67***			<i>F</i> (4,86) = 23.167***			<i>F</i> (4,86) = 14.279***			<i>F</i> (4,86) = 39.355***		

YSR, Youth Self-Report; CDI, Children's Depression Inventory; FAD, Family Assessment Device.

*** *p* < .001.

Table 7. Summary of multiple regression results for predictors of mental health problems in females

Predictor	YSR total			YSR internalising			YSR externalising			CDI depression		
	β	<i>T</i>	Significance	β	<i>t</i>	Significance	β	<i>t</i>	Significance	β	<i>t</i>	Significance
Task	-0.087	-1.172	0.243	-0.019	-0.254	0.800	-0.132	-1.703	0.091	-0.113	-1.670	0.097
Emotion	0.526	7.609	0.000	0.632	9.144	0.000	0.190	2.412	0.017	0.539	8.902	0.000
Distraction	0.096	1.353	0.178	0.132	1.699	0.092						
Social diversion	-0.188	-2.473	0.015	-0.282	-3.762	0.000		-0.221	-3.315	0.001		
Academic Competence	-0.133	-2.057	0.042		-0.155	-2.107	0.037	-0.072	-1.232	0.220		
FAD	0.125	1.792	0.075	-0.084	-1.162	0.247	0.327	4.147	0.000	0.213	3.336	0.001
<i>R</i> ²	0.482			0.566								
Adjusted <i>R</i> ²	0.459			0.412			0.292			0.550		
<i>F</i> ratio	<i>F</i> (6,139) = 21.532***			<i>F</i> (4,141) = 26.513***			<i>F</i> (5,140) = 12.978***			<i>F</i> (5,140) = 36.463***		

YSR, Youth Self-Report; CDI, Children's Depression Inventory; FAD, Family Assessment Device.

*** *p* < 0.001.

scores, $\beta = 0.399$, $p < 0.001$, followed by academic competence, $\beta = -0.390$, $p < 0.001$ but neither task nor emotion-focussed coping contributed significantly to the model, which accounted for 39.9% of the variance in male externalising scores, $F(4,86) = 14.279$, $p < 0.001$.

Predictors of depression (CDI) scores

Family dysfunction made the largest unique contribution to the overall variance in depression, $\beta = 0.516$, $p = 0.000$, followed by academic competence, $\beta = -0.345$, $p = 0.000$ and emotion-focussed coping, $\beta = 0.293$, $p = 0.000$. Task focussed coping did not contribute significantly. This model explained 64.7% of the total variance in CDI scores for males, $F(4,86) = 39.355$, $p < 0.001$.

Females

Predictors of YSR total problem scores

Emotion-focussed coping made the largest unique contribution to the overall variance in total problem scores for females, $\beta = 0.526$, $p < 0.001$, followed by social diversion, $\beta = -0.188$, $p = 0.015$, and academic competence, $\beta = -0.133$, $p = 0.042$. Neither distraction, family dysfunction, nor task focussed coping made a unique contribution to the variance. This model explained 48.2% of the variance in total YSR score for females, $F(6,139) = 21.532$, $p < 0.001$.

Predictors of YSR internalising scores

Emotion-focussed coping made the largest significant unique contribution to the overall variance in internalising scores, $\beta = 0.632$, $p < 0.001$, followed by social diversion to a lesser degree, $\beta = -0.282$, $p < 0.001$. Neither task-focussed coping nor family dysfunction contributed significantly to this model. This model accounted for 42.9% of the total variance in female internalising scores, $F(4,141) = 26.513$, $p < 0.001$.

Predictors of YSR externalising scores

Family dysfunction made the largest significant unique contribution to the variance, $\beta = 0.327$, $p < 0.001$. Emotion-focussed coping, $\beta = 0.190$, $p = 0.017$, and academic competence $\beta = -0.166$, $p = 0.037$ also made significant contributions to the total variance. Neither task-focussed coping nor distraction contributed significantly to this model. This model explained 31.7% of the variance in female externalising scores, $F(5,140) = 12.978$, $p < 0.001$.

Predictors of depression (CDI) scores

Emotion-focussed coping made the largest unique contribution to the overall variance in CDI scores, $\beta = 0.539$, $p < 0.001$, followed by social diversion, $\beta = -0.221$, $p < 0.001$ and then family functioning,

$\beta = 0.213$, $p < 0.001$. Task-focussed coping did not contribute significantly to the variance. This model accounted for 56.6% of the variance in female CDI scores and was statistically significant, $F(5,140) = 36.463$, $p < 0.001$.

Discussion

The prevalence of mental health difficulties

This study found that 16.9% of 16 and 17 year olds living in a rural county in the West of Ireland reported mental health difficulties within the clinical range on the total problem score of the YSR, indicating they are at risk of a mental health disorder. If those adolescents scoring within the borderline clinical range are included, the prevalence rate rises to 29.9%. In comparison with international prevalence rates, the mean scores on total problems, externalising and internalising scores are similar to those obtained by Heyerdahl *et al.* (2004). When compared to previous Irish studies, the percentage scoring within the clinical range is slightly less than Lawlor and James (2000) who found ~20% of adolescents aged 16 years were within the clinical range on the YSR total problem scale. In the Lawlor and James (2000) study, the inclusion of town areas in their sample may have affected their findings, as rural populations tend to show less psychological distress (Fitzgerald & Kinsella 1987; Fitzpatrick & Deehan 1999). As suggested by Fitzgerald and Kinsella (1987), this is possibly due to less economic disadvantage, which has been associated with increased risk of mental health difficulties in children and adolescents (Stern *et al.* 1999; Rijlaarsdam *et al.* 2013). While we have not controlled for social economic status within this study this is something that researchers may wish to take account of in future studies in order to explore this further.

We found that 5.5% of adolescents had scores within the clinical range on the CDI, indicating the possibility of a depressive disorder. This rate is slightly higher than that of Lynch *et al.* (2004) but similar to Costello *et al.* (2006) who reported prevalence rate of 5.6% for 13–18 year olds.

An interesting finding was the higher percentage of adolescents scoring within the clinical range for total problems (16.9%), internalising (16.5%) and externalising (18.1%) on the YSR than expected from the American norms (10%) from which the cut-off scores were taken (Achenbach & Rescorla 2001). However, on the CDI, our finding of 5.5% within the clinical range was slightly less than the normative study of Kovacs (1992) who found 7% within the clinical range. One explanation for these differences might be the higher proportion of females in our study compared to the US normative study of the YSR as higher rates of emotional

difficulties in females may inflate the scores on internalising difficulties (a spectrum of emotional difficulties including anxiety, depressed mood and somatic problems). Another reason for the disparity might be the severe economic recession in Ireland from 2008 onwards causing increased stress on families and adolescents. As the YSR internalising scale measures anxiety and somatic complaints, this scale may be more affected by environmental factors, which may cause stress but not depression. Additionally, it is possible that cultural differences may also affect the results in how adolescents react to stress without necessarily becoming depressed.

Suicidal ideation and reported self-harm

The percentage of students endorsing suicidal ideation ranged from 9.7% (YSR) to 19.2% (CDI) with 7.2% reporting self-harm. This highlights the level of distress experienced by some of the young people. Similar rates of self-harm were reported by Morey *et al.* (2008).

Some researchers (e.g. Safer 1997; Ivarsson *et al.* 2002; Evans *et al.* 2005) have suggested that the differences in rates of suicidal ideation may be due to the differences in wording used in the questionnaire and whether the survey is anonymous, with higher rates reported on anonymous questionnaires (Evans *et al.* 2005). It is possible that the first suicide statement on the CDI 'I do not think about killing myself' makes it more permissive/less threatening to admit suicidal thoughts because it is phrased in the negative so even a single thought of suicide would not permit you to answer in the affirmative. On the second CDI statement, students may have felt more free to answer 'yes', because of the proviso 'but I would not do it', as opposed to the very stringent third statement 'I want to kill myself' which indicates definite intention. In contrast, the more direct suicide question on the YSR 'I think about killing myself', 'Not True', 'Sometimes True' or 'Very True' may lead to more careful answers.

Gender differences in mental health difficulties

There was no significant gender difference on total problem score on the YSR. This is consistent with Fitzpatrick and Deehan (1999), but contrasts with Lawlor and James (2000) who found girls had higher overall problem scores. Males had significantly higher scores than females on the externalising scale, whereas females had significant higher scores on the internalising scale. The gender difference is in line with the general pattern of international research of girls tending to report more internalising problems and boys more externalising problems (e.g. Heyerdahl *et al.* 2004). This is in accordance with the belief that males are more likely to externalise their distress, for example, through

rule-breaking and aggression whereas females are more inclined to internalise their feelings and become depressed, or anxious (Rutter & Smith 1995). This could reflect society's attitude which tends to accept females expressing feelings and emotions, whereas males are perceived as weak or 'not manly' if they do.

Consistent with other studies (e.g. Galambos *et al.* 2004) females had significantly higher scores than males on total depression scores. The lack of a significant gender difference in suicidal ideation/self-harm contrasts with previous studies, which have found increased rates among girls (e.g. Lawlor & James 2000; James & Lawlor 2001; Madge *et al.* 2008). However, a recent Irish report has shown that the difference between males and females appears to be narrowing in relation to deliberate self-harm [National Registry of Deliberate Self-Harm Ireland-Annual Report (NRDSH) 2010].

Factors predicting mental health difficulties in males

In relation to males, family dysfunction was the strongest predictor of total problem score, internalising, externalising and depression scores when controlling for other variables (coping/competence). A dysfunctional family may be particularly stressful for adolescent boys, who, unlike girls, may not have supports outside the home, such as friends with whom they can discuss their problems. Poorer academic competence and emotion-focussed coping also made a significant independent contribution to the variance. Task-focussed coping did not significantly predict mental health difficulties when other variables were controlled, similar to findings by Horwitz *et al.*'s (2011) for adolescent depression.

Factors predicting mental health difficulties for females

In relation to females, emotion-focussed coping and family dysfunction predicted greater levels of mental health difficulties, while social diversion and academic competence were predictive of less mental health difficulties. Of these variables, emotion-focussed coping was the strongest predictor of internalising difficulties and depression. This supports the results of other studies which suggest that emotion-focussed coping (i.e. ruminating, dwelling on symptoms, self-blame) is counterproductive and related to poorer mental health (e.g. Billings & Moos 1984). Our findings suggest this is especially true of adolescent girls.

On the other hand, similar to males, family dysfunction was the strongest predictor of externalising difficulties. Thus, a dysfunctional home increases the likelihood of aggression and rule-breaking behaviours in girls. Interestingly, task-focussed coping was not a significant predictor of mental health difficulties for females either. Social diversion emerged as the second

strongest predictor of less depression and less internalising scores for females. The benefits of social support for adolescents with mental health problems was previously reported by Higgins and Endler (1995) and Esposito and Clum (2003).

Access to services

Only a small minority of adolescents in this study were currently attending mental health services, suggesting that the needs of this group with mental health difficulties is not being met. Interestingly, 'attendance at therapist/psychologist' was the predominant type of professional health service being used by the few adolescents who were accessing help. This suggests that talking therapy with one individual may be more acceptable to them. Therefore, primary care psychology services may be a good option to help deliver one-to-one therapy in a non-threatening environment which is easily accessible and could help with early detection and intervention of mental health difficulties.

Implications for clinical practice

In line with recommendations by Horwitz *et al.* (2011), it is advocated that therapy (especially with young women) should focus on eliminating poor coping strategies such as ruminating and emotional responses. Accessing social support when under stress should be encouraged. Male adolescents should be encouraged to share upsetting thoughts/feelings and seek help if distressed. Family dysfunction was the most significant predictor of externalising difficulties in both genders but had a greater impact on all measures of male mental health. The findings of the present study suggest that individual therapy with adolescents is unlikely to be successful unless the contextual family factors are addressed. Therefore, clinicians should, as a rule, enquire about family dynamics during assessments and parents/families should be included as much as possible and involved in interventions. Also, it is recommended that family therapy might be increasingly used in therapy for adolescents, particularly for males. There is evidence to show that family intervention can improve the mental health of adolescents from dysfunctional families (e.g. Kumpfer *et al.* 2010). In this study a lack of academic competence was a significant predictor of externalising difficulties and generally poorer mental health. Thus, providing learning support for those struggling academically is very important for their psychological well-being.

Limitations

As this study was a cross sectional design, we cannot make conclusions about causation. Additionally, the

study consisted of predominately white adolescents from mainly two-parent households living in rural settings, and thus may not be generalisable to other adolescent populations. As there are no definitive Irish norms for the YSR or the CDI we referred to the American norms. This may lead to some over or under estimation of prevalence in an Irish sample; however, this is the best available literature for comparison purposes at the current time. A study by Houghton *et al.* (2004) sought to establish Irish norms for the CDI; however a definitive cut-off score was not determined, indicating that more research is needed to establish reliable norms. Thus it is recommended that future research carries out norming studies for these measures within an Irish population.

As the study involved minors it was deemed necessary to obtain written consent to 'opt in' from parents and adolescents. The response rate was somewhat low but this type of consent can greatly reduce numbers, and potentially cause selection bias (Tigges Baldwin 2003) as it is a more rigorous form of consent (Blom-Hoffman *et al.* 2009). Thus, the sample may not be representative of the county as a whole. In particular, the percentage of males within the sample was 38.4% which is proportionally fewer 16 and 17-year-old males than within the county as a whole (49.6%, Census 2011). So again, we urge caution in generalising our results and suggest researchers consider strategies for increased recruitment from adolescent males in future studies.

Conclusions

To our knowledge, this is the first in-depth Irish study to profile the mental health of this age group. This study has corroborated some previous findings regarding rates of mental health difficulties. A new and significant finding is the strong association that family dysfunction has with poorer mental health in males. Future studies may wish to explore further why this gender difference exists. Our study also found no gender difference in suicidal ideation or self-harm which contrasts with previous studies and may represent a change in prevalence. Future research should consider gender as an important factor in adolescent mental health.

Acknowledgements

The authors wish to thank the Schools/Youth Reach Centres and adolescents who participated in this study.

Conflict of Interest

None.

References

- Achenbach TM, Rescorla LA** (2001). *Manual for the ASEBA School Age Forms & Profiles*. University of Vermont, Research Center for Children, Youth & Families: Burlington, VT.
- American Psychiatric Association (APA)** (2013). *Diagnostic and Statistical Manual of Mental Disorders*, 5th edn. American Psychiatric Association: Washington, DC.
- Bandura A, Walters R** (1959). *Adolescent Aggression*. Ronald Press: New York.
- Barkman C, Schulte-Markwort M** (2005). Emotional and behavioural problems of children and adolescents in Germany: an epidemiological screening *Social Psychiatry and Psychiatric Epidemiology* **40**, 357–366.
- Bennett KJ, Brown KS, Boyle M, Racine Y, Offord D** (2003). Does low reading achievement at school entry cause conduct problems? *Social Science & Medicine* **56**, 2443–2448.
- Billings AG, Moos RH** (1984). Coping stress, and social resources among adults with unipolar depression. *Journal of Behaviour Medicine* **4**, 139–157.
- Blom-Hoffman J, Leff SS, Franko DL, Weinstein E, Beakley K, Power TJ** (2009). Consent procedures and participation rates in school-based intervention and prevention research: using a multi-component, partnership-based approach to recruit participants. *School Mental Health* **1**, 3–15.
- Boeninger DK, Masyn KE, Feldman BJ, Conger RD** (2010). Sex differences in developmental trends of suicide ideation, plans, and attempts among European American adolescents. *Suicide and Life-Threatening Behavior* **40**, 451–464.
- Booth ML, Bernard D, Quine S, Kang MS, Usherwood T, Alperstein G, Bennett DL** (2004). Access to health care among Australian adolescents: young people's perspectives and their sociodemographic distribution. *Journal of Adolescent Health* **34**, 97–103.
- Boyd C, Francis K, Aisbett D, Newnham K, Sewell J, Dawes G, Nurse S** (2007). Australian rural adolescents' experiences of accessing psychological help for a mental health problem. *Australian Journal of Rural Health* **15**, 196–200.
- Byles J, Byrne C, Boyle MH, Offord DR** (1988). Ontario child health study: reliability and validity of the general functioning subscale of the Mc Master Family Assessment Device. *Family Process* **27**, 97–104.
- Census** (2011). Reports-CSO-Central Statistics Office (<http://www.cso.ie/en/census/census2011reports>). Accessed 3rd January 2014.
- Chang L** (2003). Harsh parenting in relation to child emotion regulation and aggression. *Journal of Family Psychology* **17**, 598–606.
- Cole DA** (1991). Preliminary support for a competency-based model of depression in children. *Journal of Abnormal Psychology* **100**, 181–190.
- Cole DA, Jacquez FM, Maschman TL** (2001). Social origins of depressive cognitions: a longitudinal study of self-perceived competence in children. *Cognitive Therapy and Research* **25**, 377–395.
- Costello EJ, Angold A, Burns BJ, Stangl DK, Tweed DL, Erkanli A, Worthman CM** (1996). The great smoky mountain study of youth: goals, design, methods, and prevalence of DSM-111-R disorders. *Archives of General Psychiatry* **53**, 1129–1136.
- Costello EJ, Egger H, Angold A** (2005). 10-year research update review: the epidemiology of child and adolescent psychiatric disorders: 1 methods and public health burden. *Journal of the American Academy of Child and Adolescent Psychiatry* **44**, 972–986.
- Costello E, Foley D, Angold A** (2006). 10 year research update review: the epidemiology of child and adolescent psychiatry disorders. *Journal of American Child and Adolescent Psychiatry* **45**, 8–25.
- Costello EJ, Erkanli A, Angold A** (2006). Is there an epidemic of child and adolescent depression? *Journal of Child Psychology and Psychiatry* **47**, 1263–1271.
- Dadds MR, Sanders MR, Morrison M, Rebgetz M** (1992). Childhood depression and conduct disorder: 11. An analysis of family interaction patterns in the home. *Journal of Abnormal Psychology* **101**, 505–513.
- Duggal S, Carlson EA, Sruofe LA, Egeland B** (2001). Depressive symptomatology in childhood and adolescence. *Development and Psychopathology* **13**, 143–164.
- Endler NS, Parker JDA** (1990b). State and trait anxiety, depression and coping styles. *Australian Journal of Psychology* **42**, 207–220.
- Endler NS, Parker JDA** (1999). *Coping Inventory for Stressful Situations*, 2nd edn. Multi Health Systems: Toronto, Canada.
- Endler NS, Parker JDA** (1999). *Coping with Health Injuries and Problems: Manual*. Multi-Health Systems: Toronto.
- Epstein NB, Baldwin LM, Bishop DS** (1983). The McMaster Family Assessment Device. *Journal of Family and Marital Therapy* **9**, 171–180.
- Esposito CL, Clum GA** (2003). The relative contribution of diagnostic and psychosocial factors in the prediction of adolescent suicidal ideation. *Journal of Clinical Child and Adolescent Psychology* **32**, 386–395.
- Evans E, Hawton K, Rodham K, Deeks J** (2005). The prevalence of suicidal phenomena in adolescents: a systematic review of population-based studies. *Suicide and Life Threatening Behaviour* **35**, 239–250.
- Fedorowicz VJ, Fombonne E** (2007). Suicidal behaviours in a population-based sample of French youth. *Canadian Journal of Psychiatry* **52**, 772–779.
- Fitzgerald M, Kinsella A** (1987). Behavioural deviance in an urban and rural town sample. *Irish Journal of Medical Science* **156**, 219–220.
- Fitzpatrick C, Deehan A** (1999). Competencies and problems of Irish children and adolescents. *European Child & Adolescent Psychiatry* **8**, 17–23.
- Fliege H, Lee J-R, Grimm A, Klapp BF** (2009). Risk factors and correlates of deliberate self-harm: a systematic review. *Journal of Psychosomatic Research* **66**, 477–493.
- Ford T, Goodman R, Meltzer H** (2004). The relative importance of child, family, school and neighbourhood correlates of childhood psychiatric disorder. *Social Psychiatry and Psychiatric Epidemiology* **39**, 487–496.
- Ford T** (2008). Practitioner review: how can epidemiology help us plan and deliver effective Child and Adolescent

- Mental Health Services? *Child Psychology and Psychiatry* **49**, 900–914.
- Galambos NL, Leadbeater BJ, Barker ET** (2004). Gender differences in risk factors for depression in adolescence: a 4 year longitudinal study. *International Journal of Behavior Development* **28**, 16–25.
- Gyllenberg D, Sourander A, Niemela S, Helenius H, Sillanmaki L, Oihja J, Kumpulainen K, Tamminen T, Moilanen I, Almqvist F** (2010). Childhood predictors of later psychiatric hospital treatment: findings from the Finnish 1981 birth cohort study. *European Child and Adolescent Psychiatry* **19**, 823–833.
- Hawton K, Kingsbury S, Steinhardt K, James A, Fagg J** (1999). Repetition of deliberate self-harm by adolescents: the role of psychological factors. *Journal of Adolescence* **22**, 369–378.
- Hawton K, Rodham K** (2006). *By Their Own Young Hand. Deliberate Self-harm and Suicidal Ideas in Adolescents*. Kingsley: London.
- Herman KC, Lambert SF, Reinke WM, Ialongo NS** (2008). Low academic competence in first grade as a risk factor for depressive cognitions and symptoms in middle school. *Journal of Counselling Psychology* **55**, 400–410.
- Heyerdahl S, Kvernmo S, Wichstrom L** (2004). Self-reported behavioural/emotional problems in Norwegian adolescents from multiethnic areas. *European Child & Adolescent Psychiatry* **13**, 64–72.
- Higgins JE, Endler NS** (1995). Coping, life stress, and psychological and somatic distress. *European Journal of Personality* **9**, 253–270.
- Houghton F, Crowley H, Houghton S, Kelleher K** (2004). The Children's Depression Inventory (CDI) in Ireland: revision & subscale analysis. *The Irish Journal of Psychology* **25**, 1–15.
- Horwitz AG, Ryan MH, King CA** (2011). Specific coping behaviours in relation to adolescent depression and suicidal ideation. *Journal of Adolescence* **34**, 1077–1085.
- Ivarsson T, Gillberg C, Arvidsson T, Broberg AG** (2002). The Youth Self-Report (YSR) and the Depression Self-Rating Scale (DSRS) as measures of depression and suicidality among adolescents. *European Child & Adolescent Psychiatry* **11**, 31–37.
- James D, Lawlor M** (2001). Psychological problems of early school leavers. *Irish Journal of Psychological Medicine* **18**, 61–65.
- James D, Lawlor M, Sofroniou N** (2004). Persistence of psychological problems in adolescents; a one year follow-up study. *Irish Journal of Psychological Medicine* **21**, 11–17.
- Keitner GI, Miller IW** (1990). Family functioning and major depression: An overview. *The American Journal of Psychiatry* **147**, 1128–1137.
- Kessler RC, Berglund O, Demler O, Jin R, Merikangas KR, Walters EE** (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication. *Archives of General Psychiatry* **62**, 595–602.
- Knight D, Hensley VR, Waters B** (1988). Validation of the Children's Depression Scale and the Children's Depression Inventory in a prepubertal sample. *Journal of Child Psychology and Psychiatry* **29**, 853–863.
- Kovacs M** (1992). *Children's Depression Inventory Manual*. Western Psychological Services: California.
- Kumpfer KL, Whiteside HO, Ahearn Greene J, Cofrin Allen K** (2010). Effectiveness outcomes of four age versions of the strengthening families program in state wide field sites. *Group Dynamics: Theory Research, and Practice* **14**, 211–229.
- Lawlor M, James D** (2000). Prevalence of psychological problems in Irish school going adolescents. *Irish Journal of Psychological Medicine* **17**, 117–122.
- Leff J, Vaughan C** (1985). *Expressed Emotion in Families: It's Significance for Mental Illness*. Guilford Press: London.
- Lynch F, Mills C, Daly I, Fitzgerald C** (2004). Challenging times: a study to detect Irish adolescents at risk of psychiatric disorders and suicidal ideation. *Journal of Adolescence* **27**, 441–451.
- Madge N, Hewitt A, Hawton K, de Wilde EJ, Corcoran P, Fekete s, van Heeringen K, Deleo D, Ystgaard M** (2008). Deliberate self-harm within an international community sample of young people: comparative findings from the Child & Adolescent Self-harm in Europe (CASE) study. *Journal of Child Psychology and Psychiatry* **49**, 667–677.
- Martin M, Carr A, Burke L, Carroll I, Byrne S** (2006). *The Clonmel Project Report. Mental Health Service Needs of Children and Adolescents in the South East of Ireland*. HSE South: Communications Department.
- McWilliams LA, Cox BJ, Enns MW** (2003). Use of the coping inventory for stressful situations in a clinically depressed sample: factor structure, personality correlates, and prediction of distress. *Journal of Clinical Psychology* **59**, 423–437.
- Mental Health Act** (2001). Section 2: Interpretation (<http://www.irishstatutebook.ie/2001/en/act/pub/0025/index.html>). Accessed 10th June 2013.
- Morcillo C, Duarte CS, Sala R, Wang S, Lejuez CW, Kerridge BT, Blanco C** (2012). Conduct disorder and adult psychiatric diagnoses: associations and gender differences in the U.S. Adult population. *Journal of Psychiatric Research* **46**, 323–330.
- Morey C, Corcoran P, Arensman E, Perry IJ** (2008). The prevalence of self-reported deliberate self harm in Irish adolescents. *BMC Public Health* **8**, 79.
- Mykkestad I, Roysamb E, Tambs K** (2012). Risk and protective factors for psychological distress among adolescents: a family study in the Nord-Trøndelag Health Study. *Social Psychiatry and Psychiatric Epidemiology* **47**, 771–782.
- National Office for Suicide Prevention (NOSP)** (2009). Annual report (<http://www.nosp.ie>). Accessed 21st September 2011.
- National Registry of Deliberate Self Harm Ireland Annual Report (NRDSH)** (2010). National Suicide Research Foundation. <http://www.nsrif.ie/reports/2010AnnualReportNationalRegistryOfDeliberateSelfHarmIreland.pdf>
- Nolen-Hoeksema S** (1990). *Sex Differences in Depression*. Stanford University Press: Stanford, CA.
- Pagliaro LA** (1995). Adolescent depression and suicide: a review and analysis of the current literature. *Canadian Journal of School Psychology* **11**, 191–201.

- Patel V, Flisher AJ, Hetrick S, Mc Gorry P** (2007). Mental health of young people: a global public-health challenge. *Lancet* **369**, 1302–1313.
- Ravens-Sieberer U, Willie N, Erhart M, Bettge S, Wittchen H, Rothenberger A, Herpertz-Dahlmann B, Resch F, Holling H, Bullinger M, Barkmann C, Schulte-Markwort M, Dopfner M** (2008). Prevalence of mental health problems among children and adolescents in Germany: results of the BELLA study within the National Health Interview and Examination Survey. *European Child & Adolescent Psychiatry* **17** (Suppl. 1), 22–33.
- Reinke WM, Herman K** (2002). Creating school environments that deter antisocial behaviors in youth. *Psychology in Schools* **39**, 549–560.
- Rijlaarsdam J, Stevens GW, vanderEnde J, Hofman A, Jaddoe VW, Mackenbach JP, Verhulst FC, Tiemeir H** (2013). Economic disadvantage and young children's emotional and behavioural problems; mechanisms of risk. *Journal of Abnormal Child Psychology* **41**, 125–137.
- Rutter M, Smith DJ** (1995). *Psychological Disorders in Young People: Time Trends and their Causes*. Wiley: Chichester.
- Safer DJ** (1997). Self – reported suicide attempts by adolescents. *Annals of Clinical Psychiatry* **9**, 263–269.
- Smucker MR, Craighead WE, Craighead LW, Green BJ** (1986). Normative and reliability data for the Children's Depression Inventory. *Journal of Abnormal Child Psychology* **14**, 25–39.
- Soper D** (2014). DanielSoper.com. Free Statistics Calculators Version 3. <http://www.danielsoper.com/statcalc3/calc.aspx?id=1> Accessed 5 April 2014
- Stern SB, Smith CA, Jang SJ** (1999). Urban families and adolescent mental health. *Social Work Research* **23**, 15–27.
- Tigges Baldwin B** (2003). Parental consent and adolescent risk research. *Journal of Nursing Scholarship* **35**, 283–289.
- Uhrlass DJ, Gibb BE** (2007). Negative life events, self-perceived competence, and depressive symptoms in young adults. *Cognitive Therapy Research* **31**, 773–783.
- Wallin U, Hansson K** (1999). Anorexia nervosa in teenagers: patterns of family function. *Nordic Journal of Psychiatry* **53**, 29–35.
- Weisz JR, Hawley KM** (2002). Developmental factors in the treatment of adolescents. *Journal of Consulting and Clinical Psychology* **70**, 21–43.