

The age of anxiety: living in fear for our children's mental health

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In both the United States and the United Kingdom, a series of surveys of the mental health of children and, in particular, adolescents have suggested that there appear to be significant increases in measured levels of anxiety and depression among more recently-born populations. Here, 16 studies are selected of children in North America, which adds to the body of evidence suggesting that rates of depression among adolescent girls do appear to be rising ($p=0.024$) to rates of above one in seven suffering in the most recent of surveys, as opposed to almost seven times fewer being depressed among their mothers' generation. The results for boys also show a rise, but not yet significant at the $p<0.05$ level ($p=0.108$). These studies are taken from a wider worldwide set, which, in aggregate, do not show a sustained rise. In the worldwide set of studies, most of the more recent surveys have been taken in more equitable affluent countries away from North America or the United Kingdom. By inference, this review suggests that it is the particularly competitive and divisive social environments of North America and the United Kingdom that may well have led to levels of anxiety rising for children in countries in these regions more significantly than elsewhere in affluent countries. Geography appears to matter to children's mental health. The review begins and ends by raising concerns over the possible effects of the current economic crash given this social context, and the political desire to return to economic business as usual.

REVIEW

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The economic crash afflicting rich nations has led public health researchers to speculate over the mental health impact of the millions of foreclosures in the United States (US) (called 'home repossessions' in the United Kingdom (UK) or 'confiscation' in Europe), and over 50 million job losses predicted worldwide (Bennett *et al*, 2009). Evidence from the global recessions of the 1970s, 1980s and 1990s leads us to expect the harm to be greatest for the young (Dorling, 2009; Dorling & Trust, 2009) and perhaps impact most on young men (Rigby & Dorling, 2007). However, this paper reviews evidence that suggests that it has been young women in rich societies who have, in recent decades, suffered most from a rising tide of anxiety, insecurity, and depression. This policy analysis updates some of the work on North America (Twenge, 2000) and that of West and Sweeting (2003), on trends in one country within the UK (Scotland). It also provides a summary of a longer forthcoming review (Dorling, 2010).

Although there has been some dispute over whether the current rise was real or artifact, I argue here that the majority of studies suggest that anxiety is on the rise. One of the key studies that claims to refute this (Costello *et al*, 2006) when reanalysed, as I show here, reveals anxiety to be on the rise when only children living in North America are considered. I would suggest that geographical context is key to understanding the epidemic of adolescent and young adult anxiety and depression that is currently sweeping the most unequal of affluent nations. It would appear to have been in those affluent nations where social inequalities were allowed to rise most that anxiety among the young has increased most rapidly. This is especially obvious among the children of affluent families in the US and UK.

The global economic crash of 2008 will almost certainly increase anxiety in the short term. It may, however, bring (for a time) a curtailment of the competitive, antisocial, winner takes all ethos of communal madness that appeared so dominant

in those countries in which the mental health of young people appeared to be deteriorating most quickly. We should live in fear for our children's mental health, but we should live in hope that out of the ruins of an age of greed and selfishness, their children may not in turn have to be brought up in such a mentally and medically harmful social environment.

Inequality and insecurity: a dose-response relationship

There is growing evidence for a dose-response relationship where, independent of overall wealth, high inequalities increase both reported poor health and recorded premature mortality (Subramanyam *et al*, 2009). A recent review by Wilkinson and Pickett (2009) has found that we have very recently collectively amassed overwhelming evidence that human beings are not mentally immune to the effects of rising inequality in their societies. They react, not unlike rats in cages, to having their social environments made progressively more unpleasant. Wilkinson and Pickett show that poor mental health among affluent nations is worst in the US and best where social inequalities are lowest (Wilkinson & Pickett, 2009). It is because we can now measure how whole populations have reacted, and where they have reacted most badly, that many now claim that so many of the injustices and inequalities that underlie most rich societies are having a dose-response effect on the mental well-being of populations: the greater the dose of inequality, the higher the response of poor mental health (James, 2008; Subramanyam *et al*, 2009; Wilkinson & Pickett, 2009). I add to these concerns by showing how there has been an especially strong rise in depression among children living in the most unequal of affluent countries, as recorded from the mid-1980s and throughout the 1990s, when some 16 surveys are compared (Velez *et al*, 1989; Lewinsohn *et al*, 1993; Lewinsohn *et al*, 1998; Anderson *et al* 1987; Angold *et al*, 2002 (two studies); Simonoff *et al*, 1997; Kilpatrick *et al*, 2003; Doi *et al*, 2001 (three studies); Costello *et al*, 1996 (two studies); Canino *et al*, 2004; Cairney, 1998, Fleming *et al*, 1989).

There is a danger in saying that a certain proportion of children or adults suffer a particular mental illness as sustaining the fantasy that all the rest are fine. We know that all but the psychopathic have an 'innate need for social connection and egalitarian community' (Burns, 2007; p74). The reference here is to Erich Fromm's *In Fear of Freedom*, which was published at the very start of

the period to when the first evidence can be traced of social dysfunction turning to rise: 1941 (Fromm, 1941; Rigby & Dorling, 2007). This particular passage ends with the suggestion that following industrialisation and individualisation, we are now '...witnessing the psychological consequences of human isolation and dislocation' (Burns, 2007; p74).

Burns (2007; p197) recently amassed further convincing evidence that mental ill health is normal behaviour for the human social brain when living under social isolation. It has thus been shown that mental ill health is a natural human reaction to being deprived of connection and community. It is further argued that the effects on our psychological states of mind of living in some of the most unequal of times in the most unequal of places have been recorded as so great that we have become normalised to mental ill health. Rates of mental ill health are slightly lower in the UK than in the United States, nevertheless in the UK:

'According to the respected Psychiatric Morbidity Survey, [if assessed] one in six of us would be diagnosed as having depression or chronic anxiety disorder, which means that one family in three is affected.' (Centre for Economic Performance's Mental Health Policy Group, 2006)

World Health Organization figures for the most unequal of affluent countries report an even higher proportion of 23% (James, 2008).

Just how anxious and depressed are we?

Mixed anxiety and depression is the most common mental disorder in the UK, with almost nine per cent of people meeting criteria for diagnosis. Between eight and 12% of the population in the UK experience depression in any year. Women are more likely to have been treated for a mental health problem than men (29% compared to 17%). Twenty-five per cent of women will require treatment for depression at some time, compared to 10% of men. Women are twice as likely to experience anxiety as men. Approximately 60% of people with phobias or obsessive compulsive disorder, are female. Ten per cent of children between the ages of one and 15 have a mental health problem. The most comparable World Health Organization psychiatric surveys (Demyttenaere *et al*, 2004; Wells *et al*, 2006) suggest that the equivalent figures for the US are worse (Wilkinson & Pickett, 2009).

In Britain, around five per cent of children have a mental health problem in any given year, and

about 10% at any one time. Rates of mental health problems among children increase as they reach adolescence. Mental health problems affect 10% of boys aged 5–10, rising to 13% of boys aged 11–15, and 6% of girls aged 5–10, rising to 10% of girls aged 11–15. This is all according to Office for National Statistics (2003; 2004; 2005), National Institute for Health and Clinical Excellence (2005), the Mental Health Foundation (2005), Mind (2009) and the Young Foundation (2009).

Studies undertaken since 1974 have found a rise in what are known as 'conduct problems' among British children aged 15–16, accelerating in the 1990s and, in particular, providing '... evidence for a recent rise in emotional problems' among these children (Collishaw *et al*, 2004; p1350). The conduct problems included in these studies were the propensity to be involved in fighting, bullying, stealing, lying, disobedience, fidgeting, restlessness, inattention, and to be very fearful of new situations. The study found that for both boys and girls, the increase in these problems had been substantial, with faster rises between 1986 and 1999 than those found in earlier years.

The proportion of children with severe problems doubled over the period 1974–1999. The increase in the number of British children suffering emotional problems was even starker, with almost all of the increase having occurred since 1986. An earlier study of children in Scotland found similar results, with rising levels of distress from 1987 to 1999, but concentrated among girls and most acutely felt among the most affluent of girls. Overall, by 1999, a third of adolescent girls in Scotland were reporting symptoms of being depressed as compared to just over a sixth in 1987 (West & Sweeting, 2003). The fact that these figures are so very high is, in all probability, partly related to the part of Scotland that the study was undertaken in, around a city that suffered the effects of industrial decline and economic abandonment earlier than most in Europe and also has one of the highest rates of antidepressant prescription levels for people aged 15 and over.

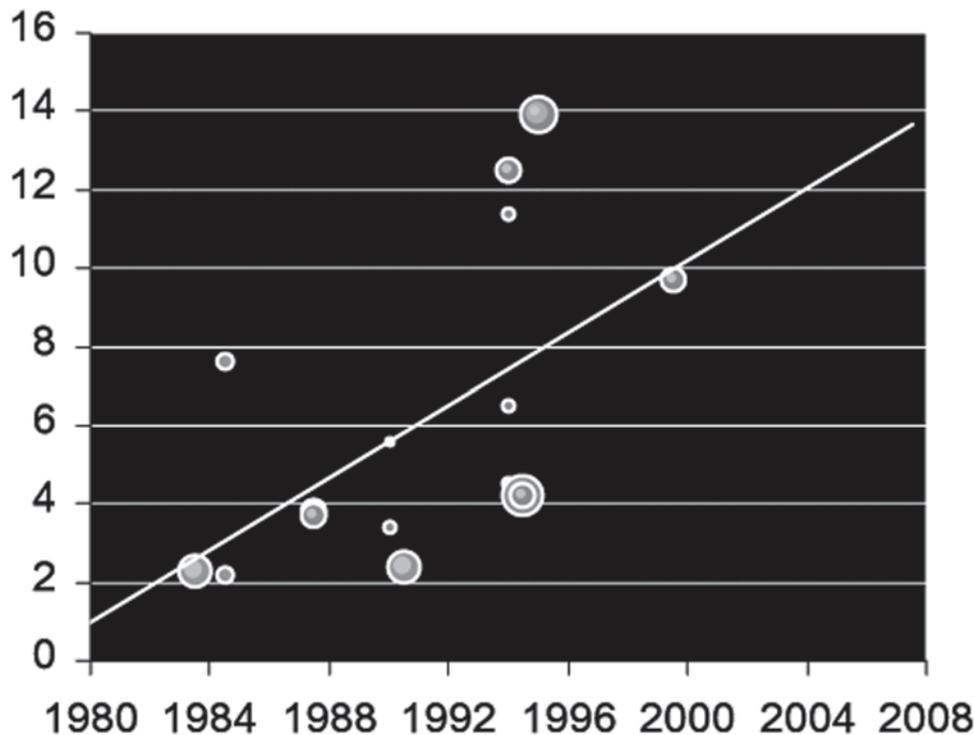
A tenth of the entire population of Greater Glasgow were being given an antidepressant dose a day by 2006, according to the National Health Service body that was doling out the medication: mostly selective serotonin reuptake inhibitors, usually fluoxetine, which is marketed as Prozac (NHS Quality Improvement Scotland, 2007). The review of studies of children in this area reported that a significant relationship was found between these children's distress and how near to school

examinations they were when surveyed in 1999 (West & Sweeting, 2003). The authors of the same study concluded and explained that it was changes in society that had harmed the mental health of so many adolescents, not any fake increase in sensitivity (West & Sweeting, 2003; pp406 & 409). The changes were found to have increased anxiety among the children of the affluent at least as much as for the children of the poor.

The human geography of mental ill health

Costello and colleagues' (2006) report suggested that there was no epidemic of increased anxiety in adolescents. For this analysis, I use the same data from their research to show that while there may be no clear time trend when you mix up studies from many countries, when you only consider countries in North America there has been a clear upwards trend. The initial research reported on 26 studies producing some 45 data points (each point being a rate of mental illness reported for a particular group of children at a particular time). The conclusion of Costello and colleagues was that there was no long-term rise to be seen in the rates of depression being reported. However, the authors had taken studies from a very wide range of countries. The full set is shown in **Table 1**, p8. If a sub-set of their studies are selected – just those undertaken on children living in North America – then a very clear trend results. One extra adolescent girl in 10 in North America shows symptoms of depression by the start of the current century, as compared to 16 years earlier. A crude extrapolation of the North American data would suggest that 14% prevalence rates could reasonably be projected for 2008, as suggested by **Figure 1**, and as compared to rates of around four per cent being reported in 1988 (and also shown in **Figure 1** that suggested the possibility of earlier rates being as low as 2.3%). Thus, most probably, one in seven adolescent girls in North America now suffer from this form of mental ill health – as compared to about one in 25 of their mothers' generation, and as few as one in 43 of their grandmothers' generations.

Figure 1 is constructed by taking those studies that reported depression rates for girls aged 13–18 and were undertaken in countries in North America. These studies were mainly undertaken in the United States, but two were based in Canada and one in Puerto Rico (Costello *et al*, 2006). Further details are provided in Dorling (2010), including the confidence limits around these estimates that are wide, but exclude the probability that the rise is artificial. The average year in which the adolescents' state of mental health was being

Figure 1 Adolescent girls assessed as depressed, %, North America, 1984–2001

Source: Costello et al, 2006. The data shown above are for those studies where the children lived in the United States, the US territory of Puerto Rico, or Canada (excluding one study that used different diagnosis methods to the other 16, see notes to **Table 1**, overleaf). Those included are study numbers: 2, 6, 8, 9, 10, 17, 18, 20, 22, 26, 29, 30, 31, 34, 35 and 41.

Note: Each circle represents a study, the area of the circle is drawn in proportion to study size. See **Table 1** for the details of when and where each study took place.

assessed (adjusting for the age of each study group) is calculated as the average of the study group birth years plus their average ages at interview. The collection of 16 studies shown in **Figure 1** suggests a clear rise in rates of depression as diagnosed among girls in their teenage years. The Pearson product moment correlation coefficient of the strength of the rise with time is 0.56 ($p=0.024$). For boys (graph not shown, but data in **Table 1**, overleaf) there is a 0.42 correlation coefficient ($p=0.108$).

The original meta-analysis of many studies that formed the basis for this repeat study came to the opposite conclusion to that shown here. Costello and colleagues (2006) suggested that there was no rise over time. However, they found this because in later years they included studies from Australia, Brazil, Finland, Germany, Japan, the Netherlands, New Zealand, Sweden, and Switzerland where, in many cases, the rates reported for children in these age groups were lower than those found in North

America. In earlier years, most of their studies used samples of children assessed in North America. The authors of the original study could be excused for thinking that they could pool studies from different countries. One study they included, itself reporting in 2001, found that the rates of adolescents in the US suffering major depression without (*and with*) impairment were: 9.6% (*and 4.3%*) for Anglo-American children aged 12–15; 13.4% (*and 6.1%*) for African-American children; 16.9% (*and 9.0%*) for Mexican-American children; and for children compared in the same way living in Japan 5.6% (*and 1.3%*). Costello and colleagues (2006) suggested that these huge differences – with Mexican-American children living in America being seven times more likely to suffer major depression with impairment as compared to Japanese children living in Japan – all ‘... disappeared after sociodemographic adjustments ... [concluding that] ethnicity does not have a significant impact on the risk of adolescent major

Table 1 Studies of adolescent depression available for meta-analysis, 1973–2006

Study number	Place	Year of birth	Age at interview	Number of subjects	Rates (%) Age<13	Rates aged 13–18 (%)		
						Both	Girls	Boys
1	Isle of Wight	54–55	14–15	483		3.2		
2	USA	65–74	10–20	776	2.5	3.7	7.6	1.6
3	USA	65–74	10–20	776		3.1		
4	USA	66–75	15–24	1769		7	12.4	1.5
5	USA	66–75	15–24	1769		13	21.5	4.4
6	Canada	66–79	6–16	2852	.6	1.8	2.3	1.2
7	Puerto Rico	68–80	4–16	386				
8	*USA	69–74	14–18	1710		2.9	3.8	2
9	USA	69–74	14–18	1710		3.2	3.7	2.6
10	*USA	71–72	13	792	1.8	2.1	2.2	2.1
11	New Zealand	71–72	15	792	2.8	4.4	1.2	
12	USA	71	8	70	1.5			
13	USA	76	12	70	1.5			
14	USA	80	17	70	5.7			
15	USA	73–77	7–11	300	.8			
16	USA	73–77	12–17	300		5.4		
17	USA	73–81	9–17	336	3.4	6	5.6	6.4
18	USA	73–81	9–17	542	.7	2.1	3.4	.8
19	USA	74–82	9–17	1285				
20	USA	74–83	8–16	2762	.4		2.4	2.1
21	Netherlands	75–80	13–18	780		3.6		
22	Canada	75–82	12–19	1847	2.6		12.5	6.2
23	New Zealand	77	15	986		6.3	9.2	3.3
24	New Zealand	77	18	1011		18.2	26.5	9.7
25	Switzerland	78–82	15–19	203	.6	5.3	9.8	1.1
26	USA	78–83	12–17	4023			13.9	7.4
27	Switzerland	78–87	7–16	1964	.3		2.4	.0
28	Sweden	79–81	16–17	231		1.4	2.2	.6
29	*USA: Anglo	79–82	12–15	558		4.3	4.5	4.0
30	*USA: African–American	79–82	12–15	665		6.1	6.5	5.7
31	*USA: Mexican–American	79–82	12–15	429		9.0	11.4	6.3
32	*Japan	79–82	12–15	494		1.3	.9	1.8
33	Germany	80–83	14–16, 16–19	1395		8.0	10.2	5.8
34	USA	80–84	9–16	4984	1.9	3.1	4.2	1.9
35	USA	80–84	9–16	1691	1.1	3.0	4.2	1.9
36	Finland	81	8–9	278	3.2			
37	Finland	81	8–9	278	5.9			
38	Finland	81	8–9	255	7.8			
39	Finland	81	8–9	180	4.7			
40	Australia	81–92	6–17	3597	2.3	4.0	4.7	3.4
41	Puerto Rico	82–96	4–17	1886	2.1	5.8	9.7	2.0
42	United Kingdom	84–94	5–15	10438	.3	2.5		
43	Brazil	86–89	11–14	625	.2	1.9		
44	Brazil	90–93	7–10	625	.2			
45	*USA	90–93	11–12	508	3.0			

Source: Costello *et al*, 2006.

Notes: *= place of study not obvious from article title or journal. It is assumed that the final study was located in Seattle assuming the reference in the source is to: Vander Stoep *et al* (2005). In the graph, the two results from one study are excluded because the figures reported in the original article are for 15–16 year olds only, not 15–24 as reported above, and rely on 12 month recall under a diagnosis method which reports higher rates in general, the Composite International Diagnostic Interview. See Kessler and Walters, 1998.

depression after sociodemographic adjustments' (Doi *et al*, 2001). More fully, they suggested that 'Only fathers' educational attainment and family financial status remained significant (odds ratios: 3.28–5.30 for grade school for fathers and 2.62–2.78 for being worse off economically)' (Doi *et al*, 2001; p1308). The implication of this finding is not that it is fine to compare children living in different countries, but that the sociodemographic differences between the lives of children living in different countries are so great that those differences can account for such great inequalities. The children living in Japan are excluded from the re-analysis above.

Conclusions

Costello and colleagues (2006) suggested that there was no rise in depression in adolescents, however, when a sub-set of its cases were analysed, it showed a rise for particular countries. Many other studies also suggest a rise (Twenge, 2000; West & Sweeting, 2003; NHS Quality Improvement Scotland, 2007; Wilkinson & Pickett, 2009). For adults assessed at the same age it is well known that in the US, those born after 1955 – as compared to those born before 1915 – are up to 10 times more likely to be suffering major depression. Similar, if less extreme, trends have been reported from studies undertaken within Sweden, New Zealand, Germany and Canada (Offer, 2006; p348). Given these rises, it would be surprising if the rates for adolescents had not been rising. However, the implications of the most recent rises are clearly that worse could be to come unless social environments change.

We know from other studies that the average American child by the late 1980s was already more anxious about life than some 85% were in the 1950s. In fact, the average American child has become more anxious than child psychiatric patients in the US in the 1950s (Twenge, 2000). The reasons found for this have been the collapse of a safe society and an increase in environmental dangers as perceived by children. As the UK becomes more like the US, we should prepare for similar repercussions here.

By the year 2000, it was said that direct rather than indirect economic factors, such as the fear of unemployment, had so far played only a little role in explaining these trends. The study that reported these findings on the average American child concluded that: 'Until people feel both safe and connected to others, anxiety is likely to remain high' (Twenge, 2000; p1018). That was written eight years before the economic crash. All these studies either show that rates of anxiety and depression are rising in children in North America (and in the UK). Or, in the one

confounding case (Costello *et al*, 2006), they show the same upwards trend when they are re-analysed to avoid comparing rates in North America from earlier studies, with rates from mainland Europe and Japan that were measured in later studies.

In the two decades immediately prior to the economic crash of 2008, there was a rapid and significant increase in adolescent despair, particularly in North America, but also in the UK. The social world that we may well have lost in the aftermath of that crash was not a healthy world in which to bring up children. It was a social world in which a third of families had to care for someone with poor mental health. Often they did this quietly and without complaining. The rise of the age of anxiety was a virtually silent epidemic. Parents do not happily discuss the poor mental health of their teenage children even with their closest of friends. For children the stigma is even greater and the silence even more profound.

In no decent society in the world should a seventh of girls be diagnosed as depressed by around the time of their 15th birthday. Despair in our children is one of the cruelest experiences in life to have to come to terms with. There is every reason to believe that in a more equal world far fewer of us would have to come to terms with a diagnosis that our offspring had lost interest in life, felt that they were of little worth, could not sleep, concentrate or take care of themselves. In North America and the UK, we are currently collectively faced with the choice of whether we try to return to how life was before 2008, or try to give our children a better future that is not based on an ethos of greed and despair.

The implications for public health professionals are that they should not be surprised to find that they will be counselling large and rising numbers of children and young adults suffering from anxiety and depression in the coming years. When they are asked why this is occurring, they should tell their patients, colleagues and those who fund their work that such an epidemic of anxiety was not suffered in the past, it is not suffered in more equitable nations and the best evidence is that it currently appears inevitable in affluent nations that allow people to expect and fear living such unequal lives.

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