

# The effects of family cohesion and personality on the mental health of young Australians

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## Abstract

How can we explain the variation in mental health among youth? There is extensive research on youth outcomes and a large body of this work use family structure or divorce to proxy for instability (conflict) in order to explain why young people from broken homes have poorer life outcomes than other comparable youth. This paper investigates the determinants of mental health and departs from existing empirical studies in two ways. Firstly, I derive a contemporaneous family cohesion index for the home based on the quality of the relationships among household members, rather than a simple indicator of marital status. Secondly, I include the 'Big Five' personality measures to control for those fixed factors that exist for youth from high conflict families and would give rise to selection bias. The 'Big Five' are assumed to remain stable over the time of the study. A sample of Australian youth between the ages of 15 and 25 is taken from HILDA. By using various specifications, preliminary findings indicate that interactions between levels of family conflict and personality traits help explain the differences in mental health.

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## 1 Introduction

Mental illness has been identified as the leading contributor to the burden of disease and injury among young Australians, aged 15 to 24 years, with anxiety and depression occurring at high rates for both males and females (AIHW, 2007).

This paper focuses on the relationship between the mental health of young people and family cohesion. It contributes to the literature by incorporating two measures not found in previous economic studies. The first key variable is a contemporaneous index of maternal relationship satisfaction, used to measure the level of family cohesion. In other studies, proxy variables are used to infer this quality with either family structure or divorce indicators. Secondly, traits from the ‘Big-Five’ are used to model the associations of different personality components on levels of mental health. This can reduce omitted variable bias from ordinarily ‘unobserved’ traits. The ‘Big-Five’ are broad measures underlying a number of related personality dimensions which psychologists argue can map virtually any personality construct (Mueller and Plug, 2004).

One of the most important issues of social and family policy relate to the consequence of a disadvantaged family background for a child’s development and their outcomes in adult life (Winkelmann, 2006). Family cohesion is believed to have strong positive effects on the outcome of children with early emotional experiences playing a critical role in affecting adult behaviour, neuropsychiatric disorders and physical health (Diamond, 2007). Furthermore, a recent survey found ‘family’ and ‘friendship’ to be the things in life young Australians value the most; well above education, financial security or environmental issues.<sup>1</sup>

Although this may strike as intuitively obvious, family cohesion is difficult to measure. Consequently, in economic empirical research, little attention is given to non cognitive human qualities such as motivation, positive self image, sense of security and social skills which can also be strong determinants of success alongside intellectual ability or academic achievement (Diamond, 2007). Although the theory is understood and tested in the psychology literature, economists have been less inclined to incorporate such measures explicitly into models for empirical work. This is partly due to data availability and accuracy, and partly due to the joint determination of

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<sup>1</sup>Insight can be taken from the National Survey of Young Australians 2006 where 14,700 people aged 11 to 24 were interviewed about their issues and core values (age profile 42.3 per cent aged 11–14, 52.8 per cent aged 15–19, 5 per cent aged 20–24). Respondents were asked to rank 1, 2 or 3 what they valued from a list of 10 options. In their top three, 72.3 per cent ranked family relationships, 66.80 per cent ranked friendship; compared to 27.5 percent ranking school/ study satisfaction, 13.90 per cent valuing spirituality and faith, and 8.9 per cent ranking environmental issues, in their top three. Interestingly, getting a job, being independent and environmental issues were of greater importance to Indigenous respondents compared to Non-Indigenous respondents (MA, 2006).

mental health with non cognitive qualities. Mental health in its own right also poses problems as it can be argued to be both an outcome and a cause for certain life events.<sup>2</sup> Consequently research on youth outcomes have been concentrated in areas such as education, earnings and unemployment outcomes.

Suffers of mental health are compromised in their capacity to study, work or pursue leisure interests, and in their ability to make day-to-day personal or household decisions about educational, employment, housing or other choices, sometimes in a fundamental and enduring manner (WHO, 2006). Beyond the personal suffering, experience of mental disorders are associated with a number of negative life consequences, lower educational attainment, loss of earnings through unemployment, hospitalisation, poorer physical health and health-risk behaviours (AIHW, 2007; Barrett and Farrell, 2007; Burns and Field, 2002). Adolescent mental illness corresponds to impairment in psychological functioning and is associated with substance abuse, suicide, school dropout, antisocial behaviour and homelessness. Furthermore there is a greater incidence of mental health problems for adolescents living in low income, step/blended and sole parent families (AIHW, 2006).<sup>3</sup>

Our results show having a good relationship with one's mother or step mother is strongly associated with better mental health. Further, personality plays a role in the variation of mental health of young people. An interesting finding is that once family cohesion and personality are jointly included, gender differences arise in relation to family structure.

The remainder of the paper is organised as follows. Section 2 discusses the current economic literature on youth outcomes and mental health and then summarises the literature from other disciplines relevant for discussion of mental health. Section 3 presents the descriptive statistics and gives an overview of the data and the methodology. Section 4 describes the results of the estimation and Section 5 provides some preliminary conclusions.

## 2 Literature Review

### 2.1 Mental Health

Adolescence is a key developmental period characterised by significant changes in emotions, behaviour, and interpersonal relationships; a period when a number of mental disorders may

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<sup>2</sup>A common example of such instance is the relationship between mental health and unemployment, where each can be argued to induce the other.

<sup>3</sup>Low income defined as family income of less than \$580 AUD per week.

manifest (Sawyer et al., 2007). A mental disorder refers to a diagnosable illness that significantly interferes with an individual's cognitive, emotional or social abilities (HIMH, 2006).<sup>4</sup>

There is scant research in economics on the mental health of youth. Mental health is usually an area for economists interested in analysing labour market outcomes, unemployment duration and welfare dependency. Using SF-36 mental health measures, studies find poor mental health for the unemployed can be partly accounted for by their lower income (Platau et al., 2000) and financial hardship (Butterworth et al., 2004). Concepts from a growing literature on well-being are also important to consider briefly.

Winkelmann (2006) uses life satisfaction measures to assess the well-being of youth in Germany. He found living in a non-intact family did not have a large negative effect on well-being for youth. Heady and Wooden (2004) assess economic financial stress and wealth on happiness and psychological distress for Australians aged 25 to 59. Their study incorporates various subjective measures of life satisfaction and determines that wealth is equally important as income for both well-being and ill-being.

The fields of neurological science, developmental science and psychology share with economics a pursuit to understand human behaviour. Therefore, intuitively it makes sense to use concepts and empirical research from these disciplines to frame the analysis of this paper. In recent years, increased research from the aforementioned disciplines have identified particular predisposed vulnerabilities and their interactions with risk factors thought to influence the onset of mental illness (AIHW, 2007; Diamond, 2007; Rutter, 2007). Predisposed vulnerabilities refer to genetics and risk factors refer to social, cultural and physical environments. Although these concepts sound straight forward and deterministic, there is a high degree of genetic-environmental interdependence only recently beginning to be understood.<sup>5</sup>

Environmental risk factors that increase the likelihood of mental health problems include marital discord between parents, social isolation, failure to achieve academically, stressful life events, deficits in interpersonal skills, parenting characteristics, and community and cultural factors (such as socioeconomic disadvantage) (AIHW, 2007; Barrett and Farrell, 2007). On the other hand, protective factors include parental attachment, social support, positive school

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<sup>4</sup>Depression and anxiety are examples of the more common forms of mental illness and consist of varying symptoms and degrees of severity (AIHW, 2007).

<sup>5</sup>In developmental science, it has previously been believed that variations in population behaviour could be partitioned into those that are genetic and those that are environmental. Advances in molecular genetics have provided some evidence to the contrary. Rutter (2007) provides a neat summary of such complexities.

environment, economic security, positive health behaviours, and a array of social skills such as positive peer and adult interaction, empathy and critical problem solving skills (AIHW, 2007; Barrett and Farrell, 2007; Harvey and Delfabbro, 2004).

The jury is still out on precise causal pathways to mental illness. Despite this, a clear research message remains that environment plays a role by influencing gene expression and any analysis of mental health must include the study of environment risk factors together with gene-environment interplay (Rutter, 2007).

## 2.2 Family Cohesion

One resounding consensus from most of the literature is that family relationships are important for mental health. Parental attachment can serve as a preventive factor for mental disorders (Barrett and Farrell, 2007) and dysfunctional parent-child relationships or severe family disruptions can contribute to comorbid psychological and drug disorders (Marsh and Dale, 2005).<sup>6</sup> Further, it has been shown that depressive symptomatology is related to the level of support, attachment and approval that adolescents experience in the family environment (Sheeber et al., 1997). Weak parent-child relationships can be characterised by poor communication, conflict or a perception on the young person's part of an absence of parental love (Marsh and Dale, 2005).

Family structure is a logical way for economists to assess the amount of time and money parents have for their children's education and development. Human capital is usually quantified using education and health measures, thus research in labour economics typically examines family in this context. Of the two human capital inputs, data for education has been easier to collect and translate into economic outcomes. As such, studies which try to understand why some youth are successful and others are not, have centred on outcomes such as school completion, earnings and certain life events such as welfare dependency and teenage pregnancy (Haverman and Wolfe, 1995).

It should be emphasised, economic studies are often estimated under an implicit theory of nature versus nurture. So in addition to examining time and money constraints, economist have also tried to account for the impact of parental divorce, absent fathers, remarriage and other childhood events and circumstances (Haverman et al., 1991; Painter and Levine, 2000).

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<sup>6</sup>Attachment theory suggests that parental sensitivity and responsiveness leads to secure attachment, whereas consistent neglect and abuse leads to insecure attachment. Insecure attachment has been linked to a variety of psychological and behavioural difficulties in young people and adults (Barrett and Farrell, 2007).

Problems remain with sorting out which factors are correlations and which are causal, with potential endogeneity and unobserved heterogeneity bias. Econometric techniques have been used to overcome such issues and there is now evidence to suggest that parental conflicts, rather than separation per se, are bad for children (Piketty, 2003).

### 2.3 Personality

Individual differences in emotionality are part of the area referred to as temperament. There is a necessity of considering environmental influences and their interaction with individual dispositions in the development of behaviour. From the psychology literature there are many studies on the interactions between distress and personality on the onset of common mental illness. A review of findings from two large scale British population surveys provide evidence that social factors do appear to influence the prevalence of depression but this effect is not independent of genetically determined vulnerability (Goldberg, 2000). For example, extroversion was found to be a protective factor against depression. As described previously in this paper, personality traits can be risk or protective factors for mental health.

The contention of the ‘Big Five’ model is that personality differences can be meaningfully described by five broad (independent) categories; extroversion, agreeableness, conscientiousness, emotional stability and openness to experience. Although predominately used as a tool in psychology, Mueller and Plug (2004) advocate the ‘Big Five’ as a tool for economists and, noting potential limitations, apply it in their estimations of the effect of personality on male-female earnings. The ‘Big Five’ personality framework is summarised in Table 1.

## 3 Data and Methodology

### 3.1 Data

To evaluate the effect of family cohesion on mental health we use four years of data (2002–2005) from the Household Income and Labour Dynamics of Australia survey (HILDA). HILDA is a panel survey of Australian households with data on income, family, work and subjective well-being. The survey is repeated annually with information collected for approximately 7,000 households. We focus on respondents aged 15 to 25 years of age.

To measure mental health, we use the mental health summary indicator from SF-36 Health

Survey data. The SF-36 is used in the self-completion section of the survey and provides physical and mental health summary measures.<sup>7</sup> Five specific questions are used to derive the mental health index. These questions ask about a person's experience in the past 4 weeks, and include:

1. Have you been a nervous person?
2. Have you felt so down in the dumps that nothing could cheer you up?
3. Have you felt calm and peaceful?
4. Have you felt down?
5. Have you been a happy person?

For each question, respondents are asked to select according to a six-choice response scale.<sup>8</sup> The more positive the response the higher the score. Scores from these five questions are combined and converted into a standardised 0–100 index. The SF-36 mental health scale is distinct from third party assessment and other measures of well-being with emphasis on current mood and emotions of the respondent (Platau et al., 2000).

To measure family cohesion, we use questions about the quality of relationships in the household. Respondents are asked to rate, on a scale of 0 to 10, how satisfied they are with each relationship in the household.<sup>9</sup> Higher satisfaction corresponds to a higher number, so a score of zero indicates 'completely dissatisfied' and a score of 10 indicates 'completely satisfied'. Family cohesion  $Q_{it}$  is derived from the following two questions:

1. How satisfied are you with your relationship with your parents?
2. How satisfied are you with your relationship with your step parents?

In HILDA we are able to identify whether or not the mother is the respondent's natural parent or step parent. If the respondent had a natural mother in the household the score from the first question was used. If the respondent had a step mother in the household then the score from the second question was used. The responses from these questions were used

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<sup>7</sup>It comprises 36 items measuring eight distinct health concepts, constructed to represent multiple indicators of health, behavioural function and dysfunction, distress and well being. For a summary on the construction of the SF-36 please refer to Ware (2000).

<sup>8</sup>The respondents select one answer that comes closest to how they have been feeling; all of the time, most of the time, a good bit of the time, a little of the time, none of the time.

<sup>9</sup>The various relationships measured in HILDA include, with spouse, with former spouse, with children, with step children, with parents, with step parents, partner with children, children with children

to index family cohesion. For ease of interpretation, they are standardised to have zero mean and standard deviation of one. There is an assumption, for intact families, this variable relates to the respondent's relationship with their mother, even though the question doesn't specify relationship with 'mother'. However, we know for sure that the question relates to either the natural or the step parent for respondents living in a lone parent family (only one natural parent) or a re-partnered family (only one natural parent and one step parent).

In 2005 (Wave 5) HILDA included the 'Big Five' personality measures. In the survey, the respondent is asked "How well do the following words describe you?". The respondent is required to rank on a scale from 1 (does not describe me well) to 7 (describes me very well) from a list of 36 separate characteristics. Table 1 provides the summary of the 'Big Five' and the particular variables used in HILDA to average the scores for each personality construct. The data collected in wave 5 was used to impute previous years. Given the short length of the panel, it is assumed personality remains constant for the four years.

These personality measures are assumed to measure temperament or genetic disposition. Often economists have used econometric method to get around potential bias from unobserved heterogeneity, for example fixed effects. Specifically, this variable is included to proxy for genetically determined temperament that can give rise to different capacity for resilience or vulnerability to mental illness.

It has been argued that self reported data may be an inaccurate measure of reality due to its subjective nature. In this case however, I am actually interested in the effects of how the respondent perceives their relationship to be. How people feel about the world is defined by how they experience the world. From this point of view the self reported data contains the information required for learning about how maternal relationship satisfaction is associated with mental health. Recall, studies mentioned in the previous section have also used self reported life satisfaction measures to evaluate mental health and well-being outcomes.

HILDA contains a vast series of questions relating to socioeconomic, demographic and health qualities. This will allow us to construct control variables which account for the risk factors and protective factors relevant for mental health. This includes measures on individual characteristics such as sex, age, education, Indigenous status, country of birth, income, employment status and whether or not the individual is full-time student.

To account for the family background and environment, data for the mother has been



matched to the respondent. The mothers' data include sex, age, education, Indigenous status, country of birth and employment status. To capture other family risk factors, indicator variables were created to measure how frequently the mother consumed alcohol. Stressful life events were measured using parental separation or divorce. An indicator variable (0,1) was created for respondents whose parents reported experiencing a divorce or separation. To simplify analysis, if a respondent's parents report more than one separation or divorce (within the time of the panel) they were dropped from the sample.

Research shows that people at risk of poor mental health are likely to be unemployed and their families are concentrated at the bottom of the income distribution (Platau et al., 2000). Thus an indicator for low family income and poor family education / occupation were generated from the two indexes provided in HILDA (the SEIFA 2001 Decile of Index of economic resources and the SEIFA 2001 Decile of Index of education and occupation). For each index, a respondent is defined as having low family income and poor family education, if the household was in the 1st to 3rd decile of the economic and education/occupation indexes respectively.

Recall, HILDA allows identification of natural parents and step parents. Together with a derived variable of 'family type' our sample is selected to include respondents from couple and sole parent households only. Any 'other' family types were omitted from the analysis. This includes mixed families, shared households and any respondent that was married or defacto. Because we are interested in whether or not family structure plays a role, intact families, re-partnered families and lone parents are included. The family structures have been defined as follows;

1. Intact Family: Both natural parents
2. Lone Parent: Either, natural mother OR
3. Re-partnered: Either, natural mother and step father OR natural father and step mother

Table 2 provides descriptive statistics for the sample. We can see that the average mental health score is 74, however it is lower for those in non-intact families. On average, young people report satisfaction with their maternal relationship at 8, indicating strong child-parent relationships. A greater proportion of respondents from lone parent households come from low income and poor education families and are more likely to reside in the city and have Indigenous heritage. Most other social indicators are evenly distributed across the family types.

### 3.2 Model and Methodology

To test whether or not family cohesion matters for mental health, I estimated:

$$Y_{it} = \alpha_{it} + \beta_1 F_{it} + \beta_2 Div_{it} + \beta_3 Q_{it} + \beta_4 X_{it} + \beta_5 Z_{it} + \varepsilon_{it} \quad (1)$$

where for youth  $i$  at time  $t$ ;  $Y_{it}$  is the SF-36 MH index,  $F_{it}$  indicates family structure,  $Div_{it}$  is a dummy for parental separation,  $Q_{it}$  is the quality of the family cohesion (standardised to have zero mean and standard deviation of one),  $X_{it}$  is a vector of individual characteristics (gender, education, whether foreign born or indigenous, whether a full time student, employment status, whether over 21 years of age, socio-economic family background variables),  $Z_{it}$  is a vector of the mothers characteristics (education, age, whether foreign born or indigenous, employment status and alcohol consumption).

Using an unbalanced panel, I estimated pooled OLS and random effects. Here I assumed that any unobservable characteristics were uncorrelated with explanatory variables. By including the numerous group controls it is hoped any correlation are reduced as much as possible. If my assumptions hold, random effects will be preferred to pooled OLS because it accounts for potential time trends and provides more efficient results. However, if our assumptions are incorrect then both pooled OLS and random effects will be biased, in which case it is appropriate to use fixed effects, which we also estimate. It should be noted that in all specifications time dummies are included and robust standard errors have been calculated, clustered at the individual level. The results are given in Panel A of Table 2.

To overcome omitted variable bias, personality measures  $P_{it}$  are added to equation 1.  $P_{it}$  is a vector of the five personality measures standardised to have zero mean and standard deviation of one (includes extroversion, agreeableness, conscientiousness, emotional stability, openness to experience). Recall that the measures of personality were assumed to be fixed, as such they have not been included for the fixed effect regressions. It should be noted that our sample size drops for this estimation as we lose observations for those who have missing personality variables. Results are presented in Panel B of Table 2.

Men and women are known to have gender specific characteristics, additionally it is often found that women report lower levels of mental health, on average, than men. As such, I also estimate the model separately for men and women. Results are presented in Table 3.

## 4 Results

### 4.0.1 Family Cohesion

Table 3, panel A summarises the results for equation 1 (please note the full results for all estimations are provided in the Appendix). Specification 1 was run with only family structure, parental divorce and year dummies for controls. In this case, for pooled OLS and random effects, being in either a lone parent or re-partnered family is negatively correlated with mental health, with no correlations found for parental divorce. Fixed effects coefficients were negative but statistically insignificant.

When the measure of family cohesion is included in specification 2, the negative correlations of family structure diminish and become statistically insignificant. The results show the relationship between family cohesion and mental health are positive and statistically significant at the 1% level. For the pooled OLS and random effects estimations, a one standard deviation increase in relationship satisfaction with one's parents, is associated with a 6 point increase in mental health. Fixed effects results are slightly less, with a coefficient of 4.02.

Specification 3 includes added controls of family background and some characteristics of the mother. The pooled OLS and random effects show that mental health of people from a relatively poor background, is lower by approximately 2 index points than those who come from relatively wealthier households. Surprisingly, living in a regional or remote area is positively associated with mental health, this is contrary to usual expectation. The measure for family cohesion, remains almost unchanged.

Specification 4 is the full model of equation 1. Again for pooled OLS and random effects, the results are consistent with previous literature. For example, being a full-time student is positively correlated with mental health, whereas being unemployed or not in the labour force is associated with poorer mental health. Mother's employment status, how frequently a mother reports drinking alcohol and a mother's education show no statistically significant correlations with mental health. A contradictory result was that Indigenous youth were associated with higher levels of mental health, however having an indigenous mother was negatively associated with mental health.

Referring back to panel A in Table 2, it is worth noticing family cohesion remains statistically significant with the coefficients virtually unchanged within in each of the pooled OLS , random

effect and fixed effect regressions. The fixed effects results are different, however for other coefficients, the majority of the other variables in this estimation show no statistical significance.

#### 4.0.2 Personality

Table 3, panel B provides summary results for the inclusion of the personality measures. Referring to the pooled OLS and random effect results, the first thing to note is that family cohesion remains positive, consistent in size and is statistically significant at the 1% level. The relationship between mental health and personality is modest but statistically significant for all personality measures except conscientiousness. Extroversion, agreeableness and emotional stability are all associated with better mental health, whereas openness to experience was associated with lower levels of mental health. This is consistent with the psychology literature. Fixed effect results have been included only to ensure previous estimations are robust to reduction in sample size.

#### 4.0.3 Gender differences

Interesting results arise, in pooled OLS and random effect estimations, when the methodology is applied separately for males and females. Summary results are provided Table 3, revealing family cohesion remaining strong and statistically significant for both males and females at the 1% level. The striking difference is that family structure seems to matter depending on gender. Referring to Table 3 it is apparent that once personality is included, young females living in a re-partnered family have poorer mental health than those living with both natural parents. Comparatively, young men with a single mother have mental health 2 index points lower on average than young men from an intact family. For young men the coefficients for re-partnered families are negative but statistically insignificant. It should also be worth highlighting that the personality relationships are the same in sign and magnitude for both male and females, except for conscientiousness, which had a small but positive association with mental health for females and is statistically significant at the 5% level.

### 4.1 Limitations

It is important to emphasise that the results of this work should be interpreted with care. There are a number of issues that could lead to misleading conclusions. This includes endogeneity of the dependent variable with family cohesion, omitted variable bias or correlation with unobserved

heterogeneity and the explanatory variables (in the case of pooled OLS and random effects).

It can be argued that the dependent variable and the family cohesion index is problematic because of joint determination. In other words, if the respondent suffers from poor mental health, problems with their family relationships can develop. One way around this would be to use a lagged variable of family conflict. This would allow past family cohesion measures to influence current mental health, and disallow the possibility of reverse causality (ie current mental health affecting past relationships).

Using pooled OLS and random effects implies an assumption of zero correlation between the unobserved heterogeneity and the explanatory variables. As previously mentioned, if these assumptions do not hold, then our random effects will be biased and fixed effects would be the correct method to use. For family cohesion at least, the fixed effects results are consistent with the pooled OLS and random effects, so the coefficients are robust, in that sense.

There are also endogeneity issues with the personality measures and mental health, however finding correlations was sufficient for the purpose of this paper. As such it must be emphasised that no statements are being made to indicate any casual relationships between personality and mental health.

Other issues related to our sample. Although the results indicate the coefficient for parental separation is not statistically significant we should be careful in making conclusions without further analysis. One benefit of  $Div_{it}$  is that it can be included as a contemporaneous measure, rather than some historical indicator measured from time during childhood. Unfortunately this comes with a cost as the data is limited due to two factors. Firstly, the length of the panel is restricted to 2002–2005, because the question used to indicate a divorce or separation ‘event’ is not asked in 2001. Secondly, people who divorce usually do so in the the first years of marriage. Our analysis is focused on families with children no younger than 15 years of age. So although the measure might be more accurate than a historical measure, we only have a relatively small number of respondents whose parents report a separation.

## 5 Conclusion

This study is the first to use measured variables of family cohesion and personality (rather than inferring these qualities through standard proxy variables) and incorporate them into economic analysis to assess the mental health of youth. The results show the level of relationship satisfac-

tion with one's mother or step mother is strongly and positively reflected with a person's mental health. These results remain consistent after controlling for measured personality traits, in addition to numerous controls for individual characteristics, family background, family structure and recent parental divorce.

Other results are consistent with previous work; positive associations to mental health include employment, being a full time student while negative associations are for people who are relatively poor and unemployed. Parental divorce seems to have no negative impact, once other factors are controlled for. Personality also seems to help explain the variation in mental health in ways one would expect. Extroversion, agreeableness and emotional stability all being positively related to mental health. Distinct gender differences arise once the sample is estimated separately for men and women. For young men, being in a lone parent household is negatively associated with mental health and for young women being in a re-partnered household is negatively associated to their mental health.

Care should be taken in interpreting these results. Unless one convincingly treats the endogeneity issues mentioned in previous sections, causal conclusions cannot be drawn.

There is a growing awareness for the importance of mental health research in contemporary society (Butterworth et al., 2004; Platau et al., 2000; Sawyer et al., 2007; Sheeber et al., 1997). Mental illness creates a pressure on governments to provide a range of health and welfare services and for this reason, insights from economic analysis can be drawn upon to better assess the economic consequences of mental disorder (WHO, 2006). A bigger motivation, however for better understanding mental health is that it is a tangible and genuine concern for young people growing up in Australia.

## References

- AIHW (2006). Australia's health 2006. Technical report, Cat no AUS73. Canberra: Australian Institute of Health and Welfare.
- AIHW (2007). Young australians: their health and wellbeing 2007. Technical report, Cat. no. PHE 87. Canberra: Australian Institute of Health and Welfare.
- Barrett, P. M. and L. J. Farrell (2007, May). Prevention of childhood emotional disorders: Reducing the burden of suffering associated with anxiety and depression. *Child and Adolescent Mental Health* 12(2), 58–65.
- Burns, J. and K. Field (2002). Targeting depression in young people. *Youth Studies Australia* 21(2), 43–51.

- Butterworth, P., T. Crosier, and B. Rodgers (2004). Mental health problems, disability and income support receipt: A replication and extension using the hilda survey. *Journal of Labour Economics* 7(2), 151–147.
- Diamond, A. (2007). Interrelated and interdependent. *Developmental Science* 10: 1, 152–158.
- Goldberg, D. (2000). Vulnerability factors for common mental illnesses. *British Journal of Psychiatry* 178(40), 69–71.
- Harvey, J. and P. H. Delfabbro (2004). Psychological resilience in disadvantaged youth: A critical overview. *Australian Psychologist* 39: 1, 3–13.
- Haverman, R. and B. Wolfe (1995). The determinants of children’s attainments: A review of methods and findings. *Journal of Economic Literature* 33(4), 1829–1878.
- Haverman, R., B. Wolfe, and J. Spaulding (1991). Childhood events and circumstances influencing high school completion. *Demography* 28(1), 133–157.
- Heady, B. and M. Wooden (2004). The effects of wealth and income on subjective well-being and ill-being. *Melbourne Institute Working Paper No. 3/04* (3/04).
- HIMH (2006). Reporting suicide and mental illness. Technical report, Hunter Institute of Mental Health.
- MA (2006). National survey of young australians 2006 key and emerging issues. Technical report, Mission Australia.
- Marsh, A. and A. Dale (2005). Risk factors for alcohol and other drug related disorders: A review. *Australian Psychologist* 40: 2, 73–80.
- Mueller, G. and E. Plug (2004). Estimating the effect of personality on male-female earnings. *IZA Discussion Paper* (1254).
- Painter, G. and D. I. Levine (2000). Family structure and youths’ outcomes: Which correlations are causal? *The Journal of Human Resources* 35(3), 524–549.
- Piketty, T. (2003). The impact of divorce on school performance: Evidence from france, 1968–2002. *Centre for Public Policy Research Discussion Paper* (4146).
- Platau, P., J. Galea, and R. Petridis (2000). Mental health and well-being and unemployment. *The Australian Economic Review* 33(2), 161–81.
- Rutter, M. (2007). Gene-environment interdependence. *Developmental Science* 10(1), 12–18.
- Sawyer, M. G., L. R. Miller-Lewis, and J. J. Clark (2007). The mental health of 13-17 year-olds in australia: Findings from the national survey of mental health and well-being. *Journal of Youth Adolescence* 36, 185–194.
- Sheeber, L., H. Hops, A. Alpert, B. Davis, and J. Andrews (1997). Family support and conflict: Prospective relations to adolescent depression. *Journal of Abnormal Child Psychology* 25: 4, 333–344.
- Ware, J. (2000). Sf-36 health survey update. *SPINE* 25, 3130–3139.
- WHO (2006). Economic aspects of mental health: Key messages to health planners and policy-makers. Technical report, World Health Organisation.
- Winkelmann, R. (2006). Parental separation and well-being of youths: Evidence from germany. *The Journal of Socio-Economics* 35, 197–208.

**Table 1**  
**The Big Five Personality Traits**

<b>Dimension</b>	<b>Facet (and correlated trait adjective)</b>	<b>Dimensions Used</b>	<b>Personality scaled from:</b>
Extroversion vs. introversion	Gregariousness (sociable) Assertiveness (forceful) Activity (energetic) Excitement-seeking (adventurous) Positive emotions (enthusiastic) Warmth (outgoing)	Extroversion	Talkative Bashful (reversed) Quiet (reversed) Shy (reversed) Lively Extroverted
Agreeableness vs. antagonism	Trust (forgiving) Straightforwardness (not demanding) Altruism (warm) Compliance (not stubborn) Modesty (not show off) Tender-mindedness (sympathetic)	Agreeableness	Sympathetic Kindness Co-operative Warmth
Conscientiousness vs. lack of direction	Competence (efficient) Order (organised) Dutifulness (not careless) Achievement striving (thorough) Self-disciplined (not lazy) Deliberation (not impulsive)	Conscientiousness	Orderly Systematic Inefficient (reversed) Sloppy (reversed) Disorganised (reversed) Efficient
Neuroticism vs. emotional stability	Anxiety (tense) Angry hostility (irritable) Depression (not contented) Self-consciousness (shy) Impulsiveness (moody) Vulnerability (not self-confident)	Emotional Stability	Envy (reversed) Moody (reversed) Touchy (reversed) Jealous (reversed) Temperamental (reversed) Fretful(reversed)
Openness vs. closedness to experie	Ideas (curious) Fantasy (imaginative) Aesthetics (artistic) Actions (wide interest) Feelings (excitable) Values (unconventional)	Openness to experience	Deep Philosophical Creative Intellectual Complex Imaginative

Note: This table is adapted from (Mueller & Plug 2004) and explains the NEO-PI-R Facets. The table also contains the variables used in this paper: extroversion, agreeableness, emotional stability and openness to experience are derived variables from HILDA, which are the average scores of the traits as indicated.



**Table 2**  
**Summary Statistics of Young Australians aged 15-25**

Family Type	Intact		Lone		Re-partnered		Total	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
<b>Mental Health</b>	74.88	16.00	71.90	17.81	71.83	18.57	74.01	16.67
<b>Age</b>	18.02	2.65	18.21	2.72	17.39	2.39	18.00	2.65
<b>Male</b>	0.514		0.498		0.586		0.517	
<b>Over 21</b>	0.127		0.145		0.085		0.127	
<b>Rel. with Parents</b>	8.09	1.82	7.57	2.19	7.52	2.31	7.94	1.96
<b>Income \$'000</b>	8.53	12.29	9.48	11.53	7.12	9.63	8.60	11.94
<b>Full-Time Student</b>	0.636		0.573		0.589		0.619	
<b>Employed</b>	0.648		0.603		0.647		0.639	
<b>Unemployed</b>	0.084		0.125		0.120		0.095	
<b>Not in labour force</b>	0.268		0.272		0.233		0.266	
<b>Tertiary</b>	0.045		0.032		0.023		0.041	
<b>Certificate</b>	0.096		0.105		0.090		0.097	
<b>Yr12</b>	0.239		0.241		0.181		0.234	
<b>Yr 11 and below</b>	0.620		0.622		0.706		0.628	
<b>Indigenous Aust.</b>	0.017		0.062		0.003		0.025	
<b>Non-Indigenous Aust.</b>	0.900		0.850		0.968		0.896	
<b>Foreign</b>	0.082		0.088		0.029		0.079	
<b>City</b>	0.644		0.710		0.571		0.651	
<b>RegRem</b>	0.356		0.290		0.429		0.349	
<b>SEIFA Index Econ. 1st-3rd Dec.</b>	0.253		0.339		0.303		0.274	
<b>SEIFA Index Edn/Oc. 1st-3rd Dec.</b>	0.263		0.301		0.300		0.274	
<b>Parents Div/Sep</b>	0.003		0.099		0.006		0.022	
<b>m_Age</b>	46.35	5.15	46.99	5.84	42.72	5.80	46.16	5.46
<b>m_Income \$'000</b>	30.10	31.52	38.89	22.83	31.64	20.20	32.00	29.30
<b>m_Employed</b>	0.758		0.686		0.752		0.743	
<b>m_Unemployed</b>	0.015		0.055		0.020		0.024	
<b>m_Not in Labour Force</b>	0.227		0.258		0.227		0.233	
<b>m_frequent drinker</b>	0.152		0.112		0.184		0.147	
<b>m_avg drinker</b>	0.367		0.404		0.411		0.378	
<b>m_does not drink</b>	0.481		0.484		0.405		0.475	
<b>m_Tertiary</b>	0.216		0.232		0.216		0.219	
<b>m_Indigenous Aust</b>	0.015		0.034		0.003		0.017	
<b>m_Non-Indigenous Aust</b>	0.763		0.659		0.764		0.742	
<b>m_Foreign</b>	0.222		0.307		0.233		0.240	
<b>Observation Number</b>	2748		775		343		3866	
	71.08%		20.05%		8.87%		100.00%	

Notes:

1. Mental Health (SF-36 Standardised Index 0-100).
2. Rel. with Parents (level of satisfaction with relationship with parents score 0-10)
3. Family structure dummies: lone parent and re-partnered family (reference intact family), whether parent experienced divorce/separation within the last 12 months (reference group parents did not experience divorce/separation)
4. Year Dummies: 2003, 2004, 2005 (reference 2002)
5. m\_\* indicates mother's characteristics
6. Dummies for whether in the 1<sup>st</sup>-3<sup>rd</sup> decile of SEIFA economic resource index (reference group whether in the 4<sup>th</sup>-10<sup>th</sup> decile of index), for whether in the 1<sup>st</sup>-3<sup>rd</sup> decile of SEIFA education and occupation index (reference group whether in the 4<sup>th</sup>-10<sup>th</sup> decile of index), and for whether living in a regional/remote area and city.

**Table 3**  
**Dependent Variable: SF-36 Mental Health Index (0-100)**  
**Young Australians Aged 15-25 Years**

	Pooled OLS				Random Effects				Fixed Effects			
	1	2	3	4	1	2	3	4	1	2	3	4
<b>Panel A:</b>												
<b>Family Cohesion</b>	<b>No</b>	<b>6.398</b> <b>(0.343)***</b>	<b>6.366</b> <b>(0.342)***</b>	<b>6.221</b> <b>(0.335)***</b>	<b>No</b>	<b>5.624</b> <b>(0.329)***</b>	<b>5.600</b> <b>(0.329)***</b>	<b>5.528</b> <b>(0.323)***</b>	<b>No</b>	<b>4.020</b> <b>(0.510)***</b>	<b>3.988</b> <b>(0.512)***</b>	<b>3.966</b> <b>(0.510)***</b>
Lone Parent	-2.925 (0.984)***	-1.295 (0.925)	-0.898 (0.929)	-0.794 (0.901)	-2.687 (0.943)***	-1.217 (0.883)	-0.820 (0.875)	-0.775 (0.875)	-1.897 (4.704)	-0.737 (4.571)	-0.529 (4.465)	-0.185 (4.563)
Re-partnered	-3.050 (1.356)**	-1.202 (1.144)	-1.238 (1.139)	-1.572 (1.160)	-2.397 (1.297)*	-1.124 (1.135)	-1.231 (1.133)	-1.755 (1.153)	3.141 (8.135)	1.978 (7.672)	1.817 (7.653)	2.590 (7.816)
Parent's Divorce	-0.500 (2.082)	0.412 (1.996)	0.180 (1.979)	-0.299 (1.895)	-0.605 (1.931)	-0.235 (1.894)	-0.467 (1.888)	-0.680 (1.848)	-0.664 (2.841)	-0.792 (2.846)	-1.176 (2.847)	-0.968 (2.861)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mother's Characteristics 1	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Family Background	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Individual Characteristics	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Mother's Characteristics 2	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Personality	No	No	No	No	No	No	No	No	No	No	No	No
Observations	3866	3866	3866	3866	3866	3866	3866	3866	3866	3866	3866	3866
Number of XW					1861	1861	1861	1861	1861	1861	1861	1861
R-squared	0.01	0.15	0.16	0.18					0.00	0.05	0.06	0.06
<b>Panel B:</b>												
<b>Family Cohesion</b>	<b>No</b>	<b>6.791</b> <b>(0.370)***</b>	<b>6.769</b> <b>(0.369)***</b>	<b>5.474</b> <b>(0.356)***</b>	<b>No</b>	<b>5.917</b> <b>(0.363)***</b>	<b>5.908</b> <b>(0.363)***</b>	<b>5.108</b> <b>(0.354)***</b>	<b>No</b>	<b>4.197</b> <b>(0.554)***</b>	<b>4.191</b> <b>(0.557)***</b>	<b>4.142</b> <b>(0.552)***</b>
Lone	-3.728 (1.123)***	-2.167 (1.033)**	-1.871 (1.036)*	-1.449 (0.944)	-3.786 (1.082)***	-2.283 (0.982)**	-1.968 (0.994)**	-1.536 (0.911)*	-1.042 (5.161)	0.333 (4.965)	0.369 (4.818)	0.609 (4.904)
Re-partnered	-4.733 (1.550)***	-2.350 (1.297)*	-2.448 (1.288)*	-1.853 (1.186)	-4.347 (1.499)***	-2.619 (1.296)**	-2.767 (1.290)**	-2.182 (1.203)*	3.893 (8.398)	2.742 (7.889)	2.446 (7.828)	3.284 (7.911)
Div	0.922 (2.302)	2.077 (2.198)	1.811 (2.188)	1.736 (2.086)	0.351 (2.166)	0.699 (2.111)	0.443 (2.112)	0.655 (2.025)	-0.922 (2.950)	-1.312 (2.940)	-1.369 (2.959)	-1.125 (2.986)
<b>Personality:</b>												
Extroversion	No	No	No	2.879 (0.371)***	No	No	No	3.038 (0.356)***	No	No	No	No
Agree	No	No	No	0.946 (0.379)**	No	No	No	0.968 (0.382)**	No	No	No	No
Openness	No	No	No	-1.034 (0.361)***	No	No	No	-1.072 (0.352)***	No	No	No	No
Emotional	No	No	No	3.015 (0.388)***	No	No	No	3.084 (0.374)***	No	No	No	No
Conscientious	No	No	No	0.087 (0.360)	No	No	No	0.177 (0.354)	No	No	No	No
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mother's Characteristics 1	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Family Background	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Individual Characteristics	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Mother's Characteristics 2	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Observations	3161	3161	3161	3161	3161	3161	3161	3161	3161	3161	3161	3161
Number of XW					1403	1403	1403	1403	1403	1403	1403	1403
R-squared	0.01	0.18	0.18	0.28					0.00	0.06	0.06	0.07

Notes:

- \*\*\*, \*\* and \* denote significance at the 1 per cent, 5 per cent and 10 per cent levels respectively. Robust standard errors, clustered at the individual level, in parentheses.
- Family cohesion and personality measures have been standardised, coefficients can be interpreted as the marginal change of a one standard deviation increase.
- Family structure dummies: lone parent and re-partnered family (reference intact family), whether parent experienced divorce/separation within the last 12 months (reference group parents did not experience divorce/separation)
- Year Dummies: 2003, 2004, 2005 (reference 2002)
- Mother's Characteristics 1: Dummies for tertiary education (reference no tertiary qualifications), Indigenous Australian and Foreign Born (reference Non-Indigenous Australian)
- Family Background: Dummies for whether in the 1<sup>st</sup>-3<sup>rd</sup> decile of SEIFA economic resource index (reference group whether in the 4<sup>th</sup>-10<sup>th</sup> decile of index), for whether in the 1<sup>st</sup>-3<sup>rd</sup> decile of SEIFA education and occupation index (reference group whether in the 4<sup>th</sup>-10<sup>th</sup> decile of index), and for whether living in a regional or remote area (reference group city)
- Individual Characteristics: Dummies for full time student (reference not full time student), Indigenous Australian and Foreign Born (reference Non-Indigenous Australian), unemployed and not in labour force (reference group employed), whether or not over 21 years of age (reference age 15-20), male (reference female) and income \$'000.
- Mother's Characteristics 2: Age, dummies for unemployed and not in labour force (reference group employed), whether or not frequent drinker and whether or not an average drinker (reference group rarely or does not drink).

**Table 4**  
**Dependent Variable: SF-36 Mental Health Index (0-100)**  
**Model 2- Young Australians Aged 15-25 Years**

	Pooled OLS		Random Effects		Fixed Effects	
	Male	Female	Male	Female	Male	Female
<b>Family Cohesion</b>	<b>5.451</b>	<b>5.612</b>	<b>5.317</b>	<b>5.042</b>	<b>4.847</b>	<b>3.381</b>
	<b>(0.537)***</b>	<b>(0.466)***</b>	<b>(0.524)***</b>	<b>(0.478)***</b>	<b>(0.769)***</b>	<b>(0.796)***</b>
Lone	-3.058	0.237	-3.015	0.044	5.703	-1.760
	(1.423)**	(1.156)	(1.393)**	(1.120)	(9.432)	(3.989)
Re-partnered	-0.106	-3.161	-0.545	-3.407	10.980	-1.412
	(1.693)	(1.643)*	(1.735)	(1.654)**	(7.813)	(10.866)
Div	-0.474	3.080	-2.303	2.594	-9.251	2.438
	(3.634)	(2.328)	(3.496)	(2.287)	(5.989)	(3.069)
<b>Personality</b>						
Extroversion	2.220	3.538	2.449	3.625	No	No
	(0.574)***	(0.471)***	(0.546)***	(0.460)***		
Agree	0.625	0.769	0.725	0.828	No	No
	(0.551)	(0.499)	(0.543)	(0.512)		
Openess	-1.410	-0.835	-1.317	-0.957	No	No
	(0.551)**	(0.459)*	(0.526)**	(0.466)**		
Emotional	3.569	2.505	3.549	2.664	No	No
	(0.624)***	(0.463)***	(0.590)***	(0.460)***		
Conscientious	-0.677	0.948	-0.602	1.041	No	No
	(0.539)	(0.466)**	(0.518)	(0.482)**		
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Mother's Characteristics 1	Yes	Yes	Yes	Yes	Yes	Yes
Family Background	Yes	Yes	Yes	Yes	Yes	Yes
Individual Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Mother's Characteristics 2	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1575	1586	1575	1586	1575	1586
Number of XW			699	704	699	704
R-squared	0.26	0.32			0.11	0.05

Notes:

1. \*\*\*, \*\* and \* denote significance at the 1 per cent, 5 per cent and 10 per cent levels respectively. Robust standard errors, clustered at the individual level, in parentheses.
2. Family cohesion and personality measures have been standardised, coefficients can be interpreted as the marginal change of a one standard deviation increase.
3. Family structure dummies: lone parent and re-partnered family (reference intact family), whether parent experienced divorce/separation within the last 12 months (reference group parents did not experience divorce/separation)
4. Year Dummies: 2003, 2004, 2005 (reference 2002)
5. Mother's Characteristics 1: Dummies for tertiary education (reference no tertiary qualifications), Indigenous Australian and Foreign Born (reference Non-Indigenous Australian)
6. Family Background: Dummies for whether in the 1<sup>st</sup>-3<sup>rd</sup> decile of SEIFA economic resource index (reference group whether in the 4<sup>th</sup>-10<sup>th</sup> decile of index), for whether in the 1<sup>st</sup>-3<sup>rd</sup> decile of SEIFA education and occupation index (reference group whether in the 4<sup>th</sup>-10<sup>th</sup> decile of index), and for whether living in a regional or remote area (reference group city)
7. Individual Characteristics: Dummies for full time student (reference not full time student), Indigenous Australian and Foreign Born (reference Non-Indigenous Australian), unemployed and not in labour force (reference group employed), whether or not over 21 years of age (reference age 15-20), male (reference female) and income \$'000.
8. Mother's Characteristics 2: Age, dummies for unemployed and not in labour force (reference group employed), whether or not frequent drinker and whether or not an average drinker (reference group rarely or does not drink).

**Table 5**  
**Dependent Variable: SF-36 Mental Health Index (0-100)**  
**Model 1- Young Australians Aged 15-25 Years**

	Pooled OLS				Random Effects				Fixed Effects			
	1	2	3	4	1	2	3	4	1	2	3	4
Family Cohesion		6.398 (0.343)***	6.366 (0.342)***	6.221 (0.335)***		5.624 (0.329)***	5.600 (0.329)***	5.528 (0.323)***		4.020 (0.510)***	3.988 (0.512)***	3.966 (0.510)***
Lone	-2.925 (0.984)***	-1.295 (0.925)	-0.898 (0.929)	-0.794 (0.901)	-2.687 (0.943)***	-1.217 (0.883)	-0.820 (0.894)	-0.775 (0.875)	-1.897 (4.704)	-0.737 (4.571)	-0.529 (4.465)	-0.185 (4.563)
Re-partnered	-3.050 (1.356)**	-1.202 (1.144)	-1.238 (1.139)	-1.572 (1.160)	-2.397 (1.297)*	-1.124 (1.135)	-1.231 (1.133)	-1.755 (1.153)	3.141 (8.135)	1.978 (7.672)	1.817 (7.653)	2.590 (7.816)
Div	-0.500 (2.082)	0.412 (1.996)	0.180 (1.979)	-0.299 (1.895)	-0.605 (1.931)	-0.235 (1.894)	-0.467 (1.888)	-0.680 (1.848)	-0.664 (2.841)	-0.792 (2.846)	-1.176 (2.847)	-0.968 (2.861)
m_Tertiary			0.332 (0.776)	0.343 (0.794)			0.056 (0.768)	0.240 (0.784)				-8.917 (10.716)
m_Indigenous Australian			-1.710 (2.374)	-5.218 (2.995)*			-1.925 (2.249)	-5.665 (2.882)**				
m_Foreign born			-0.587 (0.787)	-0.615 (0.869)			-0.757 (0.760)	-0.706 (0.835)				
Economic Index: 1st -3rd Decile			-2.381 (0.894)***	-2.300 (0.887)***			-2.180 (0.859)**	-2.136 (0.854)**			-3.544 (2.521)	-3.971 (2.615)
Edn & Occ. Index: 1st -3rd Decile			0.357 (0.841)	0.556 (0.861)			0.713 (0.805)	0.755 (0.812)			4.274 (2.476)*	4.771 (2.509)*
Regional/Remote			1.715 (0.723)**	1.608 (0.719)**			1.818 (0.708)**	1.630 (0.705)**			-2.476 (2.979)	-3.792 (3.334)
Male				3.855 (0.645)***				4.058 (0.625)***				
Indigenous Australian				5.184 (2.637)**				4.860 (2.452)**				
Foreign born				0.897 (1.358)				0.287 (1.367)				
Over 21 yrs old				-1.530 (1.110)				-0.567 (0.944)				1.966 (1.322)
Income \$'000				0.053 (0.027)**				0.050 (0.025)**				0.055 (0.039)
Full-Time Student				2.239 (0.734)***				1.523 (0.635)**				0.272 (0.806)
Unemployed				-2.899 (0.962)***				-2.385 (0.888)***				-1.009 (1.124)
Not in labour force				-2.380 (0.709)***				-1.561 (0.621)**				-0.433 (0.817)
m_Unemployed				1.345 (1.680)				1.477 (1.709)				3.050 (2.256)
m_Not in labour force				0.225 (0.752)				0.473 (0.674)				1.021 (1.231)
m_Age				-0.057 (0.067)				-0.103 (0.064)				0.873 (0.595)
m_Frequent Drinker				0.217 (0.925)				0.192 (0.857)				-0.713 (1.667)
m_Average Drinker				0.179 (0.657)				0.242 (0.594)				0.618 (1.040)
2003	0.426 (0.618)	0.748 (0.593)	0.738 (0.592)	0.709 (0.594)	0.077 (0.566)	0.422 (0.554)	0.427 (0.554)	0.447 (0.560)	-0.292 (0.608)	-0.071 (0.595)	-0.058 (0.596)	-1.239 (0.847)
2004	0.419 (0.677)	0.747 (0.637)	0.681 (0.639)	0.647 (0.635)	-0.095 (0.621)	0.305 (0.600)	0.291 (0.601)	0.327 (0.604)	-0.601 (0.689)	-0.308 (0.677)	-0.270 (0.677)	-2.620 (1.326)**
2005	-0.128 (0.697)	0.148 (0.649)	0.075 (0.651)	0.093 (0.650)	-0.606 (0.628)	-0.195 (0.600)	-0.228 (0.601)	-0.202 (0.613)	-1.125 (0.745)	-0.781 (0.722)	-0.784 (0.720)	-4.391 (2.001)**
Constant	74.703 (0.570)***	73.959 (0.531)***	73.980 (0.687)***	73.570 (3.263)***	74.767 (0.534)***	74.117 (0.504)***	74.020 (0.653)***	75.697 (3.100)***	74.637 (1.429)***	74.295 (1.373)***	76.887 (2.991)***	37.578 (25.909)
Observations	3866	3866	3866	3866	3866	3866	3866	3866	3866	3866	3866	3866
Number of XW					1861	1861	1861	1861	1861	1861	1861	1861
R-squared	0.01	0.15	0.16	0.18					0.00	0.05	0.06	0.06

Notes:

- \*\*\*, \*\* and \* denote significance at the 1 per cent, 5 per cent and 10 per cent levels respectively. Robust standard errors, clustered at the individual level, in parentheses.
- Family cohesion and personality measures have been standardised, coefficients can be interpreted as the marginal change of a one standard deviation increase.
- Family structure dummies: lone parent and re-partnered family (reference intact family), whether parent experienced divorce/separation within the last 12 months (reference group parents did not experience divorce/separation)
- Year Dummies: 2003, 2004, 2005 (reference 2002)
- Mother's Characteristics 1: Dummies for tertiary education (reference no tertiary qualifications), Indigenous Australian and Foreign Born (reference Non-Indigenous Australian)
- Family Background: Dummies for whether in the 1<sup>st</sup>-3<sup>rd</sup> decile of SEIFA economic resource index (reference group whether in the 4<sup>th</sup>-10<sup>th</sup> decile of index), for whether in the 1<sup>st</sup>-3<sup>rd</sup> decile of SEIFA education and occupation index (reference group whether in the 4<sup>th</sup>-10<sup>th</sup> decile of index), and for whether living in a regional or remote area (reference group city)
- Individual Characteristics: Dummies for full time student (reference not full time student), Indigenous Australian and Foreign Born (reference Non-Indigenous Australian), unemployed and not in labour force (reference group employed), whether or not over 21 years of age (reference age 15-20), male (reference female) and income \$'000.
- Mother's Characteristics 2: Age, dummies for unemployed and not in labour force (reference group employed), whether or not frequent drinker and whether or not an average drinker (reference group rarely or does not drink).

**Table 6**  
**Dependent Variable: SF-36 Mental Health Index (0-100)**  
**Model 2- Young Australians Aged 15-25 Years**

	Pooled OLS				Random Effects				Fixed Effects			
	1	2	3	4	1	2	3	4	1	2	3	4
Family Cohesion		6.791 (0.370)***	6.769 (0.369)***	5.474 (0.356)***		5.917 (0.363)***	5.908 (0.363)***	5.108 (0.354)***		4.197 (0.554)***	4.191 (0.557)***	4.142 (0.552)***
Lone	-3.728 (1.123)***	-2.167 (1.033)**	-1.871 (1.036)*	-1.449 (0.944)	-3.786 (1.082)***	-2.283 (0.982)**	-1.968 (0.994)**	-1.536 (0.911)*	-1.042 (5.161)	0.333 (4.965)	0.369 (4.818)	0.609 (4.904)
Re-partnered	-4.733 (1.550)***	-2.350 (1.297)*	-2.448 (1.288)*	-1.853 (1.186)	-4.347 (1.499)***	-2.619 (1.296)**	-2.767 (1.290)**	-2.182 (1.203)*	3.893 (8.398)	2.742 (7.889)	2.446 (7.828)	3.284 (7.911)
Div	0.922 (2.302)	2.077 (2.198)	1.811 (2.188)	1.736 (2.086)	0.351 (2.166)	0.699 (2.111)	0.443 (2.112)	0.655 (2.025)	-0.922 (2.950)	-1.312 (2.940)	-1.369 (2.959)	-1.125 (2.986)
Extroversion				2.879 (0.371)***				3.038 (0.356)***				
Agree				0.946 (0.379)**				0.968 (0.382)**				
Openess				-1.034 (0.361)***				-1.072 (0.352)***				
Emotional				3.015 (0.388)***				3.084 (0.374)***				
Conscientious				0.087 (0.360)				0.177 (0.354)				
m_Tertiary		0.506 (0.824)	0.715 (0.779)			0.207 (0.817)	0.657 (0.764)			2.061 (9.708)	1.068 (9.627)	
m_Indigenous Australian		-4.212 (3.152)	-1.960 (3.656)			-4.921 (3.045)	-2.723 (3.654)					
m_Foreign born		0.697 (0.876)	0.152 (0.889)			0.866 (0.839)	0.407 (0.852)					
Economic Index: 1st -3rd Decile		-2.153 (0.992)**	-1.513 (0.920)			-1.900 (0.950)**	-1.386 (0.899)			-4.132 (2.444)*	-4.843 (2.485)*	
Edn & Occ. Index: 1st -3rd Decile		0.349 (0.926)	0.765 (0.888)			0.766 (0.889)	0.980 (0.857)			4.883 (2.531)*	5.589 (2.555)**	
Regional/Remote		1.942 (0.806)**	1.944 (0.745)***			1.905 (0.792)**	1.670 (0.737)**			-2.352 (2.996)	-3.695 (3.407)	
Male				4.083 (0.689)***				4.155 (0.676)***				
Indigenous Australian				-0.701 (3.184)				-0.496 (3.105)				
Foreign born				1.113 (1.364)				0.689 (1.362)				
Over 21 yrs old				-1.629 (1.149)				-0.976 (0.983)				1.527 (1.338)
Income \$'000				0.027 (0.029)				0.037 (0.027)				0.102 (0.045)**
Full-Time Student				2.358 (0.767)***				1.857 (0.690)***				0.277 (0.849)
Unemployed				-3.063 (0.988)***				-2.600 (0.927)***				-1.058 (1.203)
Not in labour force				-2.515 (0.720)***				-1.765 (0.659)***				-0.418 (0.886)
m_Unemployed				1.918 (1.826)				1.889 (1.831)				3.412 (2.328)
m_Not in labour force				-0.543 (0.782)				-0.284 (0.707)				0.943 (1.308)
m_Age				0.055 (0.070)				0.020 (0.068)				1.008 (0.600)*
m_Frequent Drinker				-0.793 (0.909)				-0.769 (0.860)				-1.253 (1.770)
m_Average Drinker				-0.772 (0.669)				-0.585 (0.623)				-0.087 (1.120)
2003	0.669 (0.702)	0.918 (0.671)	0.899 (0.670)	0.640 (0.657)	0.209 (0.643)	0.607 (0.628)	0.613 (0.628)	0.531 (0.633)	-0.318 (0.670)	-0.005 (0.653)	-0.033 (0.655)	-1.472 (0.896)
2004	0.863 (0.775)	1.058 (0.727)	0.987 (0.729)	0.738 (0.713)	0.126 (0.705)	0.549 (0.681)	0.534 (0.682)	0.481 (0.686)	-0.656 (0.750)	-0.301 (0.735)	-0.277 (0.776)	-3.102 (1.355)**
2005	0.340 (0.762)	0.680 (0.706)	0.606 (0.707)	0.146 (0.694)	-0.394 (0.682)	0.118 (0.651)	0.092 (0.653)	-0.162 (0.668)	-1.241 (0.775)	-0.842 (0.749)	-0.878 (0.748)	-5.283 (2.028)***
Constant	74.586 (0.674)***	73.827 (0.618)***	73.430 (0.787)***	68.575 (3.358)***	74.929 (0.622)***	74.175 (0.583)***	73.600 (0.746)***	70.072 (3.235)***	74.416 (1.543)***	73.976 (1.469)***	74.145 (2.981)***	29.536 (26.063)
Observations	3161	3161	3161	3161	3161	3161	3161	3161	3161	3161	3161	3161
Number of XW			0.18		1403	1403	1403	1403	1403	1403	1403	1403
R-squared	0.01	0.18		0.28					0.00	0.06	0.06	0.07

Notes:

- \*\*\*, \*\* and \* denote significance at the 1 per cent, 5 per cent and 10 per cent levels respectively. Robust standard errors, clustered at the individual level, in parentheses.
- Family cohesion and personality measures have been standardised, coefficients can be interpreted as the marginal change of a one standard deviation increase.
- See notes of previous page for full explanation of variables

**Table 7**  
**Dependent Variable: SF-36 Mental Health Index (0-100)**  
**Model 2- Young Australians Aged 15-25 Years**

	Pooled OLS		Random Effects		Fixed Effects	
	Male	Female	Male	Female	Male	Female
Family Cohesion	5.451 (0.537)***	5.612 (0.466)***	5.317 (0.524)***	5.042 (0.478)***	4.847 (0.769)***	3.381 (0.796)***
Lone	-3.058 (1.423)**	0.237 (1.156)	-3.015 (1.393)**	0.044 (1.120)	5.703 (9.432)	-1.760 (3.989)
Re-partnered	-0.106 (1.693)	-3.161 (1.643)*	-0.545 (1.735)	-3.407 (1.654)**	10.980 (7.813)	-1.412 (10.866)
Div	-0.474 (3.634)	3.080 (2.328)	-2.303 (3.496)	2.594 (2.287)	-9.251 (5.989)	2.438 (3.069)
Extroversion	2.220 (0.574)***	3.538 (0.471)***	2.449 (0.546)***	3.625 (0.460)***		
Agree	0.625 (0.551)	0.769 (0.499)	0.725 (0.543)	0.828 (0.512)		
Openess	-1.410 (0.551)**	-0.835 (0.459)*	-1.317 (0.526)**	-0.957 (0.466)**		
Emotional	3.569 (0.624)***	2.505 (0.463)***	3.549 (0.590)***	2.664 (0.460)***		
Conscientious	-0.677 (0.539)	0.948 (0.466)**	-0.602 (0.518)	1.041 (0.482)**		
m_Tertiary	0.892 (1.088)	0.586 (1.086)	0.321 (1.085)	1.040 (1.070)	-1.182 (8.519)	0.000 (0.000)
m_Indigenous Australian	-1.907 (5.231)	-1.281 (5.073)	-2.408 (5.087)	-2.748 (5.400)		
m_Foreign born	0.385 (1.324)	0.046 (1.141)	0.922 (1.266)	-0.000 (1.121)		
Economic Index: 1st -3rd Decile	-1.943 (1.415)	-1.235 (1.163)	-2.233 (1.362)	-0.864 (1.169)	-7.212 (3.514)**	-0.814 (3.476)
Edn & Occ. Index: 1st -3rd Decile	1.951 (1.285)	-0.223 (1.172)	2.155 (1.257)*	0.005 (1.144)	8.037 (3.579)**	1.562 (2.348)
Regional/Remote	2.184 (1.181)*	1.842 (0.942)*	2.188 (1.135)*	1.374 (0.967)	-6.478 (7.146)	-2.468 (3.610)
Indigenous Australian	-0.737 (5.262)	-0.429 (3.805)	-0.627 (4.940)	0.091 (3.962)		
Foreign born	1.897 (1.723)	0.131 (2.160)	1.496 (1.768)	-0.333 (2.131)		
Over 21 yrs old	-3.299 (1.939)*	-0.341 (1.394)	-1.761 (1.590)	-0.247 (1.259)	1.945 (2.210)	1.577 (1.658)
Income \$'000	0.089 (0.045)**	-0.022 (0.041)	0.088 (0.041)**	-0.005 (0.038)	0.170 (0.064)***	0.047 (0.059)
Full-Time Student	3.957 (1.146)***	0.704 (1.002)	3.504 (1.043)***	0.201 (0.913)	1.907 (1.291)	-1.224 (1.077)
Unemployed	-2.961 (1.743)*	-3.207 (1.165)***	-2.472 (1.539)	-2.757 (1.174)**	-0.546 (1.825)	-1.424 (1.655)
Not in labour force	-2.925 (1.049)***	-1.946 (0.951)**	-2.133 (0.961)**	-1.303 (0.910)	-1.030 (1.287)	0.237 (1.209)
m_Unemployed	-2.212 (2.876)	5.018 (2.150)**	-0.158 (2.844)	4.012 (2.232)*	5.718 (3.406)*	3.025 (3.119)
m_Not in labour force	-1.173 (1.250)	-0.122 (0.959)	-0.384 (1.084)	-0.300 (0.925)	1.323 (1.882)	0.657 (1.830)
m_Age	0.086 (0.108)	-0.005 (0.089)	0.053 (0.105)	-0.034 (0.087)	1.712 (0.936)*	-1.098 (3.362)
m_Frequent Drinker	-1.123 (1.427)	-0.569 (1.149)	-1.246 (1.375)	-0.593 (1.077)	-2.709 (2.549)	-0.194 (2.475)
m_Average Drinker	-1.108 (0.981)	-0.343 (0.864)	-0.807 (0.901)	-0.497 (0.847)	0.017 (1.507)	-0.407 (1.709)
2003	0.942 (0.984)	0.147 (0.890)	0.765 (0.955)	0.092 (0.839)	-2.249 (1.387)	0.375 (3.449)
2004	1.758 (1.039)*	-0.392 (0.978)	1.560 (1.006)	-0.687 (0.935)	-3.435 (2.151)	-0.138 (6.767)
2005	0.455 (1.022)	-0.147 (0.937)	-0.051 (0.999)	-0.356 (0.894)	-7.805 (3.114)**	1.126 (10.148)
Constant	65.414 (5.077)***	76.995 (4.293)***	66.725 (4.889)***	78.467 (4.166)***	-5.633 (39.104)	127.419 (150.544)
Observations	1575	1586	1575	1586	1575	1586
Number of XW			699	704	699	704
R-squared	0.26	0.32			0.11	0.05

Notes:

1. \*\*\*, \*\* and \* denote significance at the 1 per cent, 5 per cent and 10 per cent levels respectively. Robust standard errors, clustered at the individual level, in parentheses.
2. Family cohesion and personality measures have been standardised, coefficients can be interpreted as the marginal change of a one standard deviation increase.
3. See notes of previous page for full explanation of variables