Top-line Analysis and Feasibility Study on Mental Health and Well-being using Millennium Cohort Study Data

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Views expressed in this report are those of the researcher and not necessarily those of the Welsh Government

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Glossary

The following abbreviations are used in the text:

Acronym/Key word	Definition
DEP	Depressive symptoms
EBD	Emotional and behavioural difficulties
MCS	Millennium Cohort Study
SWB	Subjective well-being

Executive summary

Background

1. There is a growing policy focus on the well-being of children, both in Wales and internationally. Monitoring the well-being of children is an important aspect of assessing progress towards the seven well-being goals defined in connection with the Well-being of Future Generations (Wales) Act 2015. Understanding the factors that affect children's well-being, either positively or negatively, is essential to inform policy and practice to improve quality of life in Wales both now and in the future.

2. This report makes use of information gathered through the Millennium Cohort Study – a UK study that has followed thousands of children born soon after the start of the new millennium, gathering information from parents, teachers and from children themselves as they grow older. The Welsh Government invested in boosting the sample of children in Wales included in this study so that it was possible to analyse data specifically for Wales.

Aims and methods

3. At 14 years old, there were still 1,669 children born in Wales who were involved in the MCS and who are the focus of this report. The MCS study provides weightings so that these children are as representative as possible of the original sample and of the child population in this age group. The report looks at three aspects of child well-being at 14 years old – life satisfaction, depression, and emotional and behavioural difficulties. It analyses the contemporaneous factors associated with children's levels of well-being at this age; and also considers links with some factors earlier in childhood.

4. The report concludes by drawing out implications from the findings and making some recommendations about future developments to understand children's well-being in Wales.

Findings

The quality of family relationships and experiences of being bullied are key factors

5. The first part of the analysis focused on eight questions answered by children covering four aspects of their lives – activities (social media and physical exercise), family relationships, experiences of being bullied and experiences of school. Of these aspects, the quality of family relationships and the frequency of being bullied emerged as the strongest predictors of all three measures of well-being. The quality of family relationships was the most important factor predicting life satisfaction and emotional and behavioural difficulties; while there was a strong association between being bullied and higher depressive symptoms.

6. The analysis did not suggest that light to moderate use of social media is linked with lower child well-being; although children who were very heavy social media users did have higher depressive symptoms and lower life satisfaction.

7. Overall these four aspects of life predicted 13% of the variation in emotional and behavioural difficulties; 23% of the variation in life satisfaction and 35% of the variation in depressive symptoms. So they are important factors in helping to understand why some children have much higher or lower well-being than others.

Varying links between family socio-economic factors and child well-being

8. The second part of the analysis looked at family factors associated with variations in child well-being.

9. Some family socio-economic factors – such as income and parental employment status were associated with child well-being, but the link was not that strong. These types of factors were stronger predictors of children's emotional and behavioural difficulties than of their levels of depression or life satisfaction. This is consistent with previous UK research.

10. Extending the research to take account of earlier childhood experiences of poverty, there was evidence that intermittent or persistent poverty was linked with greater emotional and behavioural difficulties and to lower life satisfaction at the age of 14 years old.

11. The type of family that a child lived in (e.g. both birth parents, lone parent or stepfamily) did not appear to be a major influence on their well-being once other factors such as household income and parental mental health were taken into account. There was little evidence of a link between recent changes in family structure and children's well-being.

12. There was also limited evidence that factors such as parental age and levels of educational qualifications were predictive of children's well-being

Links between parental mental health and child well-being

13. Among the family factors considered, parental mental health emerged as the strongest predictor of children's well-being. In households where the main parent (usually the mother) had severe symptoms of depression, children had significantly lower life satisfaction, higher levels of depression and greater emotional and behavioural difficulties than in households where the main parent had few symptoms of depression. Poor parental mental health earlier in the child's life was also predictive of lower current well-being.

14. When parental mental health was taken into account, factors such as household income and family structure were no longer important predictors of children's well-being. This seemed to be because parents in low-income and lone-parent families

were more likely to have severe depressive symptoms. This pattern of findings suggests that parental mental health may be a key issue connecting factors such as poverty to children's well-being.

Different findings for different measures of child well-being

15.   An important finding from the analysis is that different factors and issues in children's lives are more or less strongly linked with the three different measures of well-being. For example, children's experiences of being bullied were much more strongly associated with levels of depression than they were with emotional and behavioural difficulties. Meanwhile, emotional and behavioural difficulties appear to be more strongly linked with socio-economic factors such as income poverty. The report also cites other UK research that has found that measures of life satisfaction and depression are much stronger predictors than a measure of their emotional and behavioural difficulties in terms of the likelihood of self-harm.

16.   A key implication of these findings is that no single measure of child well-being is satisfactory on its own for the purposes of informing policy. Monitoring only one aspect of well-being risks missing important issues that may be affecting children's quality of life. It is recommended that policymakers monitor several different indicators of overall well-being – such as the three analysed in this report – in order to gain a comprehensive and reliable overview.

1. Introduction

Background

1.1 This report provides new analysis and evidence on the well-being of children in Wales and the factors that are linked to higher and lower well-being. There is a growing global interest in the measurement of people's well-being (e.g. Helliwell et al., 2016). One important reason for this is the recognition that conventional economic indicators, such as national wealth and growth, are not adequate to sum up societal progress (Stiglitz, Sen & Fitoussi, 2009). Increasing wealth in many countries has not been matched by improvements in other indicators, such as how people feel about their lives.

1.2 Well-being can be measured both by objective indicators (e.g. infant mortality rates, levels of poverty) and subjective indicators (e.g. life satisfaction, feelings of safety). Recent work has tended to incorporate both types of indicators. There has been a recognition that how people feel about their lives provides an important perspective. This has led, for example, to recommendations about how to utilise subjective indicators in well-being monitoring by the OECD (2013).

1.3 Early research on well-being focused on adults but in recent years the study of child well-being has also expanded rapidly (e.g. UNICEF Office of Research, 2015). In the UK, the Office for National Statistics has developed sets of national well-being indicators to cover different age groups in the population – children, youth and adults (ONS, 2014a, 2014b & 2016). These indicator sets include both objective and subjective measures.

1.4 In Wales, the concept of well-being has also grown in importance. The National Assembly for Wales agreed seven well-being goals, which are contained in law under the Well-being of Future Generations (Wales) Act 2015. The Welsh Government has published three editions (most recently Welsh Government, 2015a) of a monitor of children and young people's well-being; and a report last year that focused on children's well-being in relation to the above seven well-being goals (Welsh Government, 2018). Additionally, the Health Behaviour of School-aged Children Survey has provided insights into aspects of children's well-being in Wales (Welsh Government 2015b).

1.5 These existing reports present a descriptive picture of the state of child well-being in different areas of life and trends in this picture over time. There is relatively little

detailed evidence, specific to Wales, about why some children have higher well-being than others and how these patterns may be affected both by current and historical factors. This report, commissioned by the Welsh Government, is a contribution to filling this evidence gap.

1.6   The report uses data from the Millennium Cohort Study (MCS) – a UK study that has followed a large representative sample of children born shortly after the start of the new millennium. It gathers data at different ages from parents, teachers and children themselves. The Welsh Government invested in this survey so that the sample of children in Wales would be large enough to enable ongoing analysis. The survey began with 2,760 children in Wales in 2000-1 and 1,669 of these children were still involved in the survey at the age of 14 years old, which is the most recent age for which data is currently available. Two previous reports commissioned by the Welsh Government presented findings for children at the age of three and five (Dex, Cullis & Hansen, 2010) and at the age of seven (Joshi, Ketende & Parsons, 2011). The current report focuses on children at the age of 14 years old.

1.7   The survey contains a wealth of data about each child as they grow up. The first six sweeps of the study gathered information when children were around nine months old and around three, five, seven, 11 and 14 years old. This report uses a selected set of information from the study to explore how variations in three components of children's well-being at the age of 14 years old – life satisfaction, depressive symptoms, and emotional and behavioural difficulties – are associated with (a) aspects of children's family circumstances, family life, peer relationships, life at school and behaviours at 14 years old; and (b) circumstances and experiences earlier in childhood. The goal is to provide a fresh insight into the development of well-being among children in Wales that can respond to the increasing recognition of the importance of this topic among policymakers and practitioners working with children and young people.

1.8   Research has established that positive and negative indicators of well-being are not simply opposite ends of the same continuum. For example, it is quite possible for a person to be diagnosed with a mental illness but still feel satisfied with their lives; or, equally, for someone not to meet the threshold for mental health problems but to be dissatisfied with their lives (Bergsma et al., 2011). The analysis highlights how the choice of measure can make a substantial difference to the conclusions that are drawn about why some children might have higher well-being than others.

1.9   The factors that are explored as being possibly associated with variations in children's well-being include many that have been found to be important in previous research on this topic in the UK (e.g. Patalay & Fitzsimons, 2016; Rees & Bradshaw, 2018; Rees, 2018). These include household poverty, family structure and size, parent characteristics such as age and level of education, quality of family relationships, bullying and school experiences. Some emerging issues such as children's physical exercise and social media behaviours are also covered.

2.   Methodology

Data

2.1   This paper will present analysis of the Millennium Cohort Study (MCS) data for the sample of 1,669 children born[1] in Wales who were still involved in the MCS at 14 years old (sixth sweep). For brevity, the six sweeps of the MCS will be referred to as:

MCS1 = First sweep, when children were nine months old
MCS2 = Second sweep, 3 years old
MCS3 = Third sweep, 5 years old
MCS4 = Fourth sweep, 7 years old
MCS5 = Fifth sweep, 11 years old
MCS6 = Sixth sweep, 14 years old

Well-being variables

2.2   Three variables will be used to represent various aspects of 'well-being'

- A single question (answered by children) about happiness with life as a whole on a seven-point scale. This will be referred to as subjective well-being or SWB.

- A scale made up of 13 items (answered by children) designed to measure depressive symptoms (the Moods & Feelings Questionnaire). This will be referred to as depressive symptoms or DEP.

- A scale made up of 20 items (answered by parents about children) designed to measure emotional and behavioural difficulties (the Strengths & Difficulties

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[1] A few of these children had moved out of Wales by the time of the sixth sweep. However in terms of the design of the survey and the weightings provided for the data, it is more accurate to include these children. Similarly children born in other parts of the UK who moved to Wales by the sixth sweep are not included in the analysis. There were a few households included in the sample with twins or triplets. To avoid double-counting of some households, only the first-born child in these groups has been included in the analysis.

Questionnaire). This will be referred to as emotional and behavioural difficulties or EBD.

2.3   To aid and simplify comparisons, all three measures have been rescaled from 0 to 10 where a higher number represents a more positive state of well-being. This means, for example, that a higher EBD score means fewer emotional and behavioural difficulties. The mean scores on each scale for children in Wales at 14 years old were: 7.58 for SWB, 7.76 for DEP and 7.88 for EBD.

2.4   An important point is that the three variables were not that strongly related with one another. The correlations between the pairs of variables were as follows:

- 0.53 between SWB and DEP indicating a moderately strong association
- 0.19 between SWB and EBD indicating a weak association
- 0.25 between DEP and EBD also indicating a weak association

2.5   This is consistent with previous research cited above. This difference between the three well-being measures is a recurring theme running through the analysis and carries important implications in terms of what indicators are selected to monitor well-being in the child population.

Independent (predictor) variables

2.6   The analysis focuses on the relationships between the above three variables and three different groups of information about the child:

1. Information reported by children about their lives at 14 years old
2. Information about the household reported by the main parent when the child was 14 years old
3. Longitudinal information about the household reported by the main parent in the previous five sweeps of the MCS.

2.7   In relation to (2) and (3) the main parent in the MCS is a parent or other adult who takes responsibility for caring for the child. Particularly in the early waves of the survey this was usually the mother as questions were asked about the pregnancy and delivery. This pattern tended to persist in later waves. If another parent was present in the household, they also answered many of the same questions as the main parent. It would have been possible to use this data, but it would have led to a number of complications as, by MCS6, many children were only living with one parent.

Information reported by the child at 14 years old

2.8   There are a wide range of variables reported by children in the MCS6 self-completion questionnaire. The analysis will focus on the following which have been informed by previous research on well-being and topical debates.

- Two questions about the frequency of activities: physical exercise and using social media

- Two questions about the quality of the child's relationships with their mother[2] – feelings of closeness and frequency of arguing

- Two questions about the frequency of being bullied – in general and online

- Two questions about life at school – trying one's best and thinking that school is a waste of time

Frequencies of responses to these questions by children in Wales are shown in Tables A1 to A8 in the Appendix

Information reported by the main parent when the child was 14 years old

2.9   The variables selected for the analysis are ones typically used in research on children's well-being and outcomes:

- Household income (equivalised in quintiles)

- Family type (both birth parents / step / lone / other)

- Housing tenure (Whether the family own the house)

- Employment (Whether either/lone parent is in paid work)

- Number of children in the household

- Education of main parent (None / NVQ Level / Overseas)

- Main parent's age at time of interview (grouped)

- Mental health of main parent – anxiety and depression (Kessler scale)

- Long-term illness of main parent (self-reported)

- Household material deprivation (a list of items)

- Family financial strain (reported by main parent)

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[2] The focus in on relationships with mothers because at this age many children do not live with their father. For example in the Wales MCS6 sample only 58% of birth fathers were living in the main household, compared to 95% of birth mothers. Thus questions about relationships with fathers – e.g. frequency of arguing – are more difficult to interpret.

2.10   Longitudinal analysis, taking account of children's circumstances over time, is complex and there was a limit to what could be done within the scope of this analysis. In discussion with staff at the Welsh Government and based on previous research, it was decided to analyse the following longitudinally:

- Experiences of poverty

- Changes in family structure

- Parental mental health

Analysis

2.11   All analysis takes account of the survey design (stratification and clustering) and is appropriately weighted to be as representative as possible of children born in Wales in this age group. The statistical significance level used for this analysis was $p < 0.05$ (95% confidence) unless otherwise stated.

3.   Results

Variations by age, gender and household income

3.1   As a foundation for the analysis that follows, this initial section looks at variations in well-being according to gender, age at time of interview and household income. For MCS6 the children's ages range from 13.4 to 15.3 years old with a mean age of around 14.3 years old. As there may be a link between age and well-being this is taken into account in the analysis. Household income may be an underlying factor linked to various aspect of children's lives and will also be taken into account in this way in much of the analysis.

3.2   Table 1 presents the results of regression models for each well-being variable with two independent variables – age and gender.

- There were no significant age differences for any of the well-being variables

- Males had higher subjective well-being (SWB) and lower depressive symptoms (DEP) than girls, but had greater emotional and behavioural difficulties (EBDs)

- Gender and age explained most variation in depressive symptoms, then subjective well-being then emotional and behavioural difficulties.

Table 1: Variations in child well-being at 14 years old by gender and age

Variable	SWB	DEP	EBD
Age (10ths of a year)	-.26	-.17	.12
Male	.74*	1.08*	-.29*
R-squared	2.5%	5.6%	1.0%

Source: MCS6, children born in Wales

Notes: * indicates a significant effect at the 95% confidence level

3.3 Table 2 takes the same approach but also includes household income. The bottom row of the table indicates the extra explanatory power of the income variable in terms of predicting children's well-being, after taking account of age and gender as shown in Table 1.

- Findings for age and gender remain as above

- Income is a significant predictor of EBD and SWB but not DEP

- EBD is far more strongly influenced by income than are the other two variables. The added explanatory power of income, after taking account of age and gender, was +7.8% for EBD compared to only +0.7% for SWB and +0.1% (effectively zero) for DEP.

Table 2: Variations in child well-being at 14 years old by gender, age and household income

Variable	SWB	DEP	EBD
Age (10ths of a year)	-.24	-.16	.15
Male	.75*	1.08*	-.26*
Income quintile	.15*	.06	.31*
R-squared	3.2%	5.7%	8.8%
Added explanatory power	+0.7%	+0.1%	+7.8%

Source: MCS6, children born in Wales

Notes: * indicates a significant effect at the 95% confidence level

Child-reported variables at 14 years old

3.4 Having established variations in well-being according to gender, age and household income, this section looks at the associations between information reported by the child and their well-being. The percentages in the last row of Table 2 are used as a baseline to compare the explanatory power of different information reported by the child. All models include age, gender and household income (not shown) and the R-squared (marked with a +) indicates the increased explanatory power compared to the model with three variables above.

3.5 Table 3 summarises the explanatory power of statistical models predicting each aspect of children's well-being based on different groups of child-reported variables

listed in Section 2.8. The percentages show the power of the variables in explaining variations in the well-being score, after taking account of age, gender and household income. A general point to bear in mind is that this analysis does not show directions of causality.

- Family relationships and experiences of being bullied had the strongest predictive power for SWB.

- Experiences of being bullied was by far the strongest predictor of DEP, followed by family relationships.

- The child-reported variables (relating to activities, family relationships, experiences of being bullied and school experiences – see 2.9) tended to predict less of the variation in EBD with family relationships being the most powerful predictor.

- Overall, these child-reported variables predicted substantial amounts of the variation in all three aspects of well-being. The strongest predictive power was for DEP and the weakest for EBD.

Table 3: Explanatory power of groups of child-reported variables for child well-being at 14 years old

Group	SWB	DEP	EBD
Activities	+4.1%	+6.8%	+3.2%
Family relationships	+11.0%	+9.2%	+5.8%
Bullying	+10.5%	+25.4%	+4.6%
School engagement	+5.8%	+6.5%	+2.4%
All groups	+22.8%	+34.8%	+13.2%

Source: MCS6, children born in Wales

Notes: The figures show the increase in R-squared from a linear regression including the variables within the group plus gender, age and household income; compared to the R-squared only for gender, age and household income shown in Table 2.

3.6   This analysis suggests some differences in the way that children's experiences of the four aspects of their lives considered here are related to different aspects of their well-being. The next sections look in more detail at the variables which were predictors of one or more of the well-being variables.

Social media use

3.7   There are currently widespread public concerns about the negative impact of social media on young people. However, the published research evidence on this topic suggests a complex and mixed picture (Kardefelt-Winther, 2017) and indicates that social media use can also have benefits for young people.

3.8   In the MCS6, children were asked how many hours they spent on social media on a normal week day (Table A1). Only around 8% of children did not use social media at all and around a quarter (24%) might be viewed as light users (up to one hour per day). At the other end of the scale around one in nine children (11%) used social media for seven hours or more and 10% using social media for five hours or more.

3.9   Table 4 shows mean levels of each well-being variable by frequency of social media use. Heavy social media use (7 hours or more per weekday) was associated with significantly lower SWB than zero use; and children who used social media for five hours or more per weekday had significantly higher depressive symptoms than non-users. There was no association between heavy social media use and lower EBD scores. At the other end of the spectrum, the small group of children who did not use social media at all had significantly lower SWB than very light users (less than half an hour a day); and significantly higher EBDs than any other group.

Table 4: Mean well-being by frequency of social media use

	SWB	DEP	EBD
None	7.6	8.1	7.1
Less than half an hour	8.2	8.5	8.0
Half an hour to less than 1 hour	8.0	8.3	8.2
1 hour to less than 2 hours	7.6	8.1	8.0
2 hours to less than 3 hours	7.5	8.1	7.7
3 hours to less than 5 hours	7.8	7.7	7.9
5 hours to less than 7 hours	7.2	6.8	7.9
7 hours or more	6.5	6.4	7.7

Source: MCS6, children born in Wales

3.10   The conclusions remained the same when controlling for age, gender and household income. In summary, there is no evidence here that moderate regular social media use (less than five hours on a normal day) is linked to low child well-being, although very heavy use is associated with lower subjective well-being and higher depressive symptoms. Not using social media at all was also linked to lower well-being than light use. As with other analysis, these links do not clarify the direction of causality (if any).

3.11   Previous research analysing the MCS data for the whole UK sample has reported that high-frequency social media use has a greater negative impact on girls than boys in terms of life satisfaction (The Children's Society, 2017) and depressive

symptoms (Kelly et al., 2019). However this pattern was not statistically significant in the Wales sample.

Family relationships

3.12   The quality of family relationships (at least from children's perspectives) has been shown to be one of the most important predictors of subjective well-being (Saha et al., 2010).

3.13   Tables A3 and A4 show show children's responses to questions about feelings of closeness to, and frequency of arguing with, their mothers. Most children (83%) felt either 'extremely' or 'very' close to their mother; while only around 2.5% did not feel close at all. Only around 7% of children said that they never argued with their mother and just over a quarter (26%) said that they did so more than once a week or most days.

3.14   Table 5 shows the links between the frequency with which children argued with their mothers and their well-being. There were strong and significant differences in all three well-being measures based on answers to this question. Compared to children who never argued with their mothers, those who argued with them most days had lower subjective well-being and more depressive symptoms by over 2.5 points; and greater emotional and behavioural difficulties by around 1.5 points. These associations remained of a similar magnitude when controlling for age, gender and household income.

Table 5: Mean well-being by frequency of arguing with mother

	SWB	DEP	EBD
Most days	5.9	6.2	6.8
More than once a week	7.0	7.2	7.5
Less than once a week	7.5	7.8	8.0
Hardly ever	8.0	8.2	8.1
Never	8.6	8.9	8.2

Source: MCS6, children born in Wales

Being bullied by other children

3.15   The detrimental impact of being bullied has been a consistent theme in the qualitative and quantitative research on child well-being in the UK. There is also evidence that experiences of childhood bullying are linked with long-term negative effects on people's mental and physical health as adults (Wolke & Lereya, 2015; McDougall & Vaillancourt, 2015).

3.16   The MCS6 survey asked children two questions that relate to experiences of being bullied. First there was a general question about how often children (other than siblings) '*hurt you or pick on you on purpose*'. No specific location was included in the question so this is not purely about school-based bullying, for example. Second, there was a more specific question about other children having '*sent you unwanted or nasty emails, texts or messages or posted something nasty about you on a website*'. Both questions had six response options representing frequencies from 'Never' to 'Most days'. In response to the general question, almost half (48%) of children aged 14 in Wales reported having been bullied at least once and 11% were bullied at least once a week (Table A5). In response to the more specific question about online bullying, around a third (33%) had been bullied online although only just over 2% had been bullied in this way at least once a week (Table A6).

3.17   As shown earlier the answers to the questions on bullying were significantly related to well-being. Table 6 shows the effects of general bullying on children's well-being, which were statistically significant for all three well-being measures. Children who were bullied most days had higher depressive symptoms by over 3.6 points; lower SWB by around 2.3 points; and higher EBDs by around 1.6 points. The patterns were similar, although less strong, for online bullying. The links between bullying and well-being remained strong when taking account of gender, age and household income. These findings are consistent with other studies (e.g. Przybylski & Bowes, 2017) that show strong associations between levels of bullying and child well-being.

Table 6: Mean well-being by frequency of being bullied by other children

	SWB	DEP	EBD
Most days	5.8	4.9	6.5
About once a week	6.2	6.1	7.5
About once a month	6.6	6.3	7.6
Every few months	7.0	6.7	8.1
Less often	7.5	7.5	7.8
Never	8.1	8.6	8.1

Source: MCS6, children born in Wales

Lack of engagement with school

3.18   The research on the links between children's school lives and their well-being reveals that various aspects of the school climate and children's engagement with school are related to their overall sense of well-being (Huebner et al., 2014).

3.19   Unfortunately the MCS6 questionnaire did not ask questions about aspects of school life such as relationships with teachers and with other children. It did however ask about children's feelings about school, including two questions selected for analysis here – *'How often do you try your best at school?'* and *'How often do you feel that school is a waste of time?'*. Tables A7 and A8 summarise the responses of children in Wales to these questions. Around 35% of children tried their best at school 'all of the time' and a further 56% 'most of the time'. Almost two-fifths (39%) never felt school was a waste of time, but around almost a fifth (18%) felt this most or all of the time.

3.20   Table 7 shows the levels of each well-being measure according to children's responses to the second question. Children who felt school was sometimes a waste of time had significantly lower SWB than children who never did; and children who felt school was a waste of time most or all of the time had lower scores again. The patterns were similar for depressive symptoms. Only the children who felt that school was mostly or always a waste of time had significantly greater emotional and behavioural difficulties than those who never did. Generally, the differences in well-being here were not as large as for the other variables considered earlier.

Table 7: Mean well-being by frequency of feeling that school is a waste of time

	SWB	DEP	EBD
All of the time	6.8	6.8	7.0
Most of the time	6.7	7.0	7.4
Some of the time	7.4	7.6	7.9
Never	8.1	8.3	8.0

Source: MCS6, children born in Wales

Parent-reported variables

3.21   This section turns to information about the household and the main parent, reported by the main parent when the child was 14 years old and also some information relating to earlier in childhood. The analysis of the links between these parent-reported variables when the child was 14 years old and child well-being was conducted in three stages. First (Model 1) the information about household characteristics was introduced – income, family type, housing tenure, employment and number of children. Then (Model 2) information about the main parent's characteristics – level of education and age at birth of child – was added. Finally (Model 3), the main parent's physical and mental health were included. All models also included the child's gender and age as control variables. Table 8 summarises

the results. These household and parental factors were much more strongly linked with EBD than with SWB or DEP.

Table 8: Explanatory power of groups of parent-reported variables for child well-being at 14 years old

Group	SWB	DEP	EBD
Household characteristics	+0.7%	+1.2%	+2.9%
plus Parent characteristics	+1.3%	+2.2%	+4.4%
plus Parent health	+2.9%	+4.7%	+13.0%

Source: MCS6, children born in Wales

Notes: The figures show the increase in R-squared from a linear regression including the variables within the group after taking account of variations by the child's gender and age (Table 1).

3.22   For SWB, in Model 1, children living in a lone-parent family and in a household where no-one was in paid work had lower well-being. However, family structure was no longer statistically significant once parental age and education was taken into account; and household employment also was not statistically significant once the parental health variables were introduced. In fact, when all variables were taken into account only parental mental health was significantly linked with children's SWB. Care is needed in interpretation of these findings. Other factors such as income, family type, employment, and so on can still be background factors that are linked to parental mental health. It may be only that the connection between them and children's SWB is through the link they have with parental mental health.

3.23   Living in rented housing, having a parent with an overseas qualification, poorer parental mental health, and poorer parental physical health were all significantly linked with higher depressive symptoms.

3.24   Living in a household with no-one in paid work was linked with higher EBDs. But the strongest relationship was between poorer parental mental health and higher child EBDs.

3.25   It is also worth noting that household income, parental age and number of children in the household did not play a significant role in any of these models. However, income, in particular, is likely to be a background factor associated with lack of employment and living in rented housing.

3.26   In general, family characteristics and socio-economic factors were only weakly linked with variations in child well-being (particularly life satisfaction). This is consistent with previous UK research based on MCS5 data (Patalay & Fitzsimons, 2016; Rees & Bradshaw, 2018).

Parental mental health

3.27   One of the most striking findings from the analysis in Table 4 is the relationship
between parental mental health and children's well-being. The mental health
measure used was the Kessler scale which is defined as indicating 'mental distress'
so this terminology will be used in this section. The general patterns are illustrated
in Table 9. There is a downward trajectory of all three measures of child well-being
as parental mental distress decreases. This is particularly strong for child emotional
and behavioural difficulties, where the gap between children whose parents had low
and severe symptoms of mental distress was around 1.8 points on a 10-point EBD
scale.

Table 9: Mean child well-being by level of parent mental ill-health

	SWB	DEP	EBD
Low mental distress of parent	7.8	7.9	8.2
Moderate mental distress of parent	7.1	7.5	7.3
Severe mental distress of parent	7.1	7.2	6.4

Source: MCS6, children born in Wales

3.28   This analysis can be extended to take into account historical levels of parental
mental health. A variable was constructed for the average mental distress score
(when available) of the main parent across the second to fourth sweeps of the
survey. This approach was taken to minimise cases dropped out of the analysis due
to missing data for a particular wave. This historical variable was a significant
predictor of all three measures of child well-being at 14 years old, after all the
current household and parent factors in Table 4 were taken into account. It added
1.4% power to explaining variations in SWB; 1.4% to explaining variations in DEP;
and 0.5% to explaining variations in EBDs. This additional explanatory power was
not that large, but it should be borne in mind that there is a link between parents'
current mental health and historical mental health. So, there will also be an indirect
effect of historical factors on current well-being. In summary, child well-being may
be adversely affected by historical parental mental health problems as well as
current ones.

Household income

3.29   When considered on its own (only controlling for the child's age and gender),
household income was significantly associated with child SWB and EBD, although
not with DEP (Table 2). However, when parental mental health is taken into

account, these relationships weaken. For example, in relation to SWB the overall effect is that the differences in SWB between children in different income groups are no longer statistically significant.

3.30   The reason for this pattern is that parents in lower income households had higher levels of mental distress. Parents in the highest income group were twice as likely (80%) to have low levels of mental distress as those in the lowest income group. Almost one in five parents in the lowest income group had signs of severe mental distress compared to only 3% in the highest income group. So, it appears that an important link between household income and child SWB is the level of parental mental health.

3.31   It is possible that persistent low income during childhood could have greater power in terms of variations in child well-being. In view of this, additional analysis was undertaken based on information about whether a child was in a household in poverty (below 60% of median income) in each wave of the MCS survey. A cumulative score was created of the number of sweeps in which the child lived in poverty[3] (Table A9). More than two-fifths of children (45%) had not been in poverty at any of the survey sweeps, and around 9% had been in poverty in all six sweeps, although complete data was only available for 80% of children so these patterns may not be reliably representative. In fact, including partial data, only around 40% of children in the total sample born in Wales had not been in poverty at any wave.

3.32   The relationships between this cumulative poverty indicator and the three child well-being measures are shown in Table 10. Experiencing two or more instances of poverty (all categories grouped) was associated with significantly lower current subjective well-being, but there is no evidence of a consistent cumulative effect of more than two instances. There was no clear link between persistent poverty and current depressive symptoms. There was a stronger association between historical poverty and EBDs. Even only one episode of poverty was associated with higher EBDs compared to no episodes and increasing numbers of episodes were linked to increasing EBDs.

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[3] A complication is that the OECD equivalisation scale allocates 0.3 for each child under the age of 14, but 0.5 from the age of 14 upwards. This means that in the MCS6 when most studied children were 14 years old, the poverty rate increased substantially compared to previous waves. In order to generate a more consistent picture, the equivalisation was recalculated so that the study children counted as 0.3 as in previous waves. This analysis only includes children (80% of sample) for whom poverty data was available for all six waves

Table 10: Mean well-being by number of MCS waves in which the children lived in poverty

	SWB	DEP	EBD
0 waves	7.8	8.0	8.3
1 wave	7.8	7.7	8.0
2 waves	7.1	7.9	7.8
3 waves	8.1	8.1	7.9
4 waves	7.3	7.6	7.4
5 waves	7.6	7.9	7.5
6 waves	6.8	7.6	6.7

Source: MCS1 to MCS6, children born in Wales. Cases with complete poverty data for all six waves

3.33 Broadly speaking this analysis confirms the findings presented earlier. There is a weak link between household income poverty and both children's subjective well-being and children's depressive symptoms, even when historical poverty is taken into account in addition to current poverty. However, there is a more substantial link between income poverty and EBDs.

Multi-dimensional poverty

3.34 Income is not the only way to conceptualise or measure poverty and no single indicator of poverty is an entirely reliable measure. For example, one person may not be in paid work but may have substantial savings; another person may have a reasonable income but be struggling with huge debts. Additionally, there may be a lag between the occurrence of income poverty and its impact on child well-being (Gordon, 2006). In terms of understanding child well-being, another reason to be interested in other ways of measuring poverty is that children will often not be directly aware of household income in the way that adults are. So, income will not directly affect their well-being. However, they may experience the consequences of low income through material deprivation or strained family relationships.

3.35 In view of these considerations, some further analysis was conducted based on earlier work done on the MCS (Bradshaw & Holmes, 2008; Rees & Bradshaw, 2018), including three different aspects – income poverty (below 60% median income), material deprivation (households lacking more than one of a list of five basic items), and financial strain (the main parent reporting that they were finding is quite or very difficult to manage financially). A summary indicator of multi-dimensional poverty was constructed based on adding together how many forms of poverty each child was experiencing (Table A10). More than half (59%) of children in MCS6 in Wales were not experiencing any form of poverty; 23% were

experiencing one of the three forms; 14% were experiencing two; and 3% all three. Due to small numbers in the last category it was combined with the previous one for the purposes of analysis.

3.36   Using this measure, in comparison with children not experiencing any form of poverty, those experiencing one form had significantly greater EBDs but there was no difference in SWB or DEP. Children experiencing more than one form of poverty had significantly lower well-being on all three measures, although the association with EBDs was much stronger than with SWB or DEP. The multi-dimensional poverty indicator explained less than 1% of the variation in children's SWB and DEP but more than 11% of the variation in their EBD scores. This more sophisticated approach to measuring poverty therefore delivers very similar conclusions to analysis based only on income.

Table 11: Multi-dimensional poverty and child well-being

	SWB	DEP	EBD
No form of poverty	7.7	7.8	8.2
One form of poverty	7.6	8.0	7.6
Two or three forms of poverty	7.1	7.2	6.8

Family type[4]

3.37   Previous research has shown mixed evidence of the link between family types and children's well-being. Some studies have found that children living with both birth parents have higher well-being than other children, but this link tends to weaken and sometimes disappear when other family contextual factors such as household income are taken into account (Patalay & Fitzsimons, 2016; Rees & Bradshaw, 2018).

3.38   In the MCS6 in Wales, there were apparently differences in child well-being according to family type. Children in lone-parent families had significantly lower scores on all three well-being measures than children living with both birth parents. Children in step-families also has higher EBDs than those living with both birth parents.

3.39   However, as noted earlier, these differences were no longer so apparent when other factors are taken into account. First, family type is strongly linked with

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[4] (Note: This section only analyses the three main family groups – both, step and lone – as there are small numbers of children living in 'other' family types)

household income. Over half of households in the lowest two income groups contained a lone parent compared to only 1% of the highest income households. Second, there were different levels of parental mental health in different family types. Around 13% of lone parents had severe symptoms of mental distress compared to 9% of main parents in stepfamilies and only 5% of parents in two-birth-parent families. The overall result of these patterns is that after taking account of household income and parental mental health the differences in child well-being between family types are no longer statistically significant.

3.40   It is possible that family structural change may also be detrimental to children's well-being. There is some evidence of this from previous research although the impact does not appear to be that strong (Robson, 2010). In the MCS in Wales, around 13% of children experienced a change of family type between MCS5 (11 years old) and MCS6 (14 years old). These children did have slightly lower well-being (around 0.2 points to 0.4 points depending on the well-being measure) than children who had not experienced a family change. However once other current contexts were taken into account (e.g. parental mental health) these differences were no longer statistically significant.

4.   Conclusion

Summary for each well-being measure

Children's life satisfaction at 14 years old

4.1   The analysis of factors influencing children's life satisfaction at 14 years old is broadly consistent with previous UK research findings on this topic. The child's current family circumstances are not that strongly connected with their life satisfaction. There is some evidence of a link with economic factors; little evidence of variations by family type, parental education or parental age; but stronger links with parental mental health. However, all of these factors considered together only explain around 3% of the variation in children's life satisfaction. Historical factors such as persistent poverty and histories of parental mental health problems are statistically significant but only explain 1% or 2% more. On the other hand, children's own reports of a selection of their current circumstances at 14 years old are much stronger predictors explaining over 22% of the variation in their life satisfaction. In particular, children's perceptions of the quality of family relationships

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and their experiences of being bullied show important associations with their life satisfaction.

Children's depressive symptoms at 14 years old

4.2   The picture for children's depressive symptoms at 14 years old is similar to that described above for children's subjective well-being. One key difference is that family economic factors appear to be even more weakly linked with depressive symptoms. In fact, current household income has no predictive power at all in this case. A second key difference is that recent experiences of being bullied are even more strongly predictive of depressive symptoms

Children's emotional and behavioural difficulties at 14 years old

4.3   The factors associated with children's emotional and behavioural difficulties (EBDs) at 14 years old are quite different to the above. First, there is much clearer evidence of a socio-economic gradient – children in poorer families having greater EBDs than children in richer families. Second, there is a much stronger link between parental mental health and children's EBDs. Third, the longitudinal analysis taking account of family economic histories tended to show stronger links with current EBDs than with life satisfaction or depressive symptoms. Fourth, children's own reports on their lives at 14 years old were much less strongly linked with EBDs than the other two well-being measures.

Discussion

Clarifying the meaning of 'well-being'

4.4   The most striking implication of this analysis is the importance of clarity about the meaning of 'well-being'. This is such a commonly-used term and often also appears within composite phrases such as 'health and well-being' and 'mental well-being' and so on. This varying, and sometimes vague, terminology is problematic in terms of understanding the possible drivers of different aspects of child well-being. It is quite clear from the findings presented here that tackling children's emotional and behavioural difficulties will require different actions to tackling children's depressive symptoms or improving their subjective well-being. A simple example of this is that gender differences in well-being work in the opposite way for emotional and behavioural difficulties (higher in boys) than they do for life satisfaction (lower in girls) and depressive symptoms (higher in girls). Other recent UK-wide analysis of

the MCS (The Children's Society, 2018) has found that measures of life satisfaction and depression are much stronger predictors than a measure of their emotional and behavioural difficulties in terms of the likelihood of self-harm. These types of findings mean that no single measures on its own can be an adequate indicator of child well-being for monitoring purposes. A multi-dimensional approach is needed recognising different components of well-being. Undefined composite terms such as 'health and well-being' and 'mental well-being' should also be avoided.

4.5   In addition to these points about conceptualisation and monitoring, the report highlights a number of possible areas for action to improve child well-being in Wales as follows.

The direct and indirect impacts of poverty

4.6   Children living in poorer families have higher emotional and behavioural difficulties and lower life satisfaction. Research suggests that poverty may impact on well-being through a number of routes including family strain, the quality of family relationships and parental mental health. So, while a recommendation to reduce poverty goes well beyond the scope of this analysis, greater attention could be paid to mitigating the effects that poverty has on families and on child well-being.

Parental mental health

4.7   One of the factors that may be focused on in connection with the above is parental mental health. The analysis supports what might be regarded as a common-sense idea of a link between poverty and parental mental health problems; and between these problems and lower child well-being. Greater support for parents with mental health problems may benefit the lives of parents and their children.

The influence of social media may be over-stated

4.8   There are currently widespread public concerns about the effects of social media usage on child well-being. But the evidence to support these concerns is not yet that strong or conclusive; and directions of causality are unclear. For example, depressed children may turn to social media. Very heavy social media use may indeed harm children and young people, but it is much less clear that moderate use has ill-effects and it may also have benefits. Tackling social media use requires a more nuanced understanding of the evidence and at present it does not appear to be a major driver of child well-being.

Tackling bullying

4.9   In contrast, there is now a very substantial body of evidence on the strong associations between experiences of being bullied and low well-being. The link found in this report between bullying and depressive symptoms is particularly strong and striking. As with social media use, we cannot be sure of directions of causality but there is robust evidence of negative long-term impacts of childhood experiences of being bullied, stretching far into adulthood (Ttofi et al., 2011; Farrington et al., 2012). Tackling bullying holds the prospect of substantially improving many children's quality of life. It should also be noted that while cyberbullying is a much-debated topic, face-to-face bullying is much more strongly predictive of children's well-being (Przybylski & Bowes, 2017).

Improving the quality of family relationships

4.10   A recurring theme of child well-being research is the fundamental importance of family relationships. Even as children mature, the quality of their family relationships is still very strongly related to their sense of well-being. This offers a hopeful message that action can still be valuable, even in adolescence. Investment in services and initiatives that can boost family relationships and remedy emerging problems can play a critical role in enhancing child well-being.

Future research on child well-being in Wales using the MCS

4.11   There are three ways in which this work might be developed further in terms of understanding child well-being in Wales. First, there is more that can be done within the existing data to explore the early childhood factors associated with later well-being. Some examples of the potential have been provided in this report within the resources available for this piece of work. There is a wealth of data on children and their family circumstances from nine months old that could be interrogated in more detail. Second, the next wave of the MCS data, when children were around 17 years old, will be available soon and this will be crucial in exploring well-being beyond the end of compulsory schooling and in the transition to adulthood. Third, there may be potential to link data from the MCS ethically with other data sources relating to health, education or other service involvement with children. This could create significant new opportunities to understand contemporary childhood in Wales and how children's quality of life and outcomes can be improved.

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Appendix

Table A1: Frequency of social media use

On a normal week day during term time, how many hours do you spend on social networking or messaging sites or Apps on the internet such as Facebook, Twitter and WhatsApp?

None	7.9%
Less than half an hour	10.9%
Half an hour to less than 1 hour	13.1%
1 hour to less than 2 hours	16.3%
2 hours to less than 3 hours	16.4%
3 hours to less than 5 hours	13.9%
5 hours to less than 7 hours	10.6%
7 hours or more	11.0%

Source: MCS6, children born in Wales (weighted)

Table A2: Frequency of physical exercise

On how many days in the last week did you do a total of at least an hour of moderate to vigorous physical activity?

Every day	18.4%
5-6 days	19.0%
3-4 days	30.3%
1-2 days	27.5%
Not at all	4.8%

Source: MCS6, children born in Wales (weighted)

Table A3: Feelings of closeness to mother

Overall, how close would you say you are to your mother?

Not very close	2.5%
Fairly close	14.8%
Very close	39.0%
Extremely close	43.8%

Source: MCS6, children born in Wales (weighted)

Table A4: Frequency of arguing with mother

How often do you argue with your mother?

Most days	9.3%
More than once a week	16.5%
Less than once a week	27.9%
Hardly ever	39.5%
Never	6.8%

Source: MCS6, children born in Wales (weighted)

Table A5: Frequency of being bullied by other children (general)

How often do other children hurt you or pick on you on purpose?

Most days	4.8%
About once a week	6.0%
About once a month	4.1%
Every few months	5.0%
Less often	28.0%
Never	52.1%

Source: MCS6, children born in Wales (weighted)

Table A6: Frequency of being bullied online

How often have other children sent you unwanted or nasty emails, texts or messages or posted something nasty about you on a website?

Most days	0.8%
About once a week	1.5%
About once a month	3.1%
Every few months	5.8%
Less often	22.3%
Never	66.6%

Source: MCS6, children born in Wales (weighted)

Table A7: Frequency of trying one's best at school

How often do you try your best at school?

All of the time	34.9%
Most of the time	55.9%
Some of the time	8.6%
Never	0.6%

Source: MCS6, children born in Wales (weighted)

Table A8: Frequency of feeling that school is a waste of time

How often do you feel school is a waste of time?

All of the time	7.4%
Most of the time	10.1%
Some of the time	43.7%
Never	38.8%

Source: MCS6, children born in Wales (weighted)

Table A9: Number of waves of the MCS in which the child lived in a household in poverty (less than 60% of median income)

Number of waves

0 waves	45.0%
1 wave	12.6%
2 waves	7.3%
3 waves	8.6%
4 waves	7.8%
5 waves	9.8%
6 waves	8.8%

Source: MCS1-6, children born in Wales (weighted) with complete poverty data for all six waves

Table A10: Types of poverty experienced by children in MCS6

Income poverty	29.0%
Material deprivation	22.3%
Family financial strain	10.4%
None of the above	59.6%
One of the above	22.8%
Two of the above	14.1%
All three of the above	3.5%

Source: MCS6, children born in Wales (weighted)