

Watch them Grow

Unmarried-cohabitant and Solo
parenthood in Ireland

An analysis of the **Growing Up in Ireland** infant cohort data
Waves 1 and 2

Key Findings: Crisis Pregnancy

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Key Findings: Crisis Pregnancy

Introduction

This Key Findings document outlines select findings of interest concerning **Crisis Pregnancy** presented in Treoir's report on the first two waves of data from the infant cohort (collected at 9 months and again at 3 years) of the *Growing Up In Ireland (GUI) Study*, entitled *Watch them Grow: Unmarried-cohabitant and Solo parenthood in Ireland*.

The report focuses on primary caregivers (PCGs) and their infant children, exploring differences in outcomes across a range of domains, including parental health and parenting, child health and wellbeing, childcare, work and welfare. In doing so, the report employs the tripartite scheme used by Kiernan to distinguish marital status categories as follows (Kiernan, 2005) :

- **Married:** those who were 'ever married' and currently cohabit with a partner
- **Unmarried-cohabitant (UC):** this category comprises only those who indicated they were 'never married' and all of these respondents have cohabiting partners
- **Solo:** this group combines single parents, none of whom cohabit with a partner, whether they were 'never married' or whether they are lone parents who are now separated, divorced or widowed

Complete details of the methodology and findings can be found in the full report which is available for download on the Treoir website at www.treoir.ie. The report was researched and written by Dr Owen Corrigan and generously funded by the HSE Crisis Pregnancy Programme. Other Key Findings documents are also available free to download on the Treoir website covering a range of topics. The complete collection of Key Findings documents covers:

- **KF1: Marital Status, Family Transitions and Solo Parents**
- **KF2: Childcare**
- **KF3: Parents' Health and Parenting**
- **KF4: Child Health and Wellbeing**
- **KF5: Work and Welfare**
- **KF6: Crisis Pregnancy**

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Context

Crisis pregnancy is defined under Statutory Instrument as "a pregnancy which is neither planned nor desired by the woman concerned, and which represents a personal crisis for her" (S.I. No. 446/2001). This definition also includes the experiences of those women for whom a planned or desired pregnancy develops into a crisis over time due to a change in circumstances. In ICCP-2010 approximately one in three women who had been pregnant said they would describe one of their pregnancies as one which represented a personal crisis or emotional trauma. Those experiencing a crisis pregnancy were found to have higher psychological distress than the general population at the time of pregnancy, as measured using a metric of emotional wellbeing (McBride, Morgan, and McGee 2012, 104).

Of those who experienced a crisis pregnancy, the vast majority chose to parent the child. In the 2010 study the outcomes of crisis pregnancies were as follows; parenthood (62%), miscarriage (14%), abortion (21%). In the 2003 survey, 75% of crisis pregnancies resulted in a live birth. Other outcomes included: 15% of crisis pregnancies ending in abortion; 6% ending in miscarriage; 1% in still birth; while 3% were still currently pregnant at the time of the research.

For men and women, the fact that the pregnancy was not planned or that they were too young at the time were the most common reasons why the pregnancy was viewed as a crisis (McBride et al., 2012). At the same time, a pregnancy that is unplanned or unexpected does not necessarily equate to its being a crisis in the eyes of the woman involved.

The Irish Contraception and Crisis Pregnancy Study (ICCP-2010) measures ambivalence towards becoming pregnant as a reason for non-use of contraception among adults. The study found that there was a relatively high level of ambivalence towards becoming pregnant among people in their late twenties to their mid forties, which increased with age; 14% of those aged 26-35 and 22% aged 36-45 citing that they "Didn't/don't care if pregnancy happens" as a reason for not using contraception. Younger adults in the study did not express ambivalence as a reason for non use of contraception, but were more likely to report lack of planning for sex or alcohol and drug use as reasons why contraception was not always used (McBride, Morgan, and McGee 2012, 65).

Research has established that certain demographic and socio-economic characteristics influence the prevalence of crisis pregnancy (McBride, Morgan, and McGee 2012, 89). Rundle et al. (2004) found that the fact of being too young, being unmarried-cohabitant, or being in a difficult or new relationship were all more likely to be associated with women reporting their pregnancy as a crisis. Older women were more likely to see a pregnancy as a crisis as they believed that their family was already complete. Younger women or women with a pre-Leaving Certificate education were

more likely than older women or women with higher levels of education to have experienced a crisis pregnancy (McBride, Morgan, and McGee 2012).

In a wide-ranging Irish study in the 1990s it was seen that women with crisis pregnancies were typically younger and single, without a stable relationship, but not differing from other pregnant women by occupation or by educational level (Mahon et al., 1998). For most women it was likely to be their first pregnancy, however the sample also included married women in their forties, and separated women who already had children (Mahon, Conlon, and Dillon 1998). In that study, 17% of women described their initial response to their pregnancy as 'unexpected', 12.5% as 'shock' and 3% as 'crisis'. This latter definition of 'crisis' was self-description on the part of the study participants.

Previous *Treoir* research using the first wave of the GUI infant cohort data analysed the sociodemographic correlates of crisis pregnancy¹ and found strong associations with marital status, income level, age, number of children in household, maternal health, and complications in pregnancy (Corrigan, 2013). In the wave 1 data, 30% of Solo parents experienced their pregnancy as a crisis, compared to 13% of Unmarried-cohabitant and 4% of Married parents. Controlling for other factors, Unmarried-cohabitant parents were 3 times more likely to report having experienced a crisis pregnancy than Married parents, while Solo parents were 5.4 times more likely to have experienced a crisis pregnancy than Married parents; those in lower income quintiles were significantly more likely to experience CP; women at either end of the childbearing age distribution (relatively young and relatively old women) were more likely to have experienced a crisis pregnancy; a larger number of children in the household at the time of pregnancy was associated with a higher likelihood of the pregnancy being experienced as a crisis; poor maternal health or having experienced complications in pregnancy were also associated with a higher likelihood of having experienced the pregnancy as a crisis (Corrigan, 2013).

Impact of Crisis Pregnancy on mother and child outcomes

A wide literature has explored the relationships between pregnancy intention and a range of health and development-related areas for mothers and children. Technically these are studies of 'unintended' pregnancy or related concepts. The concept of 'crisis' pregnancy arises from the Irish context specifically, and may add value to ongoing academic debates over the role of non-intentional pregnancies in determining later outcomes for mothers and children. Studies looking at the effect of unintended pregnancy on mothers have found that women with unwanted or unplanned pregnancy: experience higher levels of neuroticism, depression and perceived stress

¹ Reference is made here to the broader definition of the two types of CP identified in *Treoir*'s first report on the GUI data, 'Generalised Crisis'. This is also the definition discussed in this Key Findings document.

alongside low levels of agreeableness and conscientiousness (Bouchard, 2005); suffer from higher levels of depression and lower levels of happiness during pregnancy (Barber et al., 1999); experience higher levels of stress (Mulder et al., 2002); report higher levels of anxiety (Najman et al., 1991); are more likely to report post-partum depression (Cheng et al., 2009); are more likely to adopt negative parenting behaviours leading to poorer quality relationships with their children (Barber et al., 1999).

Linkages of unintended pregnancy to child outcomes may be direct and indirect. Unintended pregnancy may result in higher maternal stress (Bouchard, 2005; Mulder et al., 2002), and higher maternal stress has been linked to a higher risk of maternal depression (Lancaster et al., 2010; Webster-Stratton and Hammond, 1988) as well as to negative parenting behaviours which are themselves sometimes implicated in child socio-behavioural outcomes (Anthony et al., 2005; Crnic et al., 2005; Deater-Deckard, 1998; Pinderhughes et al., 2000). Maternal depression has also been linked to negative parenting behaviours (Lovejoy et al., 2000) as well as to an increased likelihood of anxious/depressed, attention deficit, and oppositional defiant disorders in 3 year olds (Meadows et al., 2007).

Unwantedness in early pregnancy has been seen to have a direct detrimental impact on children's psychosocial development that lasts long into adulthood (David, 1992; Mulder et al., 2002), and unwantedness has also been associated with significantly lower self-esteem among unintended children even a couple of decades into their lives (Axinn et al., 1998). Children of unwanted pregnancy have been found to have more behavioural problems, though this link was somewhat weaker when controlling for unobserved family background factors (Joyce et al., 2000).

Unintended pregnancy can also impact on PCG behaviour and parenting styles. These relate directly to child outcomes. Some studies have found an association between unintended pregnancies and maternal risk behaviours such as alcohol and cigarette use or the use of illicit drugs while pregnant, though the evidence on this point is mixed (Cheng et al., 2009; Gipson et al., 2008). Intrauterine exposure to drugs like alcohol or tobacco is implicated in development deficits in children that can often result in lifelong physical or mental difficulties (Mulder et al., 2002). Women whose pregnancies were unintended are less likely to quit smoking though no more likely to reduce alcohol intake while pregnant than women who had intended to become pregnant, these differences being explained instead by differences in socio-demographic characteristics (Kost et al., 1998). Tobacco use during pregnancy increases the risk of preterm birth approximately two-fold (Goldenberg et al., 2008). Maternal depression has also been linked to an increased likelihood of premature delivery (Goldenberg et al., 2008).

Premature infants generally have been seen to have more problems in a number of developmental areas than their normal birth counterparts, including such areas as: motor/neurologic function, visuomotor integrative skills, IQ, academic achievement, language, executive function, and attention-deficit hyperactivity disorder/behavioural issues (Aylward, 2005). While low birth weight and premature birth often coincide this is not always the case, though it has been suggested that gestational age may be a better indicator of biological maturation than birth-weight (Aylward, 2005; Nixon et al., 2013).

Prematurity may also impact on parent-child relationships and interactions. Research has shown that premature babies elicit different parenting responses due to their being more challenging to caregivers (Goldberg and DiVitto, 2002; Nixon et al., 2013). Studies have found that parents rated as significantly more fearful and negatively reactive those children born small for their gestational age, as compared with infants who were an appropriate weight for their gestational age (Pesonen et al., 2006). Infants born small for their gestational age have been seen to be sluggish in response to stimuli, showing weak arousal, difficulty in orienting themselves towards social stimuli and also having lower activity levels and poor muscle tone (Lester et al., 1986).

Methodology: Defining Crisis Pregnancy

This analysis utilises a measure of crisis pregnancy defined using wave 1 of the GUI data and discussed in greater detail in *Treoir's* report on infants at 9 months old (Corrigan, 2013) to explore whether the concept of crisis pregnancy is useful in helping to understand mother and child outcomes when the study child is aged 3 years. Respondents were coded as having experienced a crisis pregnancy where they indicated that they had intended to become pregnant 'much later' or had 'never intended' to become pregnant, *and* where they simultaneously reported that they experienced 'some' or a 'great deal' of stress during the pregnancy. This measure categorises 9.2% of the sample as having experienced a crisis pregnancy by this definition. The relationship between stress levels and intentions towards pregnancy are presented in Table 1.

To be clear, there are a number of ways in which the concept of crisis pregnancy could be operationalised for research purposes, by varying the level of stress or the type of intentionality towards pregnancy reported by the mother of the study child. The measure adopted here is one among many potential measures and researchers should be attuned to the fact that results presented here – or in other studies interested in the phenomenon of crisis pregnancy – may be sensitive to the operationalisation adopted. Other approaches are discussed in more detail in Corrigan (2013).

Table 1: Relationship of stress levels and intentionality towards pregnancy

Intention	Stress					Total %	Sample row %
	<i>A great deal</i>	<i>Some</i>	<i>Not much</i>	<i>None at all</i>	<i>Don't know</i>		
Yes, at that time	7.0	34.6	32.5	25.9	0.0	100	57.2
Yes, but much later	16.6	40.2	24.9	18.3	0.0	100	6.5
Yes, but somewhat later	8.8	42.8	32.3	16.1	0.0	100	9.9
Yes, but earlier	7.5	36.6	34.0	21.7	0.2	100	6.2
No intention of ever...	18.2	37.4	25.7	18.7	0.0	100	9.6
Other	14.3	37.1	29.1	19.4	0.0	100	1.6
Unsure/Didn't mind	10.7	37.9	28.1	23.4	0.0	100	7.1
Don't Know	0.0	0.5	2.8	2.4	94.3	100	1.9
Sample column %	9.1	35.8	30.5	22.8	1.8	100	-

Note: data from GUI wave 1; figures may not sum due to rounding; figures are row percentages

The analytic approach adopted throughout the report is to model a range of outcomes controlling for relevant sociodemographic and explanatory factors as well as for an indicator of crisis pregnancy. This allows us to establish whether crisis pregnancy impacts on any of these outcomes, once other factors have been taken into account. Population weights are used in all regression models. A standard set of sociodemographic controls for the PCG (primary caregiver) is used in all models as follows:

- Age of PCG (W2)
- Income (quintile) (W2)
- Education level (W2)
- Number of children in household (W2)
- Experience of 'crisis pregnancy' (see below) (W1)
- PCG has disability or chronic illness (W1)
- PCG history of poor health (W1)
- Had complications in pregnancy (W1)
- Family history of poverty (difficulty making ends meet age 16) (W1)
- Rural vs. Urban dweller (W1)
- Native vs. non-native English speaker (W1)
- Feels that they 'don't get enough help' from outside the home (W2)
- Smoked while pregnant (W1)
- Drank alcohol while pregnant (W1)

Some models also control for model-specific factors relevant to the outcome in question, with these factors including PCG stress and depression scores, child birthweight and gestational age at birth, indicators of parenting style and of parent-child relationship quality. The analytic strategy in the full report included crisis pregnancy as one independent variable among many in a diverse and far-reaching range of models covering numerous domains relevant to mother and child outcomes. However it was not the case that crisis pregnancy was significantly associated with all measures once other relevant factors had been taken into account. Full details of all domains explored can be found in the main report and full model details of the regression models for all outcomes and controls – including those outcome variables where crisis pregnancy was not seen to play any explanatory role – can be found in the Technical Appendix accompanying the main report.

Dependent variables

A range of self-explanatory dependent variables are used. Other variables include:

Social and behavioural difficulties scale (SDQ)

The Strengths and Difficulties Questionnaire (SDQ) was developed by Goodman (Goodman, 1997). This questionnaire measures children's development in five areas and is used to develop subscales gauging things such as: how children relate to peers (peer problems), how they behave (conduct), how fearful or easily scared they are (emotional), how agitated or fidgety they are in their behaviour (hyperactivity-inattention), and a 'strength' subscale tapping the extent to which they are considerate of other people's feelings (prosocial). For example, the 'Peer problems' subscale focuses on whether the child is rather solitary and tends to play alone. Summing the four 'deficit' subscale scores produces a Total Difficulties score. All subscales are measured out of 10, except for 'peer problems' which is measured out of 8 points. Higher scores mean more difficulties on this scale.

Pianta Parent-child relationship scales

The Pianta Child-Parent Relationship Scale – Short Form (Pianta, 1992) – looks at both positive and negative aspects of the parent-child relationship. Caregivers were asked to relate statements about their relationship with the study child on a 5-point scale (from 'definitely does not apply' through to 'definitely applies'). As detailed in GUI report 1: "The *Positive Aspects* subscale includes seven items relating to getting on with the Study Child and PCG feelings of effectiveness (e.g. 'I share an affectionate, warm relationship with my child'). The *Conflicts* subscale comprises eight items on the

parent's perception of difficulties in the relationship with the Study Child (e.g. 'Dealing with my child drains my energy') and the latter's perceived social skills (e.g. 'My child's feelings toward me can be unpredictable or change suddenly')" (Williams et al., 2013: 83). Higher scores on each scale indicate more conflict and more positive aspects in each case.

Parenting style indicators

Measures of parenting styles – in terms of warmth, hostility and consistency – are available in GUI, and these are comparable to similar measures used successfully in the Longitudinal Study of Australian Children (LSAC). PCG warmth refers to the parent's positive regard towards the child, responsiveness to the child's interests and feelings, and expressions of approval and support; hostility is indicated by coercion, and feelings of irritation and anger; while consistency in PCG behaviour is self-explanatory (Williams et al., 2013). The GUI study used subscales from the same self-report instrument that was developed and implemented by LSAC to assess the three aspects of parenting. The instrument includes "six items each regarding the frequency with which parents displayed warmth and hostility towards the study child, and five items on consistency in dealing with the child. The score for each scale represents the average of all items on that scale; hence possible scores range between one and five for each. Higher scores for PCG warmth indicate greater warmth, and higher scores for PCG hostility and consistency indicate more hostility and greater consistency respectively" (Williams et al., 2013: 77).

Stress and depression scores

The GUI summary guide to wave 1 of the infant cohort describes the stress scale to be found in the dataset: "The PCG Stress Scale is a self report scale used to assess both the positive and negative aspects of parenthood. It comprises a Total PCG Stress Score as well as four subscales: PCG Rewards (6 items); PCG Stressors (6 items); Lack of control (3 items); and PCG Satisfaction (3 items)" (Quail et al., 2011: 19). At wave 2, the 'PCG stressors' subscale was asked of both primary and secondary caregivers (Quail et al., 2013). The stress scale is drawn from the work of Berry and Jones (Berry and Jones, 1995).

On the depression scale: "The Center for Epidemiological Studies Depression Scale (CES-D) is a widely used self-report measure that was developed specifically as a screening instrument for depression in the general population, as opposed to being a diagnostic tool that measures the presence of clinical depression. *Growing Up in Ireland* used the 8-item short version of the CES-D and obtained a total score for both Primary (PCG) and Secondary (SCG) Caregivers" separately (Quail et al., 2013).

Findings

Table 1: Descriptive statistics by Crisis pregnancy indicator

	Non-Crisis		Crisis Pregnancy	
	Mean	Std Error	Mean	Std Error
<i>W2 indicators</i>				
Equivalised h'hd income	18,428	136	14,645**	768
Child SDQ score	7.8	.06	9.6**	.22
Age of PCG	34.4	.07	31**	.28
Num. children in h'hd	1.3	.01	1.2	.05
Stress PCG	12.2	.05	14.2**	.19
Depression PCG	2.2	.04	4.2**	.21
Parenting: Warmth	4.75	.01	4.75	.02
Parenting: Consistency	4	.01	3.9**	.03
Parenting: Hostility	1.8	.01	1.9**	.02
Pianta: Positivity	33.8	.03	33.6	.1
Pianta: Conflict	15.5	.07	17.2**	.26
<i>W1 Indicators</i>				
Gestational age at birth (weeks)	39.5	.03	39.4	.1
Birth weight (grams)	3,478	7.3	3,385**	25
N	~10,000		~1,000	

**p<.05, significant difference on indicator between those who experienced CP and those who did not; population weights applied.

Descriptive results, comparing mean scores on a number of select outcome variables, mostly drawn from the second wave of the GUI study, show significant differences depending on whether or not the PCG experienced a crisis pregnancy. These are differences in means before adjusting for other relevant factors (control variables). For example, mean equivalised household income is almost €4,000 lower in households where the PCG experienced CP than in non-CP households; child SDQ scores, PCG stress scores, PCG depression scores, parent-child levels of conflict and hostility in

parenting style are all significantly higher in CP households than non-CP households. Birth weight is also seen to be significantly lower in CP households.

Crisis pregnancy was seen to have a significant relationship with 18 dependent variables, the results of which we summarise here. Standard statistical significance is defined at the 5% level (i.e. $p < .05$) and reported results are significant at this level at least, unless otherwise noted; for interested readers we also report results that are significant at the less demanding 10% level ($p < .10$). The indicators with which crisis pregnancy was seen to be significantly associated adjusting for relevant control variables are reported in Table 2.

Table 2: Effects of crisis pregnancy on parent and child outcomes, with controls

Dependent variable	Crisis Pregnancy predicts:	p	Note
1. Transition from Solo parenthood into cohabitancy (Unmarried-cohabitant or Marriage)	Lower likelihood of transition into a cohabiting relationship between waves	*	
2. Childcare difficulties: Prevented from looking for work	Higher likelihood that childcare difficulties had prevented them looking for work	*	
3. Childcare difficulties: Prevented from studying/training	Higher likelihood that childcare difficulties had prevented PCG studying/training	**	
4. Childcare difficulties: Fewer hours for work or study	Higher likelihood that childcare difficulties had restricted hours of work or study	**	
5. Decrease in depression score over time	Higher likelihood of experiencing a decrease in depression score over time relative to 'no change'	**	
6. Stress score PCG W2	Higher stress scores (+0.85 units)	**	
7. Depression Score PCG W2	Higher depression scores (+0.5 units)	**	

8. Parent-child conflict (Pianta subscale)	Higher levels of conflict	*
9. Baby's current health	Higher likelihood of baby's current health being poor	** Effect of CP is explained away when we control for PCG stress and depression levels at W2
10. Child experienced a deterioration in health over time	Higher likelihood that the child's health deteriorated over time as reported by PCG	** Effect of CP is explained away when we control for PCG stress and depression levels at W2
11. Injury that required hospitalisation	Higher likelihood that child had ever incurred an injury requiring hospitalisation	** Effect of CP is attenuated to $p < .10$ when we control for PCG stress and depression levels at W2
12. Medical service usage	Higher frequency of visits to the GP, Consultant/Paediatrician, or A&E	** Effect of CP on GP usage is explained away when we control for PCG stress and depression levels at W2; effects on Consultant and A&E indicators are attenuated to $p < .10$
13. Predicting children's SDQ Total Difficulty scores	Higher scores on SDQ index (+0.7 units)	** Effect of CP is explained away when we control for PCG stress and depression levels at W2
14. Overweight child	Lower likelihood of being overweight for <i>female infants only</i>	* Significant at this level when controlling for parenting styles, stress and depression scores
15. Diet	Higher likelihood of parent giving child sweets or sugary fizzy drinks	*

16. Eating between meals	Greater frequency of eating between meals	**
17. Increasing educational attainment over time for PCG	Higher likelihood of having increased education level over time	**
18. Greater difficulty making ends meet for PCG between waves	Lower likelihood of reporting that making ends meet was more difficult by W2	**

Source: results drawn from *Watch Them Grow: Unmarried-cohabitant and Solo Parenthood in Ireland*, published by Treoir 2014; data analysis uses *Growing Up in Ireland* data waves 1 and 2 for the infant cohort

**p<.05, *p<.10

Implications

- In general the findings show a range of adverse outcomes in families where the mother experienced a crisis pregnancy as defined for the purposes of this study
- Primary caregivers who experienced crisis pregnancy were predicted to have higher scores on an index of stress and also on an index of depression by the time their child was 3 years old even accounting for other factors relevant to stress and depression
- Children at age 3 whose mothers experienced crisis pregnancy were seen to experience a range of adverse outcomes including in terms of higher socio-behavioural difficulties (SDQ scores), poorer reported health outcomes and poorer dietary practices
- It is important to note that many, though not all, of the adverse outcomes for children were seen to be mediated by stress and depression scores of PCGs. This suggests a specific role for the post-pregnancy management of stress and depression in mothers who have experienced crisis pregnancy, with clear potential benefits in terms of ameliorating negative outcomes for both mothers and children
- The findings that experience of crisis pregnancy is associated with higher levels of parent-child conflict, higher usage of medical services, and poorer reported health

outcomes may be issues worthy of the attention of healthcare and other specialists, such as public health nurses or pregnancy counselling agencies, involved in the post-pregnancy care of those women who experienced crisis pregnancy. These effects could not be explained away in terms of differences in parenting style, stress or other background characteristics. Given the high incidence of Solo parents experiencing their pregnancy as a crisis, and the young age in general of those experiencing crisis pregnancy, it may be the case that parental confidence or inexperience plays a role here, impacting on usage of medical services or perceptions of child health. These possibilities are speculative, but further research could explore these issues and may help to clarify the linkages between crisis pregnancy and the undesirable health outcomes detected here

- Having experienced crisis pregnancy was associated with a higher likelihood of improving one's level of education. Why this might be so is unclear but qualitative research with women who experienced CP may help to understand the processes behind this finding. It may be that this unexpected pregnancy was highly stressful for the women involved precisely because it interrupted their studies, to which they later returned
- The fact that those who experienced crisis pregnancy were more likely to report a range of difficulties around work and study arising due to childcare constraints may suggest, at a minimum, that greater efforts should be made to raise awareness about existing subsidised childcare schemes among those who have experienced crisis pregnancy. This finding may also suggest that women who experienced crisis pregnancy face specific challenges around securing adequate childcare, and this possibility should be explored in future research

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