

The Use of Statistics in Determining Socio-Legal Policies in a UK Government Agency.

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Keywords

Statistics, Cafcass, Socio-legal policy.

Abstract

Two publications about divorce/separation outcomes are contrasted. One had a large sample size and a high statistical level of confidence. The second had a small sample size and a low statistical level of confidence. The two diverged dramatically in their findings and their conclusions.

Abbreviations and Definitions

A Level of Confidence: A statistical confidence interval with a particular confidence level intended to give the assurance that, taken over all the data that might have been obtained, would deliver a confidence interval that included the true value of the parameter. More specifically, the meaning of the term "confidence level" is that across many separate data analyses of repeated and possibly different experiments, the true value of the parameter will approximately match the confidence level (optimally 95% or above).

Introduction

Socio-Legal environments are often typified by a focus of understanding on emotional and legal issues, rather than numeracy. One example of this is the Children and Family Court Advisory and Support Service (Cafcass), who define operational qualifications as ‘For practitioner positions, you are required to have a Dip SW/CQSW and three years’ post-qualifying experience in social work practice with children and families.’ (Cafcass 2010a) and job advertisements for practitioners typically contain the standard formulation that the employee needs to be able to “influence parents, relatives and local authorities, through your understanding of what a child needs wants and feels”. These are understandably not numerate fields, and individuals may well not have a numerate background, indeed the regulating body, the General Social Care Council (GSCC) states that the training to become qualified “covers topics related to specialist social work with children, young people, their families and their carers” (GSCC, 2010). Thus practitioners are rarely trained to critically assess the mathematical/statistical aspects of research findings in their field

and may thus be hindered in arriving at their own conclusions based on rational insight.

This work illustrates how lack of numeracy skills can lead to policy formation different from statistical reality by using an example taken from Cafcass involvement in private law (i.e. when parents who are separating or divorcing can't agree on arrangements for their children). Cafcass handles some 44 722 such private law case requests annually (Cafcass, 2010b) and a particular problem is in those private law cases where the father through the process of litigation is awarded more than minimum contact with the children. Two examples of well-cited research relating to this situation are Bauserman (2002) and McIntosh et al (2010).

Results & Discussion

By approximating the population size the minimum sample size can be calculated using the square-root method. In the UK a probable source of reliable data on the number of divorces involving children is the Child Support Agency (CSA) who state it has 1150000 live cases in the UK and handles 65% of cases (CSA 2010), implying there must be somewhere around 1730000 altogether. Clearly even a simple chi-square shows that a minimum sample size of 1316 is needed.

Bauserman's (2002) sample size is 2660 or sufficient for an affected population of over seven million (actually 7075600). Applying this to a population represented by the CSA figures represents a statistical *Level of Confidence* of over 98%. The variations in behaviour and outcomes described by Bauserman includes that shared residency achieved by the fathers litigation arouses hostility in mothers (for a good review of "implacable hostility by the resident parent" see pages 192-192 of Hunt & Macleod, 2008) and that has three different possible outcomes;

1. Persistence with continued conflict
2. The father abandons the situation as hopeless, which reverts to sole residency and conflict escalates
3. The father achieves parity in all respects, forcing the mother to seriously reconsider and eventually enter into a "proper" shared residency, which in turn reduces conflict.

One of the conclusions derived from Bauserman's work is that in high conflict situations there will be little parental cooperation unless the "implacably hostile" mothers are motivated to cooperation by apportioning full parity to the father.

In McIntosh et al (2010) the sample size, as given on page 15 of that publication is a total of 131 (although only 41 are in the "interesting" situation of disputing residency) implies an approximate statistical confidence for a population of between 1700 (if one takes 41 to be the sample size) to 17000 (if one takes 131 to be the sample size). Either way, this is well short of the minimum sample size of 1316. So while there is always a chance of a particular case serendipitously conforming to the outcomes described in McIntosh et al (2010), the *Level of Confidence* is only around 4%. The variations in behaviour and outcomes described by McIntosh et al (2010) includes that conflict during shared residency should be tackled by reverting sole residency to the

mother. To sum up, it is paradoxical that;

- A. The Bauserman research with a 98% *Level of Confidence* implies that to continue to leave the mother in a dominant position is a sure recipe for escalated conflict while the McIntosh et al research with a 4% *Level of Confidence* implies the opposite and e.g. the mother can profitably continue to inhabit a dominant position.
- B. The Bauserman research with a 98% *Level of Confidence* implies that the optimal way to reduce conflict and benefit the children most is to introduce real parity between the parents. Conversely the McIntosh et al research with a 4% *Level of Confidence* implies the opposite; that the better option is to actively deny parity and continue with rigid conflict-laden relationships including the real risk of co-parenting breaking down completely.

As said before, many practitioners rely heavily not on the primary research literature, but rather on more accessible reviews. For example a recent review by Trinder (2010) is popular amongst Cafcass practitioners but it depends heavily on the article by McIntosh et al (2010) implying that some conclusions while being made in good faith are actually seriously compromised. From a statistical point of view policies or recommendations based on results exhibiting a low *Level of Confidence* (i.e. under 95%) should perhaps not be propagated to practitioners.

This article is not primarily directed at contributing to the discussion about post-divorce parenting, but rather aims to point out that policy in these and other areas must be firmly based on objective and mathematically-valid research or they will simply increase suffering. On its web site Cafcass states it "... looks after the interests of children involved in family proceedings. We ... advise the courts on what we consider to be in the best interests of individual children". However, neglecting to critically appraise (or be able to critically appraise) the statistical foundations of reports may well mean that the policies adopted by practitioners result in outcomes that are diametrically opposed to their stated aims and targets.

Literature.

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