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# PRE-PROBLEM FAMILIES: PREDICTIVE ANALYTICS AND THE FUTURE AS THE PRESENT

**Abstract** currently 151 words

Predictive analytics is seen as a way of identifying risk of future problems in families. Integral to such automated predictive analysis is a shift in time frames that redraws the relationship between families and state, as potential for intervention on an anticipatory basis of 'what hasn't happened but might.' In the process human subjects are reformulated as disembodied objects of data-driven futures. The paper explains this process and fills a serious gap in knowledge about parents' views of this development. We draw on group and individual discussions with British parents to consider their understandings of predictive analytics and how comfortable they are with it. Parents' concerns focused around inaccuracies in the data used for prediction, the unfair risk of false positives and false negatives, the deterministic implications of the past predicting the future, and the disturbing potential of being positioned in what was a pre-problem space. We conclude with policy implications.

## Introduction

States have always harnessed a range of strategies to address and deter anti-social and criminological behaviour in families, from the stigmatisation and labelling of parents as morally undeserving built into poor laws, through positioning children and families as in need of early intervention to break genetic, cultural and traumatic intergenerational cycles, and into versions of families as carriers of risk that needs to be assessed, scored and managed (AUTHORS' OWN 1, 2). Latterly, however, there has been a step change in the practice of assessing and monitoring; a pre-emptive surveillance involving the collection and linking together of digital sources of administrative data on families to support identification of potential problem behaviours in the future through algorithmic processing. Integral to such automated predictive analysis is a shift in time frames that redraws the relationship between families and state (Couldry and Mejias 2019). There is a move away from the "what is happening" of established foundations and accepted rationales for state intercession in families, to intervention in family lives on an anticipatory basis of "what hasn't happened but might." In the process human subjects are reformulated as disembodied and decontextualised objects of data-driven high, medium or low risk futures.

This paper considers these relational shifts where algorithmic technologies interpolate families into a digital depersonalised pre-problem space that draws the future into the present. Work on the use of predictive analytics in the field of family welfare and child protection, whether enthusiastic or critical, has not ascertained and addressed the views of parents. Here we fill what is a serious ethical and democratic omission given that data practices to inform services interventions are pushing ahead with little attention to parents' knowledge or even their consent to use of their administrative and other data. We begin by laying out the territory of predictive

analytics in the family and child welfare field, and key critical concerns raised about this, before moving on to consider how parents view this technological process and its implications. We draw on group and individual discussions with British parents to explore the key concerns they express about accuracy and fairness, stereotyping and prejudice, and determinism and its consequences.

## **Predictive data analytics in the family and child welfare field**

Social workers have long been involved in forms of predicting the future, from whether or not a parent will benefit from referral to a particular service to assessing not only if children in a particular family have suffered significant harm but also whether they are at immediate risk of doing so (Wilkins and Forrester 2020). Latterly, severe cuts to public spending in the UK have led to increased targeting of family and child welfare provision (Boddy 2023), and a major government emphasis on digital data innovation in the field through new funding streams including specifically for manipulating child and family data (Ministry of Housing, Communities and Local Government 2021). Encouraged by the availability of additional revenue and claims of budget savings in straightened circumstances, child welfare authorities have been turning to algorithmic systems, often contracting in data analytics companies, that offer the promise of being able to forecast whether, which and when families need intervention through mass digital monitoring (AUTHORS' OWN 1; Redden et al. 2020). Such initiatives are being taken up not just in the UK but also more widely (e.g. Eubanks 2018; Jørgensen 2021; Keddell 2019; Glaberson 2019).

Algorithms – a sequence of programmed instructions, rules and calculations – can be built that model the tendency for correlations of certain characteristics, behaviours and social associations to occur in families with undesirable outcomes. Everyday routine digital information that is held on all families by various administrative sources: education, health, taxation, benefits, police, etc., can be linked together. The modelling algorithms can automatically scan the merged data set for families who might partially or wholly match the patterns of factors indicated for families facing and causing social and/or criminal problems at any point in time, with the intention of anticipatory action to avert them from becoming the problematic families their data denote they potentially could be. A simple example provided by US non-governmental agency proponents of the process is: 'a predictive risk model might indicate that a child under three with fewer than two siblings and a mother with substance abuse problems may be more likely to experience future harm than other children' (Chadwick Centre and Chaplin Hall 2018: 2). An automated system to profile and score families for risk proposed by the private data analytic company Sentinel Partners and Liverpool City Council (2019) lists 'warning' combinations of data about a family such as: multiple schools, Housing Association tenant, benefit claims, and single adult family as predicting future problems, alongside features such as being stop checked, and older siblings with a history of criminal activity.

Predictive analytics, then, involves the construction of families as units of quantifiable and ranked high, medium or low risk level digital data points, and these computations can become equated with accurate factual projections of future family problems. Advocates for predictive data analytics argue that these systems enable streamlined, efficient and objective decision-making, and effective targeting of scarce resources (e.g. Chadwick Center and Chapin Hall 2018; What Works in Children's Social Care 2020; see AUTHORS' OWN 3) in the face of sustained austerity.

### **The creation of pre-problem families**

While predictive analytics is seen by national and local governments as the way forward for identifying risk in families and intervening, there are concerns that such data analytics in itself poses a risk to families.<sup>1</sup> Notably, the inclusion of flawed proxies for child maltreatment in algorithms can result in prediction errors, as does the systemic biases that result in the over-representation of racialised and poor communities in the data about problematic families that algorithms are trained on (Capatosto 2017; Glaberson 2018). This over-representation of certain groups of families as problematic leads to feedback loops that perpetuate these injustices in algorithmic predictions because errors are not fed back into algorithmic development. There are also concerns about the loss of privacy for marginalised families (Almedom et al. 2021).

Epidemiologists have raised caveats about the ecological fallacy of extending generalised risk to any given individuals, where the epidemiological focus is on populations and conditions not individuals (e.g. Kelly-Irving and Delpierre 2019). Stephanie Glaberson (2018) refers to misapplication in attempts to graft epidemiological prediction methods onto child welfare work. Risks to families posed by algorithmic modelling that Glaberson identifies include that the information about them that the algorithms are working on can be inaccurate, and a failure to account for resilience and change over time, in particular static projections of behaviour from a family's past into the present and future. Errors in the digital information may be impossible to identify retroactively or correct (Capasto 2017), but even holding accurate data about the past does not guarantee correct prediction (Glaberson 2019). An international mass collaboration study drawing on extensive longitudinal information about families to test predictive modelling techniques against known lifecourses in the data set, found a lack of accuracy in forecasting future outcomes (Salganik et al. 2020; see also Clayton et al. 2020; Waller and Waller, 2020). In England, while child protection investigations doubled in 10 years from 2010, investigations that did not find any harm tripled in that period (Bilson 2021). **There are difficult balances between high stake scenarios here. Clearly there will be tragic consequences borne by children where families are identified as low risk when the reverse is the case (false negatives), and there is no service intervention. But equally**

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<sup>1</sup> The European Union Artificial Intelligence Act intends to rate AI-based technologies as themselves high or low risk to citizens <https://artificialintelligenceact.eu/>

there can be deleterious implications for children and parents where a family is labelled as high risk but are not (false positives), with unwarranted state intervention and possibly children removed into care. These worst case scenarios take place within (or even are heightened by) the shifts away from family support and child welfare service responses to needs arising from poverty and marginalisation, towards a central focus on risk assessment and surveillance as the basis for intervention (Featherstone et al. 2018; White and Wastell 2017), and from state redistribution and public service provision responsibilities.

In the face of risks to families from predictive analytics, some call for epidemiological logic to be followed, anticipating need at the area level of neighbourhoods and towns. Rather than indulging in high stakes algorithmic predictions about future harms in specific families, agencies should direct preventive and supportive services towards communities (Capatosto 2017; Glaberson 2019). Beyond this, responses to disquiet over the accuracy and ethics of predictive data analytics often invoke technological solutions. There are assertions that more extensive and better quality data about children and families are required for the anticipatory promise of predictive analytics to be born out (e.g. Shafiq 2020), and that bias can be removed to achieve data accuracy and neutrality through improved data handling within the framework of an ethical code (Capastoso 2017). Ethical values, practical principles, and professional virtues, it is claimed, will enable responsible harnessing of predictive data analysis, empowering parents to optimise family functioning and child development through data-driven interventions (What Works for Children's Social Care 2020).

Even should such technocratic fixes be possible where the society that generates the data is riven with inequalities (Broussard 2023) and power imbalance in family-state relations (Dencik et al. 2018), there are other worrying issues associated with the use of predictive algorithms. These concerns are rooted in the adoption of statistical variables as proxies for anticipated rather than actual family difficulties. The population of parents are interpolated into a 'pre-problem' space before culpability has occurred, analogous to the 'pre-criminal' space that is generated by programmes such as the UK's anti-terrorism strategy Prevent, which aims to identify and forestall anyone who may support or take part in extremism before anything of a sort has happened. As Jude McCulloch and Dean Wilson (2015) point out in relation to crime, the pre-space is a temporal paradox suggesting simultaneously that something has not yet occurred and that it is a foregone conclusion, so that the future is brought into the present and acted upon. Substance and form are given to a hypothetical future through the rendering of families' characteristics, relationships and actions as sets of depersonalised, decontextualised and quantified digital data points for predictive algorithmic processing. For example, the "Hallo Baby" AI predictive model implemented in Pennsylvania USA screens administrative data bases of characteristics for all families with a newborn baby to produce risk scores for likelihood of child welfare intervention in the longer term (Brico 2019; see also Eubanks 2018).

While state governance of poor and marginalised families has always involved recording and categorising their behaviour, deductive inquiry into individual family

member's current behaviour followed by corrective intervention has morphed into inductive prediction and pre-emptive intervention. There is a push towards a step-change from assessment of and intervention in family problems based on their behaviour in the present and perhaps the short-term future, towards one where the future is constructed on the basis of other families' propensities, and past experiences in a family are projected forward into a non-imminent anticipation of negative outcomes. In both cases, the aim is to develop algorithmic models that can predict and identify families where child maltreatment is not currently in evidence but may occur in that family sometime in the future. The focus has shifted from actualities to potentialities through a foregrounding of risk and probability (Rouvroy 2013), and we are taken from the 'what is happening' of established foundations and accepted rationales for state intervention in families to 'what hasn't happened but might.' Human subjects in the present are reframed as projected data objects. Glaberson poses the question: 'when the government obtains and uses our data in way we might not have expected – such as to influence decisions about the future integrity of our families – questions arise about whether we as a community are comfortable with this new use' (2019: 348).

Both the supportive and critical appraisals of algorithmic modelling and predictive analytics in the field of family welfare and child protection do so from a 'top down' perspective about this use of digitised data profiles. In contrast, the rest of this article considers parents' own views on this issue. What are parents' assessments and concerns about data analytics systems in service decision-making and targeting of resources, and how comfortable are they about families being positioned in a predictive 'pre-problem' space?

## Research focus and methods

Our analysis draws on focus group and individual interview data from our research project investigating the views of parents with dependent children about linking up administrative digital data on families, and exploring their thoughts about the use of predictive data analytics in operational service delivery.<sup>2</sup>

We held online discussions with homogenous groups of parents, with participants in each group sharing an element of the same social location. Dialogue focused on how they viewed operational data practices including predictive analytics in an effort to understand how the parents articulated and negotiated their perspectives with each other. Topics covered included generalised assessments of justifications for and oppositions to data linkage and analytics rather than personal experiences, prompted by open questions and hypothetical case examples to

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<sup>2</sup> The [ANONYMISED NAME AND LINK] project was funded by [ANONYMISED FUNDER AND GRANT NUMBER]. Ethical approval for the focus group and individual interviews was given by [ANONYMISED UNIVERSITY AND REFERENCE NUMBER]. Data generated by the study can be accessed at: [ANONYMISED LINK].

facilitate discussion.<sup>3</sup> Participants were recruited through social media and via child and family focused organisations. There were nine focus groups comprising an average of four parents in each, involving 36 mothers and fathers overall. We held one group discussion with, respectively, parents of children with disabilities, home-maker mothers, and fathers, while there were two groups each with parents in professional occupations, black mothers, and lone mothers. (There could be overlaps for group parameters, e.g. a parent in the professional occupation group might be a black mother or vice versa.) The majority of parents in the focus groups had not had contact with family and children-based interventions beyond everyday universal provisions, other than the group of parents of children with disabilities who accessed specialist support. The choice of characteristics for the group discussions draws on findings from a probability-based survey of parents with dependent children, conducted as an initial stage of our investigation (AUTHOR 4) and not reported here because the survey itself did not address the use of predictive analytics directly. As parents per se, the group participants are located in the pre-problem space because the data for all families are pulled in for a predictive “pre-problem” algorithmic scan.

In order to discuss situated lived experience directly, we also held individual online interviews with 23 mothers and fathers who had experience of varying levels and types of family support and intervention services. This ranged from help with aspects of their parenting through to having had children removed from their care for a period of time. The parents were recruited through family and child welfare services and specific support organisations, which meant that they were likely to have ongoing assistance available if the interviews raised difficult personal issues. Topics covered the parents’ experiences of digital data practices by services and views on predictive analytics, using open questions. For the most part, their circumstances had pulled these parents into a pre-space where their own past, present profile and statistical predicted future are merged, going beyond the application of algorithms to all parents and into specific intervention in their own family lives.

Both focus group and individual interviews were analysed using inductive code and theme development (Braun and Clarke 2022). Two members of our research team separately generated codes for each transcript, and together compared and agreed the codes. The codes for all transcripts were then systematically sorted, reviewed, and refined into themes as a whole team. One of the recurrent themes in both group and individual interviews was ‘the past is not predictive’, and we pursue that understanding and its connection to other themes below. Ethical approval for the research was obtained from [ANONYMISED

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<sup>3</sup> An example scenario and follow-up questions: “Local councils have been told by Government to gather information together to identify families that have multiple problems, like they’ve been in trouble with the police, had anti-social behaviour, truancy, unemployment, mental health problems and domestic abuse. Once families are identified as having more than one problem, they are given a keyworker to work with them. Families may or may not want this support. What do you think about this? Why?” *Follow ups*: “What if families don’t want this help?” “Councils are given additional Government funding for every family they identify and work with, do you think that this makes a difference?”

UNIVERSITY] (see footnote 2). In our discussion of parents' perspectives below, we have removed any details from discussion that might identify individuals. Our use of numerical indicators for quotes is deliberate, recreating a feature of algorithmic prediction for readers, where parents are dehumanised as scores.

### **The past is not predictive**

Assertions that the 'past is not predictive' relate to the knotty issues of pre-problem families being constructed through predictive analytics, and the pulling of a putative future into the present through anticipatory service intervention. In the following discussion of parents' understandings and concerns, we look at their struggles with the idea of intervention and prevention, where the notion of anticipatory state monitoring and intercession raised tensions between valuable and harmful purposes and applications. We consider parents' concerns about predictive data and the pre-space it constructs, raising themes of data inaccuracy and injustices, challenging the deterministic logic of algorithmic risk modelling and its enduring consequences. We then review the concerns about depersonalisation both of families and professionals through predictive analytics raised by parents, along their scepticism about the ability of austerity-diminished services to meet predicted needs in the pre-problem space.

### **Intervention and prevention**

Parents could struggle to understand the idea and viability of algorithmic analysis to predict the future, and of anticipatory action where particular families may not be experiencing any difficulties currently. They wrestled with, variously, ideas they regarded as beneficial such as early help, where individual families are exhibiting some indicative difficulties that might be signals of future problems; notions that raised ambivalences around prevention in the epidemiological sense, involving identifying populations for more generalised collective strategies; and purposes they regarded as pernicious, notably prediction where families with particular data profiles or having past difficulties at the least indicates and at the most determines the future.

Parents could echo the positive versions of algorithmic risk modelling and predictive analytics put forward by advocates, as enabling prevention of harms through service intervention for justified early intervention and collective support. They regarded automated scanning of digital information to highlight families with here-and-now problems as helpful, providing the ability to intervene where difficulties are starting to manifest and as necessary to prevent child mistreatment. But they might also see such monitoring as useful in offering opportunities for help that parents in need in the present may not be aware of: *'I think if you're struggling it's probably good to be flagged up because obviously the kids are probably at risk aren't they? ... And if you needed help, I guess they could signpost you to the help you wanted. If you didn't need help, I guess that would be the end'* (Mother in receipt of services for child with disabilities: Interview 10).



Although parents did not express the epidemiological rationale about generalised risk overtly, they could echo it indirectly. The subjecting of administrative data to predictive algorithmic analysis could be viewed in a supportive way, collectively as against individually interventionist, in terms of area-based prevention initiatives and planning services for the future. But there were also ambivalences present in the notion of a particular community or demographic in need of targeting, as captured in the discussion between a group of lone mothers (Group 4), that herald some of the concerns about the algorithmic generation of a pre-problem family space we look at below:

Mother 4.2 *I suppose you're predicting what will happen in the future, having areas that are slightly deprived where you know that people are below the poverty line or anything like that, it is good for the councils to know to then start putting the odd social clubs and things like that in. And playgrounds or extra police to stop the old ASBOs and things like that ...*

Mother 4.1 *So it's tricky, yeah, you cannot judge families and predict that they will get worse or better ...*

Mother 4.4 *So we've just had actually in our school, we've just had the police in doing county lines, talking about guns and knives and things that you wouldn't – we live in a very, you know, we think it's a very affluent area but actually it does have the same problems ... I think it's narrowing down, so it's deciding that a particular family – so I remember reading when my ex-husband left, children of lone parents always do worse in school. And it really hit home that this was such a generalisation that because now I was on my own that my children would do so much worse than they would as two parents together.*

For the most part then, parents could see merit in algorithmic applications to administrative data that identified individual families with difficulties in the present and who might mistreat their children. But there were serious concerns raised about predicting the future.

### **Predictive data and inaccurate feedback loops**

In both group discussions and individual interviews, parents expressed concerns about the accuracy of the administrative data that were being used as the basis for algorithmic risk modelling, and the injustices that could result. Drawing on their own experiences or those of people they knew, parents did not have a lot of confidence in the accuracy and fairness of the sources of administrative information that predictive analytics was drawing on. They raised examples of recorded information that was incorrect, based on biased assumptions and judgemental views, and even fabrications. Black parents had especially strong concerns and recounted instances where they became aware of unjustified racialised labelling of themselves and their children as well as other family and friends, in their records:

*I had a situation where information was shared ... Unfortunately the information wasn't accurate ... And sadly [biased stereotypes] kind of happened in my situation, which is why I challenged it. I was like no, no, no, you're not painting us out to be like that, no we're not having that ... Some workers are perhaps not as, you know they're not as used to working with families that are of a different background, different culture, so they*

*stereotype. And unfortunately, that was definitely what happened in my case. And I had to challenge it, I had to challenge it, I really did, yeah ... Because of the law they weren't able to actually omit that entry that they put in about my child, okay, which wasn't true, but they were certainly able to update it and change it, you know, add entries into his record to say, well, this is, like, not correct (Mother 2.3: Group 2 Homemaker mothers).*

Parents who had major social care intervention in their families provided some distressing evidence of misinformation being recorded, whether by mistake or even malicious intent, and shared about them and their children. Getting wrong information corrected, however, was not possible where parents had attempted this, as we saw in the account above. Under GDPR Article 5(1)(d) organisations need to ensure they keep accurate and up-to-date records, but if mistakes are made records will not necessarily be erased and replaced; rather, the mistake should be documented (Information Commissioner's Office, undated; AUTHOR 5). The flawed data can stay on record, with the potential to be fed endlessly into predictive algorithms, part of the magnification of injustices in predictive data analysis referred to by Glaberson and others, and which can contribute to false flagging for parents generally. In other words, the poor judgements and fabrications that are already evident in administrative data are perpetuated and magnified in the process of algorithmic risk modelling and predictive analytics (AUTHORS OWN 2).

### **The predictive data and the pre-problem space**

*In discussing predictive data, parents often defaulted to talking about families experiencing problems in the present because they found the sense of a pre-space, where we move away from what is happening into the territory of what might happen, to be incomprehensible or even dystopian. The unfairness of false positives and false negatives, the deterministic implications of the past predicting the future, and the potentially devastating implications of being propelled into what in effect was a pre-problem space, worried parents.*

Algorithmic flagging was a point of concern, where families are identified as low risk when the reverse is the case (false negatives) while others are labelled as high risk but are not (false positives). They worried about data analytics anticipating problems when in fact a family not only does not have any issues but would not go on to develop them in the future. In this exchange as part of a discussion between parents in professional occupations (Group 3), as identified above, the idea of intervention as acceptable where algorithmic modelling identified early signs as against dubious predictive analytics that attempted to model ahead from a non-problematic present into a non-imminent future, is evident. So too were scenarios where something had happened in the past, was not happening in the present but problems were extrapolated into the future:

*Mother 3.2 I think I'm kind of not surprised if there are sort of efforts to identify families that might have problems before they happen. I can see why*

*they would really want to do that ... and there would have probably been problems happening even a few years before it got to the sort of crisis point ... but at the same time, as we've all been saying, it can go too far and sort of problems can be sort of found where they shouldn't be, where actually it's the family's fine ...*

Mother 3.4 *I agree ... it comes back to that kind of making judgements about people that are not necessarily based on fact and that something might happen to somebody but there might be a million different ways that things then play out.*

Similarly, echoing the debate between the mothers in Group 4 discussed in the intervention and prevention section, concerning the social make-up of areas where collective prevention needed to be focused, parents were also bothered about families whom predictive analytics would likely pass over because they did not fit the data profile of dysfunctional parents that the algorithm worked with. Affluent middle-class families were mentioned several times in this respect: *'Algorithms are not flawless either and who will slip through the cracks ... if your profile doesn't have that because, you know, so and so is a dentist and so and so is a lecturer, but actually who could slip through the gaps of that [predictive analysis]'* (Father 7.1: Group 7 Parents in professional occupations). The parents' concerns about the ability to forecast behaviour and outcomes are not dismissed by the evidence on algorithmic prediction success rates; we noted the lack of accuracy in tests of predictive modelling technique earlier in the paper (Salganik et al. 2020; Clayton et al. 2020; Waller and Waller, 2020).

Parents in both group discussions and individual interviews often expressed indignation about the use of predictive data analytics – a positioning of parents and children in a “pre-problem” space and a deterministic pulling together of the past and the future into the present. The assessment of Mother 3.4 about “*a million different ways that things then play out*”, above, and of the father 7.1 in Group 7 quoted above who continued on to remark on families that were “*trying to break the cycle*”, signal this unease about the deterministic labelling involved in the generation of pre-problem families:

*... really trying to make a difference, be different than what's gone before them, and yet they've still got people going, 'Are you sure you're okay? Are you sure you're okay? Are you sure you're okay?', and then they start to get that negative self-view on themselves almost. I think, yeah, computer algorithms and things like that are great but there's, it's what you put into them* (Father 7.1: Group 7 Parents in professional occupations).

Not only did inaccurate data risk false positives and negatives, but the whole endeavour of anticipatory prediction was subject to question. Parents did not understand the logic of flagging up where families had never experienced any problems at all because their data profile meant it was predicted that sometime in the future they might. They referred to every situation being individual rather than following the same pattern as other families with whom they may share some characteristics and behaviours: *I think all situations are different and I think it's quite*

*dangerous to use someone else's situation and try and predict someone else because you could be right, but you could be massively wrong. And you could start getting services involved that aren't needed (Father in receipt of services for child with disabilities: Interview 12).*

Ideas about determinism, and the notion that digitised data speak for themselves, were challenged by parents as part of the questioning of anticipatory algorithmic analysis. Where parents and children had problems in the distant past, they spoke of how circumstances and people change over time, how children get older and adults move on:

*A criminal record generally only stands for six years if there's no other issues. And then it's wiped. Same with debts. If you've got debts and they're on your record, they're there for six years ... But it's not the same for social services and child services, things like that, that's there for life. And they treat you as the person that you were when they first met you and it's so wrong (Mother in receipt of services for a child with disabilities who had extensive intervention in her youth: Interview 15).*

Further, the importance of context and the inability of administrative digital data to convey situated meaning were evident worries for some parents. Here they echoed arguments that algorithmic risk modelling treats parenting and family behaviour as if they are objectively knowable through data about sets of characteristics and behaviour, separating them from an understanding of the wider social world and structural context (Keddell 2015):

*Individuals that might be victim of circumstances, at that point in time had to get in debt just to put food on the table. And that's a moment in time. Is that going to be reflected? Then you're taking raw data and creating a meaning without having all the information to hand, which I think potentially could be quite dangerous (Father 5.1: Group 5 Fathers).*

Quotes from fathers above indicate the strong apprehensions parents could hold about the potentially devastating implications of predictive data analytics. The father in Interview 12 mentioned that projecting from long past misdemeanours into a putative future might make a 'fantastic' parent feel worried, while the father 7.1 from Group 7 expressed worries that parents doing their best may develop a 'negative self-view' as a consequence. The potential damage to families posed by an algorithmic analytic process that was ostensibly to identify damaging families was broached during group discussions and individual interviews. Intervention was posed as equally perilous as the risk from no intervention because it could affect families badly in the short and/or longer term, even to the extent of creating self-fulfilling prophecies – the bringing about of the predicted future that otherwise would not occur:

*So if we're saying the government can pull all these sources of data together, and is that acceptable, and then they can identify families that may be at risk, even though potentially some of them won't ever end up being at*

*risk, but just because of the algorithm it suggests that they're ones to sort of look out for, I guess the question for me would be what happens to those families? Are they put on some kind of watch list? Is there kind of extra interference in their lives from any government bodies? Will it affect the way the school treats those children because I think there's a number of studies that the way that teachers perceive pupils can affect the education they then get or how they actually achieve (Mother: Group 8 Lone mothers in professional occupations).*

Further, parents could express worries about another form of bringing about the very problems that predictive data analysis was supposed to counter; that the type of prevention that could occur would in fact be the prevention of parents from approaching services they might need to use to avert problems. This echoes a concern expressed among public and third sector stakeholders (Dencik et al. 2018). Parents felt that some families experiencing problems were already wary of engagement with services when they needed support which would be amplified: *'There's dozens of forums online, where parents are telling other parents, "Don't ask for help because it will be used against you"'* (Mother subject to extensive interventions from services: Interview 5).

Parents could use references to the flagging up of data from the past being taken forward into the present and future as being *'there like a stain'* (Mother 2.3: Group 2) and *'an unnecessary weight on your shoulders'* (Mother, false positive intervention: Interview 18). They could refer to potentially dystopian scenarios conjured up by *'Terminator 2 stuff'* (Mother 9.2: Group 9) and *'Big Brother watching'* (Mother: Interview 11) to convey their discomfort. The similes and metaphors employed point towards the depersonalisation the parents could feel was generated in predictive digital analysis and location in the pre-problem space.

## **Depersonalisation and decreased resources**

Advocates of algorithmic risk modelling and predictive analytics champion the technological solutionism of the greater efficiency and effectiveness obtained by minimising of professional human subjectivity and harnessing the objective power of automated analysis, that (AUTHORS OWN 3). Yet it is these very benefits – the extent to which digital data analysis technologies for service delivery purposes cut human staff out of decision-processes, or shape the conditions and mindset under which they make the decisions – that form an issue of concern for both researchers (Eubanks 2018; Lighthouse Reports 2022; Redden et al. 2020), and parents. Parents feared that families could be reformulated as disembodied and decontextualised projected data objects through algorithmic processes; an inability to recognise families and their members as individuals and treat them ethically or with compassion. Parents were bothered that predictive analytics would have no sense of the impact that may be wrought on families; it depersonalised them. For those in a group of fathers (Group 5), all working in family support themselves, it was the very

objectivity of digital data subject to algorithmic analysis that brought about this dehumanisation:

Father 5.4 *It's this point that algorithms can be great, but, as with all systems and all data systems, it's about what does that mean, and you lose the individual ...*

Father 5.3 *... for me I have a thing that it wouldn't be the whole picture, it'd be numbers, numbers on a spreadsheet ...*

Father 5.2 *... I was just going to say I think one of its real big limitations is it's really objective, isn't it? So, you're looking at one rule that fits the entire country, and there's no chance to look into each individual circumstances ...*

Father 5.4 *... It's about relationships ... So, it's got to be a more nuanced approach than just simply, 'You popped up on our data system, and, therefore, you're going to get help now, and this is what you need'.*

The fathers' perspectives as family support workers encompassed concerns about professionals being depersonalised by predictive data analytics as well as parents. Other parents also regarded algorithms as no replacement for doctors, social workers, and so on. Data were becoming detached from the professionals who were personally aware of the family they concerned:

*If the people aren't, for example, working alongside that person or whichever, what is the point of having that [data]? Because you have got information based off somebody else, on somebody you don't know, and that you are not sort of working alongside, so what is the relevance of that? (Mother: Interview 2).*

Policymakers pose the collection of digital data and innovation in its analysis through predictive algorithmic modelling as the technological solution to dysfunctional families in government initiatives – problems in families will be pre-empted through the knowledge contained in the data (e.g. Ministry of Housing, Communities and Local Government 2021). At the same time, diminished funding for service provision, shortages of staff and other resource dysfunctions in all public sector fields have intensified through policies of austerity. Parents could be sceptical about how families propelled into the pre-problem space were going to receive interventions, with the possibility of more harm than good:

*But the reality is [services] have been cut till there's nothing there. There's just that stump. It's, to say that you're going to put that information into an algorithm to identify the needs of a young person, when there are no services for them to access. There's no help that they can have ... We know that the support for these people isn't there. We know that. So, you know, to say that it's in order to help people feels really disingenuous (Mother: Group 6.2 Black mothers).*

Even on this pragmatic level of resource availability then, propelling families into the pre-problem space through predictive data analytics seems unwarranted and

misguided, let alone the reframing of human subjects as projected data objects that is involved.

## Conclusion

Artificial intelligence offers national and local governments the promise of identifying families at risk by modelling and forecasting potential social and criminal problem behaviours in the future so as to enable anticipatory preventive intervention. As we have discussed, digitised administrative records from a range of everyday public services can be merged into one extensive data set. Algorithmic scanning of this data set made up of whole family populations can be undertaken in order to identify which of them have data characteristics that deem them to be “pre-problem” families in need of pre-emptive intervention. In effect this is mass digital monitoring where families are affected by other families’ data just as much as they are by data about themselves. Yet despite it being data about their families that is fed into algorithms for risk modelling and predictive analytics, the views of parents themselves is a significant omission in discussions of data practices in the family welfare and child protection fields. This paper provides a much-needed corrective to this ethical and democratic gap in our understanding.

Predictive algorithmic endeavours give a veneer of being scientific and value-free but they replicate and perpetuate stereotypes and inequalities built into the data they are developed from. More than this, as we have elaborated, the relationship between families and state is redrawn through profound shifts of time and in the nature of being a human subject. The move away from the conventional ‘what is happening’ to a ‘what hasn’t happened but might’ rationale for state intervention in family life collapses the future into the present to open up a pre-problem space. In occupying this digital space for predictive algorithmic analysis, families become transformed into quantifiable elements, reformulated as disembodied mass units of data and decontextualised objects of projected data driven futures. This automated and opaque process of adopting predictive analytics to identify risk of possible future problems in families is one that parents find deeply uncomfortable and concerning because of the counter-risks that it poses for all families.

A recent United Nations Office of the High Commissioner for Human Rights report (2021) has called for a moratorium on the use of artificial intelligence systems including data profiling, automated decision-making and other machine-learning technologies that pose threats to human rights until sufficient safeguards are implemented. UNHCHR concerns about algorithmic risk modelling and predictive analytics include erosion of individual rights to privacy, and the potential harms that may be inherent in the bringing together of datasets, with administrative information about individuals collected, shared, merged and analysed in multiple and opaque ways, and with the data and systems that inform their development being discriminatory, flawed, out of date or irrelevant. Parents in our study also wrestled with such apprehensions about data processing technologies in the field of family

and child welfare, viewing early help for those experiencing difficulties in the here-and-now as beneficial, but regarding intervention on the basis of algorithmic modelling of 'what might happen but hasn't' potentially as dangerous. At the very least, parents' apprehensions about the erroneous and prejudiced data that can be fed into risk models, and worries about the determinism and accuracy of predictive analytics, should be met by three main provisions. (1) Straightforward, enforceable rights for individuals to view all the personal data that is held about them online in local authority data bases. (2) Robust systems that allow parents to report data errors and receive speedy investigation and correction. And (3) regular independent review and publication of the accuracy rates and utility of predictive models applied to public administrative data. Ultimately though, a serious public conversation needs to take place about the legitimacy of a state construction of a 'pre-problem family' space using administrative data held on them. In a pre-problem family space family members are viewed by the state not as people and citizens but as disembodied and decontextualised digital data objects. It is moreover, a space in which open-to-doubt anticipated futures are acted upon as foregone conclusions in the present through a pre-emptive service intervention in family lives – anticipatory interventions that may not be pre-empting anything.



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