

The Psychiatric Genetic Data of Children in Proceedings to Terminate Parental Rights

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The introduction of psychiatric genetic evidence in court proceedings to terminate parental rights raises concerns that such information will result in misconceived assumptions about the child's mental health trajectory and unjust rulings on termination of parental rights. We conducted an online vignette-based survey with a nationally representative sample of adults from the general public ($n = 300$ respondents) to assess their views on how evidence about a child's psychiatric genetic makeup may affect key decisions in termination proceedings. Our findings indicate that genetic evidence increased the child's labeling as having a psychiatric disorder, regardless of the presence of symptoms, treatment recommendations, evaluation of prescription medication, and beliefs in treatment efficacy. Genetic evidence alone did not affect whether participants would terminate parental rights, but participants who thought that the child did not have a psychiatric disorder were more likely to terminate in the presence of genetic test results. We conclude that psychiatric genetic evidence in termination proceedings may have unintended consequences, and that measures should be taken to ensure that it does not unfairly affect outcomes.

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The introduction of evidence about children's mental health is common in court proceedings to terminate parental rights. In such cases, which are usually filed by state child-protective service agencies, courts are

required to determine whether a parent is unfit to care for the child and whether severing the parent-child relationship is in the child's best interest.¹ In making their decisions, courts also consider the child's future development, including prospects for physical and mental health. To date, evidence about a child's mental health has been based largely on psychological, psychiatric, and social work evaluations of the child and parents.² The increase in knowledge about psychiatric genetics raises the possibility that, in the future, a child's genetic risk for psychiatric conditions will become part of the judicial evaluation process. This possibility may have significant ramifications for children and families involved in termination proceedings.

There are two interrelated areas of concern. The first is the possibility that introduction of evidence about the child's psychiatric genetic makeup would result in misconceived decisions about the child's mental health trajectory. This possibility may occur as participants in the judicial process (e.g., judges, jurors, and mental health experts) embrace a

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deterministic understanding of psychiatric genetics or lack the necessary scientific literacy to understand the child's psychiatric genetic results. Studies have shown, for example, that while the general public has increasingly endorsed neurobiological explanations of psychiatric conditions,³ it has limited understanding of how genetic risk factors affect multifactorial diseases.⁴ Similarly, although biomarkers indicating predispositions to psychiatric conditions cannot generally provide a diagnosis or an accurate estimate of whether, when, and with what severity a psychiatric condition will occur,⁵ studies have found that genetic attributions for psychiatric disorders increase the perceived seriousness and persistence of the condition,⁶ and are associated with more recommendations for medication and psychiatric hospitalization, but decreased belief in treatment efficacy.⁷ The risk is that, in the presence of psychiatric genetic evidence, children embroiled in termination proceedings will be labeled mistakenly as having a psychiatric disorder, increasing their likelihood of experiencing stigma and social distancing that are often associated with such classifications.³ There is also a risk that courts will recommend or require that such children receive mental health care, even in the absence of clinical symptoms.

The second related concern is that psychiatric genetic evidence about the child would unjustly affect determinations about termination of parental rights. This possibility could occur in one of two ways. Genetic evidence could be used to support a claim that a child with a genetic predisposition to psychiatric conditions requires increased parental ability to seek and provide mental health care for the child, and thus that the child would be better placed in a more affluent family environment than with the child's biological family.⁸ Although parental poverty is not a permissible ground for terminating parental rights, there is evidence of a connection between the two in judicial decisions.⁹ Alternatively, genetic evidence of vulnerability to a psychiatric disorder could be used to support an argument that the parents are unable to provide necessary emotional support for the child. Such an argument in turn might be grounded in a growing body of literature on gene-environment interactions, showing the impact of supportive or adverse familial and social environments on psychological outcomes, for better or worse, among children with genetic predispositions to psychiatric conditions.¹⁰⁻¹³

While a heightened standard of scrutiny in evaluating parental fitness may be appropriate when a child experiences a serious mental health condition, it may constitute an unreasonable burden on parents if conclusions about the child's psychiatric status are based on findings of a genetic predisposition that may not materialize.

Given the increasing introduction of genetic evidence in various judicial proceedings¹⁴⁻¹⁶ and ongoing efforts to expand knowledge about the genetic underpinnings of psychiatric conditions, it is important to evaluate how the psychiatric genomic revolution may affect families embroiled in courts. Although we lack systematic studies suggesting that genetic evidence is affecting termination decisions today, some cases have begun to raise claims based on psychiatric genetics (e.g., *In re H.G.*¹⁷ and *In re D.R.*¹⁸). In this regard, the views of the general public about psychiatric genetic evidence are important. Although judges usually make decisions regarding termination of parental rights, the public can affect laws and policies relating to child custody proceedings, and, in some states in the United States, members of the public can serve as jurors in cases to terminate parental rights.¹⁹ The views of the public are also important for maintaining the legitimacy of family courts.²⁰ Whether the introduction of psychiatric genetic evidence in cases to terminate parental rights is viewed as undermining procedural justice or as conflicting with citizens' moral intuitions, it may undercut perceptions of courts as legitimate institutions. This article reports findings from a survey of a nationally representative sample of adults to assess public views on the effect of evidence about a child's psychiatric genetic makeup on key decisions in termination proceedings.

Methods

Participants

An anonymous online survey that took approximately 20 minutes to complete was administered to a newly recruited, nationally representative sample of 300 adults (based on variables such as age, gender, race/ethnicity, education, and party identification, drawn from data in the 2010 American Community Survey). Of these, 55 percent were female, and the mean age was 48.6 years (range 18-89 years). In terms of race, 77.7 percent of participants identified as White, 12.7 percent of participants identified as Hispanic, and 11 percent as Black/African American.

Table 1 Demographic Characteristics

Female/male	165/135 (55.0/45.0)
Age, y, mean \pm SD	48.6 \pm 16.8
18-29	47 (15.7)
30-59	159 (53.0)
60+	94 (31.3)
Race	
African American	33 (11)
White	233 (77.7)
Asian or Pacific Islander	10 (3.3)
American Indian or Alaskan Native	3 (1.0)
Native Hawaiian or other Pacific Islander	0 (0.0)
Mixed race ^a	9 (3.0)
Missing	12 (4.0)
Hispanic	
Yes	38 (12.7)
No	262 (87.3)
State of residence	
Northeast	51 (17.0)
Midwest	75 (25.0)
South	109 (36.3)
West	65 (21.7)
Highest education level attained	
\leq High school graduate	100 (33.3)
Up to 2 years of college	101 (33.7)
4 years of college/postgraduate	99 (33.0)
Marital status	
Divorced/separated	41 (13.7)
Never married	101 (33.7)
Married/widowed ^b	158 (52.7)
Income	
\leq \$19,999	42 (14.0)
\$20,000–\$49,999	99 (33.0)
\$50,000–\$99,999	82 (27.3)
\$100,000 or more	40 (13.3)
Prefer not to say/missing	37 (12.3)

Data are presented as *n* (%) unless otherwise noted. *N* = 300 subjects.

^a Mixed-race participants selected both White and another racial category. In the analysis, the race category was collapsed into White/non-White participants. Mixed-race participants were classified as non-White.

^b Married includes domestic/civil partnership. Married/widowed participants were grouped together because the views of these participants, who are in a relationship or whose relationship was involuntarily ended, are likely to be different than participants who are divorced or are in the process of getting a divorce.

The race of four percent is missing, and three percent selected two racial categories. Other data are provided in Table 1. Fewer than half (44.3%) had a two-year or higher college degree. Approximately half (49.7%) were employed full-time or part-time. More than half (54%) had an annual income less than \$60,000 (the 2016 median income in the United States was \$55,322²¹).

Participants were recruited by YouGov, a professional research firm that operates an Internet-based panel of the general public that can be sampled to be representative of the U.S. population. YouGov administered

the survey from June 28 to July 3, 2017, and offered participants “Polling Points” redeemable for small gifts (equivalent to \$1) for their participation. The institutional review board at the New York State Psychiatric Institute approved the study, which was part of a larger project that utilizes vignette descriptions of civil litigation proceedings in which psychiatric genetic evidence is introduced to support a litigant’s claims.

Vignette

The effect of genetic evidence was examined using a four (type of genetic evidence) \times two (presence/absence of psychiatric symptoms) \times two (White/Black race) between-subject comparison based on a vignette about a judicial decision on termination of parental rights. The core vignette was modeled on the facts in various court cases, including the mother’s poverty, a common characteristic of parents in termination cases.²² It described a poor, single mother of a five-year-old girl; a year earlier, the mother became overwhelmed and temporarily relinquished the child’s custody to the Department of Social Services (DSS). The mother generally followed a plan to regain custody proposed by the DSS (e.g., parenting classes), but the DSS became concerned about the mother’s personal life, including a continued lack of employment, and recommended that the court terminate her parental rights. The vignette continued with a description of the legal proceedings, including testimony of experts about the child’s mental health and the introduction of genetic evidence about the child’s propensity for generalized anxiety disorder (GAD). The wording of the various versions of the vignette was as similar as possible, each comprising 733–877 words (see Appendix).

The primary independent variable embedded in the vignette was genetic evidence, with participants randomized to receive one of four descriptions: paternal family history of GAD (hereafter, family history); genetic test results showing an increased risk for the child to develop GAD; both family history and genetic test results; and no genetic evidence. GAD was selected because studies have suggested that children with a genetic predisposition to anxiety are at increased risk for developing this condition when experiencing childhood adversity,¹³ and that untreated childhood GAD may become chronic and predictive of a range of psychiatric conditions in adulthood, including anxiety, depression, and

substance use disorder.²³ The child's best interests may thus call for early identification and treatment.

The evidence about family history was selected because family history is the most reliable prognostic indicator to date⁵ and, as found in cases addressing criminal responsibility, the evidence most commonly introduced in court to demonstrate that a condition "runs in the family."^{14,24} In addition, we specifically focused on paternal family history to distance the mother's parenting challenges from the presence of a psychiatric condition, a factor found in previous studies to affect judicial decisions in child custody disputes.²⁵ Although no national study exists on this topic, a state-level analysis reported that parents with disabilities are more than three times more likely than parents without disabilities to have their parental rights terminated and that parents with emotional or behavioral disabilities comprise the largest disability groups among parents involved with such proceedings²⁶; the overall custody loss rates of parents with psychiatric conditions is 70–80 percent.^{25,27}

Secondary independent variables were the presence of symptoms of GAD in the child (participants were randomized to none or moderate) to distinguish between participants' views about a psychiatric genetic predisposition and a psychiatric condition that may require treatment; and the mother's race (participants were randomized to Black or White) because research indicates that Black/African American mothers are overrepresented in the child welfare system and that they experience significant disparities in outcomes (i.e., greater child custody loss) compared to White mothers.^{28,29}

Initial drafts of the vignette and survey questions were reviewed by two family court judges recruited through the National Council of Juvenile and Family Court Judges; these judges were asked to comment on the study material, including whether the vignette was realistic. The final survey included revisions made on the basis of these reviews.

Dependent Variables

Attribution of Psychiatric Conditions

Participants were asked about the likelihood of the child having a psychiatric disorder. Using a previously validated scale,^{3,30} participants were then asked about the likelihood that the child's situation might be due to "the way she was raised," "stressful

circumstances," "a chemical imbalance in the brain," "a genetic or inherited problem," or her "own bad character." Responses were not mutually exclusive and were measured on a Likert scale (1 = not at all likely to 4 = very likely), with "I don't know" treated in the analysis as missing data.

Need for and Efficacy of Treatment

Perceived need for treatment and likely efficacy of treatment were assessed with two questions that utilized validated scales.^{3,7} The first question asked whether the child should seek consultation with or treatment by "a general medical doctor," "a psychiatrist," "a therapist or counselor, such as a psychologist, clinical social worker, or other mental health professional," "prescription medication," or "admission to a mental hospital." Participants could choose more than one of these options (responses were yes or no). The second question asked for participants' opinions about the likelihood that "[the child's] situation will improve with professional mental health treatment." Response options were on the previously described Likert scale.

Termination Decisions

Participants were asked to indicate whether "[the mother's] parental rights should be terminated" and, if not, whether "[the child] should be returned to her mother's home at this time." Possible responses for both questions were yes or no.

Covariates

Sociodemographic characteristics of participants were included in the analysis: sex (male, female); age (continuous in years); self-reported race (collapsed and recoded as White or non-White); ethnicity (Hispanic, non-Hispanic); education (some college or less, 2 or more years of college); marital status (divorce/separated, widowed/married, never married); and parental status (i.e., having children under 18) (yes or no). In addition, participants were asked to complete a 12-item genetic knowledge scale to assess the impact of genetic knowledge on the dependent variables (e.g., "a gene is a piece of DNA"; "if an individual has a mutation in a colon cancer gene, he/she may never develop colon cancer"), with response options of true or false).

We predicted that the introduction of psychiatric genetic evidence would be positively associated with perceptions of the child having GAD and with

endorsement of a need for treatment, but negatively associated with belief in treatment efficacy. We also predicted that this evidence would be positively associated with decisions to terminate parental rights.

Procedures

Participants were contacted electronically by YouGov and invited to participate. After being provided with information about the study, they were asked to indicate their electronic consent (response rate was 15.6%). When they clicked to begin the survey, they were presented with the version of the vignette to which they had been randomized, followed by questions to assess their endorsement of genetic causes or explanations of psychiatric disorders, perceptions of the described child's need for mental health treatment and its likely efficacy, and decisions about termination of parental rights.

Participants were debriefed at the end of the survey about the study design and the possibility that they had read a vignette with genetic information that was not based on current scientific knowledge about associations between a genetic condition and a behavior.

Statistical Analysis

In the absence of prior research on this topic and data about likely effect sizes, our power analysis was based on the primary predictor (psychiatric genetic data) and the primary outcome of interest (binary response regarding termination of parental rights). This analysis indicated that 279 participants were required to detect a difference of at least 0.18–0.20 in effect size between the two closest groups. The distribution of participants across vignettes is provided in Table 2.

Data were analyzed using SAS 9.4 (SAS Institute, Cary, NC). Variables and demographic characteristics were described using frequencies. Dependent variables were dichotomized (e.g., likely included somewhat likely and very likely). Multiple logistic regression was used to assess the impact of the primary independent variable (genetic evidence, encompassing its four conditions) on the dependent variables. Secondary independent variables (child's symptoms, mother's race) and the demographic covariates (described above) were controlled for in the analysis. Missing data were rare (generally < 5%) and handled by using complete case analysis; p values < .05 were considered significant.

Table 2 Subjects Randomized to Each Vignette Condition

	Genetic Evidence			
	Family History	Genetic Test	Both	None
No Symptoms				
African American	17	14	17	18
White	18	14	17	20
Symptoms				
African American	21	26	21	23
White	18	15	19	22
Total	74	69	74	83

Results

Attribution of Psychiatric Conditions

Almost 60 percent of participants thought that the child was likely to have a psychiatric condition, and a similar or higher proportion attributed the child's condition to "a chemical imbalance in the brain" (60%) or "a genetic or inherited problem" (65%) (Table 3). Genetic evidence was positively associated with labeling the child as likely to have a psychiatric disorder ($p < .0001$): genetic test results (odds ratio [OR] = 9.21; 95% CI = 3.98–21.32), family history (OR = 5.46; 95% CI = 2.50–11.92), both genetic test results and family history (OR = 8.77; 95% CI = 3.70–20.77). This positive association was significant, regardless of the absence (OR = 7.37, 95% CI 2.54–21.38, $p = .0002$) or presence of symptoms of GAD (OR = 7.78, 95% CI 3.15–19.22, $p < .0001$). Genetic evidence (i.e., genetic test results, family history, or both) was also positively associated with attribution of the child's condition to a chemical imbalance in the brain or a genetic or inherited problem (all $p < .0001$). Conversely, genetic test results were negatively associated with attributing the child's condition to "the person's own bad character" ($p = .0495$). No significant associations between participants' demographic characteristics and causal attributions of the child's psychiatric condition were found, with the exception that participants with less genetic knowledge were more likely to believe that the child's situation was due to bad character ($p = .01$).

Need for and Efficacy of Treatment

The primary and most widely endorsed treatment recommendation was that the child go to a therapist or counselor (82%), with a similar proportion of participants responding that professional mental health treatment would likely improve the child's situation (81%) (Table 3). Genetic test results (alone or in

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Table 3 Responses to Survey Questions

Decision to terminate mother's parental rights	
Parental rights should not be terminated	196 (65.3)
Parental rights should be terminated.	104 (34.7)
Should child be returned to her mother's home?	
She should be returned to her mother's home at this time	60 (30.8)
She should not be returned to her mother's home at this time	135 (69.2)
Likelihood the child has a psychiatric disorder	
Unlikely	100 (41.2)
Likely	143 (58.9)
Causal attribution for the child's psychiatric condition:	
The way the person was raised	
Unlikely	78 (26.1)
Likely	221 (73.9)
Stressful circumstances in the person's life	
Unlikely	22 (7.3)
Likely	278 (92.7)
A chemical imbalance in the brain	
Unlikely	120 (40.1)
Likely	179 (59.9)
A genetic or inherited problem	
Unlikely	105 (35.4)
Likely	192 (64.7)
The person's own bad character	
Unlikely	213 (71.5)
Likely	85 (28.5)
Interventions child should undergo:	
Go to a general medical doctor	
No	165 (55.4)
Yes	133 (44.6)
Go to a psychiatrist	
No	141 (47.3)
Yes	157 (52.7)
Go to a therapist or counselor	
No	54 (18.1)
Yes	245 (81.9)
Be evaluated for prescription medication	
No	182 (60.9)
Yes	117 (39.1)
Be evaluated for admission to a mental hospital	
No	271 (91.6)
Yes	25 (8.5)
Mental health treatment will improve situation	
Unlikely	57 (19.1)
Likely	242 (80.9)

Data are presented as *n* (%). *N* = 300 subjects.

combination with family history) were positively associated with treatment recommendations for a therapist or counselor ($p = .01$), evaluation for prescription medication ($p = .002$ for genetic test results; $p = .003$ for both genetic test results and family history) and treatment efficacy ($p = .03$ for genetic test results; $p = .02$ for both genetic test results and family history). Further analysis revealed that the positive association with recommendations for a therapist or counselor remained, regardless of symptoms (in the

absence of symptoms but presence of genetic test results: OR = 5.92, 95% CI 1.08–32.36, $p = .04$; in the presence of symptoms and the combined evidence of both genetic test results and family history evidence: OR = 5.15, 95% CI 1.23–21.61, $p = .02$). With regard to a need for prescription medication and treatment efficacy, the positive association remained significant only when genetic evidence was presented in combination with symptoms of GAD: prescription medication: genetic test results (OR = 3.50, 95% CI 1.33–9.21, $p = .01$) or both family history and genetic test results (OR = 2.63, 95% CI 1.00–6.90, $p = .049$); treatment efficacy: both genetic test results and family history (OR = 4.52, 95% CI 1.10–19.39, $p = .04$).

Participants' demographic characteristics did not affect most views on these questions. Younger participants were more likely than older participants, however, to recommend that the child go to a psychiatrist ($p = .02$) and a therapist or counselor ($p = .02$) and to believe in treatment efficacy ($p = .02$). Participants with lower genetic knowledge scores were more likely to recommend that the child be evaluated for admission to a mental hospital ($p = .04$), though only 8.5 percent of participants endorsed this recommendation.

Parental Rights Determinations

Most participants (65%) would not have terminated parental rights, though they would also not return the child to her mother's home at the present time (69%) (Table 3). Neither of these decisions was significantly associated with the introduction of genetic evidence (for termination decision: genetic test (OR = 1.05, 95% CI 0.53–2.08, $p = .88$), family history (OR = 0.73, 95% CI 0.37–1.43, $p = .35$), both (OR = 0.52, 95% CI 0.26–1.05, $p = .07$); for returning child back home now: genetic test (OR = 0.76, 95% CI 0.30–1.91, $p = .56$), family history (OR = 0.80, 95% CI 0.34–1.90, $p = .61$), both (OR = 0.49, CI .20, 1.22, $p = .13$)) (Table 4). Additional analysis revealed that participants who did not think that the child had a psychiatric disorder were more likely to terminate in the presence of genetic test results than in the absence of any genetic evidence (OR = 6.43, 95% CI 1.42–29.19, $p = .02$). Conversely, participants who thought the child was likely to have a psychiatric condition were less likely to terminate parental rights in the presence of genetic evidence than in its absence

Table 4 Associations between Genetic Evidence and Dependent Variables

Dependent Variables ^a	Genetic Test and Family History ^b		Family History Only		Genetic Test Only	
	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>
Mother's parental rights should be terminated						
Yes	0.52 (0.26–1.05)	.07	0.73 (0.37–1.43)	.35	1.05 (0.53–2.08)	.88
Should child be returned to her mother's home?						
Yes	0.49 (0.20–1.22)	.13	0.80 (0.34–1.90)	.61	0.76 (0.30–1.91)	.56
Likelihood the child has a psychiatric disorder						
Likely	8.77 (3.70–20.77)	< .0001	5.46 (2.50–11.92)	< .0001	9.21 (3.98–21.32)	< .0001
Causal attributions for the child's psychiatric condition:						
The way the person was raised						
Likely	0.78 (0.38–1.63)	.51	0.76 (0.37–1.57)	.46	1.18 (0.54–2.58)	.68
Stressful circumstances in the person's life						
Likely	0.89 (0.25–3.12)	.85	1.96 (0.43–8.87)	.38	0.72 (0.21–2.50)	.60
A chemical balance in the brain						
Likely	4.29 (2.16–8.51)	< .0001	5.92 (2.93–11.97)	< .0001	5.81 (2.82–11.98)	< .0001
A genetic or inherited problem						
Likely	7.22 (3.40–15.32)	< .0001	4.54 (2.25–9.13)	< .0001	6.47 (3.05–13.73)	< .0001
The person's own bad behavior						
Likely	0.61 (0.30–1.24)	.17	0.69 (0.34–1.38)	.29	0.48 (0.23–1.00)	.0495
Interventions child should undergo:						
Go to a general medical doctor						
Yes	1.36 (0.70–2.62)	.36	1.48 (0.77–2.83)	.24	1.82 (0.93–3.57)	.08
Go to a psychiatrist						
Yes	1.89 (0.97–3.69)	.06	1.64 (0.85–3.17)	.14	1.97 (0.99–3.90)	.052
Go to a therapist or counselor						
Yes	2.25 (0.97–5.18)	.06	1.55 (0.70–3.45)	.28	3.17 (1.27–7.94)	.01
Be evaluated for prescription medication						
Yes	3.03 (1.47–6.22)	.003	1.69 (0.81–3.51)	.16	3.27 (1.57–6.81)	.002
Be evaluated for admission to a mental hospital						
Yes	0.54 (0.15–1.95)	.35	0.25 (0.05–1.23)	.09	1.70 (0.61–4.75)	.32
Likelihood professional mental health treatment will improve child's situation						
Likely	2.74 (1.18–6.40)	.02	2.03 (0.90–4.60)	.09	2.63 (1.10–6.25)	.03

^a The baseline comparison condition in the analysis is no genetic evidence (i.e., neither genetic test results nor family history).

^b Controlling for vignette child symptoms, vignette maternal race, and subjects' race, education attainment, age, ethnicity, marital status, parental status, and gender.

(genetic test: OR = 0.29, 95% CI 0.09–0.95, *p* = .04; family history: OR = 0.27, 95% CI 0.08–0.89, *p* = .03; both: OR = 0.28, 95% CI 0.09–0.91, *p* = .03). In other words, the association between the genetic evidence and the decision whether to terminate parental rights differed by whether the participant thought that the child had a psychiatric disorder (interaction *p* = .02, *df* = 3) (Fig. 1).

Findings were largely unaffected by the addition of controls for secondary independent variables and participants' demographic characteristics. Non-White participants were less likely than White participants to terminate parental rights (OR = 0.45, 95% CI 0.23–0.87, *p* = .02), especially in the absence of genetic evidence (OR = 0.17, 95% CI 0.03–0.88, *p* = .04).

Discussion

Psychiatric genetic evidence is increasingly entering criminal and civil court proceedings,^{14–16,31} and this trend is likely to expand further in family courts as scientific knowledge about psychiatric genetics develops. Although psychiatric conditions are highly complex and genetic testing cannot currently identify or confirm a diagnosis of common mental health conditions such as anxiety or depression,⁵ research to improve understanding of psychiatric genetics and of gene–environment interactions is growing. To the extent that psychiatric genetic data may provide insight about a child's mental health trajectory, they are likely to be incorporated in legal proceedings, including cases to terminate parental rights. Indeed, studies indicate that judges are receptive to genetic evidence, including behavioral genetic data.³² Our

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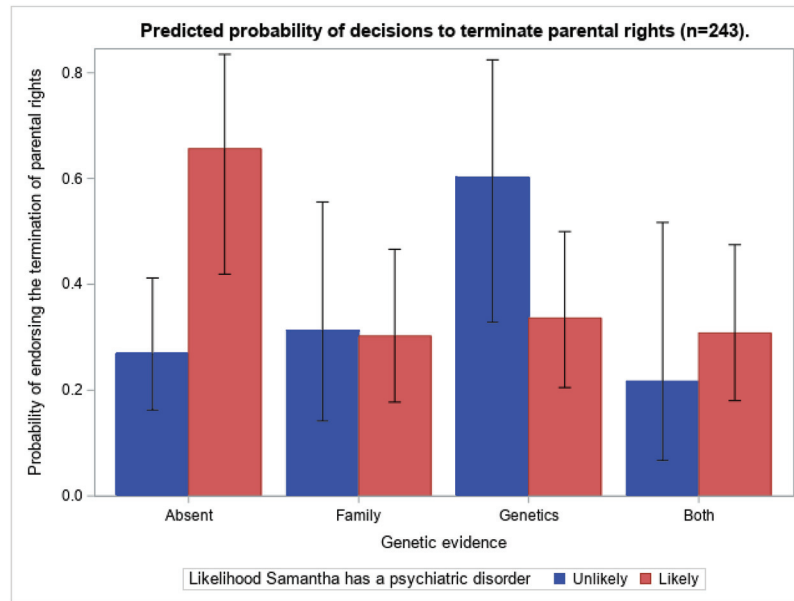


Figure 1. Decisions to terminate parental rights, by genetic evidence and likelihood of psychiatric disorder. The graph displays the predicted probabilities for termination of parental rights, depending on the presence of genetic evidence (i.e., genetics, family history, both, none) and the likelihood of the child (Samantha) having a psychiatric disorder. Analysis was controlled for child symptoms, child race, and subjects' age, educational status, race, gender, ethnicity, marital status, and parental status. Tic marks indicate 95% confidence intervals (interaction $p = .020$, $df = 3$).

study aimed to explore how the introduction of children's psychiatric genetic evidence may affect public perceptions of key questions in judicial proceedings to terminate parental rights, such as attribution of psychiatric conditions of children involved in such proceedings, treatment recommendations and perceived efficacy, and termination decisions.

As we hypothesized, psychiatric genetic evidence was found to be associated significantly with beliefs that the child had a psychiatric condition and that such conditions have biological causes (i.e., chemical imbalance in the brain, or a genetic or inherited problem). These findings may reflect the increase in public acceptance of biological explanations of psychiatric disorders³ and belief in the power of genes to affect the development of such conditions.³³ They may also suggest that the introduction of children's genetic evidence in termination proceedings increases the likelihood of such children being labeled as having a psychiatric condition, even in the absence of clinical symptoms.

Concurrently, our findings that participants endorsed biogenetic explanations to a lesser extent than environmental factors as causes for the child's mental health situation indicate greater complexity in public understanding of genetic data and their relevance for mental health status (see Table 4). As other studies have shown, a genetic framing (i.e., the

presence of information about a gene for a psychiatric condition) often does not translate into a deterministic understanding of cause and effect but results in genetic data being viewed as only one among several other risk factors for health outcomes, albeit an important one.³⁴ This may be particularly true for children; public perceptions of the role of nurture versus nature shift over the human life-span, with nurture being viewed as the most important influence in shaping children's development from birth through childhood.³⁵ Our findings of higher endorsement of environmental rather than biogenetic explanations as the cause of the child's mental health status may indicate a similar effect.

Our findings about beliefs regarding the need for treatment and its likely efficacy only partially support our hypothesis and merit further consideration. Previous studies reported that biogenetic explanations of psychiatric disorders are associated with increased recommendations for treatment and, conversely, with pessimism that a mental health professional could help with the problem.^{7,36} Although our findings support the association between genetic evidence and increased recommendations for treatment, especially evaluations for prescription medication, they differ from earlier studies on the factor of pessimism. Participants in our study were more likely to recommend prescription medication only in the

presence of both genetic evidence and symptoms of GAD, not merely on the basis of a genetic predisposition. Moreover, a genetic predisposition was not viewed as creating a “closed destiny”³⁴ for the child (i.e., a belief that treatment is not likely to be efficacious), as has been found in relation to other serious mental disorders (e.g., schizophrenia).⁷ Our findings thus may indicate belief in a more optimistic trajectory for children with anxiety.

Our findings regarding the impact of psychiatric genetic evidence on termination decisions indicate another complexity. The finding that genetic evidence alone did not significantly affect the likelihood of decisions to terminate parental rights can assuage some concerns relating to the use of psychiatric genetic information in nonclinical settings. It is also in line with other studies indicating that, while most people believe genetic factors affect physical and mental health,^{34,35,37} they may be reluctant to extend such effects to judicial settings where questions such as criminal responsibility are at stake.³⁸ Similarly, genetic evidence in our study affected participants’ views about the child’s mental health status but not the life-changing decision of termination of parental rights, even as most participants stated the child should not be returned to her mother’s home at the present time.

The finding that the interaction between psychiatric genetic evidence and participants’ beliefs about the child’s psychiatric condition significantly affected termination decisions is interesting and concerning. Participants who thought that the child was unlikely to have a psychiatric disorder were more likely to terminate parental rights in the presence of genetic test results, but such an effect was not found among participants who thought that the child was likely to have a psychiatric disorder but received no genetic evidence.

One possible explanation for this finding is that participants who thought that the child was unlikely to have a psychiatric disorder incorrectly assumed that positive genetic test results are more important in diagnosing childhood psychiatric conditions than the child’s actual behavior. We determined, however, that genetic knowledge of participants in our study did not affect termination decisions ($p = .1708$). Another possibility is that participants’ other beliefs, such as biases against single or poor parents or, conversely, a stronger view in favor of protecting parental rights (which were not measured in our study)

affected their termination decisions. Studies have reported that exposure to genetic messages may trigger higher levels of discrimination toward certain groups, but also that this outcome may not be due to beliefs about the role of genetics or genetic determinism, but to societal ideologies and frameworks (e.g., racism) that mobilize the explanation for a given outcome.³⁹ Initial support for the latter argument may be found in our finding that most participants would have not returned the child to the mother’s home at this time, regardless of the presence of genetic evidence and whether a diagnosis was indicated. Although our study did not provide an opportunity to explore the rationales for this response, participants’ reluctance to return the child to the mother’s home may have been influenced by the DSS recommendation to terminate parental rights or, as we further discuss below, due to stigma about the inability of poor parents to care for their children. Further research could explore the comparative role of genetics and other social factors in termination decisions.

Still another possibility is that the termination decisions of those who thought that the child was unlikely to have a psychiatric disorder were based on the assumption that the child’s psychiatric genetic vulnerability required increased support that participants did not believe the mother could provide. This explanation may fit with our hypothesis on the possible role of perceived gene–environment interactions in termination decisions and indicates the importance participants may have attributed to the potential to prevent a future psychiatric condition. This explanation may also fit with the findings that participants who thought the child had a psychiatric disorder already and were presented with genetic evidence were subsequently less likely to terminate parental rights.

Termination decisions based on preventive goals grounded in psychiatric genetic vulnerability are concerning. Research indicates that socioeconomically marginalized parents, similar to the mother portrayed in the vignette, are often deemed unfit because of their lack of resources²² and are more likely to lose custody of their child.⁴⁰ Given that genetic evidence may feed into existing biases about the unfitness of poor parents to raise their children (rather than considering collective approaches to support their child-rearing or alleviate their poverty), the potential impact of the genomic revolution on such families is troubling. This concern is further heightened for

Black/African American mothers (and other minority parents) because research shows that they are overrepresented in the child welfare system and experience significant disparities in outcomes (i.e., child custody loss) compared to White mothers.^{22,28} In this regard, although the race of the mother in the vignette did not impact termination decisions, our finding that non-White participants were less likely to terminate parental rights, especially in the absence of genetic evidence, may reflect a community-level concern about injustice in family courts. Future research could further explore the interplay between genetic and other societal ideologies for decisions to terminate parental rights, including the role of racial identification.

Study Limitations

This study has several limitations. First, the use of GAD as the psychiatric condition might have led participants to underestimate the seriousness of the condition (compared with other psychiatric conditions that are viewed as more serious, such as depression). Second, our sample size of 300 participants did not allow for in-depth analysis by race/ethnicity of participants, although studies indicate that race affects perceptions of psychiatric conditions and mental health stigma (e.g., perceptions of dangerousness).⁴¹ It is also possible that a larger sample would have allowed larger cells for each independent variable and would have yielded more significant findings, although our power calculation indicated that our sample size was sufficient to detect a difference of at least 0.18–0.20 effect size between the two closest groups. Third, our recruitment of participants through a professional company that operates an Internet-based panel may have skewed the sample to include participants who have more interest in participating in research in general or who have a particular interest in the subject matter. Whether the views of those who completed the survey reflect the views of those who declined to participate in the study is unknown. Because our sample was selected to be representative of the adult population in the United States, however, sample bias is likely to be small. Future research could address these gaps.

Conclusions

Our findings show how psychiatric genetic evidence may affect perspectives on key decisions made by family courts. Although the findings may assuage

concerns that genetic evidence of a child's vulnerability to a psychiatric disorder will make decision makers more likely to terminate parental rights, at least if judicial decisions mirror lay decisions, they also highlight the effect such data may have on the labeling of children involved in termination proceedings as having a psychiatric condition, regardless of current symptoms. Moreover, our findings highlight the complexity with which the general public understands psychiatric genetic information. Contrary to many concerns about genetic determinism and subsequent fatalism with regard to prognosis and treatment efficacy,⁴² our findings suggest that the general public may view pediatric psychiatric genetics in a more malleable way and believe that supports can mitigate the child's psychiatric genetic predispositions. Still, the possibility that genetics-based notions of prevention might affect termination decisions raises concerns, especially given the disproportionately high rate of non-White and poor populations in such proceedings. Discussions about the benefits of the emerging psychiatric genomic revolution and the uses of such data in nonclinical settings, such as child custody proceedings, must consider these possible unintended consequences.

Although all judicial actors could benefit from genomic education, forensic experts (e.g., psychiatrists, psychologists, psychiatrists, social workers) have a key role in this context because their opinions influence judicial determinations.⁴³ It will therefore be important to develop guidelines that address the challenges discussed above. Although a comprehensive set of guidelines is beyond the scope of this article, several points can be highlighted. Currently, the introduction of evidence about a child's genetic predisposition for common psychiatric disorders has weak predictive validity and should be avoided, especially in the absence of symptoms. As the diagnostic and predictive power of psychiatric genetic testing increase, if such information is to be introduced, it should only be by court order and after confirmation in a laboratory certified according to the Clinical Laboratory Improvement Amendments.⁴⁴ Moreover, because psychiatric genetic evidence may be misunderstood or overvalued by judges, forensic experts should have a responsibility to ensure that their presentation of the child's psychiatric genetic data includes clear explanations of the probative value of the results for the child's future development, the complexity of such data (e.g., the effect of epigenetic changes), and the multifactorial nature of the

variables associated with psychiatric disorders. Ultimately, guidelines must ensure that increasing knowledge of psychiatric genetics does not unfairly interfere in adjudications of family relations and that justice is upheld.

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APPENDIX

Case Vignettes

Susan is a 33-year-old [African American/White] woman. She has had a hard time keeping a job, and she receives welfare assistance through the local Human Services Department.

When Susan was 27 years old, she became pregnant with her daughter, Samantha, during a relationship with Mo. She set aside an area in her apartment for the child, received donated furniture and second-hand clothes from a charity shop, and when Samantha was born she brought her home. Mo left Susan during the pregnancy and has never met Samantha.

Susan spent the next few years struggling to find a job and to care for Samantha. When Samantha was four years old, Susan felt overwhelmed. She had no family or friends on whose support she could rely. Concerned that she could not adequately care for Samantha, she relinquished her custody to the Department of Social Services (DSS). DSS filed a petition seeking temporary custody of Samantha, which was granted by the court. The plan developed for Susan ultimately to regain custody included psychological evaluations, therapy, and parenting classes. Samantha was placed with foster parents, and arrangements were made for Susan to visit her. Mo and his family insisted throughout the process they had no interest in any contact with Samantha at present or in the future.

Over the next 14 months, Susan mostly followed through with the plan, although she failed to attend a few scheduled visits with Samantha because of limited transportation options to the foster family's house. However, DSS workers became concerned about Susan's ability to care for Samantha properly. She was involved in a tumultuous on-and-off

relationship with a man, had problems organizing her life, and remained unemployed. The DSS workers thus believed that Susan would not be able to provide Samantha with a stable and supportive environment and that it would be detrimental for Samantha to be returned to Susan. DSS subsequently recommended that the court terminate Susan's parental rights. Susan objected and insisted that she wanted to regain custody and to care for her child. A hearing was scheduled, and the court appointed a nationally known psychiatrist to provide an expert opinion on the case.

At the hearing, the psychiatrist testified that he had performed complete psychiatric examinations of both Susan and Samantha and had examined Susan's, Mo's, and Samantha's DSS and medical records.

[Version A, B, C, or D]

Version A

The psychiatrist noted that there is no indication of any parental psychiatric disorder.

Version B

The psychiatrist noted that Samantha's father, Mo, and some of his family members have been diagnosed with generalized anxiety disorder (GAD). The disorder is characterized by chronic and exaggerated worry about everyday things, even when nothing seems to provoke it, as well as difficulty concentrating, trouble sleeping, and extreme irritability. The psychiatrist testified that, based on his 35 years of clinical experience and extensive scientific research that has been performed, a tendency to develop GAD can be inherited. He therefore concluded that the history of GAD in Mo's family indicates that Samantha is at increased risk for developing GAD.

Version C

The psychiatrist noted that genetic testing was performed on Samantha. The test indicated that Samantha's DNA has changes in a number of genes that increase the risk for developing generalized anxiety disorder. The disorder is characterized by chronic and exaggerated worry about everyday things, even when nothing seems to provoke it, as well as difficulty concentrating, trouble sleeping, and extreme irritability.

Version D

The psychiatrist noted that Samantha's father, Mo, and some of his family members received a diagnosis of generalized anxiety disorder (GAD). The disorder is characterized by chronic and exaggerated worry about everyday things, even when nothing seems to provoke it, as well as difficulty concentrating, trouble sleeping, and extreme irritability. The psychiatrist testified that, based on his 35 years of clinical experience and extensive scientific research that has been performed, a tendency to develop GAD can be inherited. He therefore concluded that the history of GAD in Mo's family indicates that Samantha is at increased risk for developing GAD.

The psychiatrist also noted that genetic testing for GAD was performed on Samantha. The test indicated that Samantha's DNA has changes in a number of genes that increase the risk for developing GAD.

[Version 1 or 2]

Version 1

An adoption supervisor for DSS testified that Samantha is doing well and developing normally, and her physical health is good. The adoption supervisor added that Samantha is equally close to Susan and the foster parents, the foster home in which she has been living is appropriate for her, the foster parents are willing to adopt her, and the adoption could be finalized within four to six months.

Version 2

An adoption supervisor for DSS testified that Samantha is showing behavioral problems and that she is more anxious and irritable than other children her age, though her physical health is good. When she is anxious, she has a hard time concentrating, sleeping, and carrying out simple daily activities. The adoption supervisor added that Samantha is equally

close to Susan and the foster parents, the foster home in which she has been living is appropriate for her, the foster parents are willing to adopt her, and the adoption could be finalized within four to six months.

The DSS supervisor concluded that, based on the testimony presented, and because of Susan's instability and Samantha's vulnerability, Susan is unable to take care of Samantha. The agency claimed that, despite the courses Susan attended, her life decisions and her inability to find a job demonstrate she is unable to meet Samantha's needs now and is not likely to improve. "The child's best interests require that we give her the opportunity to develop normally and in a stable and supportive environment," the supervisor said, "and we have a dedicated foster family that loves her, wants to adopt her, and is able to provide her with what she needs."

Susan's attorney said that with all of Susan's hardships, she prepared appropriately for Samantha's arrival, and took care of her during the first four years of her life. She argued that the fact that Susan relinquished custody showed responsible behavior and a desire to do the best thing for Samantha. Susan has since followed the plan laid out by DSS, including attending the parenting course and going to therapy. The attorney said that Susan loves Samantha with all her heart, wants Samantha to return to her, and is willing to do everything she can to give Samantha a good home.

The Decision

You have now heard all the facts in this case about Susan's parenting and Samantha's needs. Your task is to determine whether Susan's parental rights should be terminated. Although it is always possible to think of additional information that would be useful to have, please make your decision as best you can on the basis of the information that has been provided.