

# US National Longitudinal Lesbian Family Study: Psychological Adjustment of 17-Year-Old Adolescents



**WHAT'S KNOWN ON THIS SUBJECT:** There is a paucity of data on the psychological adjustment of adolescents who have been reared in lesbian households since birth. No other study has followed a cohort of such offspring from conception through adolescence, prospectively and longitudinally.



**WHAT THIS STUDY ADDS:** This study expands our understanding of psychological well-being in adolescent biological offspring of lesbian mothers and therefore has implications for the pediatric care of these adolescents and for public policies concerning same-sex parenting.

## abstract

FREE

**OBJECTIVES:** The objective of this study was to document the psychological adjustment of adolescents who were conceived through donor insemination by lesbian mothers who enrolled before these offspring were born in the largest, longest running, prospective, longitudinal study of same-sex-parented families.

**METHODS:** Between 1986 and 1992, 154 prospective lesbian mothers volunteered for a study that was designed to follow planned lesbian families from the index children's conception until they reached adulthood. Data for the current report were gathered through interviews and questionnaires that were completed by 78 index offspring when they were 10 and 17 years old and through interviews and Child Behavior Checklists that were completed by their mothers at corresponding times. The study is ongoing, with a 93% retention rate to date.

**RESULTS:** According to their mothers' reports, the 17-year-old daughters and sons of lesbian mothers were rated significantly higher in social, school/academic, and total competence and significantly lower in social problems, rule-breaking, aggressive, and externalizing problem behavior than their age-matched counterparts in Achenbach's normative sample of American youth. Within the lesbian family sample, no Child Behavior Checklist differences were found among adolescent offspring who were conceived by known, as-yet-unknown, and permanently unknown donors or between offspring whose mothers were still together and offspring whose mothers had separated.

**CONCLUSIONS:** Adolescents who have been reared in lesbian-mother families since birth demonstrate healthy psychological adjustment. These findings have implications for the clinical care of adolescents and for pediatricians who are consulted on matters that pertain to same-sex parenting. *Pediatrics* 2010;126:28–36

**AUTHORS:** Nanette Gartrell, MD<sup>a,b,c</sup> and Henny Bos, PhD<sup>c</sup>

<sup>a</sup>Center of Excellence in Women's Health, University of California, San Francisco, San Francisco, California; <sup>b</sup>Williams Institute, UCLA School of Law, Los Angeles, California; <sup>c</sup>Graduate School of Pedagogical and Educational Sciences, Faculty of Social and Behavioral Sciences, University of Amsterdam, Amsterdam, Netherlands

### KEY WORDS

lesbian families, lesbian mothers, adolescents, psychosocial adjustment, same-sex parents

### ABBREVIATIONS

DI—donor insemination

NLLFS—National Longitudinal Lesbian Family Study

Add Health—National Longitudinal Study of Adolescent Health

CBCL—Child Behavior Checklist

MANOVA—multivariate analysis of variance

Drs Gartrell and Bos had full access to all data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

[www.pediatrics.org/cgi/doi/10.1542/peds.2009-3153](http://www.pediatrics.org/cgi/doi/10.1542/peds.2009-3153)

doi:10.1542/peds.2009-3153

Accepted for publication Mar 23, 2010

Address correspondence to Nanette Gartrell, MD, UCSF, Department of Psychiatry 3570 Clay St, San Francisco, CA 94118. E-mail: [ngartrell@onebox.com](mailto:ngartrell@onebox.com)

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2010 by the American Academy of Pediatrics

**FINANCIAL DISCLOSURE:** Dr Gartrell has been reimbursed for travel expenses associated with speaking at symposia sponsored by the Williams Institute at UCLA School of Law; Dr Bos has no financial relationships relevant to this article to disclose.

According to US census data, an estimated 270 313 American children were living in households headed by same-sex couples in 2005, and nearly twice that number had a single lesbian or gay parent.<sup>1</sup> Although research had established by the late 1960s that homosexuality is not a mental illness, public opinion has been slow to catch up.<sup>2,3</sup> After homosexuality was removed from the *Diagnostic and Statistical Manual of Mental Disorders*<sup>4</sup> in 1973, women who had conceived children in the context of heterosexual marriage and identified as lesbian at the time of divorce faced stiff opposition in the courts when they sought to retain custody.<sup>5–7</sup> Subsequently, studies have shown that there are no significant differences in psychosocial development between children who are reared in lesbian and heterosexual households.<sup>7–15</sup> These findings formed the basis of the Technical Report from the American Academy of Pediatrics Committee on Psychological Aspects of Child and Family Health.<sup>16</sup>

Despite more than 3 decades of cross-sectional research demonstrating that the psychological adjustment of children is unrelated to their parents' sexual orientation, the legitimacy of lesbian and gay biological, foster, and adoptive parenting is still under scrutiny.<sup>8,15,17</sup> Contemporary critics point to a dearth of longitudinal studies on lesbian families and limited data on adolescents who have been living in lesbian or gay households since birth.<sup>15,18</sup> Within the cohort of families headed by same-sex parents in the United States, the first generation of children who were conceived by lesbians through donor insemination (DI) is coming of age. This phenomenon provides a rich opportunity for social scientists to study the well-being of teenagers who have been raised since birth in what is known as planned lesbian families.<sup>8,19–27</sup>

Psychosocial research on young children in planned lesbian families has focused primarily on 4 key developmental outcomes: psychological adjustment, peer relationships, family relationships, and progress through school.<sup>8,14,15,28</sup> In young children, adjustment is largely determined by family functioning: regardless of their parents' gender or sexual orientation, children fare better when their parents are compatible, share responsibilities, provide financial stability, and have healthy interpersonal connections.<sup>16</sup> During adolescence, peer relations become more important as teenagers develop a sense of identity, a deeper appreciation of interindividual difference, and a keener awareness of minority status.<sup>19,29–31</sup> Teenage children may be more reflective about their earlier experiences of stigmatization,<sup>15,19,27,29,32–35</sup> yet relatively little has been reported about the psychological well-being of adolescents who have been raised in lesbian families since birth. Studies on the teenage offspring of lesbians are largely based on data gathered in the 1990s, in which the majority of teenagers studied were conceived in heterosexual relationships before their mothers divorced and came out as lesbian.<sup>8,14,29,32,36</sup> These teenagers' experience differs from that of those who grow up in planned lesbian families, because having a heterosexual father may diminish the sense of marginalization that teenagers with lesbian parents experience.<sup>19</sup> In the United Kingdom, Golombok and colleagues<sup>11,37</sup> have been conducting a comparative study of children who were reared in fatherless and traditional families that began when the index offspring was a mean age of 6 years. At the third follow-up, the 18 young adults with lesbian mothers and the 20 reared by single heterosexual mothers demonstrated

higher levels of self-esteem than the 32 reared in 2-parent heterosexual households.

A recent series of reports on the psychosocial adjustment of American teenagers with same-sex parents was based on the National Longitudinal Study of Adolescent Health (Add Health), for which the data were collected in 1994 and 1995.<sup>29,30,34</sup> Forty-four adolescents who lived with 2 mothers were compared with 44 who were raised by a mother and a father. No differences between the 2 groups were found in peer relations, academic performance, personal adjustment, and health-related risk behaviors; however, the parents' sexual orientation was not specified in the Add Health survey, so the analyses may be confounded by the inclusion of women who live together but do not identify as lesbian.<sup>29,30,34</sup>

The US National Longitudinal Lesbian Family Study (NLLFS) was initiated in 1986 to provide prospective data on a cohort of American lesbian families from the time the children were conceived until they reach adulthood.<sup>21–27</sup> At its inception, all NLLFS mothers identified as lesbian. In this article, the psychological adjustment of the 17-year-old NLLFS offspring who were conceived through DI and reared in planned lesbian families is compared through maternal reports with those of an age-matched normative sample of American teenagers. Within the NLLFS sample, we analyze the association of adolescent well-being as reflected in Child Behavior Checklist (CBCL) scores with (1) sperm donor status (having a known, as-yet-unknown, or permanently unknown donor); (2) parental relationship continuity (whether the offspring's mothers are together or separated); and (3) experiences of stigma.

## METHODS

### Sampling, Recruitment, and Participants

Between 1986 and 1992, prospective lesbian mothers who were inseminating or pregnant through DI were recruited via announcements that were distributed at lesbian events, in women's bookstores, and in lesbian newspapers throughout the metropolitan areas of Boston, Washington, DC, and San Francisco. A total of 154 lesbian women in 84 families (70 birth mothers, 70 co-mothers, and 14 single mothers) enrolled in the study before it was closed to new participants in 1992.<sup>21</sup> The participants originally resided within 200 miles of the aforementioned cities, but many families have since relocated to other regions of the United States (Table 1). The study is ongoing, with 78 (93%) families still participating.

Of the 6 families who are no longer participating, 4 are single-mother and 2 are 2-mother families. All but 2 dropouts occurred before the children were 5 years old (T3). The specific reasons for dropping out were as follows: 1 single mother is deceased (as a result of cancer); 2 single mothers moved without leaving a forwarding address; 2 continuously coupled families withdrew indicating that they were too overcommitted with childrearing and careers; and 1 single mother withdrew after T4, without explanation (none of this child's CBCL scores at T4 fell within the borderline or clinical ranges).

Data gathering for T5 was completed in May 2009. Because 1 family did not return all portions of the T5 survey instruments, the total number used for analyses was 77 families with 78 offspring, including 1 set of twins.<sup>21,22</sup> As shown in Table 1, the 78 adolescent offspring consisted of 39 girls and 39 boys. The mean age of the NLLFS ado-

**TABLE 1** Demographic Characteristics of the NLLFS Sample and the Achenbach Normative CBCL Sample

Characteristic	NLLFS	Achenbach <sup>a</sup>
Adolescent sample size	<i>N</i> = 78 <sup>b</sup>	<i>N</i> = 93
Adolescent gender, %		
Girls	50.0	52.7
Boys	50.0	47.3
Adolescent age, mean ± SD, y <sup>c</sup>	17.05 ± 0.36	17.00 ± 0.00
Parental SES, % <sup>d,e</sup>		
Working	18.2	12.0
Middle	57.1	44.1
Upper middle and upper	24.7	43.9
Parental race/ethnicity, % <sup>f,g</sup>		
White/Caucasian	93.0	67.7
Black/African American	3.0	14.0
Native American	2.0	— <sup>d</sup>
Latina/o	1.0	12.9
Asian/Pacific Islander	1.0	— <sup>d</sup>
Mixed or other	—	5.4
Family region of residence (US), % <sup>h</sup>		
Northeast	47	17
Midwest	1	20
South	9	40
West	43	24
CBCL respondent, %		
Mother <sup>i</sup>	100	100
Father	0	0

SES indicates socioeconomic status.

<sup>a</sup> Achenbach and Rescorla 17-year-old raw data, 2001, courtesy of Dr Thomas Achenbach, University of Vermont.<sup>38</sup>

<sup>b</sup> *N* = 78 index offspring including 1 set of twins (77 families) at T5.

<sup>c</sup> NLLFS adolescent age range: 3 were 16 years old, 68 were 17 years old, and 7 were 18 years old.

<sup>d</sup> NLLFS parental demographic data collected T1 to T3.<sup>21–23</sup>

<sup>e</sup> SES for NLLFS and Achenbach samples based on Hollingshead Index by using the parent with the highest occupation and education.<sup>21–23,39</sup>

<sup>f</sup> Achenbach race/ethnicity data combine Native American, Asian/Pacific Islander, and other.

<sup>g</sup> Based on NLLFS race/ethnicity data for all mothers in 84 families at T1<sup>21</sup>; the 77 mothers who completed the T5 CBCL = 96% white/Caucasian; race/ethnicity for the 78 NLLFS adolescents = white/Caucasian 87.1%, black/African American 2.6%, Native American 1.3%, Latina/o 3.8%, Asian/Pacific Islander 2.6%, and Middle Eastern 2.6%.

<sup>h</sup> Between T3 and T5, the NLLFS families resided in large urban communities, midsized towns, and rural areas of California, Georgia, Louisiana, Massachusetts, Maryland, Minnesota, New York, Oregon, South Carolina, Texas, Vermont, Virginia, and Wisconsin; Achenbach residential data were derived from total normative CBCL 6–18 sample.

<sup>i</sup> The Achenbach mothers' CBCL reports were used for comparison with the T5 NLLFS mother reports.

lescents was 17.05 years (SD: 0.36; range: 16–18 years). Twenty-eight (36%) of the adolescents were conceived by using a known sperm donor and 50 (64%) by using an unknown donor, 62% (*n* = 31) of whom were permanently unknown and 38% (*n* = 19) of whom could be identified when the adolescent reached the age of 18. At T5, the mean age of the NLLFS birth moth-

ers was 52.00 years (SD: 3.89) and of the co-mothers was 52.9 years (SD: 5.24). The T5 family constellations consisted of 31 continuously coupled, 40 separated-mother, and 6 single-mother families. Fifty-six percent of the mothers who were co-parents when the index children were born had separated. On average, the mothers had been together 12 years (SD: 5.88) before they separated, and the mean age of the children at the time of their mothers' separation was 6.97 years (SD: 4.42 years). In 71.4% of cases, custody was shared after separating; in 28.6%, the birth mother was the primary custodial parent.

The Achenbach comparison group consisted of maternal reports on 49 girls and 44 boys, all 17 years old (Achenbach 17-year-old maternal-report raw data used with permission of Dr Thomas Achenbach, University of Vermont).<sup>38,39</sup> The demographic characteristics of the NLLFS and Achenbach samples are presented in Table 1.

### Procedures

Structured interviews with the NLLFS mothers took place when they were inseminating or pregnant with the index children (T1) and when the index children were 2 years old (T2), 5 years old (T3), 10 years old (T4), and 17 years old (T5). Mothers also completed questionnaires at T2, T3, T4, and T5. The index offspring were interviewed at T4,<sup>24,26,27</sup> and they completed an online questionnaire at T5. (For more information about the T1–T4 data collections and analyses, see previous reports.<sup>21–27</sup>) Approval for the NLLFS was granted by the institutional review board at the California Pacific Medical Center.

At T5, a member of the NLLFS research team called and/or e-mailed each mother in the study cohort near the time of her adolescent's 17th birthday. The T5 research protocol was ex-

plained to the mother, who was asked to complete the institutional review board consent forms before her offspring was contacted. When consent had been obtained from the mother for her own participation as well as for her offspring's, the offspring was contacted, and he or she provided assent. The mother was then interviewed by telephone, and she completed a CBCL that was provided and returned electronically or by mail. The adolescent completed a questionnaire that was provided and returned through the study's secure online Web site. Each adolescent received a unique identity code that allowed access to a protected part of the NLLFS Web site to complete her or his questionnaire. Participants were assured that their responses would be completely confidential.

Because the Achenbach raw data that were used for this study consisted of a single maternal report per family, for consistency, these analyses are based on the CBCLs completed by 1 NLLFS mother per family—the birth mother—in all but 7 families in which the birth mother was deceased, ill, or otherwise unavailable; in these 7 cases, CBCLs that were completed by the co-mothers were used instead.

### Adolescent Assessments

Adolescent well-being was assessed by the parental report of Achenbach's CBCL/6–18, which is known for its reliability, internal consistency, and factor structure.<sup>38,39</sup> The CBCL provides information about an adolescent's social functioning and identifies symptoms that are associated with behavioral and emotional problems. Achenbach norms were chosen as comparison groups because they have been used extensively in studies of adolescent well-being, including other studies of child outcomes after the use of assisted reproductive technology.<sup>40–42</sup>

The CBCL consists of 2 sections. The first measures adolescent competence on 4 scales: activities, social, school/academic, and total competence. Elevated competency scores indicate superior functioning.<sup>39</sup> The second section focuses on behavioral or emotional problems. On each of 113 problem items, the parent is asked to assess her adolescent's behavior during the previous 6 months and to check either "0 = not true," "1 = somewhat or sometimes true," or "2 = very true or often true." The parent's scores are then tabulated so that the adolescent's problem behavior can be rated on 8 syndrome scales (anxious/depression, withdrawn, somatic complaints, social problems, thought problems, attention problems, rule-breaking behavior, and aggressive behavior) and 3 broadband scales that are composites of the syndrome scales (internalizing, externalizing, and total problem behavior).

Within the NLLFS sample, the following T5 CBCL comparisons of psychological adjustment were conducted: (1) among 17-year-old offspring with known, as-yet-unknown, and permanently unknown donors<sup>21–24</sup>; (2) between 17-year-old offspring whose mothers had separated (designated "separated couples") and offspring whose mothers were still together (designated "continuous couples"); (3) between 17-year-old offspring who at age 10 answered affirmatively to homophobic stigmatization and those who answered negatively ("Did other kids ever say mean things to you about your mom[s] being lesbian? 1 = yes, 2 = no")<sup>24,26,27</sup>; (4) between 17-year-old offspring who answered affirmatively at age 17 to stigmatization and those who answered negatively ("Have you been treated unfairly because of having a lesbian mom? yes = 1, no = 2"); and (5) between 17-year-old offspring

whose mothers reported that their adolescents had been stigmatized and those who were unaware of any such incidents ("Has your teen been explicitly teased or taunted about having a lesbian mom? 1 = yes, 2 = no"). Details about the T4 interviews with the 10-year-old NLLFS index children are available in previous reports.<sup>24,26,27</sup>

### Analyses

Using the NLLFS and Achenbach CBCL mother reports on their 17-year-old offspring, we conducted a multivariate analysis of variance (MANOVA) with group (1 = NLLFS, 2 = Achenbach normative sample) and gender (1 = girls, 2 = boys) as independent variables and with all CBCL scales (activities, social competence, school/academic competence, total competence, anxious/depression, withdrawn, somatic complaints, social problems, thought problems, attention problems, rule-breaking behavior, aggressive behavior, internalizing behavior, externalizing behavior, and total problem behavior) as dependent variables. When a significant group difference or interaction was found, contrast analyses were conducted.<sup>43</sup> This sequence of analyses has been used in other studies of non-traditional families.<sup>15,44–46</sup> To examine possible differences in adolescent well-being within the NLLFS sample, we conducted 3 MANOVAs, with donor status, maternal relationship continuity, and stigmatization as the independent variables and the CBCL scales as dependent variables.

## RESULTS

### Comparison Between the NLLFS and Achenbach Samples

A significant multivariate main effect was found for group (Wilks's  $\lambda = .31$ ,  $F_{14,170} = 23.52$ ,  $P = .0001$ ), but not for gender (Wilks's  $\lambda = .86$ ,  $F_{14,170} =$

**TABLE 2** Maternal Report CBCL 6–18 for NLLFS and Achenbach Samples

Parameter	NLLFS Adolescent Sample			Achenbach Normative Adolescent Sample			Group		Gender		Group × Gender	
	Total	Girls	Boys	Total	Girls	Boys	F	P	F	P	F	P
<b>Competence scales<sup>a</sup></b>												
Activities												
Mean ± SD	10.9 ± 2.6	10.7 ± 3.1	11.2 ± 2.0	10.3 ± 2.6	9.8 ± 2.6	10.9 ± 2.4	2.22	.138	4.14	.043	.51	.476
95% CI	10.3–11.5	9.8–11.5	10.4–12.2	9.8–10.9	9.1–10.5	10.1–11.7						
Social												
Mean ± SD	11.0 ± 9.6	10.3 ± 2.3	11.7 ± 13.3	8.4 ± 2.4	7.8 ± 2.3	9.0 ± 2.4	6.35	.013	1.61	.206	.02	.890
95% CI	9.5–12.5	8.1–12.5	9.6–13.9	7.0–9.8	5.9–9.7	7.0–11.0						
School/academic												
Mean ± SD	5.2 ± 0.9	5.4 ± 0.9	5.0 ± 0.8	2.8 ± 0.9	2.5 ± 1.0	3.2 ± 0.7	313.78	.001	1.20	.275	16.76	.001 <sup>c</sup>
95% CI	5.0–5.4	5.1–5.7	4.7–5.2	2.6–3.0	2.2–2.7	2.9–3.4						
Total competence												
Mean ± SD	26.0 ± 4.3	26.3 ± 5.0	25.8 ± 3.6	21.4 ± 4.5	20.3 ± 4.5	23.0 ± 4.0	45.70	.001	3.34	.070	6.86	.010 <sup>d</sup>
95% CI	25.1–27.0	24.9–27.7	24.4–27.2	20.6–22.4	18.8–21.2	21.7–24.3						
<b>Syndrome scales<sup>b</sup></b>												
Anxious/depression												
Mean ± SD	2.9 ± 3.1	3.4 ± 3.6	2.3 ± 2.4	2.2 ± 2.7	2.8 ± 3.1	1.5 ± 2.0	2.81	.096	7.62	.001	.07	.786
95% CI	2.2–3.5	2.5–4.4	1.5–3.2	1.5–2.7	2.0–3.6	0.6–2.3						
Withdrawn												
Mean ± SD	1.8 ± 2.0	1.8 ± 2.3	1.7 ± 1.8	2.1 ± 2.4	2.2 ± 2.5	1.8 ± 2.4	.59	.444	.56	.003	.16	.691
95% CI	1.3–2.3	1.1–2.6	1.0–2.4	1.6–2.5	1.6–2.9	1.2–2.5						
Somatic complaints												
Mean ± SD	0.9 ± 1.6	1.1 ± 1.9	0.6 ± 1.3	1.2 ± 1.8	1.4 ± 2.0	0.9 ± 1.4	1.17	.281	3.80	.053	.00	.948
95% CI	0.5–1.3	0.6–1.7	0.1–1.2	0.8–1.5	0.9–1.9	0.4–1.4						
Social problems												
Mean ± SD	0.5 ± 0.8	0.5 ± 0.8	0.6 ± 0.9	1.1 ± 1.9	1.5 ± 2.3	0.8 ± 1.2	5.66	.019	2.06	.154	2.36	.126
95% CI	0.2–0.9	0.1–1.0	0.1–1.0	0.8–1.4	1.0–1.9	0.3–1.2						
Thought problems												
Mean ± SD	1.1 ± 1.8	1.3 ± 2.0	1.0 ± 1.6	1.1 ± 1.4	1.1 ± 1.5	1.1 ± 1.3	.01	.980	.50	.482	.16	.686
95% CI	0.7–1.5	0.7–1.8	0.5–1.5	0.8–1.4	0.7–1.6	0.6–1.5						
Attention problems												
Mean ± SD	2.5 ± 3.0	2.5 ± 2.9	2.6 ± 3.1	3.0 ± 3.1	2.7 ± 3.0	3.3 ± 3.2	.96	.329	.50	.481	.18	.670
95% CI	1.8–3.2	1.5–3.5	1.6–3.6	2.4–3.6	1.9–3.6	2.4–4.2						
Rule-breaking behavior												
Mean ± SD	1.7 ± 2.5	1.6 ± 2.5	1.7 ± 2.5	2.8 ± 4.2	2.8 ± 3.4	2.9 ± 5.0	4.46	.036	.03	.858	.01	.922
95% CI	0.8–2.5	0.5–2.8	0.6–2.8	2.1–3.6	1.8–3.8	1.9–4.0						
Aggressive behavior												
Mean ± SD	2.4 ± 3.2	2.6 ± 2.6	2.2 ± 3.7	3.7 ± 4.4	4.0 ± 4.6	3.5 ± 4.2	4.45	.037	.54	.463	.01	.933
95% CI	1.5–3.3	1.3–3.9	1.0–3.5	2.9–4.5	2.8–5.1	2.3–4.6						
<b>Broadband scales<sup>b</sup></b>												
Internalizing												
Mean ± SD	5.4 ± 5.9	6.4 ± 7.0	4.6 ± 4.7	5.4 ± 5.6	6.5 ± 6.4	4.2 ± 4.3	.04	.837	5.08	.026	.08	.784
95% CI	4.2–6.6	4.5–8.3	2.8–6.5	4.2–6.5	4.8–8.1	2.5–5.9						
Externalizing												
Mean ± SD	4.1 ± 5.2	4.3 ± 4.6	3.9 ± 5.7	6.6 ± 7.8	6.7 ± 7.6	6.4 ± 8.1	5.32	.022	.10	.750	.01	.992
95% CI	2.5–5.7	2.0–6.5	1.7–6.1	5.1–7.9	4.8–8.6	4.3–8.4						
Total problems												
Mean ± SD	15.5 ± 14.7	16.5 ± 14.0	14.5 ± 15.4	19.7 ± 17.6	21.5 ± 20.3	17.7 ± 14.0	2.55	.112	1.27	.261	.11	.738
95% CI	11.7–19.2	11.3–21.9	9.2–19.8	16.2–23.0	16.8–26.1	12.8–22.6						

CI indicates confidence interval.

<sup>a</sup> High scores reflect healthy adjustment.

<sup>b</sup> High scores reflect poor adjustment.

<sup>c</sup> NLLFS sample: adolescent girls versus boys:  $F_{1,74} = 3.39, P = .070$ ; Achenbach normative sample: adolescent girls versus boys:  $F_{1,92} = 15.79, P = .001$ .

<sup>d</sup> NLLFS sample: adolescent girls versus boys:  $F_{1,74} = .28, P = .600$ ; Achenbach normative sample: adolescent girls versus boys:  $F_{1,92} = 11.26, P = .001$ .

1.73,  $P = .055$ ); the interaction between group and gender was significant (Wilks's  $\lambda = .80, F_{14,170} = 2.61, P = .002$ ). Contrast analyses found

that the 17-year-old NLLFS girls and boys were rated significantly higher in social, school/academic, and total competence and signifi-

cantly lower in social, rule-breaking, aggressive, and externalizing problem behavior than the comparison group (Table 2).

## Comparisons Within the NLLFS Sample

To analyze the influence of donor status, maternal relationship continuity, and stigmatization on CBCL scores, we combined the NLLFS adolescent girls and boys because no significant gender differences were found. No CBCL differences were found among adolescent offspring who were conceived by known, as-yet-unknown, and permanently unknown donors (Wilks's  $\lambda = .70$ ,  $F_{14,78} = .80$ ,  $P = .752$ ) or between offspring whose mothers were still together and offspring whose mothers had separated (Wilks's  $\lambda = .69$ ,  $F_{14,52} = 1.68$ ,  $P = .088$ ).

When the CBCL ratings of the 17-year-old index offspring who indicated that they had experienced stigmatization by T4 (41.8%) or T5 (41.1%) were compared with the offspring who did not, no significant multivariate main effects were found for either analysis (T4 Wilks's  $\lambda = .74$ ,  $F_{14,77} = 1.25$ ,  $P = .273$ ; T5 Wilks's  $\lambda = .86$ ,  $F_{14,77} = .65$ ,  $P = .81$ ); however, a MANOVA based on 29 mother reports that their adolescents had been stigmatized showed a significant effect (Wilks's  $\lambda = .57$ ,  $F_{14,61} = 2.53$ ,  $P = .009$ ). Additional univariate analyses showed significantly higher internalizing and total problem behavior scores for offspring who, according to their mothers, had been stigmatized during adolescence (Table 3).

## DISCUSSION

This is the first report on adolescents who were conceived through DI and whose mothers enrolled while pregnant in a prospective, longitudinal study of planned lesbian families. The NLLFS was initiated in the mid-1980s, when planned lesbian families were a new phenomenon, and the study has persisted with a remarkably high retention rate since its inception. Because it is a prospective study, the findings are not skewed by overpre-

**TABLE 3** CBCL Scores and Mothers' Reports of Homophobia Experienced by Adolescents

Parameter	Mothers' Reports of Homophobia Experienced by Adolescent Offspring			
	Yes	No	F	P
<b>Competence scales</b>				
Activities				
Mean $\pm$ SD	11.2 $\pm$ 2.1	10.8 $\pm$ 2.9	.18	.676
95% CI	9.6–12.7	10.0–11.6		
Social				
Mean $\pm$ SD	10.0 $\pm$ 1.2	10.2 $\pm$ 2.5	.06	.812
95% CI	8.8–11.3	9.6–10.9		
School/academic				
Mean $\pm$ SD	4.8 $\pm$ 1.2	5.3 $\pm$ 0.8	2.58	.114
95% CI	4.3–5.3	5.0–5.5		
Total competence				
Mean $\pm$ SD	26.0 $\pm$ 2.8	26.3 $\pm$ 4.7	.02	.879
95% CI	23.6–28.5	25.0–27.5		
<b>Syndrome scales</b>				
Anxious/depression				
Mean $\pm$ SD	4.6 $\pm$ 4.7	2.2 $\pm$ 2.2	7.21	.009
95% CI	3.0–6.2	1.4–3.0		
Withdrawn				
Mean $\pm$ SD	2.5 $\pm$ 3.4	1.6 $\pm$ 1.7	1.76	.190
95% CI	1.3–3.7	0.9–2.2		
Somatic complaints				
Mean $\pm$ SD	1.9 $\pm$ 2.9	0.8 $\pm$ 1.3	3.91	.053
95% CI	0.9–2.8	0.3–1.3		
Social problems				
Mean $\pm$ SD	0.6 $\pm$ 0.8	0.5 $\pm$ 0.8	.08	.773
95% CI	0.2–1.1	0.3–0.8		
Thought problems				
Mean $\pm$ SD	2.5 $\pm$ 3.0	0.7 $\pm$ 1.2	12.45	.001
95% CI	1.6–3.5	0.2–1.2		
Attention problems				
Mean $\pm$ SD	3.5 $\pm$ 3.8	2.3 $\pm$ 2.8	1.58	.213
95% CI	1.8–5.1	1.4–3.1		
Rule-breaking behavior				
Mean $\pm$ SD	1.2 $\pm$ 1.3	1.4 $\pm$ 2.3	.13	.717
95% CI	0.1–2.3	0.8–2.0		
Aggressive behavior				
Mean $\pm$ SD	3.4 $\pm$ 4.0	1.8 $\pm$ 2.4	3.51	.066
95% CI	1.8–4.9	0.9–2.6		
<b>Broadband scales</b>				
Internalizing				
Mean $\pm$ SD	8.9 $\pm$ 10.5	4.6 $\pm$ 4.3	5.27	.025
95% CI	5.6–12.3	2.8–6.3		
Externalizing				
Mean $\pm$ SD	4.5 $\pm$ 5.0	3.2 $\pm$ 4.3	.97	.329
95% CI	2.1–7.0	1.9–4.5		
Total problems				
Mean $\pm$ SD	22.5 $\pm$ 21.0	12.4 $\pm$ 11.6	5.26	.025
95% CI	14.7–30.2	8.4–16.5		

sentation of families who volunteer when it is already clear that their offspring are performing well.

The NLLFS adolescents demonstrated higher levels of social, school/academic, and total competence than gender-matched normative samples of American teenagers. These findings

may be explained in part by the NLLFS mothers' commitment even before their offspring were born to be fully engaged in the process of parenting. During pregnancy, the prospective mothers took classes and formed support groups to learn about childrearing.<sup>21</sup> They were actively involved in the

education of their children<sup>23–25</sup> and aspired to remain close to them, however unique their interests, orientations, and preferences may be.<sup>21–25</sup> To the extent that the NLLFS mothers may have achieved this goal, numerous studies showed that having a satisfying relationship with one's parents is associated with a more favorable adolescent adjustment.\*

The lower levels of externalizing problem behavior among the NLLFS adolescents may be explained by the disciplinary styles used in lesbian mother households. The NLLFS mothers reported using verbal limit-setting more often with their children.<sup>22,25</sup> Other studies have found that lesbian mothers use less corporal punishment and less power assertion than heterosexual fathers.<sup>7,15</sup> Growing up in households with less power assertion and more parental involvement has been shown to be associated with healthier psychological adjustment.<sup>7,29,30,34</sup> Also, adolescent boys who are close to their parents are less likely to engage in delinquent behavior.<sup>34</sup>

Comparisons within the NLLFS sample found that homophobic stigmatization was associated with more problem behavior in adolescents whose mothers were aware of such incidents. One explanation for this finding is that adolescents who are already experiencing behavior problems may be more likely to elicit teasing by their classmates and/or to report these experiences to their mothers. Another possibility is that adolescents who chose not to inform their mothers may have wanted to shield them, or these offspring may have been more effectively prepared to deflect homophobic comments.<sup>24,25</sup> Indeed, many NLLFS mothers had engaged their offspring in conversations about effective ways of responding to stigmatization.<sup>24–27</sup> Other protective factors—changing cultural attitudes

toward lesbian and gay families and peer/teacher support in response to homophobic incidents, among others—may also be involved in helping young people cope with stigmatization.

The finding that adolescents whose mothers had separated since T1 fared as well in psychological adjustment as those whose mothers were still together may reflect another protective factor: the shared custody arrangements in a majority of reconstituted NLLFS families. Custody was more likely to be shared in these families when the mothers had previously completed a co-parent (second parent) adoption agreement.<sup>25</sup> Studies show that shared childrearing is associated with more favorable outcomes after separation or divorce.<sup>49</sup> Moreover, many American children experience a change in family structure, regardless of their parents' sexual orientation: among heterosexuals, nearly 50% of first marriages in the United States end in divorce, lasting on average 7 to 8 years,<sup>50</sup> with 65% of mothers retaining sole physical and legal custody of their children<sup>51</sup>; in the NLLFS, 56% of couples separated after being together an average of 12 years, with 71.4% sharing custody.

This study has several limitations. First, it has a nonrandom sample. When the study began in the 1980s, the targeted population was largely hidden because of the long history of discrimination against lesbian and gay people, so the possibility of recruiting a representative sample of prospective lesbian mothers was even more unrealistic than it is today.<sup>7,8,52</sup> At T1 and T2, some NLLFS participants expressed fears that legislation could be enacted to rescind the parenting rights of lesbian mothers.<sup>21,22</sup> Similar concerns may have deterred other prospective mothers from volunteering for the NLLFS, despite assurances of confidentiality.

A second limitation is that the data did not include the Achenbach Youth Self-Report or Teacher's Report Form.<sup>39</sup> A more comprehensive assessment would have included reports from all 3 sources.<sup>39,53</sup> A final limitation is that although the NLLFS and the normative samples are similar in socioeconomic status, they are neither matched nor controlled for race/ethnicity or region of residence. The NLLFS sample is drawn from first-wave planned lesbian families who were initially clustered around metropolitan areas with visible lesbian communities, which were much less diverse than they are today; recruiting was limited to the relatively small number of prospective mothers who felt safe enough to identify publicly as lesbian, who had the economic resources to afford DI, and who, in the pre-Internet era, were affiliated with the communities in which the study was advertised.<sup>21</sup>

## CONCLUSIONS

These findings contribute a new dimension to the literature on lesbian and gay families through mental health assessments of the adolescent biological offspring of lesbian parents who have participated in a prospective, longitudinal study since before these teenagers were born. The NLLFS adolescents are well-adjusted, demonstrating more competencies and fewer behavioral problems than their peers in the normative American population.

This study has implications for the clinical care of lesbian families, for the expert testimony provided by pediatricians on lesbian mother custody, and for public policies concerning same-sex parenting.<sup>54–56</sup> Our findings show that adolescents who have been raised since birth in planned lesbian families demonstrate healthy psychological adjustment and thus provide no justification for restricting access to reproductive

\*Refs 11, 19, 20, 29, 30, 34, 37, 47, and 48.

technologies or child custody on the basis of the sexual orientation of the parents.

## ACKNOWLEDGMENTS

The NLLFS was supported in part by grants from the Gill Foundation, the Lesbian Health Fund of the Gay Lesbian

Medical Association, Horizons Foundation, and the Roy Scrivner Fund of the American Psychological Foundation. Funding sources played no role in the design or conduct of the study; the management, analysis, or interpretation of the data; or the preparation, review, or approval of the manuscript.

We thank Ellen Perrin, MD, Esther Rothblum, PhD, Heidi Peyser, MA, Amalia Deck, MSN, Carla Rodas MPH, Loes van Gelderen, MS, and Evalijn Draijer, BS, for important contributions to this study and the Williams Institute at UCLA School of Law.

## REFERENCES

- Romero AP, Baumle AK, Badgett MV, Gates GJ. *Census Snapshot: United States*. 2007. Available: [www.law.ucla.edu/williamsinstitute/publications/USCensusSnapshot.pdf](http://www.law.ucla.edu/williamsinstitute/publications/USCensusSnapshot.pdf). Accessed August 26, 2009
- Bayer R. *Homosexuality and American Psychiatry: The Politics of Diagnosis*. New York, NY: Basic Books, Inc; 1981
- Paul W, Weinrich JD, Gonsiorek JC, Hotvedt ME, eds. *Homosexuality: Social, Psychological, and Biological Issues*. Beverly Hills, CA: Sage Publishers, Inc; 1982
- American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders-IV-TR*. Washington, DC: American Psychiatric Association; 2000
- Falk PJ. Lesbian mothers: psychosocial assumptions in family law. *Am Psychol*. 1989; 44(6):941–947
- Patterson CJ. Children of lesbian and gay parents. *Child Dev*. 1992;63(5):1025–1042
- Golombok S, Perry B, Burston A, et al. Children of lesbian parents: a community study. *Dev Psychol*. 2003;39(1):20–33
- Tasker F. Lesbian mothers, gay fathers and their children: a review. *J Dev Behav Pediatr*. 2005;26(3):224–240
- Patterson CJ. Family relationships of lesbians and gay men. *Journal of Marriage and the Family*. 2000;62(November):1052–1069
- Golombok S, Tasker F. Do parents influence the sexual orientation of their children? Findings from a longitudinal study of lesbian families. *Dev Psychol*. 1996;32(1):3–11
- Golombok S, Tasker F, Murray C. Children raised in fatherless families from infancy: family relationships and the socioemotional development of children of lesbian and single heterosexual mothers. *J Child Psychol Psychiatry*. 1997;38(7):783–791
- Brewaeyns A, Panjaert I, Van Halle E, Golombok S. Donor insemination: child development and family functioning in lesbian mother families with 4–8-year-old children. *Hum Reprod*. 1997;12(6):1349–1359
- Golombok S. *Parenting: What Really Counts?* Philadelphia, PA: Taylor & Francis Inc; 2000
- Golombok S. Research on gay and lesbian parenting: an historical perspective across 30 years. *Journal of GLBT Family Studies*. 2007;3(2/3):xxi–xxvii
- Bos HM, Van Balen F, Van den Boom DC. Child adjustment and parenting in planned lesbian-parent families. *Am J Orthopsychiatry*. 2007;77(1):38–48
- Perrin EC, American Academy of Pediatrics, Committee on Psychosocial Aspects of Child and Family Health. Technical report: coparent or second-parent adoption by same-sex parents. *Pediatrics*. 2002;109(2):341–344
- Stern JE, Cramer CP, Garrod A, Green RM. Access to services at assisted reproductive technology clinics: a survey of policies and practices. *Am J Obstet Gynecol*. 2001;184(4): 591–597
- Wald MS. Adults' sexual orientation and state determinations regarding placement of children. *Family Law Quarterly*. 2006; 40(3):381–434
- Baumrind D. Commentary on sexual orientation: research and social policy implications. *Dev Psychol*. 1995;31(1):130–136
- Parke RD. Development in the family. *Annu Rev Psychol*. 2004;55:365–399
- Gartrell N, Hamilton J, Banks A, et al. The national lesbian family study: 1—interviews with prospective mothers. *Am J Orthopsychiatry*. 1996;66(2):272–281
- Gartrell N, Banks A, Hamilton J, Reed N, Bishop H, Rodas C. The national lesbian family study: 2—interviews with mothers of toddlers. *Am J Orthopsychiatry*. 1999;69(3): 362–369
- Gartrell N, Banks A, Reed N, Hamilton J, Rodas C, Deck A. The national lesbian family study: 3—interviews with mothers of five-year-olds. *Am J Orthopsychiatry*. 2000;70(4): 542–548
- Gartrell N, Deck A, Rodas C, Peyser H, Banks A. The national lesbian family study: 4—interviews with the 10-year-old children. *Am J Orthopsychiatry*. 2005;75(4):518–524
- Gartrell N, Rodas C, Deck A, et al. The national lesbian family study: 5—interviews with mothers of ten-year-olds. *Feminism and Psychology*. 2006;16(2):175–192
- Bos HM, Gartrell N, Van Balen F, Peyser H, Sandfort TG. Children in planned lesbian families: a cross-cultural comparison between the USA and the Netherlands. *Am J Orthopsychiatry*. 2008;78(2):211–219
- Bos HM, Gartrell NK, Peyser H, van Balen F. The USA national longitudinal lesbian family study: homophobia, psychological adjustment, and protective factors. *J Lesbian Stud*. 2008;12(4):455–471
- Rosenfeld MJ. Nontraditional families and childhood progress through school. *Demography*. 2010, In press
- Wainright JL, Russell ST, Patterson CJ. Psychosocial adjustment, school outcomes, and romantic relationships of adolescents with same-sex parents. *Child Dev*. 2004; 75(6):1886–1898
- Wainright JL, Patterson CJ. Peer relations among adolescents with female same-sex parents. *Dev Psychol*. 2008;44(1):117–126
- Rivers I, Poteat VP, Noret N. Victimization, social support, and psychosocial functioning among children of same-sex and opposite-sex couples in the United Kingdom. *Dev Psychol*. 2008;44(1):127–134
- Gershon TD, Tschann MT, Jemerin JM. Stigmatization, self-esteem, and coping among adolescent children of lesbian mothers. *J Adolesc Health*. 1999;24(6):437–445
- van Gelderen L, Gartrell N, Bos H, et al. Stigmatization and resilience in adolescent children of lesbian mothers. *J GLBT Fam Stud*. 2009;5(3):268–279
- Wainright JL, Patterson CJ. Delinquency, victimization, and substance use among adolescents with female same-sex parents. *J Fam Psychol*. 2006;20(3):526–530
- Fergusson DM, Horwood LJ, Ridder E. Show me the child at seven: the consequences of conduct problems in childhood for psychosocial functioning in adulthood. *J Child Psychol Psychiatry*. 2005;46(8):837–849
- Biblarz TJ, Stacey J. How does the gender of parents matter? *Journal of Marriage and the Family*. 2010;72(1):3–22
- Golombok S, Badger S. Children raised in mother-headed families from infancy: a



- follow-up of children of lesbian and heterosexual mothers, at early adulthood. *Hum Reprod.* 2010;25(1):150–157
38. Achenbach TM. *Manual for the Child Behavior Checklist and Revised Child Behavior Profile*. Burlington, VT: University of Vermont, Department of Psychiatry; 1991
  39. Achenbach TM, Rescorla LA. *Manual for ASEBA School-Age Forms & Profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families; 2001
  40. Patterson CJ. Children of the lesbian baby boom: behavioral adjustment, self-concepts, and sex-role identity. In Greene B, Herek G, eds. *Psychological Perspectives on Lesbian and Gay Issues: Vol 1. Lesbian and Gay Psychology: Theory, Research, and Clinical Applications*. Thousand Oaks, CA: Sage; 1994:156–175
  41. Flaks DK, Ficher I, Masterpasqua F, Joseph G. Lesbians choosing motherhood: a comparative study of lesbian and heterosexual parents and their children. *Dev Psychol.* 1995;31(1):105–114
  42. Montgomery TI, Aiello F, Adelman RD, et al. The psychological status at school age of children conceived by in-vitro fertilization. *Hum Reprod.* 1999;14(8):2162–2165
  43. Ivanova MY, Achenbach TM, Dumenciet L, et al. Testing the 8-syndrome structure of the child behavior checklist in 30 societies. *J Clin Child Adolesc Psychol.* 2007;36(3):405–417
  44. Stams GJ, Juffer F, Rispen J, et al. The development and adjustment of 7-year-old children adopted in infancy. *J Child Psychol Psychiatry.* 2000;41(8):1025–1037
  45. Rosnati R, Montiroso R, Barni D. Behavioral and emotional problems among Italian international adoptees and non-adopted children: father's and mother's reports. *J Fam Psychol.* 2008;22(4):541–549
  46. Verhulst FC, Althaus M, Versluis-Den Bieman HJ. Problem behavior in international adoptees: I—an epidemiological study. *J Am Acad Child Adolesc Psychiatry.* 1990;29(29):94–103
  47. Baumrind D. Rearing competent children. In: Damon W, ed. *Child Development Today and Tomorrow*. San Francisco, CA: Jossey-Bass; 1989:349–378
  48. Darling N, Steinberg L. Parenting style as context: an integrative model. *Psychol Bull.* 1993;113(3):487–496
  49. Emery RE. *Renegotiating Family Relationships*. 2nd ed. New York, NY: Guilford Publications; 2010, in press
  50. Kreider RM, Fields JM. *Number, Timing, and Duration of Marriages and Divorces: Fall 1996*. Washington, DC: Current Population Reports, US Census Bureau; 2001:70–80
  51. Emery RE, Otto RK, O'Donohue WT. A critical assessment of child custody evaluations: limited science and a flawed system. *Psychol Science in the Public Interest.* 2005;6(1):1–29
  52. Sandfort TG. Homosexual and bisexual behavior in European countries. In: Hubert M, Bajos N, Sandfort TG, eds. *Sexual Behavior and HIV/AIDS in Europe*. London, England: UCL Press; 1998:68–106
  53. Vanfraussen K, Ponjaert- Kristoffersen I, Brewaeys A. What does it mean for a youngster to grow up in a lesbian family created by means of donor insemination? *Journal of Reproductive and Infant Psychology.* 2002;20(4):237–252
  54. Perrin E. *Sexual Orientation in Child and Adolescent Health*. New York, NY: Kluwer Academic/Plenum Publishers; 2002
  55. Gates GJ, Badgett MV, Macomber JE, Chamber K. *Adoption and Foster Care by Gay and Lesbian Parents in the United States*. Los Angeles, CA: Williams Institute, UCLA School of Law, and Washington, DC: The Urban Institute; 2007. Available at: [www.law.ucla.edu/williamsinstitute/publications/FinalAdoptionReport.pdf](http://www.law.ucla.edu/williamsinstitute/publications/FinalAdoptionReport.pdf). Accessed August 26, 2009
  56. US Bureau of Labor Statistics. Economic news release. Available at: [www.bls.gov/news.release/famee.t02.htm](http://www.bls.gov/news.release/famee.t02.htm). Accessed August 21, 2009

**Pediatrician David Southall Restored to UK Medical Register:** *Dr David Southall, the UK pediatrician who is known internationally as an expert on fabricated or induced illness in children, is allowed to practice again after the UK Court of Appeal overturned its General Medical Council's decision to remove him from the medical register for accusing a mother of drugging and murdering her son. Dr Southall denies accusing the mother, holding that the mother's belief was a misperception. According to Southall, as noted in the British Medical Journal (Dyer C. Paediatrician David Southall is restored to the medical register. BMJ. 2010;340:c2448), restoring his medical privileges "is substantial progress against an orchestrated and dangerous campaign which has attacked the work of paediatricians who have tried to protect children from abuse." Southall initially became a target of this campaign in 1997 when he and his colleagues published a paper noting that 33 children being investigated for life threatening breathing problems were in fact victims of intentional suffocation and other life-threatening child abuse.*

Noted by JFL, MD

## US National Longitudinal Lesbian Family Study: Psychological Adjustment of 17-Year-Old Adolescents

Nanette Gartrell and Henny Bos

*Pediatrics* 2010;126;28

DOI: 10.1542/peds.2009-3153 originally published online June 7, 2010;

### Updated Information & Services

including high resolution figures, can be found at:  
<http://pediatrics.aappublications.org/content/126/1/28>

### References

This article cites 40 articles, 1 of which you can access for free at:  
<http://pediatrics.aappublications.org/content/126/1/28#BIBL>

### Subspecialty Collections

This article, along with others on similar topics, appears in the following collection(s):  
**Injury, Violence & Poison Prevention**  
[http://www.aappublications.org/cgi/collection/injury\\_violence\\_-\\_poison\\_prevention\\_sub](http://www.aappublications.org/cgi/collection/injury_violence_-_poison_prevention_sub)

### Permissions & Licensing

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:  
<http://www.aappublications.org/site/misc/Permissions.xhtml>

### Reprints

Information about ordering reprints can be found online:  
<http://www.aappublications.org/site/misc/reprints.xhtml>

# American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®



# PEDIATRICS<sup>®</sup>

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

## **US National Longitudinal Lesbian Family Study: Psychological Adjustment of 17-Year-Old Adolescents**

Nanette Gartrell and Henny Bos

*Pediatrics* 2010;126;28

DOI: 10.1542/peds.2009-3153 originally published online June 7, 2010;

The online version of this article, along with updated information and services, is  
located on the World Wide Web at:

<http://pediatrics.aappublications.org/content/126/1/28>

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 345 Park Avenue, Itasca, Illinois, 60143. Copyright © 2010 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN<sup>®</sup>

