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Examination of Mental Health Status and Aggravation Level Among Mothers of Children With Isolated Oral Clefts

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Abstract

Objective—To examine self-reported mental health status and aggravation level in mothers of children with isolated oral clefts.

Methods—Population-based sample of children (aged 4 to 9 years) with isolated oral clefts was enumerated from births from 1998 through 2003 in Arkansas, Iowa, and New York State. Mothers of 294 children completed the Mental Health Inventory 5-item questionnaire and Aggravation in Parenting Scale. The Mental Health Inventory and Aggravation in Parenting Scale scores, stratified by *poor* (Mental Health Inventory ≤ 67) and *better* (Mental Health Inventory > 67) mental health status or *high* (Aggravation in Parenting Scale ≤ 11), *moderate* (Aggravation in Parenting Scale = 12 to 15) and *low* (Aggravation in Parenting Scale = 16) aggravation, were compared by selected maternal and child characteristics. Mean scores for each instrument and proportion of mothers with poor mental health or high aggravation were compared with those reported in the National Survey of American Families.

Results—Mean scores for each instrument and proportion of mothers with poor mental health or high aggravation differed little from published data. Mothers with poor mental health tended to be less educated, to have lower household incomes, and to rate their health and their child's health lower than those in better mental health. Mothers with high aggravation tended to have lower household incomes, to have more children, and to rate their health and their child's health lower than those with moderate or low aggravation.

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Conclusions—Mothers of affected children were not more likely to experience poor mental health or high aggravation compared with published data; however, sociodemographic characteristics were associated with maternal psychosocial adaptation. Brief screeners for mental health and parenting administered during routine appointments may facilitate identifying at-risk caregivers.

Keywords

aggravation; cleft lip; cleft palate; mental health

Cleft lip and/or cleft palate, collectively referred to as oral clefts (OCs), are common congenital malformations. These defects occur in approximately 1 in 600 live births worldwide (Mossey and Little, 2002) and differ by infant sex and race/ethnicity (Vanderas, 1987). Oral clefts present with an isolated phenotype (i.e., without additional, unrelated major structural defects) in 70% of infants (Calzolari et al., 2007).

An OC is typically surgically repaired during early infancy; however, treatment may extend into the adolescent years due to scarring and abnormal facial development (Kapp-Simon, 2004). Children with OCs are often confronted with feeding, hearing, breathing, speaking, and dental complications (Shah and Wong, 1980), some of which may also affect children psychologically. A systematic review of the literature by Hunt et al. (2005) found increased reports of behavior and learning problems; depression and anxiety; poor self-concept; dissatisfaction with facial appearance; and interpersonal problems, including peer teasing and poorer interpersonal skills, among affected children and adults compared with unaffected persons.

In order to understand the psychological adaptation of children diagnosed with an OC, models that take into account characteristics of the affected individual and the ecological system in which they reside should be considered. Socio-ecological theories have proven useful for analysis of adaptation to childhood disease. According to these theories (Bronfenbrenner, 1986;Moos, 2002), psychosocial development of the child can be influenced by the psychological adaptation of the caregiver via reciprocal interactions between parent and child. As such, the inability of a parent to cope with outcomes associated with OCs may negatively influence the developing child. Specifically, parents who experience heightened stress, anxiety, or depression during the early stages of diagnosis and throughout early childhood may interact more negatively with their child (Krueckeberg and Kapp-Simon, 1993; Pope et al., 2005).

Results from prior studies examining parental adaptation to having a child with an OC have been equivocal. Specifically, findings were mixed between studies that compared stress among parents of children with isolated OCs with those of unaffected children (Despars et al., 2011; Collett et al., 2012) or with published population data (Andrews-Casal et al., 1998). Additional studies among parents of children with isolated OCs that assessed multiple domains of parental mental health have also produced inconsistent findings. One study (Speltz et al., 1990) found that these parents experienced higher levels of perceived parenting anxiety and depression, as well as lower self-assessment of psychological and emotional well-being, compared with parents of unaffected children; whereas, other studies did not report such findings when compared with parents of unaffected children (Pelchat et al., 1999; Weigl et al., 2005) or with published population data (Slade et al., 1999; Baker et al., 2009; Berger and Dalton, 2009; Nelson et al., 2009).

Interpretation of these equivocal findings is limited by the use of different instruments to measure parental stress and mental health status, the use of clinic-based rather than population-based samples, and small sample sizes, which limit statistical power. Thus, further investigation of the association between having a child with an isolated OC and parental adjustment in a well characterized, population-based sample is needed. The current study identified mothers of children aged 4 to 9 years with isolated OCs from three population-based state surveillance programs and used self-administered, structured instruments to measure mental health status and parental aggravation. We hypothesized that mothers of children with isolated OCs would report poorer mental health status and higher aggravation levels compared with those reported in the National Survey of American Families (NSAF) (Urban Institute and Child Trends, 2002; Vandivere et al., 2004).

Methods

Study Sample

Caregivers of children diagnosed with isolated OCs (cleft palate, cleft lip, or cleft lip with cleft palate) were initially ascertained and enrolled by the Arkansas (AR), Iowa (IA), and New York State (NY) sites of the National Birth Defects Prevention Study (NBDPS) (Yoon et al., 2001). Eligible children were those with isolated OCs who were delivered during the period from January 1, 1998, through December 31, 2002 in AR, or through December 31, 2003 in IA and NY. Caregivers of children with isolated OCs who currently lived with their child in AR, IA, or NY; who completed the telephone interview for the NBDPS; and who could respond to an English-language questionnaire were recruited.

The study was limited to children with isolated OCs because approximately 70% of OCs present as isolated defects. Children with isolated OCs may have similar medical needs compared with the needs of children with OCs and additional major defects. Moreover, the sample was limited to children from 4 to 9 years of age because these children are assumed to have similar developmental needs and challenges compared with children of older ages.

Multiple sources were used to verify eligibility and to obtain current contact information for each caregiver, including surveillance program databases to verify OC diagnosis, death certificates to verify that both the child and the caregiver were living, and telephone and Internet databases to identify current contact information for each caregiver. Use of these sources identified 209 eligible caregivers in AR, 226 in IA, and 224 in NY.

Self-Administered Questionnaire

Caregivers completed a self-administered questionnaire that asked about child demographic characteristics, current physical and behavioral concerns or symptoms, functional limitations, emotional and social well-being, and health-related quality of life. The questionnaire also asked about caregiver demographic and socioeconomic characteristics and health status.

Mental Health—Caregiver mental health status was assessed using the Mental Health Inventory 5-item questionnaire (MHI-5). The MHI-5 asked how often in the past month (always, usually, sometimes, or never) the caregiver had been a very nervous person, felt calm and peaceful, felt downhearted and blue, been a happy person, and felt so down in the dumps that nothing could cheer the caregiver. These five items best predicted the summary score for the 38-item MHI (Ware and Sherbourne, 1992) and showed high internal consistency (Ehrle and Moore, 1999). The Cronbach alpha coefficient for the MHI-5 in this study was similar to that reported in the NSAF study (0.82 versus 0.81, respectively).

The MHI-5 was scored using the NSAF scoring manual (Ehrle and Moore, 1999). Item responses, coded 1 to 4, were totaled and multiplied by 5 to create a 100-point scale ranging from 25 to 100 (lower scores represent poor mental health). If a response was missing for one item, the total score for the other four items was transformed to a 20-point scale and multiplied by 5. If a response was missing for more than one item, no score was calculated. In the NSAF, a score of 67 or less was defined to indicate poor mental health (Ehrle and Moore, 1999).

Aggravation in Parenting—Caregiver aggravation was assessed using the Aggravation in Parenting Scale (APS), which was also used in the NSAF. The APS screens for parental aggravation by asking how often in the last month (all of the time, most of the time, some of the time, or none of the time) the caregiver felt the child was much harder to care for than most; the child did things that bothered the caregiver a lot; the caregiver was giving up more of his or her life to meet the child’s needs than expected; and the caregiver felt angry with the child. The internal consistency of the four-item APS was moderately high and showed good construct validity (Ehrle and Moore, 1999). The Cronbach alpha coefficient for the APS in this study was similar to that reported in the NSAF study (0.72 versus 0.63, respectively).

The APS was also scored using the NSAF scoring manual. Responses, coded 1 to 4, for the four items were totaled to produce a possible range of scores from 4 to 16. If a response was missing for one item, the total score for the other three items was transformed to a 16-point scale. If a response was missing for more than one item, no score was calculated. Consistent with NSAF methodology, APS scores of 4 to 11 were assigned as high aggravation, 12 to 15 as moderate aggravation, and 16 as low aggravation (Ehrle and Moore, 1999).

Data Collection

Human subjects approval for the study protocol, informed consent procedures, and correspondence were received from institutional review boards at the University of Arkansas for Medical Sciences, The University of Iowa, and New York State Department of Health. An eligible caregiver was mailed a precontact letter indicating that a study packet containing a cover letter that described the study, the survey, and a preaddressed, postage-paid envelope to return the completed survey would be mailed in 10 days. A toll-free telephone number to call to consent or refuse participation was included in the cover letter. In addition, caregivers in NY were asked to provide signed, written consent to acknowledge their interest in participating; a waiver of signed consent was received in AR and IA. Follow-up to obtain a completed questionnaire included telephone contact every 2 weeks or a reminder letter if the caregiver could not be reached by telephone. After 6 weeks with no response, a final letter and a second survey were mailed to the caregiver. At this point, the caregiver had 2 weeks to return the study materials provided. If no response was received, the caregiver was not recontacted. A survey completed by a birth father or other caregiver was accepted in lieu of a survey completed by a birth mother.

Statistical Analysis

Statistical Analysis Software (SAS 9.2) was used for statistical analyses (SAS Institute, Inc., Cary, NC). A significance level of 0.05 was used to determine statistical significance. Univariable summary statistics (i.e., percentages, means, standard deviations, medians) were calculated for each variable, where appropriate. Differences in selected caregiver (age, race/ethnicity, education, smoking and alcohol consumption during pregnancy, and prenatal care by trimester) and child (sex and plurality) characteristics were tested between participants and nonparticipants using the Pearson chisquare test, or Fisher exact test where applicable (one or more cells with expected counts less than 5). Additionally, site differences were examined for responses to the individual MHI-5 and APS items and the overall mean scores using analysis of variance. The MHI-5 and APS categories were compared by selected caregiver (race/ethnicity, education, marital status, gravidity, employment outside the home, household income, number of children in the household, and self-rating of health) and child (age, sex, prenatal diagnosis of OC, type of OC, caregiver rating of child health, and whether the child was being cared for by a cleft team) characteristics to identify possible factors associated with poor mental health or high aggravation in this population. The Pearson chi-square test, or Fisher exact test where applicable, were used to test associations.

The proportion of caregivers classified with poor mental health or high aggravation was compared with the 2002 NSAF data (Vandivere et al., 2004) using the Pearson chi-square test, or Fisher exact test where applicable. Mean scores for the MHI-5 and APS were compared with published mean scores obtained from the 2002 NSAF data (Urban Institute and Child Trends, 2002) using Student’s t test. Last, because the NSAF study oversampled low-income families, selected population characteristics (education and household income) were compared between the current sample and the NSAF sample using the Pearson chi-square test.

Results

Overall, 307 caregivers of the 659 (46.6%) eligible index children returned a completed survey. Participation was similar across sites (AR: 95 of 209, 45.5%; IA: 114 of 226, 50.4%; NY: 98 of 224, 43.8%), and comparison of selected maternal and child characteristics between participants and nonparticipants produced no statistically significant differences (data not shown). With regard to caregivers, 294 (95.8%) surveys were returned by a birth mother, eight (2.6%) by a birth father, and five (1.6%) by a caregiver of unspecified relationship to an index child; as such, only maternal responses were used in the analyses. Furthermore, comparison of the distributions for maternal race/ethnicity, household income, and education within each site were similar to those identified in the 2000 census (U.S. Census Bureau, Census 2000) (data not shown).

Compared across sites, statistically significant differences were not found for individualMHI-5 item responses (*P* value for each item ≥ .20), overall meanMHI-5 scores (*P* value = .55), and the proportions of mothers classified with poor mental health status (MHI-5 score ≤ 67; *P* value = .19). Similar results were found for comparison across sites of individual APS item responses (*P* value for each item ≥ .09), overall mean scores (*P* value = .08), and the proportions of mothers classified with high aggravation (*P* value = .18). Therefore, results for the combined sample are presented.

The overall mean MHI-5 score (79.2 ± 11.7) in the current study was not significantly different (*P* value = .36) from the overall mean reported by the NSAF (78.3 ± 16.9) (Urban Institute and Child Trends, 2002). Additionally, the proportion of mothers classified with poor mental health (14.6%) did not differ significantly (*P* value = .70) from the proportion reported by the NSAF (16.6%) (Vandivere et al., 2004). Within the current study, mothers classified with poor mental health tended to be less educated, to have an annual household income of less than $50,000, and to rate their health and their child’s health lower than mothers classified with better mental health (Table 1). Additional maternal or child characteristics were not associated with maternal mental health scores.

The overall APS mean score in the current study (13.9 ± 2.9) was not significantly different (*P* value = .07) from the mean score reported by the NSAF (13.6 ± 2.7) (Urban Institute and Child Trends, 2002). Moreover, the proportion (6.8%) of mothers classified as having high aggravation was similar (*P* value = .36) to that reported by the NSAF (10.4%) (Vandivere et al., 2004). Mothers classified with high aggravation in the current study were more likely to have an annual household income less than $50,000, to have three or more children living at home, and to rate their health and their child’s health lower than those classified with moderate or low aggravation (Table 2).

Although mothers in the current sample were representative of the respective census reports for race/ethnicity, household income, and education, they were less likely to have only a high school education (23.1%versus 54.3%; *P* value < .01) and to be below 200% poverty level (23.8% versus 36.6%; *P* value = .04) than parents in the NSAF sample. However, the proportions of caregivers (NSAF) and mothers (current study) classified with poor mental health or with high aggravation were similar in the two samples when compared across education and household income (Tables 3 and 4).

Discussion

This study used a population-based sample from three sites to measure mental health status and aggravation in parenting among mothers of children with isolated OCs and compared these data to published values. The MHI-5 and APS scores were not found to differ significantly from those published by the NSAF. Within the current study, mothers classified with poor mental health reported lower education and household income, and they rated their own and their child’s health lower than mothers classified in better mental health. In addition, mothers classified as experiencing high aggravation in parenting also reported lower income and more children in the home and rated their own health and their child's health lower than mothers with moderate or low aggravation.

Similar to previous studies (Pelchat et al., 1999; Slade et al., 1999; Weigl et al., 2005; Baker et al., 2009; Berger and Dalton, 2009; Nelson et al., 2009) that focused on studying multiple domains of mental health among parents of children with isolated OCs, the current results suggest that mothers of children with isolated OCs (aged 4 to 9 years) were not more likely to report poor mental health status than those of unaffected children. Also, similar to most previous studies (Andrews-Casal et al., 1998; Collett et al., 2012) that focused only on studying parental stress among parents of children with isolated OCs, the current results suggest that mothers of children with isolated OCs (aged 4 to 9 years) do not suffer from higher aggravation in parenting than caregivers of unaffected children. The current findings also differ from previous studies examining mental health status (Speltz et al., 1990) and parental aggravation (Despars et al., 2011) among mothers of children with OCs. However, the latter two studies focused on mothers of infants. Studies have shown that parents adapt to the birth of a child with an OC by seeking social support and initiating coping and adjustment strategies that may improve parental psychosocial adjustment (Baker et al., 2009; Berger and Dalton, 2009). The lack of significant differences among mothers of older children in this study may reflect such adaptation.

The current study has several strengths and limitations. First, a population-based sample that was representative of the source populations was used. This facilitates generalization of the current findings more so than previous findings, which relied on small, clinic-based samples. Additionally, this study included the use of well-established, structured instruments to measure maternal mental health and aggravation level. In particular, the MHI-5 has been shown to perform as well as the 18-item MHI and the 30-item version of the General Health Questionnaire and was superior to the 28-item Somatic Symptom Inventory in detecting most significant disorders (e.g., major depression and anxiety disorders) (Berwick et al., 1991). Similarly, construct validity analysis has shown that the APS captures the concept of parental aggravation (Ehrle and Moore, 1999).

There are several limitations to and strengths of the current study that may influence generalizability of the findings. The overall response rate in this study was 46.6%; however, no significant differences were found between participants and nonparticipants on selected maternal and child characteristics, suggesting the findings are generalizable to the source populations from which the sample was recruited. Recruitment for the study was limited to mothers of children who were 4 to 9 years of age. It is possible that maternal adaptation may differ across developmental stages and in response to different developmental and psychological needs of the child; thus, the findings may not be generalizable to other age groups.

Limitations to the interpretation of the findings include reliance on the use of self-report data. Maternal self-report on mental health problems could not be validated by independent clinical assessments. Furthermore, the mother was the sole reporter on both measures of mental health and parental aggravation, thereby increasing the possibility that current mood could have influenced responses. Finally, measures of mental health status and aggravation levels were measured at one point in time, which does not allow analysis of changes in maternal adaptation over time.

An additional, potential limitation to interpretation was the use of published population data instead of recruiting a direct comparison group. As such, it is important to note differences in the methodology and population characteristics between the two samples. The NSAF used a telephone-based interview to assess mental health and aggravation levels in parents; whereas, the current study used a self-administrated questionnaire. Another difference in methodology is that the NSAF sample included fathers and mothers, compared with the current study where analyses were restricted to mothers only. With regard to population characteristics, NSAF parents were found to have lower education and household income than mothers in the current study; however, in each sample, proportions of parents or mothers with poor mental health and high levels of aggravation were similar for education and household income. This suggests that these characteristics may be more predictive of maternal adaptation than having a child with an OC. In other words, for this study, factors found to be associated with high aggravation and with poor mental health are consistent with those identified in the NSAF study.

In conclusion, findings from this study suggest that mothers of school-aged children with isolated OCs were not more likely to experience poor mental health or high aggravation compared with 2002 NSAF published data. However, sociodemographic characteristics (e.g., house-hold income and maternal education) and mothers' own health status were associated with maternal psychosocial adaptation. Socio-ecological theories emphasize the influence of parent-child interactions on child outcomes. As such, the administration of brief screeners for mental health and parenting frustrations during routine follow-up appointments could be a cost-effective and feasible approach to identifying at-risk caregivers. Referrals to mental health providers and community outreach programs could then be made to those caregivers demonstrating elevated levels of stress, depression, or anxiety or those experiencing heightened frustrations with parenting, thereby reducing the potential impact of caregiver problems on future child outcomes.

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TABLE 1

Comparison of Selected Maternal and Child Characteristics by Maternal MHI-5 Scores[*]

	Total (n = 294)[†]	Poor (MHI-5 ≤ 67) (n = 43)		Better (MHI-5 > .67) (n = 250)		
Characteristic	**n[‡]**	**n**	**%[§]**	**n**	**%[§]**	**P Value[//]**
Maternal						
Race/ethnicity						
Non-Hispanic white	269	39	90.7	229	93.1	.51[¶]
Non-Hispanic black	7	2	4.7	5	2.0	
Hispanic	9	2	4.7	7	2.9	
Other	5	0	0.0	5	2.0	
Education						
High school or less	68	18	43.9	49	19.9	<.01
Some college or 2-y degree	106	16	39.0	90	36.6	
4-y college degree or more	114	7	17.1	107	43.5	
Marital status						
Married	227	28	65.1	198	79.2	.07
Never married	26	5	11.6	21	8.4	
Separated or divorced	38	10	23.3	31	12.4	
Employed outside the home						
Yes	220	30	69.8	189	76.5	.34
No	71	13	30.2	58	23.5	
Household income						
$25,000 or less	60	16	41.0	44	20.0	.01
$25,001–50,000	51	10	25.6	40	18.2	
$50,001–100,000	102	9	23.1	93	42.3	
Over $100,000	47	4	10.3	43	19.5	
Number of children in the home						
1	39	5	11.6	34	13.8	.79
2	135	19	44.2	115	46.6	
3	77	14	32.6	63	25.5	
4 or more	40	5	11.6	35	14.2	

Characteristic	Total (n = 294)[†] n[‡]	Poor (MHI-5 ≤ 67) (n = 43) n	Poor (MHI-5 ≤ 67) (n = 43) %[§]	Better (MHI-5 > .67) (n = 250) n	Better (MHI-5 > .67) (n = 250) %[§]	P Value[//]
Self-rating of health						
Excellent	84	3	7.0	80	32.0	<.01[¶]
Very good	117	8	18.6	109	43.6	
Good	73	20	46.5	53	21.2	
Fair	17	9	20.9	8	3.2	
Poor	3	3	7.0	0	0.0	
First pregnancy						
Yes	77	16	44.4	61	29.0	.08[¶]
No	170	20	55.6	149	71.0	
Child						
Sex						
Male	185	27	62.8	158	63.2	.96
Female	109	16	37.2	92	36.8	
Age						
4–6 y	139	24	55.8	115	46.0	.23
7–9 y	155	19	44.2	135	54.0	
Prenatal diagnosis of oral cleft						
Yes	68	7	19.4	61	29.0	.23
No	179	29	80.6	149	71.0	
Type of oral cleft						
Lip only	76	12	27.9	64	25.6	.86
Palate only	91	14	32.6	76	30.4	
Lip and palate	127	17	39.5	110	44.0	
Team care received						
Yes	199	26	68.4	172	70.5	.80
No	84	12	31.6	72	29.5	
Maternal rating of child health						
Excellent	176	10	25.0	166	67.2	<.01[¶]
Very good	76	15	37.5	60	24.3	

Characteristic	Total (n = 294)[†]	Poor (MHI-5 ≤ 67) (n = 43)		Better (MHI-5 > .67) (n = 250)		P Value[//]
	n[‡]	n	%[§]	n	%[§]	
Good	29	13	32.5	16	6.5	
Fair	5	2	5.0	3	1.2	
Poor	2	0	0.0	2	0.8	

[*] MHI-5 = Mental Health Inventory 5-item scale; based on previous studies, a score of 67 or less constituted poor mental health.

[†] One mother did not complete the MHI-5.

[‡] Numbers vary due to incomplete or missing data.

[§] Due to rounding, percentages in Table 1 might not total 100.

[//] *P* values calculated using Pearson chi-square test except as noted below.

[¶] *P* values calculated using Fisher exact test.

TABLE 2

Comparison of Selected Maternal and Child Characteristics by Maternal APS Scores[*]

	Total (n = 294)[†]	High (APS ≤ 11) (n = 20)		Moderate (APS 12 to 15) (n = 160)		Low (APS 16) (n = 113)		
Characteristic	**n[‡]**	**n**	**%[§]**	**n**	**%[§]**	**n**	**%[§]**	**P Value[//]**
Maternal								
Race/ethnicity								
Non-Hispanic white	269	19	95.0	147	93.0	103	92.8	.55[¶]
Non-Hispanic black	7	1	5.0	2	1.3	3	2.7	
Hispanic	9	0	0.0	7	4.4	2	1.8	
Other	5	0	0.0	2	1.3	3	2.7	
Education								
High school or less	68	5	26.3	39	24.7	23	20.9	.71
Some college or 2-y degree	106	8	42.1	53	33.5	45	40.9	
4-y college degree or more	114	6	31.6	66	41.8	42	38.2	
Marital status								
Married	227	15	75.0	121	75.6	91	80.5	.07[¶]
Never married	26	0	0.0	14	8.8	12	10.6	
Separated or divorced	38	5	25.0	25	15.6	10	8.8	
Employed outside the home								
Yes	220	13	65.0	123	77.4	84	75.7	.48
No	71	7	35.0	36	22.6	27	24.3	
Household income								
$25,000 or less	60	9	47.4	32	22.4	18	18.6	.01[¶]
$25,001–50,000	51	5	26.3	28	19.6	18	18.6	
$50,001–100,000	102	5	26.3	62	43.4	35	36.1	
Over $100,000	47	0	0.0	21	14.7	26	26.8	
Number of children in the home								
1	39	2	10.0	25	15.9	12	10.6	<.01
2	135	2	10.0	82	52.2	50	44.2	
3	77	13	65.0	32	20.4	32	28.3	

Characteristic	Total (n = 294)[†]	High (APS ≤ 11) (n = 20)		Moderate (APS 12 to 15) (n = 160)		Low (APS 16) (n = 113)		P Value[‖]
	n[‡]	n	%[§]	n	%[§]	n	%[§]	
4 or more	40	3	15.0	18	11.5	19	16.8	
Self-rating of health								
Excellent	84	4	20.0	40	25.0	40	35.4	.05[¶]
Very good	117	5	25.0	65	40.6	47	41.6	
Good	73	7	35.0	44	27.5	21	18.6	
Fair	17	3	15.0	10	6.3	4	3.5	
Poor	3	1	5.0	1	0.6	1	0.9	
First pregnancy								
Yes	77	3	21.4	49	36.3	25	25.8	.18[¶]
No	170	22	78.6	86	63.7	72	74.2	
Child								
Sex								
Male	185	10	50.0	104	65.0	70	61.9	.41
Female	109	10	50.0	56	35.0	43	38.1	
Age								
4–6 years	139	10	50.0	81	50.6	48	42.5	.40
7–9 years	155	10	50.0	79	49.4	65	57.5	
Prenatal diagnosis of oral cleft								
Yes	68	5	35.7	40	29.6	23	23.7	.48
No	179	9	64.3	95	70.4	74	76.3	
Type of oral cleft								
Lip only	76	5	25.0	38	23.8	33	29.2	.88
Palate only	91	7	35.0	51	31.9	33	29.2	
Lip and palate	127	8	40.0	71	44.4	47	41.6	
Team care received								
Yes	199	14	70.0	104	68.4	81	73.6	.66
No	84	6	30.0	48	31.6	29	26.4	
Maternal rating of child health								
Excellent	176	5	25.0	98	62.8	73	65.8	<.01[¶]

Characteristic	Total (n = 294)[†] n[‡]	High (APS ≤ 11) (n = 20) n	High (APS ≤ 11) (n = 20) %[§]	Moderate (APS 12 to 15) (n = 160) n	Moderate (APS 12 to 15) (n = 160) %[§]	Low (APS 16) (n = 113) n	Low (APS 16) (n = 113) %[§]	P Value[//]
Very good	76	7	35.0	38	24.4	30	27.0	
Good	29	4	20.0	17	10.9	8	7.2	
Fair	5	4	20.0	1	0.6	0	0.0	
Poor	2	0	0.0	2	1.3	0	0.0	

[*] APS = Aggravation in Parenting Scale; based on previous studies, lower scores indicated higher levels of parental aggravation.

[†] One mother did not complete the APS.

[‡] Numbers vary due to incomplete or missing data.

[§] Due to rounding, percentages in Table 2 might not total 100.

[//] *P* values calculated using Pearson chi-square test except as noted below.

[¶] *P* values calculated using Fisher exact test.

TABLE 3

Comparison of Proportions of Parents (NSAF) and Mothers (Current Study) Classified With Poor Mental Health Status or Better Mental Health Status by Maternal Education and Household Income[*]

	NSAF					Current Study				
	Total	Poor (MHI-5 ≤ 67)		Better (MHI-5 > 67)		Total	Poor (MHI-5 ≤ 67)		Better (MHI-5 > 67)	
Characteristic	**n**	**n**	**%[†]**	**n**	**%[†]**	**n**	**n**	**%[†]**	**n**	**%†**
Education[‡]										
High school or less	18,537	3909	68.7	14,317	51.2	67	18	43.9	49	19.9
Some college or 2-y degree	6244	987	17.3	5175	18.5	106	16	39.0	90	36.6
4-y college degree or more	9359	794	14.0	8479	30.3	114	7	17.1	107	43.5
Household income[‡]										
Below 200% poverty level	12,520	3135	55.0	9034	32.3	70	21	53.8	49	22.4
Above 200% poverty level	21,812	2567	45.0	18,977	67.7	188	18	46.2	170	77.6

[*] NSAF = National Survey of America's Families; MHI-5 = Mental Health Inventory 5-item scale.

[†] Due to rounding, percentages in Table 3 might not total 100.

[‡] P values were calculated using Pearson chi-square test. None of the P values were statistically significant at $\alpha = .05$.

TABLE 4

Comparison of Proportions of Parents (NSAF) and Mothers (Current Study) Classified With High Aggravation or With Moderate or Low Aggravation by Maternal Education and Household Income[*]

	NSAF					Current Study				
	Total	High (APS ≤ 11)		Moderate or Low (APS > 11)		Total	High (APS ≤ 11)		Moderate or Low (APS > 11)	
Characteristic	**n**	**n**	**%[†]**	**n**	**%[†]**	**n**	**n**	**%[†]**	**n**	**%**
Education[‡]										
High school or less	18,537	2072	62.3	16,134	53.2	67	5	26.3	62	23.1
Some college or 2-y degree	6244	657	19.7	5505	18.2	106	8	42.1	98	36.6
4-y college degree or more	9359	599	18.0	8684	28.6	114	6	31.6	108	40.3
Household income[‡]										
Below 200% poverty level	12,520	1626	48.7	10,534	34.7	69	11	57.9	58	24.3
Above 200% poverty level	21,812	1711	51.3	19,831	65.3	189	8	42.1	181	75.7

[*] NSAF = National Survey of America’s Families; APS = Aggravation in Parenting Scale.

[†] Due to rounding, percentages in Table 4 might not total 100.

[‡] P values were calculated using Pearson chi-square test. None of the P values were statistically significant at $\alpha = .05$.