

Table 11. Marital status: Subsequent children after the third-born across groups

	Without disabilities %(N)	SB %(N)	DS %(N)	X ²	p
Married	9.9% (7,032)	-----	15.2% (23)	4.694	.040*
Not Married	16.9% (4,714)	-----	24.1% (13)	1.982	.200

Note: In the spina bifida group, there were not enough subjects to perform analyses (n<10); in these cases, chi-squares compare families of children without disabilities to DS groups.

Regarding reproduction rates among mothers of fourth-born children with Down syndrome and fourth-born children without disabilities, there were no significant differences (unmarried mothers, $X^2(1, n=10,746) = 2.943, p<.120$; married mothers, $X^2(1, n=20,561) = .510, p<.406$).

Maternal race.

The trend of mothers of first-born children with disabilities (in comparison to mothers of first-born children without disabilities) having subsequent children was consistent across maternal race. For Caucasian mothers, mothers of first-born children with disabilities were more likely to have subsequent children than mothers of children without disabilities. 45.7% of Caucasian mothers of first-born children with Down syndrome in comparison to 36.1% of Caucasian mothers of first-born children with spina bifida, compared to 29.6% of Caucasian mothers of first-born children without disabilities had a subsequent child, $X^2(2, n=277,221) = 42.59, p<.001$.

Regarding the second-born child, Caucasian mothers of second-born children with disabilities were more likely than Caucasian mothers of second-born children without disabilities to have a subsequent child. 26.7% of Caucasian mothers of second-born

children with Down syndrome and 23.9% of Caucasian mothers of children with spina bifida in comparison to 14.9% of Caucasian mothers of children without disabilities had subsequent children, $X^2(2, n=187,271) = 40.22, p<.001$. Furthermore, regarding the third-born child, mothers of third-born children with Down syndrome, in comparison to mothers of third-born children without disabilities, were more likely to have subsequent children, $X^2(1, n=74,212) = 3.84, p<.056$. No significant differences were found regarding Caucasian mothers of fourth-born children having subsequent children, although the size of the Down syndrome group was small. .

When the mother was not Caucasian, mothers of children with disabilities were also more likely than mothers of children without disabilities to have subsequent children. Overall, 47.4% of non-Caucasian mothers of first-born children with Down syndrome and 42.9% of non-Caucasian mothers of first-born children with spina bifida in comparison to 27% of non-Caucasian mothers of first-born children without disabilities had subsequent children, $X^2(2, n=66,275) = 13.73, p<.001$. Regarding the second-born child, no significant differences occurred among the groups regardless of maternal age or birth year of the target child. Regarding the third-born child, 32.1% of mothers of children with Down syndrome in comparison to 17.3% of mothers of children without disabilities had a subsequent child, $X^2(1, n=22,145) = 4.34, p<.046$.

Mother's educational attainment.

The phenomenon of mothers of children with disabilities being more likely than mothers of children without disabilities transcended maternal educational attainment. Figure 1 shows that, across educational levels, mothers of children have disabilities were

significantly more likely to have subsequent children compared to mothers of children without disabilities (high school, $X^2(2, n=124,013) = 29.00, p<.001$; college, $X^2(2, n=135,389) = 12.93, p<.002$, and graduate school: $X^2(1, n=24,657) = 8.80, p<.006$).

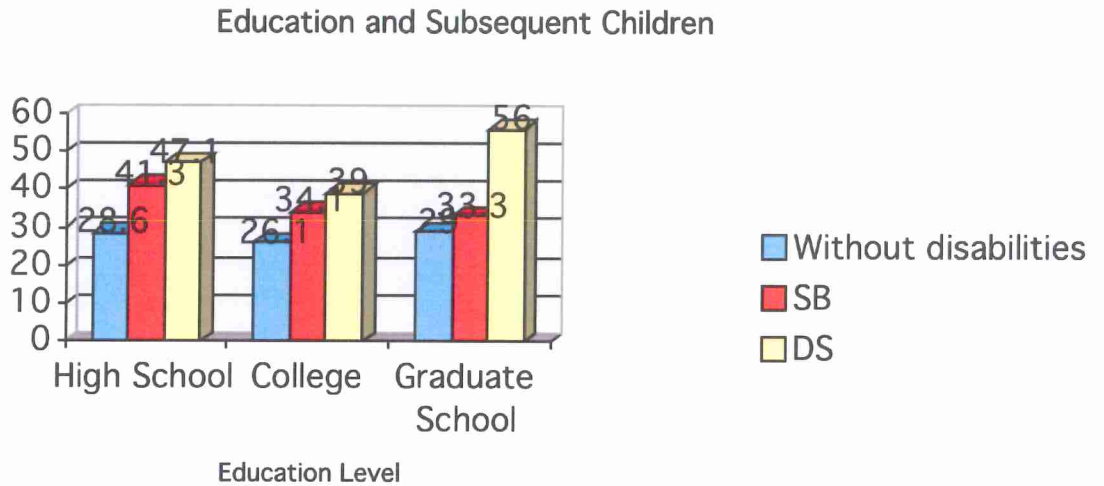


Figure 1. Educational Attainment and Subsequent Children

Continuing into the decision to have a second child, the same “disability group” continued to have subsequent children irrespective of the mother’s educational level. For high-school educated mothers, 26.8% of mothers of second-born children with Down syndrome and 15.8% of second-born children without disabilities had a subsequent child, $X^2(1, n=92,450) = 12.55, p<.001$. For college educated mothers, 27.4% of mothers of second-born children with Down syndrome and 12.8% of second-born children without disabilities had a subsequent child, $X^2(1, n=91,408) = 27.81, p<.001$. For graduate school educated mothers, 23.7% of mothers of second-born children with Down syndrome and 12.6% of mothers of second-born children without disabilities had a subsequent child,

$X^2(1, n=15,526) = 4.18, p < .050$. At the third-born child, there were no significant differences in having subsequent children across the groups.

V. Family Size and the Influence of Parent-Family Variables

Families of children with disabilities were also more likely to have bigger families across correlates of maternal race, educational attainment, and marital status. For example, families of children with disabilities were more likely to have a larger family size regardless of whether the mother was married or unmarried. Table 12 illustrates that married mothers were significantly more likely to have larger family sizes when they had a child with a disability in comparison to mothers of children without disabilities and that unmarried mothers of children with disabilities were significantly more likely to have a larger family size when they had a child with a disability in comparison to mothers of children without disabilities. In addition to the marital status of the mother, the race of the mother also did not seem to matter in relation to the family size. Table 12 shows that Caucasian mothers of children with disabilities were more likely to have larger family sizes than Caucasian mothers of children without disabilities. Also, Table 12 shows that non-Caucasian mothers of children with disabilities were significantly more likely to have larger family sizes than non-Caucasian mothers of children without disabilities.

Table 12. *Marital status and race of the mother: Family size across groups*

	Without disabilities Mean(sd)	SB Mean(sd)	DS Mean(sd)	F	p
Married Mothers					
First-born	1.38 (.637)	1.62 (.889)	1.67 (.791)	29.60	.001
Second-born	2.20 (.486)	2.32 (.639)	2.48 (.750)	23.36	.001
Third-born	3.15 (.402)	3.00 (.00)	3.23 (.426)	1.197	.302
Unmarried Mothers					
First-born	1.38 (.711)	1.66 (1.07)	1.83 (1.02)	31.15	.001
Second-born	2.36 (.638)	2.71 (.686)	2.52 (.778)	5.18	.006
Caucasian Mothers					
First-born	1.38 (.649)	1.56 (.846)	1.72 (.872)	46.96	.001
Second-born	2.19 (.470)	2.32 (.572)	2.37 (.656)	27.27	.001
Third-born	3.13 (.378)	3.07 (.330)	3.17 (.423)	1.945	.143
Non-Caucasian Mothers					
First-born	1.41 (.755)	2.14 (1.51)	1.82 (.965)	15.26	.001
Second-born	2.30 (.635)	2.33 (.707)	2.52 (.821)	3.36	.035
Third-born	3.23 (.520)	3.20 (.447)	3.43 (.690)	2.08	.125

Finally, mothers of children with disabilities were also more likely than mothers of children without disabilities to have larger family sizes regardless of the educational attainment of the mother (see Table 13).

Table 13. Educational Attainment of Mother: Family size across groups

	Without disabilities Mean(sd)	SB Mean(sd)	DS Mean(sd)	F	p
High-School					
First-born	1.37 (.646)	1.65 (.994)	1.73 (.851)	27.63	.001
Second-born	2.20 (.494)	2.28 (.554)	2.39 (.699)	10.73	.001
Third-born	3.14 (.408)	3.06 (.250)	3.21 (.470)	1.17	.311
College					
First-born	1.32 (.591)	1.54 (.809)	1.56 (.796)	13.28	.001
Second-born	2.16 (.428)	2.23 (.480)	2.37 (.654)	18.80	.001
Third-born	3.11 (.361)	3.00 (.00)	3.15 (.391)	1.26	.284
Graduate School					
First-born	1.36 (.601)	1.50 (.837)	1.76 (.723)	5.85	.003
Second-born	2.15 (.418)	2.50 (.577)	2.40 (.679)	7.77	.001
Third-born	3.11 (.342)	3.00 (.00)	3.15 (.376)	.367	.693

CHAPTER V

DISCUSSION

This study examines the differences among families of children with disabilities and families of children without disabilities in having subsequent children. Borrowing from the psychoanalytic literature, this study applies the concept of a “replacement child” to families of children with disabilities. In addition to conflicting theories regarding the reproduction rate of families of children with disabilities, there are also few large-scale studies examining the reproduction rates. Relying on a large-scale database, this study is a first attempt at examining the reproduction rates of families of children with disabilities in comparison to families of children without disabilities.

Review of Findings

This study had five major findings. First, it appears that, compared to families of children without disabilities, families of children with disabilities are the same in some ways and different in other ways. For example, families of children without disabilities were significantly more likely to be single-child families in comparison to families of children with disabilities. Furthermore, mothers of children with disabilities, especially Down syndrome, were significantly older than mothers of children without disabilities. Regarding marital status, however, there were no significant differences between families of children with disabilities and families of children without disabilities. Furthermore, there were no significant differences among the birth intervals between the children

across the groups. As such, while there were a few significant differences among the groups, families of children with and without disabilities appeared to also share some similarities.

Second, in comparison to families of children without disabilities, families of children with disabilities were more likely to have a subsequent child. Regardless of whether the child is the first-born, second-born, or third-born, families of children with disabilities were more likely to have a subsequent child than families of children without disabilities. These findings directly contrast to the findings of Tips et al (1963), Ando and Tsuda (1975), and Ando (1978) regarding the reproduction rates of families of children with Down syndrome. Results from this study suggest that families of children with disabilities do not stop their reproductive rates in comparison to families of children without disabilities.

More specifically, when mothers are younger than 35, in comparison to families of children with spina bifida, families of children with Down syndrome are more likely to have subsequent children. Not only are families of children with disabilities more likely to have subsequent children, but the type of disability may also affect the degree of likelihood that the family may have subsequent children. This may relate to the inclusive fitness principle as individuals with spina bifida are more likely to marry and reproduce than individuals with Down syndrome but not as likely as individuals without disabilities (Hamilton, 1975). This finding may also relate to the role of siblings without disabilities in providing future caregiving to their brothers or sisters with intellectual disabilities (Seltzer, et al., 1991).

Third, families of children with disabilities tended to have larger family sizes than families of children without disabilities. This finding holds true regardless of the birth order of the target child. In comparison to families of children without disabilities, the family size also conflicts with the findings of previous studies, which found that families of children with disabilities either had similar reproduction rates (Tips et al., 1963) or had decreased reproduction rates (Ando & Tsuda, 1975; Ando, 1975). Having larger family sizes among families of children with disabilities in comparison to families of children without disabilities may further support the inclusive fitness principle as well as the issue of sibling guardianship.

Fourth, regardless of many parent-family variables, families of children with disabilities were significantly more likely to have subsequent children than families of children without disabilities. For example, both married and unmarried mothers of first-born children were more likely to have subsequent children if they had a child with a disability. Furthermore, regardless of race (Caucasian or not Caucasian) and birth order of the target child, families of children with disabilities were significantly more likely than families of children without disabilities to have subsequent children. Finally, regarding educational level, for the first and second-born children, families of children with disabilities were significantly more likely than families of children without disabilities to have subsequent children.

These results indicate that, compared to families of children without disabilities, families of children with disabilities are more likely to have subsequent children regardless of marital status, race, and educational attainment. The study's findings primarily illustrate that families of children with disabilities are more likely than families

of children without disabilities to have subsequent children in relation to the first-born child. This study suggests that across these parent-family variables, families of children with disabilities (both Down syndrome and spina bifida) are similar in having subsequent children more frequently than families of children without disabilities. As it relates to reproductive decisions, there may be something unifying about having a child with a disability, which may trump parent-family variables (e.g. race, marital status, educational attainment).

Fifth, family-parent variables may also slightly affect the family size of families of children with and without disabilities. Regardless of marital status, for first and second-born children, in comparison to families of children without disabilities, families of children with disabilities were likely to have bigger families. Regarding race, both Caucasian and non-Caucasian mothers of first and second-born children with disabilities had larger families than Caucasian and non-Caucasian mothers of first and second-born children without disabilities. Furthermore, regardless of educational attainment, mothers of first and second-born children with disabilities had significantly larger family sizes than mothers of first and second-born children without disabilities. These findings further illustrate that families of children with disabilities are similar across the lines of race, marital status, and educational attainment when it comes to reproductive decisions.

Implication for Practice

This study reports that, compared to families of children without disabilities, families of children with disabilities are more likely to have subsequent children. The implications of these findings allow clinicians and practitioners to better understand the

family dynamic and size as it relates to reproduction in families of children with disabilities. From the psychoanalytic literature, Valeriotte and Fine (1987) and Powell (1995) suggest that having a child immediately after a child died elongates the mourning process, potentially resulting in indefinite grief. If this holds true for parents of children with disabilities, clinicians need to be present to support parents as they experience the grief and mourning that initially accompanies having a child with a disability and may be complicated by having a subsequent child.

Furthermore, related to families of children with disabilities, implications include necessary support for subsequent children born after the child with a disability. There is some research (Legg & Sherick, 1976; Valeriotte & Fine, 1987; Grout & Romanoff, 2000; Johnson, 1984) stating that if these children are like replacement children, they may suffer some psychological effects of knowing that they are the replacement children. Special consideration should be paid to these children.

Limitations

While this study is a first attempt at illuminating the differences in reproduction rates between families of children with and without disabilities, there are a few limitations. First, it is likely that some individuals with Down syndrome and spina bifida were missed and not included in the dataset. The accuracy, however, of those identified and subsequently included in the dataset was good. Furthermore, because the dataset is a de-identified dataset from the state birth records, it was not possible to verify unusual or missing data. As such, these data could not be included in the analyses. For the most part, however, there were few missing or unusual data in the dataset. Finally, it remains

unclear why families of children with disabilities are more likely to have subsequent children in comparison to families without children with disabilities. While this study offers quantitative evidence that families of children with disabilities are larger and are more likely to have subsequent children (in relation to families of children without disabilities), this study does not offer reasons or support for any of the theories listed as to why this phenomena would be occurring. Further research is needed to explore why this is happening.

Conclusion

Compared to families of children without disabilities, families of children with disabilities are significantly likely to be larger in size and to have subsequent children. Results show that families of children with disabilities are significantly likely to have subsequent children across maternal race, age, maternal educational attainment, and maternal marital status in relation to families of children without disabilities. Further research should be conducted to examine why families of children with disabilities may be having more children than families of children without disabilities. Nonetheless, this study will allow schools to better understand families of children with disabilities enabling school administrators and teachers to further promote parent-school collaboration.

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