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Do disability, parenthood, and gender matter for health disparities?: A US population-based study

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Abstract

Background: Existing research has documented adverse health outcomes among parents with disabilities relative to parents without disabilities, but little is known about whether parenthood adds unique stress and health consequences for people with disabilities. Less is known about whether the effects of parenthood differ between mothers and fathers with disabilities.

Objectives: This paper examined health-related quality of life, obesity, and health behaviors between US parents and nonparents with and without disabilities. We also explored differences in health outcomes separately for men and women by one's parental and disability status.

Methods: An analytic sample of parents and nonparents aged 18–64, with and without disabilities, were derived from the 2016 Behavioral Risk Factor Surveillance System (9,117 parents and 33,961 nonparents with disabilities). Multivariate logistic regression analyses were applied, controlling for individuals' socio-demographic characteristics and their history of chronic conditions.

Results: Parents with disabilities, compared to parents without disabilities and nonparents with and without disabilities, were at higher risk of reporting frequent physical distress, obesity, smoking, and insufficient sleep. Among those with disabilities, fathers were more likely than nonfathers to report poor or fair health, frequent physical and mental distress, and obesity; these differences were not evident between mothers and nonmothers with disabilities.

Conclusions: The findings suggest the urgent need for policies and programs to address the health-related needs of parents with disabilities, as well as the need for targeted programs to support fathers with disabilities.

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Conflicts of interest

The authors have no conflicts of interest to declare.

Presentation

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.dhjo.2019.06.001.

Keywords

Co-residence; Father; Mother; Health-related quality of life; Health behavior

Individuals with disabilities have been historically discriminated.[1,2] As highlighted in the groundbreaking report *Rocking the Cradle*, parents with disabilities experience additional discrimination that is not only linked to their disability but also to their status as parents.[3] Parents with disabilities frequently report negative societal attitudes regarding their capacity to be parents and pathologizing assumptions presupposing the negative effects of their disabilities on the development of their children.[3–5] Rejection of the parenting role for people with disabilities is also reflected in the current legal system: parents with disabilities, compared to parents without disabilities, are more likely to have their children removed by the child welfare system and to have their parental rights terminated solely based on their disability.[3,6] Given the established associations between discriminatory experiences and health across various population groups,[1,2] it is reasonable to hypothesize that their unique discriminatory experiences would contribute to increased stress, subsequently leading to adverse outcomes in health and health behaviors for parents with disabilities relative to their non-parenting peers.

Research has shown that living with minor children, irrespective of the parents' disability status, may incur unique financial and emotional stressors that are linked with one's health and health behaviors (for a review, see[7]). There have been mixed results reported on whether living with minor children has positive or negative effects on one's health behaviors; for example, the co-residence with children has been associated with lower rates of smoking,[8] higher rates of insufficient sleep,[9],[10] and weight gain[11] among US adults, although others found that adults with or without a child report comparable rates of obesity and smoking.[11,12] In terms of health-related quality of life, some studies found a positive relationship between living with children and self-rated general health or mental health[7,12]; yet, certain groups of parents, especially those with the lack of financial resources or social support (e.g. single parenthood, poverty), were likely to report poorer health than nonparents.[7] Living with a minor child may impose unique functional challenges for the parents who have their own functional limitations.[3] In addition, parents with disabilities are at a greater risk for financial hardship, are more likely to be single parents, and have fewer social supports than those without disabilities,[13–17] which collectively may have deleterious consequences on the health for parents with disabilities who are already jeopardized by their stigmatized and marginalized experiences.

Existing research has found that parents with disabilities are likely to experience increased risks of chronic diseases, poor self-rated health, obesity, and mental health problems than parents without disabilities.[15], Earlier studies on the health of parents with disabilities focused on specific diagnoses or types of disabilities (i.e., intellectual disabilities), used non-representative samples, or/and examined a certain parental stage (e.g. parents of teens).[17–20] As an exception, a recent study by Li and colleagues estimated population-based differences between parents with and without disabilities and found increased risks of chronic conditions and obesity among those with disabilities.[15] However, existing studies,

including Li et al., have restricted the study sample to parents with and without disabilities and have excluded their non-parenting counterparts.

Differences between parents with and without disabilities may arise both from the documented health inequities related to their disabling conditions and from unique discrimination and contextual barriers encountered as parents with disabilities. Thus, our first research aim is to examine differences between parents and nonparents, with and without disabilities, in one's health-related quality of life, obesity, and health behaviors to advance disability and family research and to improve programs and policies targeting for parents with disabilities.

Fatherhood and motherhood with disabilities

Gendered theories on parenting and related empirical studies suggest that mothers compared to fathers are likely to be more affected by parenting stress as they are more involved in and responsible for childcare.[7,21] Positive aspects of parenting, such as having close relationships with their children and getting emotional rewards, are also more evident among mothers than fathers,[7] suggesting that mothers and fathers without disabilities may report comparable health and quality of life driven by their parenting stress and rewards.

Parenthood, however, may impose differential impacts on health by gender among individuals with disabilities. Women with disabilities relative to those without disabilities experience significant disparities in pregnancy and birth outcomes, as well as barriers to quality prenatal care,[3,14,22–24] likely not encountered by men with disabilities. These pregnancy-related experiences may contribute to a greater likelihood that mothers with disabilities relative to nonmothers with disabilities will experience adverse health outcomes in their subsequent years of motherhood, while the difference will be less evident between fathers and nonfathers with disabilities who might not encounter such experiences. On the other hand, according to the theories on traditional fatherhood and fathers' good-provider role, fathers rather than mothers, in families with both parents (i.e., married/partnered couples), are perceived to be responsible for the family's economic provision.[25,26] Thus, fathers than mothers with disabilities may be more negatively affected by their functional difficulties in providing for their family. As a result, it is likely that fathers with disabilities relative to nonfathers with disabilities would experience greater parental stress, and consequently, poorer health outcomes.

Existing research on parents with disabilities has examined either mother[18,19] or parent as a group,[6,15,17] and thus, little is known about the differential impacts of parenthood by gender. Therefore, our second research aim is to explore the associations between parenthood and one's health outcomes separately for women and men (with or without disabilities). We hypothesized differences by parental status in health outcomes would be comparable between nondisabled women and men. Due to the limited literature available on gendered patterns of parental status and health outcomes among adults with disabilities, the directions of the differences by parenthood in men and women with disabilities were explored without hypotheses.

Methods

Data and sample

Data are from the 2016 Behavioral Risk Factor Surveillance System (BRFSS), the largest health-related annual survey of noninstitutionalized adults aged 18 or older in the United States (n = 486,303). The BRFSS includes data from all 50 states, the District of Columbia and three US territories. The survey is conducted over landline and cellular phones. Data are weighted for population attributes and non-response. Detailed information about the BRFSS sampling, weighting, and survey administration can be found at https://www.cdc.gov/brfss/.

The BRFSS survey consists of core components, optional modules, and state-added sections. The core components include a standard set of questions asked to individuals across all states. The optional modules include questions that states elect to use in their survey. Our analytic sample is derived from 36 states and US territories that opted to include the optional *Random Child Selection* module, as this module allows us to identify participants who are parents of a co-residing minor child. To reduce the potential confounding effects of age, we only included individuals between 18 and 64 years of age,[15] resulting in a final sample of 186,148 parents and nonparents with and without disabilities. In our sensitivity analysis, we restricted our sample to those aged 18–44, who are in the prime life stage of parenting and living together with minor children. Results were comparable regardless of the age criterion, and thus, we present the results based on our main sample of adults aged 18–64 (the results from the sensitivity analysis are available from authors). When weighted, this sample represents 6.8 million parents with disabilities nationwide, accounting for 16% of all parents of a co-residing child under age 18 and 25% of all individuals with disabilities aged 18–64.

Measures

Disability-Parent Group Status.—Our independent variable is a group indicator based on individuals' parental and disability status. Parental status was ascertained based on reports of one or more children under age 18 living in the same household. Biological, adopted, step, and foster children were included, although the types of relationship to a child were not distinguishable. This working definition of parents is based on co-residence with children, and thus does not include parents whose minor children are living outside the home (e.g. living with another relative, released for adoption, living in foster or residential care).[13] Adults who did not live with any child under age 18 in the same household were categorized as nonparents, consistent with previous studies.[13,27]

Disability status was ascertained through a series of six questions, developed by the US Census Bureau for the American Community Survey.[28] These six questions seek to identify respondents who had 1) serious difficulty hearing, 2) serious difficulty seeing even when wearing glasses, 3) difficulty concentrating, remembering, or making decisions, 4) difficulty walking or using stairs, 5) difficulty dressing or bathing, and 6) difficulty doing errands alone. We classified individuals as those with disabilities if they responded "yes" to any of the six questions.[29] Based on parent and disability identification, we created four mutually-

exclusive groups: (1) parents with disabilities; (2) nonparents with disabilities; (3) parents without disabilities; and (4) nonparents without disabilities.

Health Indicators.—We included three measures of health-related quality of life that have been validated among several US populations[27,30,31]: (1) poor or fair self-reported general health, (2) frequent physical distress, and (3) frequent mental distress. Respondents were asked to rate their general health from poor to excellent (ranges 1 to 5), and their responses were dichotomized into two categories based on prior research using BRFSS (poor/fair health, excellent/very good/good health).[31,32] Participants were also asked how many days their mental and physical health, respectively, were not good in the past 30 days. Each variable was dichotomized by using 14 or more days as the cutoff value for determining the presence of mental and physical distress to be consistent with previous studies.[30,32]

We included three other well-studied health indicators - current smoking, obesity, and insufficient sleep - known to be associated with disability, parental status, and future morbidity and mortality.[27,33] Current smoking is defined as having ever smoked 100 or more cigarettes and currently smoking every day or some days.[34] Obesity is defined as having a body mass index equal to or greater than 30 kg/m^2,[34] and insufficient sleep is defined as sleeping less than 7 h in a 24-h period on average.[35]

Covariates.—We included sociodemographic variables in multivariate models as they may confound the associations between parental or disability status and health outcomes.[31,36] These variables included gender (*female, male*), age (in *years*), race/ethnicity (*non-Hispanic white, non-Hispanic black, Hispanic, others*), marital status (*married, unmarried*), employment (*employed, unemployed*), education (*less than high school, high school graduate, some college, 4-year college graduate or higher*), and annual household income (*<$25,000, <$50,000, < $75,000, $75,000 or greater*). We also controlled for whether a participant has any form of health insurance coverage and whether a participant has nine preexisting or concurrent chronic conditions.[37] Participants were identified as having a history of chronic conditions if they had ever been told by a doctor or other health care provider that they had heart diseases, stroke, asthma, cancer, lung-related diseases, joint-related diseases, kidney-related diseases, diabetes, and depressive disorders. Finally, as a descriptive purpose, we examined the number of children in a household (in *numbers*) and single parenthood (*single parent, not a single parent*) that are only applicable to parent samples. Single parents are defined as those living with a minor child in the same household without any other co-residing adults.

Analysis

Bivariate analyses examined associations between parent-disability group status and sociodemographic characteristics, chronic health conditions, and six health outcomes. The age-adjusted prevalence was reported for chronic conditions and health outcomes to account for the differences in the age distribution of the sample by the group status.[38] To ascertain the associations between parent-disability group status and health outcomes, we estimated multivariate logistic regression models controlling for socio-demographics, health care coverage, and nine indicators of chronic conditions. As a sensitivity analysis,

we also controlled for the number of disabilities based on the six disability questions (range = 1–6), as a proxy for the severity of disabilities, for the within-group analysis of individuals with disabilities; the results were consistent regardless of the adjustment (the results from the sensitivity analysis are available from authors). Further, we conducted gender-separate analyses for each health outcome to examine whether men and women show differential associations between their parent-disability status and health outcomes. We also tested interactions of parent-disability status by marital status or employment in the gender-separate analyses to examine whether the effects of disability and parenthood on health are differential by marital or employment status among men and women, respectively. Given our large sample size (n = 186,148), p-values less than 0.01 were considered as statistically significant throughout all bivariate and multivariate models. All analyses were weighted and used the *svy* command prefix in STATA 15 to adjust for the complex survey design of BRFSS. This study used publicly available data and was deemed exempt from human subject review.

Results

Sample characteristics

As shown in Table 1, parents and nonparents with and without disabilities were significantly different with respect to all sociodemographic characteristics, except that parents with and with disabilities reported the similar number of children in a household. Pairwise comparison (see the rightest column) showed that parents with disabilities were most likely to be female and non-white Hispanic compared to nonparents with disabilities and parents and nonparents without disabilities. Parents with disabilities were least likely to have postsecondary education and health insurance. Parents with and without disabilities (M_{age} = 39) were younger than nonparents with (M_{age} = 48) and without disabilities (M_{age} = 42). Compared to parents without disabilities, parents with disabilities were less likely to be married and employed, more likely to be single parents, and reported less income; the same pattern was found in the comparison between nonparents with and without disabilities. Parents and nonparents with disabilities reported higher rates of all nine chronic conditions than those without disabilities. Parents without disabilities reported even lower rates of seven chronic conditions compared to nonparents without disabilities.

When the weighted prevalence of each of the six disability items was compared by parental status, parents with disabilities were significantly more likely to have difficulties making decisions (55%) than nonparents with disabilities (50%); hearing, mobility, and self-care disabilities were more prevalent in nonparents than parents with disabilities. Parents with disabilities reported fewer disabilities than nonparents, with 19% of parents versus 24% of nonparents with disabilities reporting three or more limitations (not shown in tables).

Health outcomes among parents and nonparents with disabilities

The age-adjusted prevalence of adverse health outcomes and adjusted odds ratios are presented in Table 2. After controlling for all covariates, parents with disabilities had threefold or higher odds of reporting fair to poor health (adjusted odds ratio [aOR] = 3.78), frequent physical distress (aOR = 5.60), and frequent mental distress (aOR = 3.70) than

parents without disabilities. Similarly, parents with disabilities showed greater likelihoods of currently smoking (aOR = 1.59), being obese (aOR = 1.19), and having insufficient sleep (aOR = 1.74) than parents without disabilities (columns (a) vs. (c)).

Parents with disabilities showed a greater likelihood of reporting frequent physical distress than nonparents with disabilities before and after adjusting for all covariates (aOR = 1.32; columns (a) vs. (b)). Parents, irrespective of disability status, showed higher adjusted odds of reporting obesity, smoking, and insufficient sleep than nonparents. Although smoking was more prevalent among nonparents (15.2%) than parents without disabilities (13.4%) and it was comparable among nonparents and parents with disabilities (31.5% vs. 30.6%), the adjusted odds of smoking was higher among parents than nonparents, irrespective of disability status, especially after controlling for marital status. This likely reflects the overrepresentation of the unmarried among nonparents who are more likely than married persons to report smoking (estimates of covariates are not presented in Table 2).

Fatherhood and motherhood with disabilities

The age-adjusted prevalence of adverse health indicators and adjusted odds ratios are presented separately for women (Table 3) and men (Table 4). Compared to mothers without disabilities, mothers with disabilities were significantly more likely to report poor or fair health, frequent physical distress, frequent mental distress, current smoking, and insufficient sleep. Patterns for comparisons among fathers with and without disabilities were similar.

When parents and nonparents with disabilities were compared (columns (a) vs. (b)), adverse associations of parental status with health outcomes were more evident among men than women with disabilities. Specifically, fathers with disabilities were more likely to report poor or fair health (aOR = 1.27), frequent physical distress (aOR = 1.64), frequent mental distress (aOR = 1.35), and obesity (aOR = 1.29) than nonfathers with disabilities; yet, these differences were not found between mothers and nonmothers with disabilities. Greater adversity of motherhood than fatherhood with disabilities was evident only with respect to smoking, as mothers, not fathers, with disabilities showed a higher risk of smoking (aOR = 1.43) than their respective non-parenting counterparts. Gender differences in the comparison of parents and nonparents without disabilities were not evident (columns (c) vs. (d)).

When we further tested interactions of the parent-disability status by marital status or employment among women and men, separately, we found differential effects of employment on frequent physical distress between fathers and nonfathers ($p = .000$), which were not evident between mothers and nonmothers among those with disabilities. Specifically, positive associations between unemployment and frequent physical distress were stronger among disabled fathers (marginal differences in probabilities of reporting frequent physical distress by employment status = 0.33, $p = .000$) than disabled nonfathers (marginal differences = 0.21, $p = .000$). Supplemental Fig. 1 presents the predicted probabilities of reporting frequent physical distress by parenthood, disability status, and employment status among men. On the other hand, significant differential effects of marital status on frequent mental distress were found between disabled mothers and nonmothers ($p = .009$), which were not indicated between disabled fathers and nonfathers: positive associations between being unmarried and frequent mental distress were stronger among

disabled nonmothers (marginal differences = 0.12, $p = .000$) than disabled mothers (marginal differences = 0.06, $p = .000$). Supplemental Fig. 2 shows the predicted probabilities of reporting frequent mental distress by parenthood, disability status, and marital status among women.

Discussion

This paper offers the first examination of the quality of life and other health indicators among US parents and nonparents with and without disabilities. Using national, population-based data, we found that parents with disabilities, in comparison to nonparents with disabilities as well as parents and nonparents without disabilities, were at a higher risk of reporting frequent physical distress, smoking, obesity, and insufficient sleep. The elevated risks remained after controlling for all available covariates.

Our findings from the comparison between parents with and without disabilities are consistent with prior studies.[15,17,19] The present study expands upon earlier studies by examining a broader range of health indicators. Notably, physical distress for which we found the most profound group difference has not been examined in prior studies on parents with disabilities. In addition, this study found that poorer health-related quality of life and obesity among parents with disabilities than those without disabilities were evident even after adjusting for their preexisting or concurrent chronic conditions. This implies that observed differences between parents with and without disabilities may not be explained solely by their chronic medical complexities, strengthening the evidence of persisting disparities in this population.

The most notable finding of our study is related to the significant differences between parents and nonparents with disabilities. First, the comparably higher likelihoods of frequent physical distress were evident in the comparison between parents and nonparents with disabilities; parental status was not associated with physical distress among those without disabilities. This finding may reflect the consequences of the systematic and pervasive discriminatory experiences and the lack of support and accommodations faced by parents with disabilities.[4,5] It is also partly due to the negative health care experiences during pregnancy and childbirth, especially for mothers with disabilities.[22–24] Second, consistent with the prior studies on parents without disabilities,[9,10] both parents with and without disabilities were more likely to report obesity and insufficient sleep than their respective non-parenting counterparts. Counter to our expectation, we found that both parents with and without disabilities were more likely to report current smoking than nonparents with and without disabilities, respectively. However, consistent with some of the earlier studies, we found that marital status plays a bigger role than parental status to control unhealthy behaviors (i.e., smoking).[8] It is also possible that, although earlier studies on transitioning to parenthood or new parents found positive, or at least neutral, effects of having a child on quitting smoking, this effect may attenuate as parents have more than one child or they may resume smoking as their child gets older.[39] However, research on parental status and smoking among adults with disabilities is limited, and thus it is unclear whether the same life course pattern of smoking may apply for parents with disabilities. As an exception, Mitra et al. found women with disabilities are more likely to smoke, before and during

pregnancy and after delivery than women without disabilities, implying that having a child may not play a significant role on quitting smoking among women with disabilities.[40] Future research on the effects of parenthood on smoking, particularly for parents with disabilities, would benefit from studies investigating the trajectory of smoking over several points in the life course.

We also found different patterns by gender in the comparison between parents and nonparents with disabilities in most health outcomes. Interestingly, these differences by gender were not found among those without disabilities. Among people with disabilities, fathers compared to nonfathers were more likely to report poor or fair health, frequent physical and mental distress, and obesity; these adverse health associations were not evident between mothers and nonmothers with disabilities. We speculated that mothers than nonmothers with disabilities would report adverse health outcomes due to their unique discriminatory experiences during their pregnancy and postpartum[22–24]; however, our findings did not support this speculation. Indeed, some of the mothers in our study might have developed disabilities after giving birth and thus did not encounter disability-related discrimination and medical complications during their pregnancies. BRFSS is a cross-sectional dataset and does not provide data on disability onset; further research, especially longitudinal research, is needed to further examine the association between the onset of disability, parental status, and health outcomes.

Poorer health outcomes among fathers than mothers with disabilities reported in our study may reflect the societal assumption about less active parenting practice among fathers,[17] and thus, fathers with disabilities potentially receive fewer supports and resources, especially from their peers, than mothers with disabilities. Findings on interaction effects between parenthood, disability, and employment status further suggest that unemployed fathers than nonfathers with disabilities are more vulnerable to frequent physical distress as they may not meet the societal and/or familial expectations as a good-provider for their child.[25,26] Future research on fatherhood is needed to better understand the gendered patterns of parenting practices for people with disabilities.

Limitations

Although this study found important health disparities, there are several limitations. First, BRFSS is a cross-sectional study and does not allow us to examine the temporal relationships between disability-parent status and health outcomes. Second, the working definition of parents in this study is limited to those who live with minor children. Thus, we were unable to include parents who do not live with their child. This omission of non-residential parents might be more prevalent among parents with disabilities than those without disabilities, because of higher rates of child removal and loss of custody among parents with disabilities.[3] If this is the case, our results may underestimate the differences between parents with and without disabilities. Third, BRFSS does not provide specific information on disability onset, severity, or underlying medical conditions which may shape the health outcomes differently among adults with disabilities. Finally, due to limited data on child and spouse/partner characteristics, we were unable to examine whether their

characteristics, such as disability status, are associated with the health of our parental and/or partnered respondents.

Implications

This study highlights the need for targeted policies, supports, and resources for parents with disabilities, and in particular for fathers with disabilities. Further research is needed to understand and address the underlying causes of the elevated risks to develop more effective programs tailored for parents with disabilities. Given the gendered disparities in the health-related quality of life, it is important to understand the needs of fathers with disabilities and provide appropriate services specifically tailored to them. However, little is known about the knowledge and attitudes towards fathers with disabilities. Peer support groups, education on fatherhood, and advocacy efforts are expected to be effective as an initial step. Further research is necessary to develop effective programs, resources and supports specifically for fathers with disabilities.

Conclusion

This study advances earlier studies by comparing key health indicators between parents and nonparents with and without disabilities. The findings of this study indicate that parents with disabilities, and specifically, fathers with disabilities experience significantly poorer health-related quality of life and greater risks of obesity and insufficient sleep compared to their peers with and without disabilities. Our study clearly demonstrates the urgent need for policies and programs to promote the health and quality of life of parents with disabilities, as well as the need for targeted programs to support fathers with disabilities.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Sample characteristics by parent and disability group status.

	(a) Parents with disability (unweighted *n* = 9,117)	(b) Nonparents with disability (unweighted *n* = 33,961)	(c) Parents without disability (unweighted *n* = 48,018)	(d) Nonparents without disability (unweighted *n* = 95,052)	*F*-test	
Socio-demographics						
Female	62.0	49.9	56.4	45.7	202.72**	a > c > b > d
Age, *M (SD)*	39.4 (0.19)	47.6 (0.16)	38.8 (0.07)	42.0 (0.10)	905.97**	b > d > a, c
Race						
White, non-Hispanic	53.4	62.2	59.5	65.5	58.71**	d>b>c>a
Black, non-Hispanic	13.8	13.3	10.2	11.1		
Hispanic	24.9	17.2	21.4	13.5		
Other	6.5	7.3	8.9	9.8		
Married	52.8	35.8	71.9	42.6	1381.24**	c > a > d>b
Single parenthood[a]	21.0		14.1		93.00**	a>c
Number of children in	1.97 (0.02)		1.99 (0.01)		0.62	
household, *M (SD)* Employed	49.8	39.9	79.1	73.0	1501.14**	c > d > a > b
Education						
< high school	24.3	21.3	12.6	7.9	284.38**	a> b>c>d
High school graduate	29.1	32.9	22.8	26.8		
Some college	31.7	31.8	29.5	32.8		
College graduate Household income	14.9	14.0	35.0	32.5		
< $25,000	48.8	50.1	19.4	20.9	465.56**	a, b > c, d
< $50,000	22.8	22.7	20.5	23.0		
< $75,000	10.9	11.4	15.0	16.8		
$75,000 or greater	17.5	15.8	45.1	39.2		
Any health insurance	83.3	86.3	88.0	88.8	29.22**	c, d > b > a
Chronic health conditions[b]						
Heart diseases	7.1	8.5	1.4	2.1	565.97**	a, b > d > c

	(a) Parents with disability (unweighted *n* = 9,117)	(b) Nonparents with disability (unweighted *n* = 33,961)	(c) Parents without disability (unweighted *n* = 48,018)	(d) Nonparents without disability (unweighted *n* = 95,052)	*F*-test	
Stroke	4.9	5.5	0.6	0.9	429.15**	a, b > d > c
Asthma	23.6	24.8	11.2	12.5	302.51**	a, b > d > c
Cancer	8.5	8.6	4.5	5.4	200.02**	a, b > d > c
Lung-related diseases	10.9	13.4	1.7	2.4	981.82**	a, b > d > c
Joint-related diseases	36.4	34.6	10.4	12.0	1797.30**	a, b > d > c
Kidney-related diseases	4.1	4.4	1.0	1.2	282.32**	a, b > c, d
Diabetes	11.9	12.9	4.1	5.1	584.05**	a, b > d > c
Depressive disorders	43.7	45.1	10.3	10.9	2191.77**	a, b > c, d

Note. Data from the 2016 Behavioral Risk Factor Surveillance System; parent status is based on the presence of the respondents' own children under age 18 who resided in the same household at the time of interview. Weighted estimates of proportions (%) are presented; For age and number of children variables, weighted means (*M*) and standard deviations (*SD*) are presented. Pairwise comparison results are noted when there is a significant difference ($p < .01$) from (a) parents with disabilities, (b) nonparents with disabilities, (c) parents without disabilities, and (d) nonparents without disabilities.

*$p < .01$,

**$p < .001$.

[a]Single parents are those who live with a child under age 18 in the same household and do not co-reside with any adult.

[b]Age-adjusted estimates using 2000 projected US population.

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Table 2

Age-adjusted prevalence and selected adjusted odd ratios of adverse health indicators among parents and nonparents with and without disabilities, total sample.

	(a) Parent with disability	(b) Nonparent with disability	(c) Parent without disability	(d) Nonparent without disability		(a) vs. (c, reference)	(a) vs. (b, reference)	(c) vs. (d, reference)
	Percent	Percent	Percent	Percent	*F*-test	aOR (99% CI)	aOR (99% CI)	aOR (99% CI)
Poor or fair health	42.3	39.8	7.5	7.6	2504.25** (a, b > c, d)	3.78** (3.22, 4.45)	1.12 (0.97, 1.31)	1.07 (0.94, 1.21)
Frequent physical distress	35.2	30.5	4.1	4.4	2594.75** (a > b > c, d)	5.60** (4.71, 6.66)	1.32** (1.14, 1.53)	1.04 (0.90, 1.21)
Frequent mental distress	35.3	35.6	6.4	7.5	1764.40** (a, b > d > c)	3.70** (3.16, 4.33)	1.10 (0.95, 1.28)	0.98 (0.87, 1.11)
Currently smoking	30.6	31.5	13.4	15.2	497.41** (a, b > d > c)	1.59** (1.38, 1.82)	1.26** (1.09, 1.44)	1.16** (1.05, 1.27)
Being obese	41.9	35.6	29.9	24.1	248.9** (a > b > c > d)	1.19* (1.04, 1.36)	1.30** (1.13, 1.48)	1.35** (1.25, 1.45)
Insufficient sleep (<7h)	54.8	48.4	35.7	31.3	373.86** (a > b > c > d)	1.74** (1.54, 1.96)	1.39** (1.23, 1.58)	1.36** (1.27, 1.46)

* $p < .01$

** $p < .001$.

Note. Data from the 2016 Behavioral Risk Factor Surveillance System; parent status is based on the presence of the respondents' own children under age 18 who resided in the same household at the time of interview. Age-adjusted estimates of proportions (%) are presented. Post hoc pairwise comparison results are noted when there is a significant difference ($p < .01$) from (a) parents with disabilities, (b) nonparents with disabilities, (c) parents without disabilities, and (d) nonparents without disabilities. Multivariate logistic regressions were performed on each health indicator controlling for age, gender, race/ethnicity, marital status, employment, education, household income, health care coverage, and nine indicators of chronic conditions (heart diseases/stroke/asthma/cancer/lung diseases/joint problems/kidney problems/diabetes/depressive disorders). Selected adjusted odds ratios (aOR) and 99% confidence interval (CI) are presented. All statistics were adjusted for the complex survey design and all point estimates were weighted.

Table 3

Age-adjusted prevalence and selected adjusted odd ratios of adverse health indicators, women only.

	(a) Parent with disability	(b) Nonparent with disability	(c) Parent without disability	(d) Nonparent without disability		(a) vs. (c, reference)	(a) vs. (b, reference)	(c) vs. (d, reference)
	Percent	Percent	Percent	Percent	*F*-test	aOR (99% CI)	aOR (99% CI)	aOR (99% CI)
Poor or fair health	43.4	41.6	7.5	6.9	1445.49** (a, b > c, d)	4.04** (3.27, 4.99)	0.99 (0.81,1.20)	1.04 (0.87, 1.25)
Frequent physical distress	35.7	33.2	4.5	4.4	1476.77** (a, b > c, d)	5.64** (4.51, 7.04)	1.16 (0.96, 1.40)	1.03 (0.84, 1.26)
Frequent mental distress	37.2	42.0	7.5	8.9	1009.14** (a, b > c, d)	3.45** (2.84, 4.18)	0.99 (0.83, 1.19)	0.96 (0.82, 1.12)
Currently smoking	29.4	28.7	11.6	11.4	348.76** (a > b > c, d)	1.74** (1.45, 2.09)	1.43** (1.19, 1.71)	1.23** (1.08, 1.41)
Being obese	43.2	38.7	27.6	22.3	200.13** (a, b > c > d)	1.18 (0.99, 1.40)	1.19(1.00, 1.43)	1.34** (1.21, 1.48)
Insufficient sleep (<7h)	55.0	48.8	34.3	29.3	242.49** (a > b > c > d)	1.81** (1.55, 2.11)	1.47** (1.25, 1.73)	1.38** (1.25, 1.52)

* $p < .01$

** $p < .001$.

Note. Data from the 2016 Behavioral Risk Factor Surveillance System; parent status is based on the presence of the respondents' own children under age 18 who resided in the same household at the time of interview. Age-adjusted estimates of proportions (%) are presented. Post hoc pairwise comparison results are noted when there is a significant difference ($p < .01$) from (a) parents with disabilities, (b) nonparents with disabilities, (c) parents without disabilities, and (d) nonparents without disabilities. Multivariate logistic regressions were performed on each health indicator controlling for age, race/ethnicity, marital status, employment, education, household income, health care coverage, and nine indicators of chronic conditions (heart diseases/stroke/asthma/cancer/lung diseases/joint problems/kidney problems/diabetes/depressive disorders). Selected adjusted odds ratios (aOR) and 99% confidence interval (CI) are presented. All statistics were adjusted for the complex survey design and all point estimates were weighted.

Table 4

Age-adjusted prevalence and selected adjusted odd ratios of adverse health indicators, men only.

	(a) Parent with disability	(b) Nonparent with disability	(c) Parent without disability	(d) Nonparent without disability		(a) vs. (c, reference)	(a) vs. (b, reference)	(c) vs. (d, reference)
	Percent	Percent	Percent	Percent	*F*-test	aOR (99% CI)	aOR (99% CI)	aOR (99% CI)
Poor or fair health	39.7	38.2	7.4	8.2	1067.34** (a, b > c, d)	3.52** (2.72, 4.56)	1.27* (1.00, 1.61)	1.11 (0.92, 1.35)
Frequent physical distress	34.0	28.0	3.7	4.4	1132.92** (a > b > c, d)	5.63** (4.28, 7.41)	1.64** (1.31, 2.06)	1.12 (0.89, 1.41)
Frequent mental distress	32.0	30.2	4.9	6.3	744.06** (a, b > d > c)	4.26** (3.26, 5.58)	1.35* (1.06, 1.73)	1.01 (0.83, 1.24)
Currently smoking	32.6	33.9	15.8	18.0	194.11** (a, b > d > c)	1.39** (1.11, 1.74)	1.12 (0.90, 1.40)	1.15* (1.01, 1.31)
Being obese	39.6	33.1	32.2	25.5	77.74** (a > b, c > d)	1.19(0.97, 1.46)	1.29* (1.05, 1.60)	1.29** (1.16, 1.43)
Insufficient sleep (<7h)	54.9	48.1	37.7	32.6	146.95** (a > b > c > d)	1.64** (1.36, 1.97)	1.28** (1.05, 1.56)	1.35** (1.22, 1.49)

* $p < .01$

** $p < .001$.

Note. Data from the 2016 Behavioral Risk Factor Surveillance System; parent status is based on the presence of the respondents' own children under age 18 who resided in the same household at the time of interview. Age-adjusted estimates of proportions (%) are presented. Post hoc pairwise comparison results are noted when there is a significant difference ($p < .01$) from (a) parents with disabilities, (b) nonparents with disabilities, (c) parents without disabilities, and (d) nonparents without disabilities. Multivariate logistic regressions were performed on each health indicator controlling for age, race/ethnicity, marital status, employment, education, household income, health care coverage, and nine indicators of chronic conditions (heart diseases/stroke/asthma/cancer/lung diseases/joint problems/kidney problems/diabetes/depressive disorders). Selected adjusted odds ratios (aOR) and 99% confidence interval (CI) are presented. All statistics were adjusted for the complex survey design and all point estimates were weighted.