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The Health of the Nation's Custodial Grandfathers and Older Single Fathers: Findings From the Behavior Risk Factor Surveillance System

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Abstract

Two important parent groups are solo grandfathers and single fathers raising children alone. The health of male caregivers raising children has received little attention by scholars. Investigating the health of single male caregivers raises awareness about their physical vulnerability. This study uses the 2012 Behavioral Risk Factor Surveillance System to compare health characteristics of 82 solo grandfathers with 396 single fathers aged 50 years and older. The findings suggest that grandfathers exhibited a high prevalence for various health conditions, including diabetes (44%), heart attack (27%), chronic obstructive pulmonary disease (23%), and stroke (6%). Almost half of grandfathers rated their health as fair/poor (47%), and nearly two in five had functional limitations (38%). Although older single fathers had better health characteristics than grandfathers, their health profile was poorer than population norms. Logistic regression analysis suggests that solo grandfathers are more at risk for poor health outcomes than older single fathers. Practice interventions to minimize health risks are discussed.

Keywords

custodial grandfathers, older single fathers, health behaviors, grandparents raising grandchildren, grandfathers

The physical and mental health characteristics of male caregivers raising children on their own have received little attention by scholars. Despite more than 20 years of research on grandparent-headed families, there is limited information about custodial grandfathers and their most prevalent health conditions as well as their use of health services. There are more studies investigating the experience of single fathers although few have focused on older single fathers, and even fewer have used representative data to examine their health characteristics. In contrast, there are many studies on the health and emotional well-being of custodial grandmothers (e.g., Bachman & Chase-Lansdale, 2005; Carr, Hayslip, & Gray, 2012; Hayslip, Blumenthal, & Garner, 2014; Kelley, Whitley & Campos, 2012; Musil & Ahmed, 2002) and single mothers (e.g., Atkins, 2010; Hatcher, Rayens, Peden, & Hall, 2008; Kaestner & Tarlov, 2006; Kaplan et al., 2005; Wu, Wang, & Eamon, 2014). The purpose of this study is to use a representative community sample to describe, compare, and contrast health characteristics and behaviors of custodial grandfathers who are raising grandchildren without the support of a spouse or significant other, termed *solo grandfathers*, in comparison with older single fathers.

According to the U.S. Census, there are approximately 2.8 million grandparent-maintained households, 15% of these households are headed by grandmothers alone, and 164,000 (6%) are headed by solo grandfathers (Ellis & Simmons, 2014). There are 39 million family groups with children in the United States; single mothers head 27% of these families and 5% are headed by single fathers (Vespa, Lewis, & Kreider, 2013). Even though the numbers of solo grandfathers and single fathers are smaller than their female counterparts, their need for accessing primary health care services and resources is no less significant. The present study sample is limited to male caregivers aged 50 years and older to focus on the prevalence of several health conditions that are more common in old age (such as stroke, arthritis). Contrasting these two family arrangements has merit because examining the health of these male-headed family groups raises awareness about their possible physical vulnerability, and draws

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attention to their need for family support and community-based resources.

Background

Knowledge about the health conditions of custodial grandparents comes largely from studies observing grandmothers raising grandchildren, or combined samples of grandmothers and grandfathers (Hayslip, Shore, & Emick, 2006; Kelley, Whitley, Sipe & Yorker, 2000, Kelley, et al, 2012). Past works consistently suggest that custodial grandparents have a high prevalence of many chronic health conditions, including heart disease, hypertension, and diabetes (Minkler & Fuller-Thomson, 1999; Leder, Grinsteadd, & Torres, 2007; Musil & Ahmed, 2002; Whitley, Kelley, Yorker & Sipe, 2001, Whitley, Fuller-Thomson, & Brennenstuhl, 2015). Previous authors also suggest that grandparent caregivers' functional limitations are partly because of normative aging processes. However, when aging is coupled with one or more other chronic health conditions and intense family stress, the ability to perform basic activities of daily living is further restricted (Musil, 2000; Neely-Barnes, Graff, & Washington, 2010). Whether their health problems are an effect of caregiving or a reflection of existing health conditions exacerbated by stress, the physical health of male caregivers of children is not fully understood (Hayslip et al., 2014; Hughes, Waite, LaPierre, & Luo, 2007). Recognizing the health of caregivers is central to understanding their ability to engage effectively in parenting roles. Certain protective factors are known to minimize adverse health effects. Grandmother caregivers with higher income and those who are married have a better health status than poorer and nonmarried grandmothers (Bachman & Chase-Lansdale, 2005), but it is unclear if these same factors have significance for families headed by grandfathers (Keene, Prokos, & Held, 2012).

Previous research focused on custodial grandfathers has been limited. Earlier studies often included small, nonrepresentative samples, and often did not distinguish between grandfathers raising grandchildren alone versus grandfathers who share parental responsibility with a spouse or partner. Several studies suggest that custodial grandfathers appear to show a readiness or willingness to serve in the surrogate parenting role, despite concerns about their declining physical health or their ability to financially support their grandchildren long term (Bullock, 2005; Denby, Brinson, Cross, & Bowmer, 2014; Hayslip & Page, 2012). There is evidence that custodial grandfathers may have different origins of mental stress compared with custodial grandmothers. Park (2009), using a nationally representative sample, reported differences in factors that affect psychological distress between grandfathers and grandmothers. The author suggested that grandfathers reported less mental health anxiety and strain as compared with grandmothers. She suggested that this might be due to grandmothers providing a greater share of daily caregiving responsibilities. The grandchild's age, behavior, and presence of spousal support influenced grandfathers' stress levels, while grandmothers' emotional health were more affected by financial strain, as well as older age and problematic behaviors of the grandchildren. Park's results reinforce the idea that grandparent caregivers are a heterogeneous group, with different profiles and needs. As such, identifying specific physical and mental health characteristics for solo grandfathers may help discern differences and similarities in their health status, in comparison with custodial grandmothers.

Single fathers have received more attention in the research literature than custodial grandfathers (U. S. Census, 2015). A number of past family studies explored single fathers' parenting styles, adaptation to full-time parenting, father–child attachment, and mental health effects of raising children (e.g., Bernier & Miljkovitch, 2009; Bronte-Tinkew, Scott, & Lilja, 2010; Coles, 2009; Cooper et al., 2008; Hamer & Marchioro, 2002; Trivedi et al., 2014; Wade, Veldhuizen, & Cairney, 2011). Identified parenting challenges facing single fathers include low socioeconomic status, inflexible work schedules, and limited formal and informal childcare services. These issues were especially problematic for low-income fathers of color (Hamer & Marchioro, 2002). Research suggests that single fathers are vulnerable to multiple forms of psychological distress, including depression, panic disorder, and generalized anxiety disorders (Denby et al., 2014). There also is some evidence that substance abuse may be elevated among young single fathers (Meadows, 2009). While social support appears to be a protective factor for single mothers experiencing psychological distress, there is not consistent evidence of its beneficial effects for single fathers (Wade et al., 2011). Interestingly, health outcomes of children residing with single fathers appear to be better than the health of children residing with single mothers or custodial grandparents (Krueger, Jutte, Franzini, Elo, & Hayward, 2015; Ziol-Guest & Dunifon, 2014).

Unfortunately, much of the research on single fathers does not differentiate those living with a partner from those raising children alone; nor does it differentiate the needs and circumstances of older single fathers from their younger counterparts. In 2014, in the United States, there were approximately 1.59 million older single fathers raising children younger than 18 years with no partner present in the home (U.S. Census Bureau, 2015); of these, 20% were aged 50 years and older, representing approximately 315,000 men (Livingston, 2013). Taking into consideration the overall limited information on the health of

older male caregivers of children, the present study provides a basis for future work by describing comparatively the physical and mental health characteristics of solo custodial grandfathers and older single fathers, aged 50 years and older, using a representative sample.

Study Framework

Although the present study is descriptive in nature, the association between life stressors and physical/emotional health provides a context for the study. According to Pearlin and colleagues, unexpected changes or role transitions can exacerbate stress levels, which can have a negative effect on health (Pearlin, Mullan, Semple, & Skaff, 1990; Pearlin, Schieman, Fazio, & Meersman, 2005). A primary source of stress for caregiving grandfathers generally stems from family disruptions involving the birth parents (e.g., incarceration, illness/death, child maltreatment perpetrated by one or both parents, divorce, or extended military deployment; Leder, Grinstead, & Torres, 2007). Stress levels among caregivers are heightened because of economic insecurity (Ross & Aday, 2006), inadequate housing (Fuller-Thomson & Minkler, 2003), and raising one or more children affected by severe trauma and loss (Kelley, Whitley & Campos, 2013). The current study is not explanatory, but describes the physical health state of older male caregivers raising children to give a baseline for health promotion options, which may help reduce health risks.

Method

Data Source and Sample

The 2012 Behavioral Risk Factor Surveillance System (BRFSS) is a public use data set, derived from a collaborative project of the Centers for Disease Control and Prevention (CDC) and the U.S. States and Territories. The BRFSS is an ongoing data collection program designed to assess state-specific behavioral risk factors for adult populations (CDC, 2012). Each month, trained interviewers use a standardized questionnaire to collect data over landline and cellular telephones from a representative sample of noninstitutionalized adults, aged 18 years or older who are living in households (CDC, 2013a). For all U.S. states included in the 2012 version, the BRFSS uses a disproportionate stratified sample design, which divides all possible phone numbers into high- and medium-density groups that are sampled separately. The sample selected for the current study included 82 solo grandfathers and 396 older single fathers, aged 50 years and older. This age restriction enhances sample comparability between the two family groups. The sample was also restricted to the 36 states that opted to include the random child selection module (CDC, 2012). Questions from this module permitted the identification of single grandfathers or older single fathers as caregivers (see details below). Although the BRFSS 2012 includes both cellular phones and landlines, the question on the number of adults in the household was only asked of those with landlines. Thus, the findings are generalizable to community-dwelling men aged 50+ years who are solo grandfather caregivers or older single fathers with no partner present, and who have landlines, and reside in one of 36 selected states. The landline response rate for the BRFSS 2012 was 49.1% (CDC, 2013a).

Measures

Parental Identification. In the BRFSS, there is a module used that focused on a randomly selected child younger than 18 years in the household (CDC, 2012). One of the questions asked about the adult respondent's relationship to the focus child. If the adult male responded "grandparent" and there was only one adult in the household, this respondent was categorized as a "solo grandfather caregiver." If the adult male answered "parent," which could include biologic, step, or adoptive, and there was only one adult in the household, this respondent was categorized as a "single father with no partner present in the household" (hereafter referred to as older single fathers).

Child Characteristics. In the focus module described above there were questions on the focus child's age (age <5 years, 5-12 years, 13-18 years), gender, residency, ethnicity. Specific questions about health status concerned asthma ("Has a doctor, nurse or other health professional EVER said that the child has asthma?") and obtaining a flu shot in the past year ("During the past 12 months, has [the child] had a seasonal flu vaccination?"). The number of children in the household was also included in the interview.

Parental Demographics. Background information was gathered on the parent figure, including the following: age (50-64 years, 65 years and older), self-reported race (White non-Hispanic, Black non-Hispanic, Hispanic, and Other), education level (less than high school diploma vs. greater), and income (<$15,000, $15,000-24,999, $25,000-49,999, $50,000-74,999, $75,000 or greater).

Physical and Mental Health Status. BRFSS respondents were asked to indicate, from a listing of chronic conditions, whether a "doctor, nurse or another health professional" ever told them they had any of the following [health conditions]?" The conditions assessed included arthritis, chronic obstructive pulmonary disease (COPD), diabetes (excluding borderline), asthma, cancer

(excluding skin), heart attack, stroke, angina or coronary heart disease, kidney disease, and depression. Self-assessed health was also measured using the following question: "Would you say that your health, in general, is: excellent, very good, good, fair, poor?" Responses were recoded into *excellent/ very good/ good health versus fair/poor health*. Finally, health-related quality of life was measured based on a series of three questions. The first was "Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?" Responses were recoded into 0, 1-7, and >7 days. The same type of question was also asked about mental health (e.g., "Now thinking about your mental health . . ."); responses were recoded in a similar fashion as physical health. The third question was as follows: "During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?" Responses were recoded using the same categories as physical health (i.e., 0, 1-7, and >7 days).

Health Care Utilization. Access to health care coverage was assessed by a response to the question: "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare, or Indian Health Service?" Inquiry about access to doctors or other health professionals was based on the following two questions: "Do you have one person you think of as your personal doctor or health care provider?" Responses were recoded into *yes* (one or more) and *no*. The second question addressed cost as an inhibiting factor to accessing a health care provider: "Was there a time in the past 12 months when you needed to see a doctor but could not because of the cost?" Finally, the respondents reported the time since their last routine checkup in response to the question "About how long has it been since you last visited a doctor for a routine checkup?" [A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition]. Response options were in the *last year, between 1 and 2 years, between 2 and 5 years, or 5 years or more.*

Health Behaviors. Specific health behaviors were assessed in the 2012 BRFSS (CDC, 2012). The first question considered physical exercise: "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?" The second health behavior assessed was a Body Mass Index score, computed from three levels: neither overweight nor obese, overweight, and obese. The third health behavior self-identified smoking status as categorized into one of four groups: current smoker-everyday, current smoker-some days, former smoker, and never smoked.

Data Analysis

A descriptive analysis was used to identify the demographic, health, and mental health characteristics of solo grandfathers and to contrast them with older single fathers aged 50 years and older. Comparisons were made using chi-square tests. All percentages and p values were weighted to take into account the probability of selection and nonresponse bias. The sample sizes are presented in their unweighted form. A series of three nested logistic regression analyses were conducted for each of the 13 health outcomes. In the first model and each subsequent model, solo grandfathers were compared with older single fathers. The second model added race, education level, and household income levels. The third and final model added caregiver age.

Results

The demographic characteristics of solo grandfathers in comparison with older single fathers are reported in Table 1. Solo grandfathers were considerably older, on average, than older single fathers. The largest proportion of grandfathers were older than 65 years (53.4%), while only 6.6% of single fathers were in that age range ($p < .001$). Generally, grandfathers were less likely to be White (57.3% vs. 75.2%, $p < .001$), or to have graduated from high school (55.2% vs. 92.8%. $p < .001$); they were more likely to have incomes less than $15,000 (28.6% vs. 12.3%, $p < .001$), and to reside in center cities (60% vs. 44.2%, $p < .05$) as compared with older single fathers. Solo grandfathers were less likely to have only one child in their home (50.9% vs. 70.4%, $p < .001$) and more likely to be caring for children younger than 5 years (5.3% vs. 0.6%, $p < .01$). The health characteristics of the grandchildren indicate that they were less likely to have a history of asthma as compared with children residing with their older fathers (1.8% vs. 21.8%, $p < .001$), and they were more likely to have received a flu shot in the past year (86.8% vs. 47.1%, $p < .001$).

The physical and mental health characteristics of solo grandfathers and older single fathers are reported in Table 2. The health status of the solo grandfathers was very poor. A larger percentage of solo grandfathers have chronic health conditions, including COPD (22.6% vs. 6.1%; $p < .001$), diabetes (44.0% vs. 15.4 %; $p < .001$), and previous heart attacks (27.2% vs. 6.9%; $p < .001$). A larger percentage of solo grandfathers, rated their health as "fair or poor" as compared with older single fathers (46.6% vs. 20.4%; $p < .001$).

Grandfathers were also more likely to have more than 1 week in the past month of bad physical health (44.8% vs. 18.4%; $p < .001$) and functional limitations in activities of daily living due to physical or mental health illnesses (34.8% vs. 13.4%; $p < .001$) as compared with

Table 1. Solo Grandfathers and Older Single Fathers: Family Demographic Characteristics (*N* = 478).

Grandparent/parent demographic indicators	Solo grandfathers	Older single fathers	*p* Value
Total number	82	396	
Age (years)			
50-64	46.6%	93.4%	<.001
65+	53.4%	6.6%	
Race			
White, non-Hispanic	57.3%	75.2%	.002
Black, non-Hispanic	23.1%	13.8%	
Hispanic	11.1%	5.0%	
Other race, non-Hispanic	8.5%	6.1%	
Education			
Did not graduate high school	44.8%	7.2%	<.001
Graduated high school	55.2%	92.8%	
Income categories			
<15,000	28.6%	12.3%	<.001
150,000-24,999	19.5%	13.5%	
25,000-49,999	24.7%	23.1%	
50,000-74,999	18.2%	21.0%	
75,000 or more	9.1%	30.0%	
MSA code			
In the center city of an MSA	60.0%	44.2%	.03
Outside the center city of an MSA	17.4%	25.3%	
Inside a suburban county of the MSA	4.3%	10.6%	
In an MSA without a center city	0%	0%	
Not in an MSA	18.3%	20.0%	
Number of children in household			
1	50.9%	70.4%	<.001
2	44.8%	23.8%	
3	2.6%	5.2%	
4	0%	0.3%	
5+	1.7%	0.3%	
Gender of child			
Boy	48.7%	52.4%	.28
Girl	51.3%	47.6%	
Age of child (years)			
<5	5.3%	0.6%	.63
5-12	40.8%	35.4%	
13-18	53.9%	64.0%	
Child history of asthma			
Yes	1.8%	21.8%	<.001
No	98.2%	78.2%	
Child flu shot in past 12 months			
Yes	86.8%	47.1%	<.001
No	13.2%	52.9%	

Note. MSA = metropolitan statistical area.

older single fathers. However, grandfathers were more likely to have no bad days in the past month because of mental health issues (74.6% vs. 63.1%; $p < .001$). A greater proportion of the grandfathers had not exercised for recreation in the previous month (32.8% vs. 22.9%; $p < .05$). Both types of caregivers had a comparable prevalence of being overweight, but single fathers had a slightly higher percentage of obesity as compared with grandfathers ($p < .05$). Solo grandfathers were much less likely to have never smoked as compared with older single fathers (23.3% vs. 41.9%; $p < .001$).

The respondents' pattern of health utilization is presented in Table 3. Nearly 100% of the solo grandfathers had health care insurance compared with approximately

Table 2. Solo Grandfathers and Older Single Fathers: Family Physical/Mental Health Indicators (*N* = 478).

Health indicators	Solo grandfathers (*N* = 82)%	Older single fathers (*N* = 396)%	*p* Value
Arthritis			
Yes	29.3	33.3	.25
No	70.7	66.7	
COPD			
Yes	22.6	6.1	<.001
No	77.4	93.9	
Ever diagnosed with diabetes (excluding borderline)			
Yes	44.0	15.4	<.001
No	56.0	84.6	
Asthma			
Yes	15.5	9.4	.05
No	84.5	90.6	
Cancer (other than skin)			
Yes	13.9	7.7	.04
No	86.1	92.3	
Heart attack			
Yes	27.2	6.9	<.001
No	72.8	93.1	
Stroke			
Yes	6.0	3.6	.29
No	94.0	96.4	
Angina or coronary heart disease			
Yes	13.8	7.5	.06
No	86.2	92.5	
Kidney disease			
Yes	6.9	2.0	.01
No	93.1	98.0	
Self-rated health			
Good or better health	53.4	78.5	<.001
Fair or poor health	46.6	20.4	
Do not know/not sure or refused/missing	0	1.1	
Number of days/month physical health not good			
No bad days	45.7	66.0	<.001
1-7 Bad days	9.5	15.6	
>1 Week bad days/past month	44.8	18.4	
Limitations in activity in last month due to physical or mental illness			
No days limited	61.7	75.2	<.001
1-7 days limited	3.5	11.4	
>1 week limited days/past month	34.8	13.4	
Number of days mental health not good in past month			
No bad days	74.6	63.1	<.001
1-7 bad days	7.0	21.6	
>1 week bad days/past month	18.4	15.3	
Lifetime depressive disorder			
Yes	20.7	16.3	.32
No	79.3	83.7	
Health behaviors			
Any physical exercise in last month			
Yes	67.2	77.1	.04
No	32.8	22.9	

(continued)

Table 2. (continued)

Health indicators	Solo grandfathers (*N* = 82)%	Older single fathers (*N* = 396)%	*p* Value
BMI category			
Neither overweight nor obese	35.7	27.9	.01
Overweight	42.9	43.1	
Obese	21.4	29.0	
Smoking status			
Current smoker—smokes everyday	13.8	14.0	<.001
Current smoker—smokes some days	10.3	7.4	
Former smoker	52.6	36.6	
Never smoked	23.3	41.9	

Note. COPD = chronic obstructive pulmonary disease; BMI = body mass index.

Table 3. Solo Grandfathers and Older Single Fathers: Utilization of Health Care Services.

Health service utilization indicators	Solo grandfathers (*N* = 82) %	Older single fathers (*N* = 396) %	*p* Value
Have any health care coverage			
Yes	98.3	84.2	<.001
No	1.7	15.8	
Have one or more personal doctors/health care providers			
Yes	91.3	81.5	<.001
No	8.7	18.5	
Could not see doctor because of cost			
Yes	7.0	17.1	<.001
No	93.0	82.9	
Length of time since last routine checkup			
<12 months	86.2	68.6	<.001
1-2 years	2.6	11.4	
2-5 years	4.3	9.7	
5+ Years	6.9	10.3	

five out of six older single fathers (98.3% vs. 84.2%; $p <$ .001). Grandfathers were more likely to have one or more personal doctors or health care providers (91.3% vs. 81.5%; $p = .01$), and to have had a routine physical in the past 12 months (86.2% vs. 68.6%, $p < .01$). Proportionately fewer grandfathers had trouble accessing a medical provider because of cost as compared with older single fathers (7.0% vs. 17.1%; $p < .01$).

In Table 4, the logistic regression analyses identify the odds of solo grandfathers having specific health conditions in comparison with older single fathers. Three different odds ratios are presented for each of the 13 health outcomes: (a) the unadjusted odds ratio, (b) the odds ratio adjusting for race, income, and education level, and (c) the odds ratio adjusting for age in addition to race, income, and education level.

Solo grandfathers had between two and five times higher odds than older single fathers on many health conditions when no other variables were included in the analyses. Even after controlling for age, race, income, and education level (see Model 3), solo grandfathers had substantially higher adjusted odds of COPD, asthma, heart attack, angina or coronary heart disease, and functional limitations. Solo grandfathers were also more likely to rate their physical health during the past 30 days as fair or poor in comparison with older single fathers.

Discussion

Physical Health and Health Behaviors

The data results reveal substantial differences between the physical and mental health characteristics of solo grandfathers and older single fathers raising children without assistance from spouses or partners in the household. Although the sample was limited to those aged 50 years and older, solo grandfathers have far worse physical health in comparison with older single fathers. The high prevalence of serious chronic conditions such as heart attacks (27.2%) and COPD (22.6%), and the fact

Table 4. Odds Ratios and 95% Confidence Intervals Associated With Solo Grandfathers Versus Older Single Fathers for 13 Different Health Outcomes.

Health outcome	Solo grandfather versus older single fathers	Model 1: No additional adjustments	Model 2: Adjusted for race, education and income	Model 3: Adjusted for race, education, income and age
Arthritis	Solo grandfathers	0.82 (0.52, 1.30)	0.84 (0.49, 1.41)	0.79 (0.44,1.39)
	Older single fathers	1.00	1.00	1.00
Chronic Obstructive Pulmonary Disease(COPD)	Solo grandfathers	**4.50 (2.44, 8.29)**	**4.51 (2.20, 9.24)**	**8.47 (3.79, 18.91)**
	Older single fathers	1.00	1.00	1.00
Diabetes (excluding borderline)	Solo grandfathers	**4.35 (2.73, 6.92)**	**2.14 (1.23, 3.74)**	1.67 (0.90, 3.09)
	Older single fathers	1.00	1.00	1.00
Asthma	Solo grandfathers	1.73 (0.93, 3.20)	1.25 (0.60, 2.63)	**3.63 (1.58, 8.35)**
	Older single fathers	1.00	1.00	1.00
Cancer (excluding skin cancer)	Solo grandfathers	**1.98 (1.03, 3.80)**	2.06 (0.98, 4.32)	1.86 (0.82, 4.21)
	Older single fathers	1.00	1.00	1.00
Heart attack/myocardial infarction	Solo Grandfathers	**5.00 (2.81, 8.90)**	**3.84 (1.94, 7.62)**	**2.77 (1.32, 5.83)**
	Older Single Fathers	1.00	1.00	1.00
Stroke	Solo Grandfathers	1.70 (0.66, 4.35)	1.50 (0.53, 4.26)	1.33 (0.42, 4.19)
	Older Single Fathers	1.00	1.00	1.00
Angina or coronary heart disease	Solo grandfathers	1.93 (0.99, 3.73)	**2.95 (1.42, 6.14)**	**3.28 (1.46, 7.36)**
	Older single fathers	1.00	1.00	1.00
Poor mental health days for past month	Solo grandfathers	**0.58 (0.36, 0.93)**	**0.41 (0.23, 0.74)**	0.55 (0.30, 1.04)
	Older single fathers	1.00	1.00	1.00
Poor physical health days for past month	Solo grandfathers	**2.31 (1.51, 3.55)**	**3.37 (1.98, 5.74)**	**6.57 (3.44, 12.58)**
	Older single fathers	1.00	1.00	1.00
Limited in activity for past month due to physical or mental illness	Solo grandfathers	**1.86 (1.19, 2.91)**	**2.15 (1.26, 3.67)**	**6.28 (3.12, 12.63)**
	Older single fathers	1.00	1.00	1.00
Mood disorder diagnosis	Solo grandfathers	1.34 (0.79, 2.28)	0.75 (0.38, 1.47)	1.45 (0.69, 3.05)
	Older single fathers	1.00	1.00	1.00
Adults with poor self-reported health	Solo grandfathers	**3.39 (2.17, 5.30)**	**3.41 (1.94, 5.98)**	**7.98 (3.94, 16.14)**
	Older single fathers	1.00	1.00	1.00

Note. Statistically significant health outcomes are in bold. Odds ratios and confidence intervals are weighted to adjust for the probability of selection and nonresponse according to Statistics Canada data release guidelines. Source: BRFSS 2012 (n = 478).

that one third of solo grandfathers said they had a week or more in the past month when their activities were limited due to health concerns, suggests there is an urgent need to help grandfathers manage their health conditions. Demanding parenting tasks (e.g., daily cooking, bathing children, lifting and carrying young infants/toddlers) can take a toll on aging caregivers with chronic physical conditions. They are especially daunting if grandfathers with physical limitations are unaccustomed to performing certain caregiving tasks or have limited confidence in their ability to perform them well (Bullock, 2005). If grandfathers are employed outside the home, while also trying to manage the home environment these multiple responsibilities create another level of strain, which may lead to increased fatigue and exhaustion. These combined issues possibly contribute to the fact that approximately one half (46.6%) of custodial grandfathers rated their overall health as "fair/poor."

The risk of custodial grandfathers reporting a confirmed diagnosis of diabetes (44%) is particularly worrisome considering it is approximate twice the national rate for males 65 years and older (23.9%; CDC, 2013b). Life-threatening complications from diabetes (e.g., heart disease, kidney failure, and stroke) can shorten the life span, suggesting the need for deliberate efforts to manage the disease. Lifestyle changes that incorporate proper nutrition, regular exercise, and medication are essential disease management practices. However, helping grandfathers put these protocols into everyday routines may require support from community-based health professionals. Clearly, solo grandfathers have a profile that suggests their trajectory for physical decline may accelerate faster than older single fathers because of their health conditions, coupled with family stress. The importance of addressing their physical health needs is evident from the data revealing 44.8% of solo grandfathers' report having more than 1 week of "bad days" during a single month due to their physical health.

Many older single fathers also had health problems that warrant attention. Their most prevalent health conditions were arthritis (33.3%) and diabetes (15.4%). These conditions may affect their performance of routine parenting tasks, depending on the severity. However, it is the adverse health behaviors (eating habits leading to obesity, smoking, and physical inactivity), which are most disturbing. Older single fathers who were obese (29%), current smokers (everyday or some days; 26.8%), and/or who did no recreational physical activities (22.2%) were particularly vulnerable to serious long-term health problems, potentially threatening their life spans.

It appears both grandfathers and older single fathers may benefit from weight management interventions to address the high percentages of grandfathers and older fathers whom are overweight or obese (64.3% and 72%, respectively). Such a high prevalence of weight problems may have implications for childhood obesity in these families (Robinson, Utz, Keyes, Martin & Yang, 2013). Engaging male caregivers in understanding the relationship between proper nutrition and health outcomes has received some attention in the literature (Blake et al., 2009). Assisting grandfathers and older single fathers with improving family nutrition including developing appropriate meal plans, minimizing the frequency of meals, and improving snack options, dining out choices, and cooking strategies are initial steps to establishing obesity prevention and treatment plans. Limited availability of certain foods in local communities (e.g., fresh fruits and vegetables) requires consideration in preparing menus. Addressing male perceptions about traditional gender roles regarding food preparation may require attention before grandfathers and single fathers recognize the necessity of incorporating changes in their cooking and eating habits (Brown & Miller, 2002).

Solo grandfathers and older single fathers have comparable current smoking habits (24.1% vs. 21.4%). Smoking behaviors is most worrisome for the one fifth of older single fathers who reported that their grandchildren/children have asthma. Lifestyle choices about smoking and other health behaviors are especially important to study with male-headed families from low-SES backgrounds because research has suggested that adverse health outcomes are more prevalent in these families (Harvey & Ogden, 2014; Louie & Ward, 2011; Sheffer et al., 2012). Improving access to smoking cessation programs and targeted messaging that emphasize the hazards of passive smoke to children is warranted (Pisinger, Hammer-Helmich, Andreasen, Jorgensen, & Glumer, 2012). Future studies may evaluate the extent to which improved health behaviors influence functional activity among custodial grandfathers and older single fathers.

Mental Health

Custodial grandfathers and older single fathers are both vulnerable to psychological distress, particularly depression (Kolomer & McCallion, 2005; Letiecq, Bailey, & Dahlen, 2008; Park, 2009). Approximately 21% of solo grandfathers and 16% of older single fathers report that they have been diagnosed with depression at some point in their life, which are both higher than estimates for adult males in the general population (11.2%), and the rate for males aged 55 years or older (14.9%; CDC, 2011). These results are troubling considering the long-term impact of mental illness on parenting behaviors and physical health (e.g., cardiac problems; Sands, Goldberg-Glen, & Thornton, 2005). Interventions that promote mental wellness among family caregivers should make efforts to target solo male caregivers, who may have limited access to

such programs, particularly when service providers focus their attention toward female caregivers. Advocacy for removing structural barriers that may prevent grandfathers and older single fathers from accessing needed mental health services are also essential (Cheng & Robinson, 2013). Community-based support groups and other social networks designed for custodial grandparents should consider how race, age, and gender reinforce negative perceptions about mental health services. Finally, planning and evaluating social network strategies that cater to the preferences of grandfathers and older single fathers is an area for future inquiry and evaluation.

Activity Performance

Activity limitations include the inability to perform basic personal or parenting activities (bathing and dressing young children, preparing meals, conducting light housekeeping chores), or performing other essential role responsibilities (paid work tasks) due to physical or emotional deficits. More solo grandfathers have periods during a month when they experience functional limitations lasting a few days or more than a week (34.8%), as compared with older single fathers (13.4%). However, the result suggests that both family groups might benefit from access to exercise programs to build physical endurance and manage weight. Respite services and personal home care are important resources to assist with routine activities. As custodial grandfathers age, their ability to perform heavy manual tasks will decline (e.g., heavy yard work, major housekeeping chores). Trying to seek assistance from family or friends to manage all or most labor-intensive responsibilities is especially challenging if one's social network is small (Russell, 2004). Community-based networks that help enlarge social networks for grandfathers and older single fathers through peer support, volunteer services, and service exchange programs may reduce physical and emotional strains while getting necessary tasks completed.

Health Service Utilization

Solo grandfathers appear to have good access to and use of available health care services. Almost all grandfathers (98.3%) had some form of health insurance, perhaps because most are eligible for Medicare. Although approximately 90% of solo grandfathers and 80% of older single fathers have a regular personal care physician, it is important to assist those without such care to access a regular physician in light of the health concerns facing both groups. Helping the one sixth of older single fathers without health insurance acquire such coverage through available federal/state health exchanges under the Affordable Care Act is also an important strategy.

A possible spillover effect from solo grandfathers' frequent use of health care services is their effort to ensure that their grandchildren also receive medical support. Nearly 87% reported that their grandchildren received a flu shot in the previous 12 months, a much higher percentage than children of older single fathers (47%). The findings appear to align with results reported by Devoe et al. (2011) who suggested that there is a positive relationship between parents' personal use of health care services and the use of health services for their children. Future efforts with older single fathers should include determining what structural barriers (e.g., work schedules, transportation, and financial costs) prevent them from getting their children to health services. Furthermore, practitioners should work to be certain that older single fathers are aware of available public programs designed to give specifically children access to health care services (e.g., Children's Health Insurance Program).

The reported data give a general health profile of solo custodial grandfathers not conveyed in previous studies. However, the findings do not provide definitive evidence as to why solo grandfathers have worse health outcomes as compared with older single fathers. Two plausible reasons are the older age and higher prevalence of ever smoking among the solo grandfathers:

1. Although the current analysis was restricted to men aged 50 years and older, only 7% of the single fathers were aged 65 years or older, compared with 54% of the solo grandfathers. Older age is strongly associated with a higher prevalence of disability and of most chronic diseases.
2. The smaller percentage of solo grandfathers who never smoked, compared with single fathers, may be enough to account for observed differences in physical health outcomes between the groups for outcomes such as COPD, asthma, and coronary heart disease, all of which are highly associated with smoking. Future studies using male-headed family groups should explore these health differences more closely.

An additional factor that requires further study is the effect of ongoing emotional stress stemming from intra-family crises that prompted the grandfathers to assume surrogate-parenting roles. Internal family disruptions involving the birth parents may create intense emotional distress with caregiving grandparents, of which older single fathers may have less experience. Exploring any possible association between family life stressors and risks for adverse physical conditions with custodial grandfathers, who often have limited social and economic resources at their disposal (Bullock, 2005), warrants attention by researchers.

Finally, custodial grandparents perform parenting practices in raising their grandchildren that are different from raising their own children. One challenge that has not received adequate consideration is the fact that many of the grandchildren have physical, emotional, and developmental needs stemming from severe family trauma (e.g., child abuse and neglect, community and domestic violence, as well as prenatal exposure to drug substances by the birth mother). Trying to navigate multiple and unfamiliar public and private systems to obtain necessary support services for these vulnerable grandchildren can be time-consuming and emotionally draining for most grandparents, possibly exacerbating adverse physical effects. Specific research in this area is necessary to understand how parenting challenges affect health outcomes with grandfather caregivers.

Study Limitations

There are several study limitations to note. The data are from a limited number of states, so the results are not generalizable to the whole nation. Second, the cross-sectional nature of the study prohibits determining causal relationships between health concerns and caregiving status for solo grandfathers or single fathers. Using secondary data constrains the depth and breadth of statistical analyses. These findings, as a result, do not reflect the complete picture of older male caregivers' health status; rather this study gives several important pieces of population-based information about the health of older men raising children not revealed previously in earlier research. The results represent one point in time. Subsequent to the time of data collection, the health care landscape in the nation changed, most notably with the rolling inception of the Affordable Care Act, which may affect future findings. In spite of these limitations, the findings give a new perspective about two family groups that received scarce attention by researchers, but whose health status has implications on how well these families function. The study results present an original look at the issue of male caregivers of children with the aim to promote additional scholarly activity on this neglected topic.

Conclusions

Solo custodial grandfathers and older single fathers are vulnerable to serious adverse physical and mental health conditions. The physical and mental health of grandfathers raising grandchildren requires additional study to extend current understanding of their role behaviors and family health outcomes. Thoughtful community-based efforts involving groups of interdisciplinary professionals working collaboratively with families may potentially minimize described health risks and promote family well-being.

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References

Atkins, R. (2010). Self-efficacy and the promotion of health for depressed single mothers. *Mental Health in Family Medicine*, *7*, 155-168.

Bachman, H. J., & Chase-Lansdale, P. L. (2005). Custodial grandmothers' physical, mental, and economic well-being: Comparisons of primary caregivers from low-income neighborhoods. *Family Relations*, *54*, 475-487. doi:10.1111/j.1741-3729.2005.00334.x

Bernier, A., & Miljkovitch, R. (2009). Intergenerational transmission of attachment in father-child dyads: The case of single parenthood. *Journal of Genetic Psychology*, *170*, 31-52.

Blake, C. E., Devine, C. M., Wethington, E., Jastran, M., Farrell, T. J., & Bisogni, C. A. (2009). Employed parents' satisfaction with food-choice coping strategies. Influence of gender and structure. *Appetite*, *52*, 711-719. doi:10.1016/j.appet.2009.03.011

Bronte-Tinkew, J., Scott, M., & Lilja, E. (2010). Single custodial fathers' involvement and parenting: Implications for outcomes in emerging adulthood. *Journal of Marriage and Family*, *72*, 1107-1127. doi:10.1111/j.1741-3737.2010.00753.x

Brown, J. L., & Miller, D. (2002). Gender role preference and family food chores. *Journal of Nutrition Education and Behavior*, *34*, 100-108.

Bullock, K. (2005). Grandfathers and the impact of raising grandchildren. *Journal of Sociology and Social Welfare*, *32*, 43-59.

Carr, G., Hayslip, B., & Gray, J. (2012). The role of caregiver burden in understanding African American custodial grandmothers. *Geriatric Nursing*, *33*, 366-374.

Centers for Disease Control and Prevention. (2011). Mental illness surveillance among adults in the United States. Morbidity and Mortality Weekly Report. *Surveillance Summaries*, *60*(Suppl. 3), 1-29.

Centers for Disease Control and Prevention (CDC). (2012). *BRFSS modules (2012)*. Retrieved from http://www.cdc.gov/brfss/questionnaires/state2012.htm

Centers for Disease Control and Prevention (CDC). (2013a, July 3). *BRFSS 2012 summary data quality report July 3, 2013*. Retrieved from http://www.cdc.gov/brfss/annual_data/2012/pdf/summarydataqualityreport2012_20130712.pdf

Centers for Disease Control and Prevention (CDC). (2013b). *Diabetes Public Health Resource: Rate per 100 of civilian, noninstitutionalized population with diagnosed diabetes, males, by age, United States, 1980-2011*. Atlanta, GA: Author. Retrieved from http://www.cdc.gov/diabetes/statistics/prev/national/tprevmage.htm

Cheng, T. C., & Robinson, M. A. (2013). Factors leading African Americans and Black Caribbeans to use social work services for treating mental and substance use disorders. *Health & Social Work*, *38*, 99-109.

Coles, R. (2009). Just doing what they gotta do: Single black custodial fathers coping with the stresses and reaping the rewards of parenting. *Journal of Family Issues*, *30*, 1311-1338.

Cooper, C., Bebbington, P., Meltzer, H., Bhugra, D., Brugha, T., Jenkins, R., . . . King, M. (2008). Depression and common mental disorders in lone parents: Results of the 2000 National Psychiatric Morbidity Survey. *Psychological Medicine*, *38*, 335-342.

Denby, R. W., Brinson, J. A., Cross, C. L., & Bowmer, A. (2014). Male kinship caregivers: Do they differ from their female counterparts? *Children and Youth Services Review*, *46*, 248-256.

DeVoe, J. E., Tillotson, C. J., Wallace, L. S., Angier, H., Carlson, M. J., & Gold, R. (2011). Parent and child usual source of care and children's receipt of health care services. *Annals of Family Medicine*, *9*, 504-513.

Ellis, R., & Simmons, T. (2014, October 22). *Coresident grandparents and their grandchildren: 2012—Population characteristics* (Report No. P20-576). Washington, DC: U.S. Census Bureau. Retrieved from http://www.census.gov/library/publications/2014/demo/p20-576.html

Fuller-Thomson, E., & Minkler, M. (2003). Housing issues and realities facing grandparent caregivers whoare renters. *The Gerontologist, 4,* 92-98.

Hamer, J., & Marchioro, K. (2002). Becoming custodial dads: Exploring parenting among low-income and working-class African American fathers. *Journal of Marriage and Family*, *64*, 116-129.

Harvey, J. R., & Ogden, D. E. (2014). Obesity treatment in disadvantaged population groups: Where do we stand and what can we do? *Preventive Medicine*, *68*, 71-75. doi:10.1016/j.ypmed.2014.05.015

Hatcher, J., Rayens, M., Peden, A. R., & Hall, L. A. (2008). Predictors of depression for low-income African American single mothers. *Journal of Health Disparities Research and Practice*, *2*(3), 89-110.

Hayslip, B., Blumenthal, H., & Garner, A. (2014). Health and grandparent-grandchild well-being: One-year longitudinal findings for custodial grandfamilies. *Journal of Aging & Health*, *26*, 559-582.

Hayslip, B., & Page, K. (2012). Grandparent-grandchild/great-grandchild relationships. In R. Blieszner & V. H. Bedford (Eds.), *Handbook of aging and the family* (pp. 183-212). New York, NY: Praeger.

Hayslip, B., Shore, R. J., & Emick, M. (2006). Age, health, and custodial grandparenting. In B. Hayslip & J. Hicks-Patrick (Eds.), *Custodial grandparents: Individual, cultural, and ethnic diversity* (pp. 75-88). New York, NY: Springer.

Hughes, M. E., Waite, L. J., LaPierre, T. A., & Luo, Y. (2007). All in the family: The impact of caring for grandchildren on grandparents' health. *Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, *62*, S108-S119.

Kaestner, R., & Tarlov, E. (2006). Changes in the welfare caseload and the health of low-educated mothers. *Journal of Policy Analysis and Management*, *25*, 623-643. doi:10.1002/pam.20194

Kaplan, G., Siefert, K., Ranjit, N., Raghunathan, T. E., Young, E. A., Tran, D., . . . Tolman, R. (2005). The health of poor women under welfare reform. *American Journal of Public Health*, *95*, 1252-1258. doi:10.2105/AJPH.2004.037804

Keene, J. R., Prokos, A. H., & Held, B. (2012). Grandfather caregivers: Race and ethnic differences in poverty. *Sociological Inquiry*, *82*, 49-77.

Kelley, S. J., Whitley, D. M., Sipe, T. A., & Yorker, B. C. (2000). Psychological distress in grandmother kinship care providers: The roleof resources, social support and physical health. *Child Abuse and Neglect: The International Journal, 24*(3), 311-321.

Kelley, S. J., Whitley, D. M., & Campos, P. E. (2012). African American caregiving grandmothers: Results of an intervention to improve health indicators and health promotion behaviors. *Journal of Family Nursing, 19*, 53-73. doi:10.1177/1074840712462135

Kelley, S. J., Whitley, D. M., & Campos, P. E. (2013). Psychological distress in African American grandmothers raising grandchildren: The contribution of child behavior problems, physical health and family resources. *Research in Nursing and Health, 36*, 373-385. doi:10.1002/nur.21542

Kolomer, S. R., & McCallion, P. (2005). Depression and caregiver mastery in grandfathers caring for their grandchildren. *International Journal of Aging and Human Development*, *60*, 283-294.

Krueger, P. M., Jutte, D. P., Franzini, L., Elo, I., & Hayward, M. D. (2015). Family structure and multiple domains of child well-being in the United States: A cross-sectional study. *Population Health Metrics*, *13*, article 6. doi:10.1186/s12963-015-0038-0

Leder, S., Grinstead, L. N., & Torres, E. (2007). Grandparents raising grandchildren: Stressors, social support, and health outcomes. *Journal of Family Nursing*, *13*, 333-352. doi:10.1177/1074840707303841

Letiecq, B. L., Bailey, S. J., & Dahlen, P. (2008). Ambivalence and coping among custodial grandparents. In B. Hayslip & P. Kaminski (Eds.), *Parenting the custodial granddchild: Implications for clinical practice* (pp. 3-16). New York, NY: Springer.

Livingston, G. (2013). *The rise of single fathers: A ninefold increase since 1960*. Washington, DC: Pew Research Center.

Louie, G. H., & Ward, M. M. (2011). Socioeconomic and ethnic differences in disease burden and disparities in physical function in older adults. *American Journal of Public Health*, *101*, 1322-1329.

Meadows, S. O. (2009). Family structure and fathers' well-being: Trajectories of mental health and self-rated health. *Journal of Health and Social Behavior*, *50*, 115-131.

Minkler, M., & Fuller-Thomson, E. (1999). The health of grandparents raising grandchildren: Results of a national study. *American Journal of Public Health, 89*(9), 1384-1389.

Musil, C. M. (2000). Health of grandmothers as caregivers: A ten-month follow-up. *Journal of Women & Aging*, *12*(1-2), 129-145.

Musil, C. M., & Ahmad, M. (2002). Health of grandmothers: A comparison by caregiver status. *Journal of Aging and Health*, *14*, 96-121. doi:10.1177/089826430201400106

Neely-Barnes, S. L., Graff, J. C., & Washington, G. (2010). The health-related quality of life of custodial grandparents. *Health & Social Work*, *35*, 87-97.

Park, H.-O. H. (2009). Factors associated with the psychological health of grandparents as primary caregivers: An analysis of gender differences. *Journal of Intergenerational Relationships*, *7*, 191-208. doi:10.1080/15350770902852393

Pearlin, L. I., Mullan, J. T., Semple, S. J., & Skaff, M. M. (1990). Caregiving and the stress process: An overview of concepts and their measures. *The Gerontologist*, *30*, 583-594.

Pearlin, L. I., Schieman, S., Fazio, E. M., & Meersman, S. C. (2005). Stress, health and the life course: Some conceptual perspectives. *Journal of Health and Social Behavior*, *46*, 205-219.

Pisinger, C., Hammer-Helmich, L., Andreasen, A., Jorgensen, T., & Glumer, C. (2012). Social disparities in children's exposure to second hand smoke at home: A repeated cross-sectional survey. *Environmental Health*, *11*, article 65.

Robinson, W. R., Utz, R. L., Keyes, K. M., Martin, C. L., & Yang, Y. (2013). Birth cohort effects on abdominal obesity in the United States: The silent generation, baby boomers and generation X. *International Journal of Obesity*, *37*, 1129-1134. doi:10.1038/ijo.2012.198

Ross, M., & Aday, L. (2006). Stress and coping in African American grandparents who are raising their grandchildren. *Journal of Family Issues*, *27*, 912-932.

Russell, R. (2004). Social networks among elderly men caregivers. *Journal of Men's Studies*, *13*, 121-142.

Sands, R. G., Goldberg-Glen, R., & Thornton, P. L. (2005). Factors associated with the positive well-being of grandparents caring for their grandchildren. *Journal of Gerontological Social Work*, *45*, 65-82. doi:10.1300/J083v45n04_05

Sheffer, C. E., Stitzer, M., Landes, R., Brackman, S. L., Munn, T., & Moore, P. (2012). Socioeconomic disparities in community-based treatment of tobacco dependence. *American Journal of Public Health*, *102*(3), e8-e16. doi:10.2105/ajph.2011.300519

Trivedi, R., Beaver, K., Bouldin, E. D., Eugenio, E., Zeliadt, S. B., Nelson, K., . . . Piette, J. D. (2014). Characteristics and well-being of informal caregivers: Results from a nationally-representative U.S. survey. *Chronic Illness*, *10*, 167-179. doi:10.1177/1742395313506947

U.S. Census Bureau. (2015). *Current population survey: Table AD-2—Parents with coresident children by living arrangement and age of child: 2007 to the present*. Washington, DC: Author. Retrieved from http://www.census.gov/hhes/families/data/adults.html

Vespa, J., Lewis, J. M., & Kreider, R. M. (2013, August). *America's families and living arrangements: 2012* (Current population reports, P20-570). Washington, DC: U.S. Census Bureau. Retrieved from http://www.census.gov/prod/2013pubs/p20-570.pdf

Wade, T. J., Veldhuizen, S., & Cairney, J. (2011). Prevalence of psychiatric disorder in lone fathers and mothers: Examining the intersection of gender and family structure on mental health. *Canadian Journal of Psychiatry*, *56*, 567-573.

Whitley, D. M., Kelley, S. J., Yorker, B. C., & Sipe, T. A. (2001). Grandmothers raising grandchildren: Are they at risk for health problems. *Health and Social Work, 26*(2), 105-114.

Whitley, D. M., Fuller-Thomson, E., & Brennenstuhl, S. (2015). Health characteristics of solo grandparent caregivers and single parents: A comparative profile using the Behavior Risk Factor Surveillance Survey. *Current Gerontology and Geriatric Research, 2015*, 1-10. doi:10.1155/2015/630717

Wu, C. F., Wang, M. S., & Eamon, M. K. (2014). Employment hardships and single mothers, self-rated health: Evidence from the Panel Study of Income Dynamics. *Social Work in Health Care*, *53*, 478-502.

Ziol-Guest, K. M., & Dunifon, R. E. (2014). Complex living arrangements and child health: Examining family structure linkages with children's health outcomes. *Family Relations*, *63*, 424-437.