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Parenting in poor health: Examining associations between parental health, prescription drug use, and child maltreatment

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ABSTRACT

Rationale: Child maltreatment and problematic parenting are related to negative outcomes for children. Poor parental health could be a risk factor for problematic parenting through several mechanisms: 1) inadequate emotional regulation and coping; 2) impairment of parental capacity; and, 3) impairment of the parent-child relationship.

Objective: This study examines relationships between self-rated parental health, prescription drug use, and a broad array of negative parenting outcomes.

Methods: A sample of general population parents of children aged ten and younger was recruited from 30 mid-sized cities in California (n = 681). Weighted mixed-effects negative binomial and logistic regression models were used to examine associations between poor parental health, prescription drug use and child maltreatment (physical abuse, supervisory neglect, and physical neglect), and problematic parenting (psychological aggression and corporal punishment).

Results: Parents in poor health used physical abuse, corporal punishment, and psychological aggression more frequently and had higher odds of supervisory neglect. Parents who were taking more prescription medications had higher odds of physical neglect. Exploratory analyses suggested that prescriptions for certain medical conditions both increased and decreased the risk of problematic parenting.

Conclusions: Poor health and prescription drug use are not uncommon and present largely under-recognized risk factors for a spectrum of adverse parenting outcomes. Our study provides additional evidence that parents in poor health are at heightened risk of negative parenting, and need targeted intervention supports to support family well-being.

1. Introduction

Each year, an estimated one out of every 109 children are victims of maltreatment in the United States (USDHHS, 2020). Child maltreatment is an umbrella term that refers to several types of abuse, including physical, sexual, or emotional abuse, and caretaker neglect. Victims of child maltreatment are more likely to experience poor physical and mental health (Affi et al., 2013; Negri, 2020; Norman et al., 2012; Springer et al., 2007), and face more economic insecurity in later life (Bunting et al., 2018). In addition, an even larger subset of children may experience problematic parenting. Problematic parenting, which includes common behaviors such as corporal punishment or psychological aggression, have been correlated with child maltreatment, and negative

outcomes for children (Gershoff, 2002; Gershoff and Grogan-Kaylor, 2016; King et al., 2018; Lee et al., 2014; Masud et al., 2019; Rodriguez, 2010). Although many children are impacted by these negative behaviors, it appears that some parents are at higher risk for propagating child maltreatment and problematic parenting than others.

A growing research literature has examined how characteristics of parents are associated with child maltreatment and problematic parenting. Identified factors include demographic characteristics such as age, income and education level, parental behaviors such as drug or alcohol use, personality traits such as impulsivity, and psychological symptoms such as depression (Freisthler and Gruenewald, 2013; Sidebotham et al., 2001; Walsh et al., 2002; Wolf, 2018). Although this literature is developing an emerging picture of adults at higher risk of

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committing maltreatment, it has paid little attention to how parental health might contribute to negative parenting behaviors.

Poor health is a risk factor for many adverse outcomes, including depression (Ambresin et al., 2014), suicide (Vie et al., 2019), and other causes of mortality (Stenholm et al., 2016). Parental health is related to child outcomes; children of parents with chronic pain exhibit externalizing and internalizing symptoms (Higgins et al., 2015). Poor health might also contribute to maltreatment or problematic parenting. Limited research supports this possibility, as self-reported poor health or having a health condition have been associated with neglect and physical abuse (Chiang-Jen et al., 2019; Slack et al., 2011; Wolf, 2018). Yet, this research has not examined a broader range of maltreatment and problematic parenting behaviors. Furthermore, studies have not investigated whether parent's use of prescription drugs for health conditions might relate to parenting behaviors. Although use of prescription drugs may be required for a variety of conditions, they also produce side effects that could impair a person's ability to parent effectively, leading them to adopt abusive or neglectful parenting practices. We extend the limited existing literature by examining relationships between self-rated parental health, prescription drug use, and a broad array of negative parenting outcomes.

1.1. Parental health and parenting

The World Health Organization defines health as a "state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 1948). This definition extends beyond a clinical conceptualization of health to include social context and other comprehensive factors. Accordingly, a large proportion of research literature examining health has relied on self-rated health (SRH) as a measure. Self-rated health has been extensively shown to predict morbidity and mortality (Idler and Benyamini, 1997; Latham and Peek, 2012; Schnittker and Bacak, 2014; Stenholm et al., 2016). In addition, research suggests that individuals' SRH determinations are comprehensive, and represent more than consideration of the presence of objective illness (Benyamini et al., 2000; Jylha, 2009). Thus, SRH can be seen, like the WHO health definition, as a holistic appraisal of well-being.

The prevalence of poor health in the US differs between states, with rates varying between 6.5 and 16.3% for adults aged 25–34 and increasing to 12.4–39.8% for adults between the ages of 45–54 (CDC, 2015). Studies examining parent samples have found that between 9.73 and 16.63% of caregivers reported having a health problem or self-rated poor health (Chiang-Jen et al., 2019; Slack et al., 2011). Poor parental health has been associated with several negative outcomes, including marriage or relationship dissolution (Percheski and Meyer, 2018), and psychosomatic symptoms among children (Kohler et al., 2017). A recent longitudinal study found that poor maternal health over time was related to child emotional and behavioral problems at age four (Gartland et al., 2019). Also, parents in poor health may be at risk of committing child maltreatment. Having a health condition was associated with a greater likelihood of both self-reported and child protective services involved neglect in some of the datasets examined (Slack et al., 2011). In another recent study, Chiang-Jen et al. (2019) found that poor SRH was related to higher odds of neglect, compared to both no maltreatment and physical or sexual abuse. These studies focused solely on neglect, whereas another study suggests that poor maternal SRH is associated with both physically aggressive and neglectful parenting (Wolf, 2018). Although this literature suggests that poor parental health is correlated with negative parenting, it has not examined a broader variety of parenting outcomes, including common behaviors that may not meet the threshold for maltreatment, such as psychological aggression and corporal punishment.

There has been very little theorizing about how poor health might impact parenting. The lack of theory in this area leaves many questions, including whether health has a direct effect on parenting or whether

parental health might indirectly effect parenting through other factors such as increased stress. We discuss several potential mechanisms for this association, including: 1) inadequate emotional regulation and coping; 2) impairment of parental capacity; and 3) impairment of the parent-child relationship.

Inadequate emotional regulation and coping. Experiencing poor health may impair the ability of parents to regulate their emotions, which in turn could lead to ineffective coping (Stanton et al., 2007). For example, stress and coping theory argues that individuals make cognitive appraisals when encountering stressful phenomena, including considering the potential benefits or harms, the availability of supportive resources, and how much control they have over the situation (Lazarus and Folkman, 1984). Parents in poor health may have several factors that influence their cognitive appraisals. For example, parents with a chronic illness or poor health may believe that they will not live to see their children as adults, or worry about how their children will cope if they are incapacitated or deceased. These concerns could add to the already significant stressors of dealing with chronic illness that can deplete emotional regulatory responses (Wierenga et al., 2017). The impact of chronic illness and resulting stress may have even greater implications for the well-being of younger parents. Research indicates that younger adults may already have greater health-related anxiety than older adults (Gerolimatos and Edelstein, 2012), and could experience enhanced cognitive stress due to the developmentally atypical onset of poor health. Mothers and fathers with health limitations have been shown to have higher levels of parenting stress (Turney and Hardie, 2017). These stressors could contribute to increased irritability with children and less tolerance for misbehavior, making parents more likely to use punitive parenting. Additionally, overwhelming emotional demands could lead to poor coping strategies such as avoidant coping. A qualitative study of women caregivers with chronic illness (most of whom were caring for dependent adults) found that the caregivers normalized and minimized their own illness in order to meet caregiving demands (Martinez-Marcos & De la Cuesta-Benjumea, 2013). Parents with poor health might similarly minimize their health concerns or not have the time or energy to effectively deal with them due to parenting demands, resulting in overwhelming of coping systems and potentially impacting parenting.

Impairment of parental capacity. Poor health could affect parents' abilities to perform family responsibilities (Percheski and Meyer, 2018). This inability could include ensuring that the home is safe and children's needs are provided for, as poor parental health has been associated with child hunger (Miller et al., 2008). Mothers with rheumatoid arthritis have reported difficulties with parenting activities, including carrying and caring for younger children outside of the home, doing household chores, and preparing meals for children (Katz et al., 2003). In addition, those who were more symptomatic (e.g. more pain and/or fatigue) had higher levels of parenting impairment. Other studies of mothers with chronic illness have found similar self-reported deficits in parenting due to poor health (Backman et al., 2007; Poole et al., 2011; Thorne, 2009). Although there are limited studies of children's experiences of poor parental health, one qualitative study found that parental chronic pain was seen by parents and children as leading to increased independence and self-care among children. Yet it was not universally seen as positive, as some children reported fear after being left alone at a young age (Evans and De Souza, 2008).

Impairment of parent-child relationship. Parents in poor health may not be able to engage in behaviors that nurture their relationship with their children. For example, mothers with poor self-rated health may read to children less often and report that their interactions with their children are inadequate (Kohler et al., 2017). In another study, mothers with rheumatoid arthritis reported limitations in nurturing parenting due to symptoms of their illness (Reisine et al., 1987). If parents in poor health are less able to provide adequate nurturing, it could negatively impact parent-child attachment. Children of mothers with chronic pain are more likely than peers to report insecure

attachment (Evans et al., 2007). In turn, parents who do not have secure emotional attachments with their children may commit maltreatment (Cyr and Alink, 2017).

1.2. Prescription drug use and parenting

Illicit drug use (i.e., use of both illegal drugs and non-medical prescription drug use) is thought to contribute to problematic parenting (Freisthler et al., 2015; Slack et al., 2011; Wolf, 2018). In addition, different types of illicit drugs are associated with specific forms of child maltreatment (Freisthler and Kepple, 2019). This linkage suggests that instead of a uniform effect, where all illicit drugs would similarly impact parenting, specific types of drugs might be associated with particular problematic parenting behaviors. Similarly, social information processing theory suggests that the specific physiological effects of drugs may affect parental attentiveness, decision-making, and responses to child behaviors (Crittenden, 1993; Kepple, 2018; Milner, 2000). Prescription drug use could similarly impact parenting: A recent study found that approximately 29% of parents use a prescription drug daily; this percentage increases with parental age (Salzman et al., 2019). Although side effects differ by drug, some prescription drugs have significant side effects including drowsiness, headache, and insomnia. For example, some beta-blockers (often taken for heart conditions or migraines), antihistamines, antidepressants, and opioid pain medications can cause fatigue (Church and Church, 2011; Kowalski-McGraw, Green-McKenzie, Pandalai and Schulte, 2018; Meister et al., 2016; Wiysonge et al., 2017). These side effects could contribute to parental incapacity in several ways. Parents experiencing drowsiness could be less watchful of their children resulting in injury or supervisory neglect, or less able to run errands to buy groceries, contributing to physical neglect. Other medications can cause sleep disruption. Individuals taking anti-depressants such as selective serotonin reuptake inhibitors (SSRIs) are at higher risk of falls, likely due to drowsiness or confusion from sleep deprivation (Coupland et al., 2018). Sleep deprivation in turn is related to negative parenting outcomes such as low emotional availability (Teti et al., 2016). As with illicit drugs, some medication classes commonly taken for specific health conditions might be more problematic than others for parenting behaviors. Prescription medication use could consequently have an additive effect on negative parenting, outside of poor parental health.

An additional possibility is that use of some prescription medications could improve parenting behaviors. For example, it is possible that prescription drugs for conditions such as attention deficit hyperactivity disorder (ADHD) could improve parent focus. A recent study found that parents treated with lisdexamfetamine for ADHD demonstrated fewer incidents of negative talk and more praising of their child than parents with ADHD who were receiving a placebo (Waxmonsky et al., 2014). Nonetheless, other studies of the same drug had more mixed results on parenting (Babinski et al., 2017). To our knowledge, there are no studies examining the impact of specific prescription drugs on parenting that compare parents taking medication to the general parent population.

Research on relationships between prescription drug use and parenting is very limited and primarily focuses on opioids. An ecological study found that areas in Florida with more prescriptions for opioids also had a higher rate of child removal by child welfare services, with roughly half citing parental drug abuse as a cause for removal (Quast et al., 2018). Other studies have focused on unintentional poisoning, finding that only a small percentage of parents who use prescription medications store them appropriately (Salzman et al., 2019) and that young children of mothers who are prescribed opioids or antidepressants are at higher risk of opioid overdose than children of mothers who are not prescribed these drugs (Finkelstein et al., 2017). Therefore, it remains unknown whether general parental prescription drug use is associated with child maltreatment or whether the use of drugs for any particular health condition is related to increased risk or protection.

1.3. Current study

This study expands the current literature by examining whether self-rated parental health is associated with child maltreatment (physical abuse and neglect) or problematic parenting (corporal punishment and psychological aggression) in a general population survey of parents. We hypothesize that poor parental health will be negatively associated with all parenting outcomes. We also investigate whether prescription drug use or prescription drug use for particular health conditions are associated with these outcomes. Yet, due to lack of previous research in this area as well as lack of precision in our prescription drug measures, we do not have specific hypotheses for this exploratory analysis.

2. Methods

2.1. Study design and sampling

We obtained data from the Maladaptive Parenting, Activity Spaces, Alcohol, and the Substance Use Environment Study, which was a cross-sectional web and telephone survey sampling from 30 mid-sized (between 50,000 and 500,000 population) cities in California. Cities were sampled from the California 50 Cities Survey, a list of 50 noncontiguous mid-sized cities (Gruenewald et al., 2014). From this list, 17 cities were excluded due to ongoing community-based interventions or previous difficulty obtaining an adequate sample in the area. A final 30 cities were randomly selected from the remaining list.

In order to select households that were likely to include parents, lists of contact information were obtained from credit card companies, magazine subscriptions, and other sources utilized by parents. Additionally, we placed city-specific online advertisements on craigslist.com; interested individuals then filled out a screener submitting their contact information. Screening for participation in the study was conducted by telephone, with English or Spanish speaking parents aged 18 or older who lived with a child aged 10 or younger at least 50% of the time invited to participate in the study. The study included two waves of data collection: 1) Wave 1, which was administered both online and via telephone between 2014 and 2015; and 2) Wave 2, which was administered online only between 2016 and 2017. As the parental health questions were not asked in Wave 1, our current analysis uses Wave 2 of the survey data (N = 853). The response rate for Wave 1 of the study was 42%, and we retained 53.3% for Wave 2, which occurred two years later. Respondents were paid \$35 at Wave 1 and \$40 for Wave 2. The Wave 1 survey took, on average, 30 min to complete; Wave 2 took approximately 20 min. All study procedures were approved by the Institutional Review Board at the Pacific Institute for Research and Evaluation.

2.2. Measures

Dependent measures. The Parent-Child Conflict Tactics Scale (CTS-PC) (Straus et al., 1998) was used to measure problematic parenting (i.e., psychological aggression and corporal punishment) and child maltreatment (i.e., physical abuse, physical neglect, and supervisory neglect). The CTS-PC asks parents to self-report a range of parenting behaviors in the past 12 months in regards to a specific focal child (e.g. the child under age 11 with the most recent birthday). Although social desirability bias is a concern, the CTS-PC demonstrates good specificity (Bennett et al., 2006). Each dependent variable represents a sub-scale of the CTS-PC, which measures the frequency of specific parenting behaviors in the past 12 months. For all CTS-PC questions, the answer options included: never; 1–5 times; 6–10 times; and more than 10 times. Based on recommendations in the literature (Straus et al., 1998), median values were selected for each category. All dependent variables were measured at Wave 2.

Physical abuse. The physical abuse sub-scale was comprised of five items asking the frequency that parents used behaviors such as hitting, kicking, slapping, knocking down, or shaking their child (if under age

two). The Cronbach's α for the scale was 0.427, which is not unexpected given that parents may use only one violent tactic with children and not necessarily use them all (Straus et al., 1998).

Corporal punishment. Corporal punishment was measured by five items asking how often parents had spanked, hit on the bottom with an object, pinched, slapped, or shook (if older than age two). The Cronbach's was 0.499.

Psychological aggression. The psychological aggression sub-scale included 4 items such as how often parents had threatened to spank, swore, called their children names, and made their children feel guilty and had an internal reliability (α) score of 0.641 in our sample.

Supervisory neglect. The supervisory neglect scale was composed of two questions, including how often a parent was not sure that there was someone to watch or check on their child and how often they had to leave their child in a place that they were not sure was safe. The Cronbach's was 0.739; Due to low frequencies of supervisory neglect, responses were dichotomized to 1 = any supervisory neglect and 0 = no supervisory neglect.

Physical neglect. Two items asking how often a parent had not been able to take their child to the doctor when they were sick and how often they had not had enough food in the house for the child were used to measure physical neglect ($\alpha = 0.770$). As any physical neglect was rare, we dichotomized this measure by coding no physical neglect as zero and any physical neglect as 1.

2.3. Independent measures

Self-rated health. Parents were asked to rate their own health compared to other people their age, with responses including: very poor; poor; fair; good; very good; and excellent, with higher scores indicating better health. SRH was measured at Wave 2.

Prescription drugs. Parents were asked if they had taken prescription medication for a range of health issues in the past 12 months. The list of health conditions selected included common health problems experienced in the United States, including hypertension, diabetes, high cholesterol, heart conditions, lung problems, ulcers, arthritis, hormones, birth control, headaches, depression or anxiety, pain, sleep problems, and ADD or ADHD. Parents were also asked the number of prescription drugs that they were taken. All prescription drug questions were measured at Wave 1.

Other covariates. We controlled for a variety of demographic factors for both the focal child (i.e., age, gender) and parent (i.e., age, gender, number of children under age 10, race/ethnicity, relationship status, total household income, and low education). We coded race/ethnicity as non-Hispanic White vs non-White or Hispanic. Relationship status was coded as married or in a marriage like relationship vs. separated, single, or divorced. Twelve-month total income was measured; responses categories were less than \$20,000 a year, \$20,000 to less than \$40,000, \$40,000 to less than \$60,000, \$60,000 to less than \$80,000, \$80,000 to less than \$100,000, \$100,000 to less than \$120,000, \$120,000 to less than \$140,000, and more than \$140,000. Education was coded as having a high school degree equivalent or less vs. greater than a high school degree equivalent. All demographic variables were measured at Wave 1. We also measured drinking frequency, classifying parents as non-drinkers (i.e. no drinks in the past 12 months), less than monthly drinkers, or monthly drinkers (i.e. at least one drink per month in last 12 months). We used monthly as our highest category of drinking as parents tend to drink less than non-parents (Cho and Crittenden, 2006; Merline, O' Malley, Schulenberg, Bachman and Johnston, 2004; Paradis et al., 1999). Drinking frequency was measured at Wave 2.

Parental stress. Parental stress was measured via two items asking how often parents felt stressed or angry when their children misbehaved, with response options including: never; sometimes; often; and always. These answers were summed, with higher scores indicating greater stress; the Cronbach's score was 0.718.

Adverse childhood experiences. The number of adverse childhood experiences experienced by parents during their own childhood was assessed by 11 items asking about experiences, including feeling that family did not support each other, family did not love you, not having enough to eat, living with someone with mental illness, a drug problem, or whom was incarcerated, having parents separated or divorced, witnessing interpersonal violence in the home, and being sworn at or insulted, hit, or sexually molested (Felitti et al., 1998). The question options were yes and no. Answers were summed to create an ACES score, with higher scores indicating more ACEs; the Cronbach's was 0.775.

Family and Friend Support. Family and friend support was assessed by ten items each measuring the quality of social support from these sources as well as the frequency of contact, adapted from the National Survey of Midlife Development in the United States (Radler, 2014). Responses were summed to create a scale with higher values indicating greater support; the Cronbach's was 0.851 for both family and friend support.

2.4. Data analysis

Missing analysis. Approximately twenty percent of individuals in the dataset had missing values on one or more variables. The most frequently missing variables were income, adverse childhood experiences and the five dependent variables, which are all stigmatized behaviors and thus may reflect social desirability bias (Kepple et al., 2014). We used a mixed-effects logistic regression model to examine which variables were associated with having missing data. Parents who used physical abuse more frequently [$OR = 1.10$, 95% $CI = 1.03, 1.17$, $p < .01$] had higher odds of missing data while parents in better health [$OR = 0.56$, 95% $CI = 0.39, 0.82$, $p < .01$] and male parents [$OR = 0.32$, 95% $CI = 0.12, 0.86$, $p < .05$] had lower odds of having missing data. We used complete case analysis for these data ($n = 681$). Individuals were nested within cities, and to help control for bias due to dropout between Waves 1 and 2 (Schmidt and Woll, 2017), all analyses were weighted to generalize to mid-sized cities in California.

Attrition Analysis. We conducted an attrition analysis on the entire weighted sample to assess whether statistically significant differences were present in those who were retained in Wave 2 compared to those who only responded to the Wave 1 survey. We found no significant differences in the child characteristics of age or biological sex or parent biological sex. Yet, older parents, those who were in a relationship, and non-Hispanic Whites were more likely to participate in the Wave 2 survey. Parents who report higher incomes ($> \$20,000$) and more education ($>$ high school graduate) were also more likely to be retained from Wave 1 to Wave 2 (Table 1).

Analysis procedures. To begin our analysis, we calculated the descriptives of our study variables using weighted proportions or means. We then used mixed-effects weighted negative binomial regression or logistic regression models to examine the effects of parental health, the number of prescription drugs, use of any prescription drugs, and specific types of prescription drugs on five outcomes: physical abuse; corporal punishment; psychological aggression; supervisory neglect; and physical neglect. Mixed-effects models are able to control for the intraclass correlation that results from multi-level data, in which participants are nested in a higher level unit (e.g. cities). Negative binomial regression models are used in situations where count data (e.g. frequency of physical abuse, corporal punishment, or psychological aggression) are over-dispersed, whereby the variance is larger than the mean. We used likelihood ratio tests of the over-dispersion parameter alpha to determine the presence of over-dispersion. We exponentiated the negative binomial regression coefficients to obtain incidence rate ratios (IRRs) and associated standard errors (SE). The IRR is a difference measure of incidence rates. For categorical groups, the IRR will provide the difference in frequency of use of a problematic parenting behavior in comparison to a reference group. For continuous variables, the IRR represents the difference in frequency of use of a problematic parenting

Table 1
Sample attrition between Wave 1 (N = 746) and Wave 2 (N = 853) surveys.

	Wave 1	Wave 2
	Weighted %/Mean (SE)	Weighted %/Mean (SE)
<i>Focal Child</i>		
Age	6.64 (0.10)	6.74 (0.94)
<i>Biological Sex</i>		
Male	53.2	53.7
Female	46.8	46.3
<i>Parents</i>		
<i>Biological Sex</i>		
Male	53.2	48.6
Female	46.8	51.4
Age ***	39.41 (0.39)	41.54 (0.31)
<i>Marital Status **</i>		
Single	29.2	23.0
In a relationship	70.8	77.0
<i>Race/Ethnicity ***</i>		
Non-Hispanic White	33.6	51.2
Non-White and/or Hispanic	66.4	48.8
<i>Income Categories ***</i>		
Less than \$20,000	19.2	12.5
More than \$20,000	80.8	87.5
<i>Education Level ***</i>		
Higher than HS graduate	72.6	81.3
HS graduate or less	27.2	18.7

p < .01; *p < .001.

behavior for each one-unit increase in the independent variable.

We ran a series of models. First, we independently regressed each of the five dependent variables on parent and child demographics, family support, friend support, ACEs, parental stress, and SRH. We then ran the same models twice, 1) adding whether or not they were taking a prescription drug, and then 2), the number of prescriptions they were taking. Although there was a moderate correlation between self-rated health and use of prescription drugs ($\rho = -0.164, p < .001$), we retained self-rated health in models to assess the effect of prescriptions outside of effects of self-rated health. Finally, we ran models that regressed the five dependent variables on all demographic and control variables, SRH, the number of prescriptions used, and each of the types of prescription medication.

3. Results

The weighted proportions and means describing our sample are displayed in Table 2. Our sample was balanced between males (49.83%) and females (50.16%) and between Non-Hispanic White (51.71%) and Non-White and/or Hispanic parents (49.29%). The average age of parents was approximately 40.91 years ($SD = 0.41$), and the majority were in a relationship (83.69%), earning an income of greater than \$40,000 (59.82%), and had a degree higher than a high school graduate (81.82%). Approximately 53% of the sample drank alcohol at least monthly, and the majority were in good health or better (83%). Slightly more than half had taken a prescription drug in the past year (59.40%), and the average number of prescriptions taken was 1.31 ($SD = 0.08$).

3.1. Parental health

The results of the weighted mixed effects hierarchical negative binomial or logistic regression models examining the relationship between parental self-rated health and parenting, controlling for other factors, are available in Table 3. Parental self-rated health was negatively associated with frequency of physical abuse ($IRR = 0.61, SE = 0.14, p < .05$), corporal punishment ($IRR = 0.69, SE = 0.08, p < .01$), psychological aggression ($IRR = 0.86, SE = 0.06, p < .05$), and any supervisory neglect ($OR = 0.80, 95\% CI = 0.6, 0.99, p < .05$). Parents who reported better health reported using corporal punishment or psychological aggression less frequently and were less likely to report

Table 2
Sample characteristics of parent respondents and focal children (n = 681).

	Weighted %/Mean (SD)
<i>Focal Child</i>	
Age	6.73 (.117)
<i>Biological Sex</i>	
Male	54.05
Female	45.95
<i>Parents</i>	
<i>Biological Sex</i>	
Male	48.16
Female	51.83
Age	41.05 (0.39)
Number of children ≤ 10	1.68 (0.04)
<i>Relationship Status</i>	
Single	17.34
In a relationship	82.66
<i>Race/Ethnicity</i>	
Non-Hispanic White	50.10
Non-White and/or Hispanic	49.90
<i>Income Categories</i>	
Less than \$20,000	9.78
More than \$20,000	90.21
<i>Education Level</i>	
Higher than HS graduate	82.63
HS graduate or less	17.37
<i>Drinking Frequency</i>	
No drinking past year	23.48
Less than monthly	23.56
Monthly or more frequent	52.94
Parental Stress	3.81 (0.05)
Friend Support	20.11 (0.28)
Family Support	19.27 (0.26)
Adverse Childhood Experiences	2.08 (0.10)
<i>Self-Rated Health</i>	
Very poor	.05
Poor	2.63
Fair	13.75
Good	36.81
Very good	32.12
Excellent	14.13
<i>Any Prescription Drug Use</i>	
No	40.29
Yes	59.71
Average Number of Prescriptions	1.35 (0.07)
Physical Abuse Frequency	3.70
Corporal Punishment Frequency	2.89 (0.40)
Psychological Aggression Frequency	6.18 (0.56)
<i>Supervisory Neglect</i>	
No	92.85
Yes	7.12
<i>Physical Neglect</i>	
No	84.65
Yes	15.34

supervisory neglect compared to parents who reported lower levels of health.

While controlling for parental SRH, parental stress was independently associated with frequency of physical abuse ($IRR = 3.01, SE = 0.73, p < .01$), corporal punishment ($IRR = 2.10, SE = 0.27, p < .01$), and psychological aggression ($IRR = 1.84, SE = 0.12, p < .01$). There were no relationships between parental stress and odds of supervisory or physical neglect.

3.2. Use of any prescription drugs

Table 4 displays the results of models examining whether taking any prescription drugs in the past year is associated with parenting behaviors, controlling for self-rated health. There was no association between using any prescription drugs and any of the outcome variables.

3.3. Number of prescription drugs

We also examined relationships between the number of prescription

Table 3
Mixed-effects weighted binomial regression or logistic regression models examining health and parenting behaviors (N = 681).

	Physical Abuse	Corporal Punishment	Psych Aggression	Supervisory Neglect	Physical Neglect
	<i>IRR (SE)</i>	<i>IRR (SE)</i>	<i>IRR(SE)</i>	<i>OR (SE)</i>	<i>OR (SE)</i>
Constant	0.04 (0.10)	1.05 (1.23)	0.15 (0.12)*	0.05 (0.09)	0.06 (0.09)
Child variables					
Child Biological sex (Ref. Female)					
Male	6.99 (3.37)**	1.27 (0.24)	1.04 (0.12)	0.78 (0.31)	0.70 (0.17)
Child Age	1.14 (0.09)	0.81 (0.03)**	1.01 (0.03)	1.09 (0.07)	0.96 (0.06)
Parent variables					
Age	1.00 (0.04)	1.01 (0.02)	1.01 (0.01)	0.99 (0.02)	1.03 (0.02)
Number of children	1.37 (0.40)	1.22 (0.15)	1.22 (0.11)*	0.93 (0.23)	0.78 (0.13)
Biological Sex (Ref. Female)					
Male	0.70 (0.43)	0.82 (0.25)	1.05 (0.16)	1.10 (0.52)	0.71 (0.23)
Race/Ethnicity (Ref. Non-White)					
White	0.97 (0.47)	0.92 (0.24)	0.93 (0.14)	0.76 (0.43)	0.59 (0.21)
Income	0.71 (0.10)*	0.99 (0.06)	1.05 (0.04)	0.92 (0.09)	0.89 (0.06)*
Relationship Status (Ref. No relationship)					
Coupled	0.86 (0.40)	1.16 (0.33)	1.35 (0.24)	1.21 (0.76)	1.64 (0.55)
Low Education	1.72 (0.89)	0.51 (0.17)*	1.07 (0.20)	0.31 (0.23)	0.76 (0.30)
Adverse Childhood Experiences	1.16 (0.10)	1.10 (0.06)	1.17 (0.04)**	1.12 (0.10)	1.11 (0.07)
Family Support	0.99 (0.04)	0.99 (0.03)	0.98 (0.01)*	1.03 (0.04)	0.98 (0.03)
Friend Support	0.93 (0.03)*	1.00 (0.02)	0.98 (0.01)*	0.98 (0.04)	1.00 (0.02)
Drinking Frequency	0.81 (0.28)	0.95 (0.13)	1.03 (0.01)	1.01 (0.30)	1.22 (0.24)
Parental Stress	3.01 (0.73)**	2.10 (0.27)**	1.84 (0.27)**	1.33 (0.28)	1.16 (0.18)
Self-Rated Health	0.61 (0.14)*	0.69 (0.08)**	0.86 (0.06)*	0.80 (0.09)*	1.19 (0.14)

Note. Standard errors (SE) in parentheses; IRR= Incidence rate ratios, OR= Odds ratios; *p < .05, **p < .01.

Table 4
Mixed-effects weighted binomial regression or logistic regression models examining whether use any prescription drugs and parenting behaviors (n = 681).

	Physical Abuse	Corporal Punishment	Psych Aggression	Supervisory Neglect	Physical Neglect
	<i>IRR (SE)</i>	<i>IRR (SE)</i>	<i>IRR (SE)</i>	<i>OR (SE)</i>	<i>OR (SE)</i>
Constant	0.02 (0.05)	0.73 (0.84)	0.12 (0.09)**	0.04 (0.08)	0.07 (0.12)
Child variables					
Child Biological sex (Ref. Female)					
Male	6.55 (3.33)**	1.31 (0.26)	1.05 (0.12)	0.78 (0.30)	0.69 (0.15)
Child Age	1.11 (0.09)	0.81 (0.03)**	1.01 (0.03)	1.09 (0.07)	0.97 (0.05)
Parent variables					
Age	1.00 (0.04)	1.01 (0.02)	1.01 (0.01)	0.99 (0.02)	1.03 (0.02)
Number of children	1.28 (0.36)	1.24 (0.16)	1.23 (0.11)*	0.93 (0.22)	0.77 (0.13)
Biological Sex (Ref. Female)					
Male	0.62 (0.41)	0.83 (0.25)	1.07 (0.15)	1.11 (0.53)	0.74 (0.23)
Race/Ethnicity (Ref. Non-White)					
White	1.11 (0.58)	0.93 (0.24)	0.94 (0.14)	0.76 (0.42)	0.62 (0.22)
Income	0.73 (0.10)*	0.99 (0.06)	1.04 (0.04)	0.91 (0.09)	0.86 (0.06)*
Relationship Status (Ref. No relationship)					
Coupled	0.62 (0.34)	1.14 (0.33)	1.33 (0.24)	1.21 (0.77)	1.64 (0.55)
Low Education	1.63 (0.84)	0.52 (0.17)*	1.12 (0.21)	0.32 (0.23)	0.75 (0.30)
Adverse Childhood Experiences	1.13 (0.10)	1.08 (0.06)	1.16 (0.04)**	1.11 (0.09)	1.12 (0.07)
Family Support	0.98 (0.04)	0.99 (0.03)	0.98 (0.01)*	1.03 (0.03)	0.98 (0.03)
Friend Support	0.94 (0.03)	1.00 (0.02)	1.03 (0.01)*	0.98 (0.04)	1.00 (0.02)
Drinking Frequency	0.94 (0.31)	0.95 (0.13)	1.11 (0.10)	1.01 (0.30)	1.22 (0.24)
Parental Stress	3.06 (0.70)**	2.09 (0.27)**	1.85 (0.12)**	1.33 (0.28)	1.16 (0.18)
Self-Rated Health	0.65 (0.14)*	0.72 (0.08)**	0.87 (0.06)*	0.81 (0.10)	1.16 (0.14)
Use Any Prescription Drugs	2.09 (0.81)	1.31 (0.23)	1.19 (0.13)	1.13 (0.45)	0.85 (0.23)

Note. Standard errors (SE) in parentheses; IRR= Incidence rate ratios, OR= Odds ratios; *p < .05, **p < .01.

drugs used and parenting behaviors (Table 5). Parents who used higher numbers of prescription drugs had increased odds of physical neglect (OR = 1.15, 95% CI = 1.00,1.31, p < .05) than those who used lower amounts of prescription drugs.

3.4. Prescription drug use by medical condition

We additionally conducted exploratory analyses to examine whether the use of prescription drugs for common medical conditions was related to parenting behaviors. In each model, we examined one specific prescription drug type and controlled for the total number of prescriptions and self-rated health (in addition to the same individual and

demographic variables present in previous models; tables available upon request).

There were no relationships between taking medication for hypertension, diabetes, high cholesterol, birth control, pain, or ADD/ADHD and any of the outcome variables. Furthermore, there were no relationships between any of the prescription drug types and supervisory neglect. Some use of prescription drugs for particular conditions was associated with less frequent or lower odds of maltreatment or problematic parenting. Those who were taking a medication for a heart condition (OR = 0.07, 95% CI = 0.01, 0.61, p < .05) or headaches (OR = 0.40, 95% CI = 0.23, 0.72, p < .01) had lower odds of physical neglect than those who did not use those types of medications. In addition, those

Table 5
Mixed-effects weighted binomial regression or logistic regression models examining number of prescription drugs and parenting behaviors ($N = 681$).

	Physical Abuse	Corporal Punishment	Psych Aggression	Supervisory Neglect	Physical Neglect
	<i>IRR (SE)</i>	<i>IRR (SE)</i>	<i>IRR(SE)</i>	<i>OR (SE)</i>	<i>OR (SE)</i>
Constant	0.04 (0.01)	1.13 (1.34)	0.13 (.10)**	0.03 (0.05)	0.04 (0.07)*
Child variables					
Child Biological sex (Ref. Female)					
Male	7.26 (3.47)**	1.26 (0.24)	1.05 (0.12)	0.77 (0.29)	0.69 (0.16)
Child Age	1.12 (0.09)	0.81 (0.03)**	1.01 (0.03)	1.10 (0.06)	0.94 (0.05)
Parent variables					
Age	0.99 (0.04)	1.01 (0.02)	1.01 (0.09)	0.98 (0.02)	1.02 (0.02)
Number of children	1.35 (0.41)	1.22 (0.15)	1.23 (0.11)*	0.96 (0.20)	0.77 (0.13)
Biological Sex (Ref. Female)					
Male	0.62 (0.38)	0.81 (0.25)	1.05 (0.15)	1.14 (0.54)	0.77 (0.24)
Race/Ethnicity (Ref. Non-White)					
White	1.06 (0.52)	0.92 (0.24)	0.94 (0.14)	0.82 (0.42)	0.65 (0.21)
Income	0.72 (0.10)*	0.99 (0.06)	1.05 (0.04)	0.92 (0.09)	0.86 (0.06)*
Relationship Status (Ref. No relationship)					
Coupled	0.78 (0.39)	1.16 (0.32)	1.33 (0.25)	1.22 (0.75)	1.61 (0.57)
Low Education	1.76 (0.89)	0.51 (0.16)*	1.11 (0.21)	0.34 (0.23)	0.79 (0.31)
Adverse Childhood Experiences	1.13 (0.09)	1.10 (0.06)	1.15 (0.04)**	1.08 (0.07)	1.09 (0.07)
Family Support	0.98 (0.04)	0.99 (0.03)	0.98 (0.10)*	1.03 (0.03)	0.98 (0.03)
Friend Support	0.93 (0.03)	1.00 (0.02)	1.03 (0.01)*	0.99 (0.04)	1.00 (.016)
Drinking Frequency	0.88 (0.30)	0.94 (0.13)	1.10 (0.10)	0.98 (0.26)	1.20 (0.23)
Parental Stress	2.94 (0.68)**	2.10 (0.27)**	1.85 (0.12)**	1.33 (0.27)	1.16 (0.18)
Self-Rated Health	0.64 (0.15)	0.68 (0.08)**	0.88 (0.06)	0.92 (0.13)	1.28 (0.17)
Number of Prescription Drugs	1.19 (0.22)	0.97 (0.08)	1.06 (0.05)	1.26 (0.23)	1.15 (0.08)*

Note. Standard errors (SE) in parentheses; IRR= Incidence rate ratios, OR= Odds ratios; * $p < .05$, ** $p < .01$.

who had used a prescription medication for lung problems ($IRR = 0.04$, $SE = 0.05$, $p < .05$) or ulcers ($IRR = 0.00$, $SE = 0.00$, $p < .01$) used physical abuse less frequently than those who did not use a medication for lung problems or ulcers.

In contrast, some other types of medications were associated with greater risk. Parents who had a prescription for arthritis ($IRR = 65.54$, $SE = 94.77$, $p < .05$) or hormones ($IRR = 190.71$, $SE = 255.13.38$, $p < .001$) in the past year used physical abuse more frequently than those who did not take those types of medications, whereas those who took a medication for depression or anxiety had higher odds of physical neglect ($OR = 3.36$, 95% CI , 1.95, 5.77, $p < .001$) than those who did not take a prescription medication for depression or anxiety.

Finally, some types of medications had both positive and negative relationships with parenting outcomes. Those who took a medication for sleep problems had higher odds of physical neglect ($OR = 3.19$, 95% $CI = 1.50$, 6.77, $p < .01$) than those who did not take a sleep medication, but used psychological aggression ($IRR = 0.41$, $SE = 0.10$, $p < .001$), corporal punishment ($IRR = 0.27$, $SE = 0.11$, $p < .01$), and physical abuse less frequently ($IRR = 0.00$, $SE = 0.00$, $p < .001$) than those who did not take sleep medications.

4. Discussion

We examined parental self-rated health in relation to various parenting outcomes, including abusive behaviors (i.e., physical abuse, supervisory or physical neglect) and problematic parenting (i.e., psychological aggression and corporal punishment). We also investigated whether the use of prescription drugs or the number of prescription drugs used are related to poor parenting, above and beyond any effects of self-rated health. Finally, we conducted exploratory analyses to investigate whether using a prescription drug in the past 12 months for common health problems was related to parenting behaviors. Overall, our results suggest that poor parental self-rated health is a little-noted risk factor for several types of abusive and problematic parenting, and that licit prescription drug use is also associated with some negative parenting outcomes. Given the prevalence of both poorer health and prescription drug use among parents, these results suggest that a significant proportion of parents and children dealing with parental health conditions may need identification, intervention, and support.

4.1. Parental health and parenting

We identified three potential mechanisms whereby poor parental self-rated health could contribute to abusive or problematic parenting: 1) inadequate emotional regulation and coping; 2) impairment of parental capacity; and, 3) impairment of the parent-child relationship. Unfortunately, we are unable to directly test these mechanisms in the current study. Nonetheless, our findings suggest that relationships between parenting and poor parental self-rated health are present, above and beyond the effects of a robust set of control variables (including parental stress). Further longitudinal research should use structural equation modeling or other techniques to test our model and investigate these potential mechanisms.

Similar to previous studies (Chiang-Jen et al., 2019; Slack et al., 2011; Wolf, 2018), we found that poor parental self-rated health was associated with neglect (see Table 3). Unlike these studies, we examined physical and supervisory neglect separately, finding that poor parental self-rated health was associated with supervisory neglect, but not physical neglect. One of the ways that poor health can impact parenting is through impairment of parental capacity. Poor parental self-rated health may contribute to supervisory neglect if parents are too ill or fatigued to supervise their children properly. Like previous research (Wolf, 2018), we also found a relationship between poor parental self-rated health and physical abuse. Although we are uncertain of the mechanism for this relationship, it could be that poor health impairs coping skills, leading to increased aggression when parents are upset or frustrated.

Our findings are unique in that they also examine the relationship of parental self-rated health to problematic parenting behaviors. We found that poor parental self-rated health was associated with more frequent use of both corporal punishment and psychological aggression. Although our models controlled for stress specific to parenting, they were not able to control for generalized stress and coping. Thus, it is possible the relationships between poor parental health and problematic parenting are mediated by the increased stress due to poor health. Additionally, poor parental health could impede the nourishing of parent-child relations, possibly leading to less empathy for children, insecure attachment, and increased use of problematic parenting. Further research will be needed to examine the specific mechanisms that

shape these associations.

That poor self-rated health is associated with negative parenting suggests a significant segment of the population may be in need of additional supports. It is also unknown whether medical professionals are aware of whether their patients are parents, and that their declining or poor health might increase their risk of negative parenting. There are several points of intervention supports that could be helpful. Medical intake assessments could specifically ask questions about parenting, including the extent of caregiving responsibilities and sources of informal support. Parents diagnosed with illnesses could be counseled by social workers or other behavioral health providers or provided with literature that illuminates the potential increased risk for the use of negative parenting. Child welfare workers could assess parental health as a risk factor to be mitigated through resources and case planning. Finally, existing programs such as health condition-specific support groups could be adapted to include resources and information about positive parenting.

While our findings suggest that parents with poorer self-rated health may be at risk for abusive or problematic parenting, we acknowledge that individual health conditions are heavily influenced by social determinants of health, including the ecological conditions where people live, work, and play that impact health and well-being outcomes ([Centers for Disease Control and Prevention \[CDC\], 2018](#)). Economic instability, poor education, lack of social cohesion, lack of access to health care, housing instability, availability of food and quality water, access to transportation, and neighborhood crime are all social determinants that can result in negative health outcomes ([Healthy People, 2020](#)). These ecological risk factors for health also contribute to child maltreatment, with poverty especially contributing to child maltreatment ([Lanier et al., 2014](#)). It is important to recognize that these neighborhood, social and economic risks can create an environment where residents are at higher risk for negative outcomes and poor health, including children.

4.2. Prescription drug use and parenting

The relationship between licit prescription drug use and problematic or abusive parenting behaviors has been previously unknown. Our study provides the first known investigation and suggests that general prescription drug use is related to some types of parenting, even when controlling for health status. Specifically, we found that using more prescription drugs was associated with increased odds of physical neglect (see [Table 5](#)). It could be that prescription drugs, similar to illicit drugs, impair parenting as hypothesized by social information processing theory ([Crittenden, 1993](#); [Kepple, 2018](#); [Milner, 2000](#)). Parents using multiple medications could be unable to meet the basic needs of children. Our exploratory analyses also suggest that prescriptions for certain medical conditions could increase (or decrease) risk. For example, although medications for several conditions were related to lower risk of the parenting outcomes (i.e. heart condition, headaches, lung problems), parents who were taking medication for arthritis or hormones (non-birth control) used physical abuse more frequently than those who were not. In addition, those who took a medication for depression or anxiety had higher odds of physical neglect than those who did not. It could be either the physiological effects of the prescription medications or the symptoms of the illness itself that influence this association. This pattern could be particularly the case for anxiety and depression medication, as those conditions have been associated with neglect ([Lee et al., 2012](#)).

Taken together, our findings are worrisome given that many parents use prescription drugs and may be unaware of the potential side effects of such medications. For example, a study examining direct to consumer advertising for medications in parenting magazines found that information about side effects was included only slightly more than 50% of the time ([Mongiovi et al., 2017](#)). Pharmacies could be a potential intervention point for parents, as pharmacists could ask individuals picking up prescriptions about parenting responsibilities and provide

information and resources during their consultations. Yet, much remains to be known about prescription drugs and parenting. For example, our questions relied on self-report data, which has been found to be accurate amongst parents for daily or regular medications but may be less so for occasional use medications ([Cohen et al., 2018](#)). Moreover, there may be complicated relationships between various risk factors for negative parenting, as having experienced more childhood ACEs is related to greater prescription drug use ([Anda et al., 2008](#)).

In addition, it is possible that the prescription drug variables are proxies for other unmeasured concepts, such as medical insurance or having a regular source of care. Although self-rated health has been found to be a holistic and valid self-appraisal ([Schnittker and Bacak, 2014](#); [Stenholm et al., 2016](#)), it is not a clinical measure, and thus the effects of prescription drug use could be markers for the presence or absence of clinical disease. Finally, our questions regarding the types of medication used are very broad, as drugs taken for the same general ailment (e.g. a heart condition) could differ notably in their physiological effects. As a result, these exploratory analyses should be viewed as a first step in research examining this potentially impactful issue.

4.3. Other predictors

Our findings are similar to previous research in that parental stress was predictive of several of our outcome variables ([Guterman et al., 2009](#); [Mikolajczak et al., 2018](#)). Adverse childhood experiences were positively related to physical abuse and psychological aggression, as noted in other literature ([Assink et al., 2018](#)). Similar to other studies, we found that parents with higher incomes used physical abuse less frequently and had lower odds of physical neglect ([Sedlak et al., 2010](#)). Although girl children are more likely to experience any kind of abuse ([USDHHS, 2020](#)), we found parents reporting about a male focal child used physical abuse more frequently than those reporting about a female child. Unlike other studies, we did not find that parental gender was associated with any of the parenting outcomes ([Pelton, 2015](#); [Sedlak et al., 2010](#)). Differences between our findings and previous literature could potentially be due to limitations in our sample, such as attrition between Waves 1 and 2. Nonetheless, it may be that our robust set of independent variables—which included friend and family supports, ACEs, parental stress and self-rated health—revealed that factors such as parental stress and parental self-report health are more important predictors of these parenting outcomes. Further work should be done in this area, including more in-depth analyses of how health and stress impact parenting.

4.4. Study limitations

Our study provides an initial examination of parental health, prescription drug use, and parenting in a general population sample, but has several limitations. Our measures are all self-reported, which can be vulnerable to bias, particularly for stigmatized behaviors. We cannot assess causality as we only use data available in Wave 2, making this study cross-sectional. To help reduce this bias, a web survey was used as individuals did not have to report answers to a live person. However we did have a notable proportion of missing data (approximately 20%), and due to missing values on our dependent variables we may be under-reporting incidents of problematic parenting and child maltreatment. We may be underestimating the relationship between poor self-rated health and our outcome variables as parents in poor health were more likely to have missing data. In addition, our analysis does not model measurement error, and our results may consequently be biased. Given the number of outcome variables we assess in this study, we could be overestimating some of the relationships due to concerns with conducting multiple comparisons. Future work should address the issue of multiple comparisons and seek to identify causal mechanisms that might be unique to each outcome measure.

Our sample may not be fully generalizable to other populations. On

par with increasingly declining telephone survey response rates, our response rate for the original study was 42%, and our retention rate was 53.3%, which may limit generalizability. Our attrition analysis suggests that our Wave 2 sample is more likely to be White, older, and wealthier than our Wave 1 sample, which could bias our results. However, given that some types of neglect are more likely to occur among lower-income families, our results could underestimate the actual risk of poor health and prescription drug use on parenting (Pelton, 2015). Our results may also fail to capture child maltreatment that is associated with young maternal age (Conrad-Hiebner et al., 2019) and single mothers households (Dubowitz et al., 2011; Taylor and Conger, 2014), as well as the increased risk to well-being for young and single mothers (Agnafors et al., 2019). The concerns arising from the studies' sample characteristics also did not allow for examination of the impact of ethnic and racial health disparities, lower prescription rates and prescription underuse (Colen et al., 2018; Goyal et al., 2017; Tseng et al., 2008) to the relationship of parental health, prescription drug use, and parenting.

5. Conclusions

Poor health and prescription drug use are not uncommon and are largely under-recognized risk factors for a spectrum of negative parenting outcomes. In addition, the use of prescription drugs may be related to some types of parenting. In particular, taking more prescription drugs is associated with greater risk of physical neglect. Our findings also suggest that like illicit drugs, different types of prescription drugs may have specific relationships with problematic parenting or child maltreatment. Our study thus provides evidence that parents with poor self-rated health or using some medications are at heightened risk of abusive and problematic parenting and in need of intervention in order to support family health and well-being.

Author credit

Dr. Price Wolf conceptualized the manuscript, conducted analyses, and drafted the manuscript. Dr. Freisthler conducted additional analyses, and assisted with conceptualization, writing and editing. Ms. Shockley McCarthy assisted with literature reviews, additional analyses, writing, and editing.

Author note

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