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More than Mental Health: Parent Physical Health and Early Childhood Behavior Problems

Katrina M. Poppert Cordts, PhD, Anna C. Wilson, PhD, Andrew R. Riley, PhD

Division of Psychology, Department of Pediatrics, Institute on Development and Disability, Oregon Health & Science University, Portland, OR.

Abstract

Objective: Caring for young children is a physically demanding task, and some evidence suggests parental physical limitations may impact the parent-child relationship and child behavioral development, but research examining this dynamic is nascent.

Methods: This study aims to explicate the role of general parent physical health problems in child disruptive behavior outcomes. A model that included physical and mental health, parenting style and self-efficacy, and child behavior symptom ratings was derived. The tenability of the model was assessed using Pearson's correlations, followed by structural equation modeling using data from 375 parents with a child between 18 months and 5 years.

Results: After several modifications to the initial model, findings revealed that higher levels of parent self-reported physical and mental health concerns indirectly influence child behavior symptoms through different pathways. Impaired parent physical health was associated with poorer parental self-efficacy and more disruptive child behavior, whereas increased parent mental health concerns were associated with a more negative parenting style and lower self-efficacy, which was related to more child behavior symptoms.

Conclusion: Findings elucidate the need for increased awareness and screening of parent physical health limitations in pediatric primary care. Furthermore, appropriate interventions among parents with physical health problems may target different aspects of parenting than routinely discussed.

Keywords

parent physical health; mental health; parenting style; parental self-efficacy; child behavior

Early childhood disruptive behavior problems (e.g., oppositionality, aggression, and hyperactivity) along with maladaptive parenting practices increase the risk of long-term child problems, including academic underachievement and delinquency.¹ Identifying and ameliorating risk of externalizing problems and suboptimal parenting is therefore vital to improving the developmental trajectories of children.² Parent mental health is one of the most well-established predictors of both maladaptive parenting and child functioning, and

Address for reprints: Andrew R. Riley, PhD, Division of Psychology, Department, of Pediatrics, Institute on Development and Disability, Oregon Health & Science, University, 707 SW Gaines St, Portland, OR 97225; rileyand@ohsu.edu. .

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awareness of parent mental health status in pediatric health care settings has increased in recent years,³ but the relative influence of parent physical health on parenting and early childhood disruptive behavior is largely unexplored.

Some evidence links parent physical health difficulties to early childhood behavior problems,^{4,5} but the mechanisms of this relationship are unclear. Caring for young children is physically demanding,⁶ and studies show that physical health problems impact parenting. Factors such as rapid-onset fatigue, physical difficulties engaging in child-rearing activities, and irregularity in caregiving routines may lead to suboptimal parent-child interactions.^{4,5} Chronic health conditions are known to present a number of parenting challenges. For example, parents with arthritis report difficulties participating in common child-rearing activities (e.g., feeding, bathing, and physical play), and parental chronic pain is associated with problematic parenting practices and poorer parent-child relationships.⁷ Notably, chronic health problems appear to affect parenting self-efficacy, an important mediator of the relationship between parenting practices and child outcomes.⁸

Although nascent evidence indicates parental physical health impacts parenting, most research has focused within special diagnostic populations or used single-item assessments of parent physical health.^{4,5} Relatively little is known about how parent physical health status is related to parenting and child behavior outcomes in the general population. As the prevalence of chronic diseases and poor health in the general adult population rises,⁹ the impact of general poor health on parenting may have major consequences for children and families. To examine how parent physical health is related to parenting and early childhood behavior problems, we conducted a cross-sectional study using a general pediatrics sample.

METHODS

Participants

Parents of children between the ages of 18 months and 5 years 11 months were recruited through 5 pediatric practices, including 2 university-affiliated clinics (1 within an urban academic medical center and 1 suburban) and 3 private practice clinics (2 suburban and 1 rural). Table 1 summarizes participant characteristics. Participating parents were predominantly English-speaking women from urban communities (72%). The mean age of respondents' children was 3.49 years ($SD = 1.31$), and a higher percentage of male children was reported (54%).

Procedure

All participants were recruited from March 2018 to May 2018. Parents were made aware of the study by clinic staff and provided an electronic tablet with study information. If interested in participation, parents provided their contact information and indicated a preference for either electronic or paper survey administration. Prospective participants were then contacted by e-mail or mail to provide further information about the study and access to the survey. Electronic surveys were completed through REDCap.¹⁰ Paper surveys were completed and returned through prepaid envelopes. The survey was available in both English and Spanish. A \$25 gift card was provided for survey completion. All procedures were

approved by the Human Subjects Institutional Review Board at Oregon Health and Science University.

Measures

Child Behavior Symptoms—Child behavior symptoms were assessed through the Eyberg Child Behavior Inventory (ECBI). Parents were asked to rate 36 behavioral concerns (e.g., interrupts, argues with parents about rules, and has temper tan-trums) based on frequency (1 = “Never” to 7 = “Almost Always”) and determine whether the behavior was problematic for them (“Yes” or “No”). Two scale scores were generated, including Intensity (sum of frequency ratings) and Problem Behavior (count of problem behaviors endorsed). The ECBI has been widely studied and has demonstrated reliability and validity.¹¹ Furthermore, the Intensity scale has been found to differentiate between nonreferred and clinic-referred children.¹²

Parenting Style—We used the Multidimensional Assessment of Parenting Scale (MAPS) to assess parenting practices.¹³ Participants responded to 34 items using a 5-point Likert scale (1 = “Never” to 5 = “Always”) to rate their parenting behavior. The MAPS produces broadband scores for Positive Parenting and Negative Parenting (mean of subscale scores), as well as subscales for Positive Reinforcement, Proactive Parenting, Warmth, Supportiveness, Lax Control, Hostility, and Physical Control (mean of subscale items). Strong internal consistency and test-retest reliability has been documented, and initial support for the validity of the MAPS has been demonstrated.¹³

Parenting Self-Efficacy—The Self-Efficacy for Parenting Tasks Index–Toddler Scale (SEPTI-TS) was used to assess parental self-efficacy.⁸ Parents answered 26 items using a 6-point Likert scale (1 = “Strongly Disagree” to 6 = “Strongly Agree”) to rate their perceived ability to positively influence their child’s behavior and development. The SEPTI-TS yields 4 subscales, Nurturance, Discipline, Play, and Routine. Subscale scores are generated by summing items, with higher scores indicating stronger self-efficacy. The SEPTI-TS has demonstrated adequate internal consistency and validity.¹⁴

Parent Health—Parents completed the Patient-Reported Outcomes Measurement Information System-29 (PROMIS-29) to assess their self-reported physical, mental, and social health and well-being. The PROMIS-29 Profile includes subscales assessing their pain interference, physical function, fatigue, sleep disturbances, anxiety, and depressive symptoms using 5-point Likert scale items. All values were converted to *T*-scores for ease of use and interpretability. Developed by the National Institutes of Health, all PROMIS measures have strong psychometric properties and are publicly accessible (online through <http://www.healthmeasures.com>). The pain interference, physical function, anxiety, and depression subscales have been widely used in both community samples¹⁵ and disease-specific populations¹⁶ and have demonstrated good internal consistency, test-retest reliability, and construct validity.

Analytic Strategy

Data were screened for patterns of missingness and normality before performing primary analyses. Less than 1% of data were missing, and the Little test indicated data were missing completely at random ($\chi^2(55) = 53.43, p > 0.05$). Mild to moderate skew was observed in several variables; therefore, data were modeled using robust maximum likelihood. Preliminary analyses were performed to ensure significant associations among relevant study variables.

A measurement pathway model was evaluated using structural equation modeling in Mplus 7.0. Model specifications included correlated factors and factor variances set to 1. Six latent factors, labeled Parent Mental Health, Parent Physical Health, Positive Parenting, Negative Parenting, Parenting Self-Efficacy, and Child Outcomes, were identified within the model. Within the parent physical health factor, covariance of the PROMIS sleep and fatigue indicators was specified a priori to account for theoretical similarities. No other covariances were specified.

Consistent with recommendations, several fit statistics were used to evaluate the degree to which the hypothesized model fits the observed data.¹⁷ Initially, all models were evaluated by examining the χ^2 test of significance, which indicates overall fit of the model. Because the χ^2 statistic may be sensitive to large degrees of freedom and sample size, other fit indices were evaluated using guidelines put forth by including the root mean-squared error of approximation (RMSEA), Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI). Model fit was considered to have acceptable fit if the RMSEA was <0.08 (good <0.06), and CFI and TLI values >0.90 were deemed acceptable (close >0.95). In addition to fit indices, localized areas of strain were also used to inform model changes. Modification indices greater than 10% of the χ^2 were evaluated, and theoretical justification was used to determine the clinical utility of stepwise changes to the proposed model structure.¹⁷

RESULTS

Descriptive statistics and Pearson's correlations among all model variables are provided in Table 2. The overall pattern of the results was in the expected directions, and all variables were at least moderately correlated with each other, with the exception of the Multidimensional Assessment of Parenting Scale (MAPS) broadband Positive Parenting dimension, which was not significantly associated with the Patient-Reported Outcomes Measurement Information System PROMIS pain intensity, sleep, or fatigue profiles.

The initial evaluation of the model yielded poor to mediocre fit to the data ($\chi^2[154] = 641.97$, root mean-squared error of approximation [RMSEA] = 0.09, Comparative Fit Index [CFI] = 0.83, and Tucker-Lewis Index [TLI] = 0.79). Within these results, several areas of modification were indicated. Two modifications indicated a significant improvement in model fit by specifying a covariance between error terms. The first was between pain interference and pain intensity. Given the substantial theoretical overlap between these variables, we felt that the inclusion of this covariance was justifiable. The second covariance recommendation was between the Self-Efficacy for Parenting Tasks Index (SEPTI) Discipline and MAPS Lax Control subscales. Consistent with robust theoretical

conceptualizations of parenting,¹⁸ allowing discipline and lax control to covary more adequately reflects the dimension of behavioral control.¹³ Finally, in addition to significantly loading on self-efficacy, the SEPTI Nurturance subscale appeared to cross-load on Positive Parenting. Although representing different scales, our aim was to provide a unified model of how parental factors work together to influence child outcomes. Furthermore, nurturance, defined as empathic and loving expressions, parallels parental warmth and responsiveness, which are key components of positive parenting.¹⁹ Therefore, we felt the cross-loading was allowable, and the model was modified accordingly. These changes were systematically introduced in the model in the following order: (1) covarying the error terms of pain interference and pain intensity, (2) cross-loading the SEPTI Nurturance subscale on the MAPS Positive Parenting factor, and (3) covarying the error terms of MAPS Lax Control and SEPTI Discipline variables (Fig. 1). Model fit was evaluated with each modification and subsequently improved, providing support for model adjustment.

Difference testing was used to trim redundant pathways and explicate the most parsimonious model. The final model fit was acceptable, $\chi^2(156, N = 375) = 429.90, p < 0.001$; RMSEA = 0.07; CFI = 0.91; TLI = 0.89. The final model is presented in Figure 2. A robust, positive association was found between mental health and physical health. Furthermore, physical health concerns were significantly associated with parents' perceptions of their ability to positively influence their child's behavior and development. Mental Health was independently associated with Positive and Negative Parenting, such that parents reporting more mental health symptoms endorsed more negative and fewer positive parenting practices. In turn, both Negative and Positive Parenting were associated with Self-Efficacy in the hypothesized directions. The association between Self-Efficacy and Child Outcomes was significant, indicating that fewer behavioral concerns were reported when parents endorsed higher self-efficacy.

In sum, parents' physical and mental health were highly related, but mental health more directly predicted parenting style, which in turn was associated with their self-efficacy and, ultimately, children's externalizing symptoms. Parent physical health was also independently associated with parenting self-efficacy through a separate pathway, indicating an effect distinct from that of mental health.

DISCUSSION

This study examined parent physical health as a risk factor for maladaptive parenting practices and disruptive child behavior in a general pediatric sample. The results indicate that parents' physical health is linked directly to parenting self-efficacy and indirectly to child conduct, such that poorer physical health is associated with lower parenting self-efficacy and higher child behavior problems. Importantly, this association is present in a model that includes parental depression and anxiety, indicating that although highly correlated with mental health, parent physical health confers unique risk for the development of child externalizing problems. This is a significant finding given that early identification and prevention of child conduct problems is critical for improving developmental trajectories.² Although numerous studies have addressed the role of parent mental health problems in parenting and child behavior problems, little work has examined the potential

role that general physical health among parents might play in parenting and child behavior problems in the general population. Our findings also provide initial evidence of pathways through which parental physical health and function might impact child behavior problems, indicating potentially modifiable intervention targets.

Given strong evidence that early parent-child interactions are key to the development of conduct problems,¹ we hypothesized that any effect of parent physical health on child externalizing problems would be mediated by maladaptive parenting strategies that are especially problematic for children with certain dispositional characteristics. For example, for a child prone to hyperactivity or impulsivity, it is easy to imagine a parent with limited mobility might fall into a pattern of coercive parenting practices, such as yelling or threatening. In the final model, however, physical health was only indirectly related to parenting style through parent mental health. This may indicate that parent physical and mental health problems are risk factors that influence parenting more in combination than isolation. It is also possible that physical health problems impact parenting in subtle ways that are not captured by rating scales. For example, there is evidence that securing eye contact before delivering an instruction increases child compliance.²⁰ Parents with less ability to physically interact with their child might be less likely to do so, which in turn could lead to higher noncompliance, but this nuance would not be apparent in measures of general parenting style. This is one conceivable explanation for physical health being directly related to parenting self-efficacy without directly influencing parenting style. It is also possible that parents with health problems perceive themselves as less efficacious parents, regardless of actual efficacy. General self-efficacy is linked to health functioning,²¹ and it may be that the observed relationship between physical health and parenting self-efficacy is a reflection of this broader dynamic.

This study builds on previous research identifying a connection between parent health and child behavior problems. A large cohort study in the United Kingdom previously demonstrated that maternal self-report of general health (assessed by a single-item rating of health as excellent, good, fair, or poor) when children were 9 months and 3 years of age was associated with child behavior problems at age 5 years, even when controlling for maternal psychological distress and parenting.⁵ Importantly, we used a validated measure, rather than a single rating, to assess parental health across a number of domains. Furthermore, although previous group comparison research has shown differences between parents with and without major health conditions,⁷ assessment of general health domains (e.g., sleep, pain, and physical function) offers the advantage of being relevant to parents with and without a variety of underlying diseases or chronic conditions.

The findings have a number of clinical implications. Consistent with previous research,^{8,22} structural modeling identified self-efficacy as a key mediator of risk for the development of child behavior problems. This may indicate that parents with physical health problems are good candidates for parent management training interventions, which are effective for both improving parenting self-efficacy and reducing child behavior problems.²³ It should be noted that such programs often include procedures that may be precluded by poorer physical functioning. For example, Parent-Child Interaction Therapy, a prominent evidence-based parenting program, includes activities such as playing on the floor and using a “barrel carry”

to escort resistant children to time-out.²⁴ It is unclear exactly how physical limitations would impact participation and outcomes in such programs, but modifications may be necessary.

Beyond the context of structured therapies, pediatric clinicians, including physicians and integrated behavioural health providers, should be aware of the potential impact of parent physical health on parenting and child behavior problems. Most parents prefer that pediatricians discuss parent physical health,²⁵ and doing so may allow for more family-centered care. Although pediatric providers should not be expected assume care of adult patients, they might assume a role similar to what has been suggested for maternal depression,²⁶ consisting largely of identifying instances in which parents may be experiencing problems and providing guidance on potential supports (e.g., adult health assessment and intervention services). Furthermore, parent physical status should be considered when providing behavioral guidance in the context of pediatric care. For instance, pediatricians very commonly recommend time-out as a response to child disruptive behavior,²⁷ but given knowledge that a parent's physical limitation might prevent high-fidelity implementation, clinicians may defer to a less physically demanding strategy. For example, an approach grounded in errorless compliance training, an evidence-based, noninvasive method of improving child behavior that does not require physical management,²⁸ may be more successful. Specific recommendations would likely vary based on the exact nature of parents' physical health issues, but consideration of this element may be an important part of providing family-centered guidance.

Several limitations should be acknowledged. The participants were all drawn from a Pacific Northwest region of the United States, and the results may reflect regional attitudes and biases. This is reflected in the racial/ethnic makeup of the sample, which was representative of the region, but underrepresented some racial/ethnic minorities, particularly black parents, from a national perspective. These are important limitations, as parents' views on their own parenting likely reflect contextual and cultural variables.²⁹ Additional research is needed to determine whether the observed relationships are robust across and within geographical, racial/ethnic, sociocultural, and economic groups. The data were collected in a cross-sectional fashion and do not examine the processes through which the observed relationships are developed and maintained. Additional longitudinal research examining the temporal emergence and bidirectional influences of parent physical health, mental health, and child health and behavior problems is merited to better explicate these relationships, as well as examine the long-term impact of parent physical health problems on child outcomes. Although we measured parent health in a more nuanced manner than previous studies, we did not assess chronicity of health problems, which may be an important factor. Finally, all data were collected from a single informant, and the results may be subject to common method bias.³⁰ Although the use of a single reporter has the potential to introduce a new source of error, a strength of structural equation modeling is the ability to parse out the role of individual constructs. Only indicators that make a significant and distinct contribution are retained. Still, it is important to recognize that this study measured parents' perceptions of their parenting style, parenting self-efficacy, and child behavior, and those perceptions are subject to any number of biases. Multimethod, multi-informant assessments that include more objective measurements, including physiological assessments and direct observation methods, would likely enrich the quality of future research.

Despite limitations, this study further establishes the connection between parent physical health and early childhood behavioral issues and highlights the need for a more holistic approach to considering parent health as a developmental risk factor. Special attention to parent physical health, in combination with and in addition to mental health, is warranted.

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Figure 1.

Standardized coefficients for the measurement model. * $p < 0.05$. ECBI, Eyberg Child Behavior Inventory; MAPS, Multidimensional Assessment of Parenting Scale; PROMIS, Patient-Reported Outcomes Measurement Information System; SEPTI-TS, Self-Efficacy for Parenting Tasks Index–Toddler Scale.

Figure 2.

Parent physical and mental health as predictors of parenting self-efficacy and child disruptive behavior. Latent variable indicators and error terms are not shown. Standardized parameter estimates are presented; $*p < 0.05$. ECBI, Eyberg Child Behavior Inventory; MAPS, Multidimensional Assessment of Parenting Scale; PROMIS-29, Patient-Reported Outcomes Measurement Information System; SEPTI-TS, Self-Efficacy for Parenting Tasks Index–Toddler Scale.

Table 1.**Demographic and Descriptive Statistics of Participants**

Parent characteristics	N = 375
Age	33.45 (6.17)
Gender	
Male	60 (16.0%)
Female	315 (84.0%)
Parenting situation	
Single parenting	40 (10.7%)
Couple parenting in the same household	319 (85.1%)
Coparenting in separate households	16 (4.3%)
Community type	
Urban	271 (72.5)
Rural	103 (27.5)
No. of children in home	2.07 (1.07)
Parent to child ratio	1.13 (0.58)
Language	
English	365 (97.3%)
Spanish	10 (2.7%)
Race and ethnicity	
Hispanic/Latino	57 (15.2%)
White/Caucasian	274 (73.1%)
Asian-American	40 (10.7%)
Black/African-American	8 (2.1%)
American Indian/Alaska Native	8 (2.1%)
Native Hawaiian/Pacific Islander	7 (1.9%)
“Other”	23 (6.1%)
Child characteristics	
Age	3.49 (1.31)
Gender	
Male	204 (54.4%)
Female	171 (45.6%)

Data are presented as M (SD) for continuous variables and n (%) for categorical variables.

Table 2.

Descriptive Statistics of Study Variables Organized by Measures

	n	Mean (SD)	α	1	2	3	4	5	6	7	8	9	10	11	12
PROMIS-29															
1. Depressive symptoms	369	49.08 (8.61) ^a	0.92	1											
2. Anxiety	369	51.74 (9.15) ^a	0.89	0.68 [*]	1										
3. Physical function	369	52.32 (7.21) ^a	0.89	-0.34 [*]	-0.25 [*]	1									
4. Pain interference	369	46.90 (8.23) ^a	0.97	0.45 [*]	0.37 [*]	-0.45 [*]	1								
5. Pain intensity	369	1.95 (2.25) ^a	—	0.42 [*]	0.36 [*]	-0.34 [*]	0.80 [*]	1							
6. Sleep	369	50.60 (7.80) ^a	0.79	0.37 [*]	0.40 [*]	-0.23 [*]	0.33 [*]	0.29 [*]	1						
7. Fatigue	369	52.12 (10.21) ^a	0.93	0.54 [*]	0.55 [*]	-0.26 [*]	0.40 [*]	0.35 [*]	0.56 [*]	1					
MAPS															
8. Positive Parenting	374	4.37 (0.46)	0.84	-0.25 [*]	-0.16 [*]	0.32 [*]	-0.15 [*]	-0.08	-0.07	-0.04	1				
9. Negative Parenting	374	1.88 (0.50)	0.84	0.37 [*]	0.30 [*]	-0.23 [*]	0.24 [*]	0.20 [*]	0.19 [*]	0.21 [*]	-0.36 [*]	1			
SEPTI-TS															
10. Total score	369	120.93 (16.72)	0.91	-0.45 [*]	-0.39 [*]	0.30 [*]	-0.25 [*]	-0.19 [*]	-0.26 [*]	-0.30 [*]	0.54 [*]	-0.58 [*]	1		
ECBI															
11. Intensity	375	53.46 (7.12) ^a	0.92	0.39 [*]	0.40 [*]	-0.21 [*]	0.27 [*]	0.27 [*]	0.31 [*]	0.37 [*]	-0.17 [*]	0.41 [*]	-0.45 [*]	1	
12. Problem	371	53.69 (9.63) ^a	0.92	0.29 [*]	0.30 [*]	-0.13 [*]	0.18 [*]	0.21 [*]	0.27 [*]	0.28 [*]	-0.10 [*]	0.38 [*]	-0.46 [*]	0.71 [*]	1

* $p < 0.05$.^a Values provided are T-scores. ECBI, Eyberg Child Behavior Inventory; MAPS, Multidimensional Assessment of Parenting Scale; PROMIS-29, Patient-Reported Outcomes Measurement Information System-29 Item Adult Profiles; SEPTI-TS, Self-Efficacy for Parenting Tasks Index—Toddler Scale.