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## Parenting Behaviors and the Well-Being of Children with a Chronic Physical Condition

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### Abstract

**Introduction**—Numerous studies have identified the importance of parenting behaviors to the wellbeing of children with chronic physical conditions. Synthesizing the findings of these studies has potential to identify which parenting behaviors are associated with specific aspects of child wellbeing.

**Methods**—We retrieved research reports addressing the relationship between parenting behaviors and wellbeing in children with chronic physical conditions and categorized parenting behaviors based on Skinner's (2005) core dimensions of parenting (warmth, rejection, structure, chaos, autonomy support, and coercion) Through meta-analysis, we examined relationships between parenting dimension and child wellbeing variables.

**Results**—54 reports from 47 unique studies met inclusion criteria. Parent warmth was associated with less child depression, better quality of life, better physical functioning, and fewer externalizing behavior problems. Parent rejection was associated with more child depression, internalizing/externalizing behavior problems, and poorer physical functioning. Parent structure was associated with better child physical functioning. Parent chaos was associated with poorer child physical functioning. Parent autonomy support was associated with better quality of life and fewer externalizing behavior problems. Parent coercion was associated with more child

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#### Conflict of interest

No conflict of interest has been declared by the authors.

depression, poorer quality of life, poorer physical function, and more internalizing behavior problems.

**Conclusion**—The results identify multiple, potentially modifiable parenting dimensions associated with wellbeing in children with a chronic condition, which could be targeted in developing family-focused interventions. They also provide evidence that research using Skinner’s core dimensions could lead to conceptualization and study of parenting behaviors in ways that would enable comparison of parenting in a variety of health and sociocultural contexts.

### Keywords

meta-analysis; systematic review; parenting; child wellbeing; chronic illness

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### Introduction

Childrearing is a challenging undertaking for all parents, but parents of children with chronic physical conditions (CPC) face additional challenges related to their child’s special needs such as incorporating a complex treatment regimen into family life, advocating on the child’s behalf to school and health care personnel, and acting to ensure the child’s optimal development and quality of life (Barlow, & Ellard, 2006; Raina, et al., 2004). Described as “parenting plus” by Ray (2002) and “vigilant parenting” by Meakins, Ray, Hegadoren, Rogers, and Rempel (2015), parenting a child with a CPC involves integrating ordinary parenting behaviors not directly linked to the child’s special needs (e.g., supervising a child on a playground) with extraordinary parenting behaviors specific to the management of the child’s condition (e.g., monitoring a diabetic child’s blood glucose).

A substantial body of research describes the extraordinary challenges parents encounter and strategies they develop to care for a child with a CPC (Coffey, 2006). Less attention has been directed to studying ordinary aspects of parenting a child with a CPC (e.g., expressing affection, disciplining). Although acknowledging differences in ordinary and extraordinary parenting behaviors, Meakins and colleagues (2015) reported that the underlying dimensions were similar, and Mooney-Doyle and Deatruck (2016) concluded that despite the extraordinary work of parenting a child with a serious illness, parents described both the ordinary and extraordinary as part of the expected work of parenting.

Studies addressing the underlying dimensions of parenting a child with a CPC have focused on comparing parents of a child with a CPC to those of parents of healthy children. Through meta-analysis of 325 reports, Pinquart (2013) identified differences between the two groups, with parents of children with a CPC demonstrating less parental warmth, more demandingness, and more overprotection than parents of healthy children. Although identifying differences, the analysis did not link these underlying parenting dimensions to child wellbeing variables. Examination of these linkages is needed to determine if observed differences reflect positive adaptations by parents of children with a CPC or problematic parenting behaviors that put children at risk. Recognizing that both ordinary and extraordinary parenting behaviors are grounded in common underlying parenting dimensions, the aim of this analysis was to synthesize the research on the relationship between these dimensions and child wellbeing.

The organizing framework for examining parenting behaviors was Skinner, Johnson, and Snyder's (2005) conceptualization of dimensions of parenting. Based on a review of parenting studies published between 1941 and 2001, Skinner et al. identified six core dimensions of parenting: warmth, rejection, structure, chaos, autonomy support, and coercion (Table 1).

## Methods

### Study Design and Sample

This systematic review and meta-analysis is part of the NIH-funded Family Synthesis Study, a mixed-methods project (Sandelowski, Voils et al. 2013) designed to map the intersection of family life and childhood CPCs through a series of syntheses. Our presentation is guided by the checklist for reporting reviews and meta-analyses of observational studies proposed in Stroup et al. (2000).

In the Family Synthesis Study, *chronic physical condition* (CPC) was defined as lasting or expected to last at least one year and producing or expected to produce sequelae for the child such as limitation in function/activity, medication dependency and/or need for medical care or related services beyond what is usual for a child of the same age (Bethell et al. 2014). A detailed account of the search process and the investigators' conceptualization of family research are reported elsewhere (Havill et al. 2014, Knafl et al. 2015, <http://familysynthesis.unc.edu/home>). Briefly, nine databases were searched for English-language reports published between January 1, 2000 and March 31, 2014 using general search terms for *family*, *child*, and *chronic condition* in addition to search terms for specific diseases (e.g. arthritis, diabetes) resulting in 1,028 reports that met inclusion criteria and were entered into the Family Synthesis Study database.

Data were extracted from all reports in the Family Synthesis Study database using a standardized template that captured characteristics of the sample, study design, measures, and findings. One member of the research team extracted data from each report and a second member checked it for accuracy and completeness against the published report. Divergent interpretations of what should be included in an extraction were resolved through discussion with a third team member.

A strength of the Family Synthesis Study is the comprehensiveness of its search, which provided a database of publications that could be synthesized to address multiple different research questions. Prior analyses have addressed the relationship between family functioning and child wellbeing (Leeman, Crandell, Lee, Bai, Sandelowski, & Knafl, 2016), the transition of condition management from parent to child in children with Cystic Fibrosis (Leeman, Sandelowski, Havill, & Knafl, 2015), and the positioning of family in intervention studies (Knafl, Havill, Leeman, Fleming, Crandell, & Sandelowski, 2016). This analysis is distinct in its focus on parenting.

For the present analysis, we searched the Family Synthesis Study database for reports assessing the relationship between parent role performance and child wellbeing. *Parent role performance* was defined as parenting style (e.g. authoritarian, permissive) or parenting

behavior(e.g. acceptance, control). *Child wellbeing* was defined as child physical functioning (e.g. metabolic control for a child with diabetes, respiratory function for a child with asthma) or psychosocial health and functioning (e.g. anxiety, depression).

### Quality appraisal

In a review of guidelines for quality assessment in observational studies, Sanderson et al. (2007) noted three fundamental quality domains: appropriate selection of participant, appropriate measure of variables, and appropriate control for confounding. While control for confounding is most relevant to syntheses with a specific hypothesis about a single exposure and outcome, the other two domains are an appropriate basis for our quality assessment. Additionally, observational studies are prone to reporting bias, where non-significant relationships are not mentioned. Guidelines for reporting observational studies (von Elm *et al*, 2007) recommend that statistical tests be reported for all planned analyses, regardless of statistical significance. Based on these guidelines, each report was assessed for the following internal and external validity threats: reporting bias (selective reporting of results), non-representative sampling (low response rates, not representative of target population), and approach to measurement (validity, reliability) (Sanderson et al. 2007; von Elm et al. 2007).

Five reports were excluded (see Figure 1) because insufficient numerical data were available. Potential reporting bias was identified in one of the remaining studies, where quantitative details about the relationship between one parent and child dimension was not available. Twenty-five of the 52 included studies reported information on participation; the average participation rate was 67% (SD=22%, range=21–100%). Where information was provided on sample representativeness, participants tended to be less sick with lower sociodemographic risk than non-participants. There was little evidence of measurement concerns, with the most notable being a lack of evidence of psychometric validation for some instruments. Although there are imperfections, each individual report had enough merit to warrant inclusion, and no report was excluded for reasons of quality.

### Synthesis

We identified 68 reports that addressed at least one parent role performance/child wellbeing link. Using authors' description of the variables and the measures used in the studies, two members of the research team independently grouped parent role performance variables within each of Skinner et al.'s (2005) six dimensions and grouped child wellbeing variables to create a parsimonious list of dimensions of wellbeing. Disagreements were resolved through further discussion with the research team to reach consensus. Table 1 provides an overview of the six parenting dimensions, including definitions and variables. We grouped child wellbeing into five dimensions: anxiety, depression, physical functioning, overall quality of life (derived from a general or physical quality of life measure), psychosocial quality of life, internalizing behavior problems, and externalizing behavior problems.

Effect sizes were calculated for all findings linking parent role performance with child wellbeing. Authors were contacted to obtain missing quantitative information. These calculations were supported by the use of Comprehensive Meta-Analysis software v2.0 (Biostat, Englewood, NJ).

We then clustered findings linking the same parenting dimension and child wellbeing dimension, including no more than one finding from each study within a cluster. When multiple findings within a cluster came from the same study population, we used the following criteria to choose a single effect size: (a) results from mothers as opposed to fathers (to promote comparability with other studies; mothers were by far the dominant parent studied.); (b) results from child-reported over parent-reported measures; (c) results derived from general over disease-specific measures and (d) results from the largest sample in cases of multiple reports from the same parent study where the variables addressed were the same and the samples were overlapping but not identical. In addition, because findings were overwhelmingly cross-sectional, we excluded results where there was a time lag between the parent and child variables.

Before synthesis, we reversed some of the effect sizes in order to maintain comparable interpretations across studies. For example, Rodenburg et al. (2013) and Greene et al. (2010) both studied the impact of chaotic parenting on physical functioning. Rodenburg et al. (2006) measured physical functioning using HbA1c in children with diabetes, with high scores indicating poorer physical functioning, but Greene et al. (2010) measured physical functioning in children with diabetes using a functional status measure, with high scores indicating better physical functioning. In these examples, a positive effect size would mean something different for each study. A uniform definition was needed, so we defined high scores on child physical functioning to indicate better functioning and thus changed the sign of the effect size (correlation) between chaotic parenting and HbA1c in Rodenburg et al. (2006). Similar reversals of signs were made for parent variables.

Because of different inclusion criteria, sampling procedures, measurement tools, and other sources of variation across studies, we expected heterogeneity in the effect sizes within each cluster of conceptually similar relationships between parent and child variables (Higgins & Green, 2011). To account for this heterogeneity, we used random-effects meta-analysis to generate our estimates. We also applied a commonly-used statistic for describing heterogeneity,  $I^2$ , which quantifies the proportion of variability in effect sizes due to heterogeneity (as opposed to chance variability). We considered a cluster with an  $I^2$  of 50% in a random effects model to have “substantial heterogeneity” (Higgins & Green, 2011), requiring further examination before pooling. No cluster exceeded this limit (highest  $I^2$  was 11.4%).

Relationships between parent and child wellbeing dimensions were summarized by pooled correlation coefficients and p-values, with  $p < .05$  considered statistically significant. For the purposes of interpretation, significant relationships were considered strong at or above 0.5; moderate from 0.3 to  $< 0.5$ ; and weak below 0.3 (Cohen, 1988).

Lastly, we explored the potential impact of publication bias on results by examining funnel plots and testing for asymmetry (Egger, Davey Smith, Schneider, and Minder, 1997).

## Results

The final sample for this review included 52 reports from 45 unique studies. Figure 1 shows the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA; Moher et al. 2009) diagram detailing the search process beginning with the 1,028 reports in the Family Synthesis Study database.

As shown in Figure 2, diabetes was the condition most often addressing parent role performance (30 of 52) reports. Of the 52 reports, 35 were from studies conducted in North America and 9 in Europe. Twenty-three studies were conducted by interdisciplinary teams composed of physicians, social scientists, nurses, educators, and/or public health professionals. Twenty-two studies identified investigators from a single discipline: medicine, social science, nursing, or public health. Figures 3 and 4 summarize the measures used to study each parenting and child wellbeing dimension. Warmth was the most studied parenting dimension, and the least studied was chaos. The most- and least-studied child wellbeing variables were physical functioning and anxiety, respectively. The most frequently studied parent-child relationship was between parental warmth and child physical functioning.

### Summary of findings by parenting dimensions

Table 2 summarizes the relationships between parenting dimensions and child wellbeing. Although most effects are the result of pooling results across two or more studies, nine (e.g., the relationship between chaos and child depression) are from a single study. The empty cells in Table 2 show that not all relationships were studied.

**Parent warmth and child wellbeing**—Warmth had a moderate significant association with less child depression and better psychosocial quality of life. Warmth was weakly but significantly associated with better overall child quality of life, with better child physical functioning, and with fewer child externalizing behavior problems. Warmth had a weak but significant negative association with child internalizing behaviors, based on only one study. Warmth was not significantly associated with child anxiety.

**Parent rejection and child wellbeing**—Rejection was moderately and significantly associated with child depression, internalizing behavior problems, and externalizing behavior problems. Rejection was weakly but significantly associated with poorer child physical functioning and was not significantly associated with child anxiety or overall quality of life.

**Parent structure and child wellbeing**—Though relationships between structure and all child wellbeing variables were studied, the only significant relationship was a weak association with better child physical functioning.

**Parent chaos and child wellbeing**—Chaos was weakly but significantly associated with poorer child physical functioning and not significantly associated with child depression.

**Parent autonomy support and child wellbeing**—Autonomy support was weakly but significantly associated with better overall child quality of life, fewer externalizing behavior

problems, and with lower child anxiety. Autonomy support was not significantly associated with depression, psychosocial quality of life, physical functioning, or internalizing behavior problems.

**Parent coercion and child wellbeing**—Coercion was moderately and significantly associated with child depression; it was weakly but significantly associated with poorer overall child quality of life and poorer physical functioning. Coercion was weakly but significantly associated with child anxiety and child internalizing behavior problems. Coercion was not significantly associated with child psychosocial quality of life or externalizing behavior problems.

Further details about each included report are available in Supplemental Table 1. Supplemental Figure 1 describes the authors' disciplines and countries in which research was conducted, and Supplemental Figure 2 presents exactly which reports contributed to each result in Table 2.

### Assessment of potential publication bias

An interpretable funnel plot should be based on at least 10 studies (Sterne et al., 2011), applying only to five of the results in Table 2. Evidence of asymmetry was found for two results: warmth and physical functioning ( $p=.004$ ) and coercion and physical functioning ( $p=.02$ ). Using the trim and fill method (Duval and Tweedie, 2000), estimates of true effects are  $r=.06$  and  $-.05$  respectively, compared to  $r=.14$  and  $-.08$  in Table 2, with warmth remaining statistically significant but coercion having  $p>.05$ .

### Discussion

This meta-analysis deepens our understanding of factors contributing to the wellbeing of children with a CPC by addressing how specific dimensions of parenting were related to various aspects of child wellbeing. The sample included studies examining a diverse array of parenting dimensions, but investigators directed relatively more attention to parental warmth (30 studies) and structure (20 studies) than the other dimensions. In view of parents' key role in preparing children to assume increasing responsibility for managing the treatment regimen (Allen, Channon, Lowes, Atwell, & Lane, 2011; Anderson, et.,al, 2009; Dupuis, Duhamel, & Gendron, 2011), it was surprising that relatively few studies ( $N=10$ ) addressed autonomy support, especially given the number of studies of children with diabetes. Regarding child wellbeing, physical functioning was the dimension studied most frequently (32 studies), with fewer investigators studying quality of life (20 studies), psychological functioning (18 studies of anxiety or depression), and problematic behaviors (11 studies). There was a notable absence of studies addressing more positive aspects of child functioning such as self-efficacy and resilience and parents' contributions to enhancing children's strengths and capabilities.

All six of Skinner's core dimensions of parenting were significantly related to one or more child wellbeing variables, but all effect sizes were in the weak to moderate range. Thus, although the analysis provides evidence that general dimensions of parenting can both foster and impede optimal child wellbeing, the weak to moderate strength of the relationships



points to the importance of addressing a broader array of variables influencing child wellbeing.

The results are interesting in terms of Pinquart's (2013) findings that parents of a child with a CPC had lower levels of responsiveness (warmth) and higher levels of demandingness (coercion) and overprotection (lack of autonomy support) than parents of healthy children. Our analysis identified warmth and coercion as parenting dimensions consistently associated with child wellbeing. These results provide insights as to which differences identified by Pinquart are especially salient because of their relationship to child wellbeing. As such, they are likely targets for interventions aimed at enhancing parents' capacity to address the parenting challenges of raising a child with a CPC. However, more research would be needed to determine optimal levels of these variables and how these might differ over time or across conditions

Most research testing interventions for parents of a child with a CPC has focused on increasing parents' knowledge and skill set related to adhering to the treatment regimen. Far less attention has been directed to addressing parenting styles and behaviors (i.e., parent role performance). In our prior review (Knafl et al., 2016) of 70 family-focused interventions involving children with a CPC, we found that the majority of the interventions engaged parents in order to improve their ability to manage treatments, with relatively few addressing parent role performance. Johnson, Kent, and Leather (2005) have highlighted the need for effective family therapy interventions, especially those addressing parenting in healthcare settings. Also needed are studies that address possible moderators of parenting behaviors so that interventions might be tailored to family structure, child developmental level, and condition type. Adaptive intervention designs such as MOST (Multiphase Optimization Strategy) allow investigators to adapt interventions to the unique characteristics of patients and family members that moderate intervention efficacy. As such, they provide promising options for testing complex, multifaceted interventions (Collins, 2013).

## Limitations

Like any synthesis of research findings, the findings from this analysis are constrained by limitations in the studies included in the analysis. Most challenging was the variation in the way the same concept, such as warmth or rejection, was used in the primary research reports to mean different things. In some cases, the same measuring tools or portions thereof were used to represent different concepts. We used our best judgment in discerning what authors intended and what the measure addressed in grouping parent role performance and child wellbeing relationships, and the heterogeneity analysis provided evidence that the groupings were conceptually meaningful. However, in their review of 164 parenting measures, Hurley and colleagues (2014) raised serious concerns about the psychometric underpinnings of most. Their detailed description of the focus and characteristics of the 25 measures for which some psychometric data were available is an excellent resource for investigators and clinicians. Alderfer and colleagues' (2008) review of family measures judged to be relevant for both clinicians and researchers is another excellent measurement resource. The inclusion of both parenting and family measures in future studies would serve to situate parenting behaviors in the broader context of family roles and relationships.



Although this review addressed a range of CPCs, diabetes was by far the most studied condition, limiting our ability to explore condition-specific differences in the studied relationships. We also were unable to address the influence of other possible moderators such as family structure or child's developmental level on the relationship between parent role performance and child wellbeing.

There was considerable variation in the amount of data available for each parent dimension and/or child wellbeing variable. Thus, less-studied concepts (e.g. child anxiety or chaotic parenting) present with less statistical power to detect a relationship where one exists. Empty cells in Table 2 or cells with lower sample size and high  $p$ -values may reflect lack of research about the relationship rather than a complete lack of relationship.

There was some evidence of funnel plot asymmetry. In addition to being a symptom of publication or reporting bias, funnel plot asymmetry can be caused by chance, heterogeneity, or differing methodological quality in small vs. large studies (Sterne et al., 2011). We found no evidence of heterogeneity using  $I^2$ , and the fixed effects estimates were similar to the random effects estimates, also discounting heterogeneity as a cause. The small number of studies in each synthesis make it possible that chance caused the funnel plot asymmetry, but we prefer to conservatively consider the effects as potential overestimates.

## Conclusion

With these important caveats in mind, this review nevertheless supports the usefulness of a research agenda using core dimensions of general parenting as an organizing framework. Such an agenda would ensure that dimensions are worded and studied in comparable ways that enable systematic comparisons to be made of parenting in a wide variety of health, sociocultural, and national contexts. At the same time, it is important to bear in mind the family context in which parents enact their role and develop interventions that address or take into account this context. A research agenda allowing more systematic and precise comparisons to be made might assist researchers better to differentiate general from illness-specific parent dimensions (and to develop interventions more precisely targeted on specific clusters of general and illness-specific parent-child interactions).

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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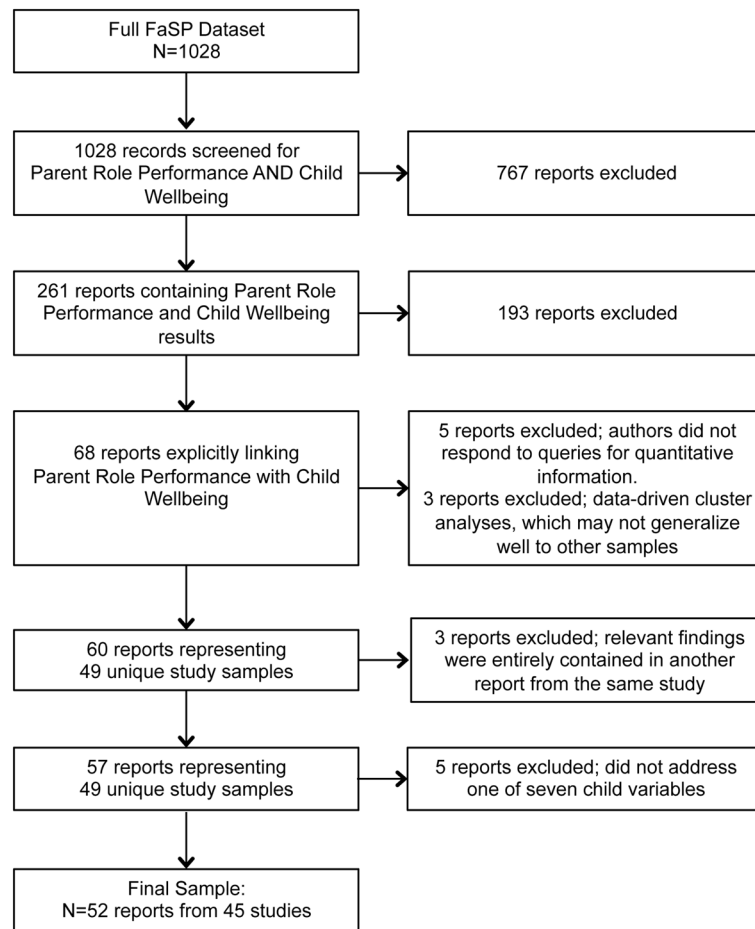
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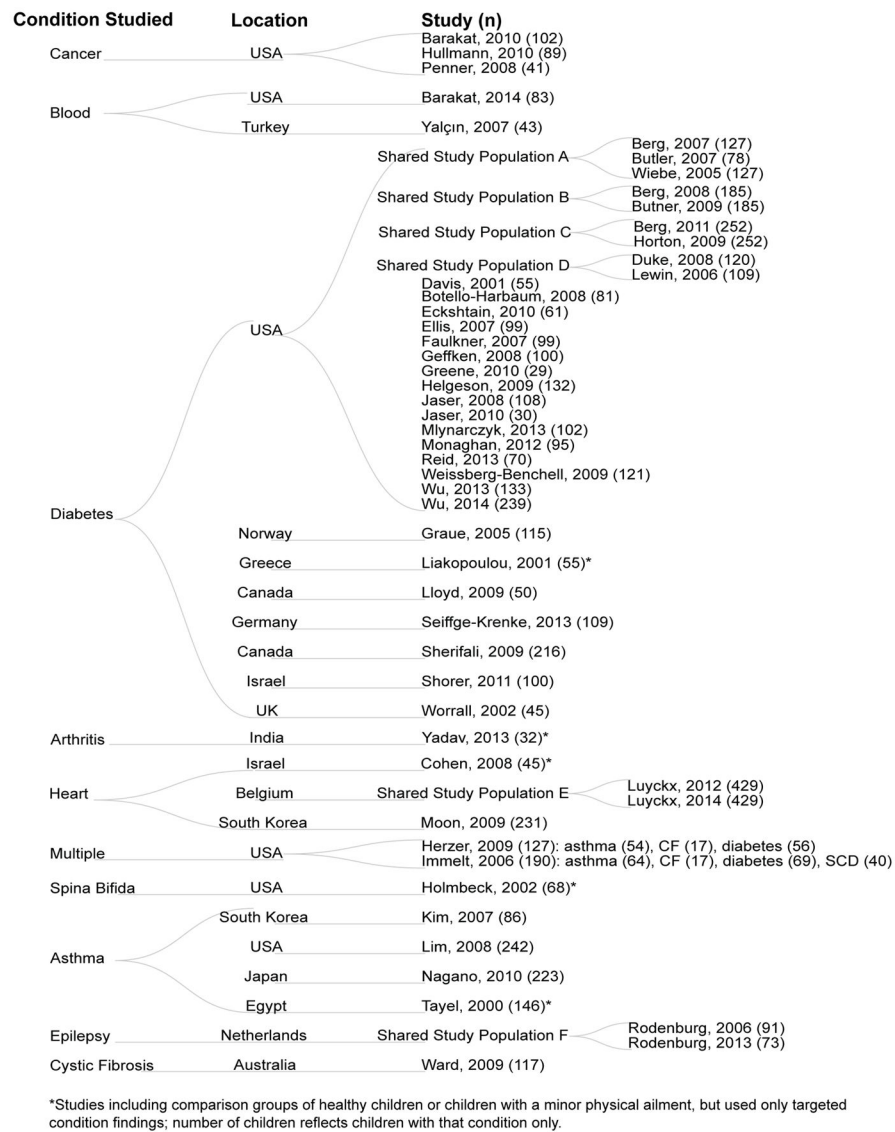
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**Figure 1.** PRISMA diagram for study of the relationship between parenting and child well-being.



**Figure 2.**  
Description of reports included in sample

**Figure 3a**

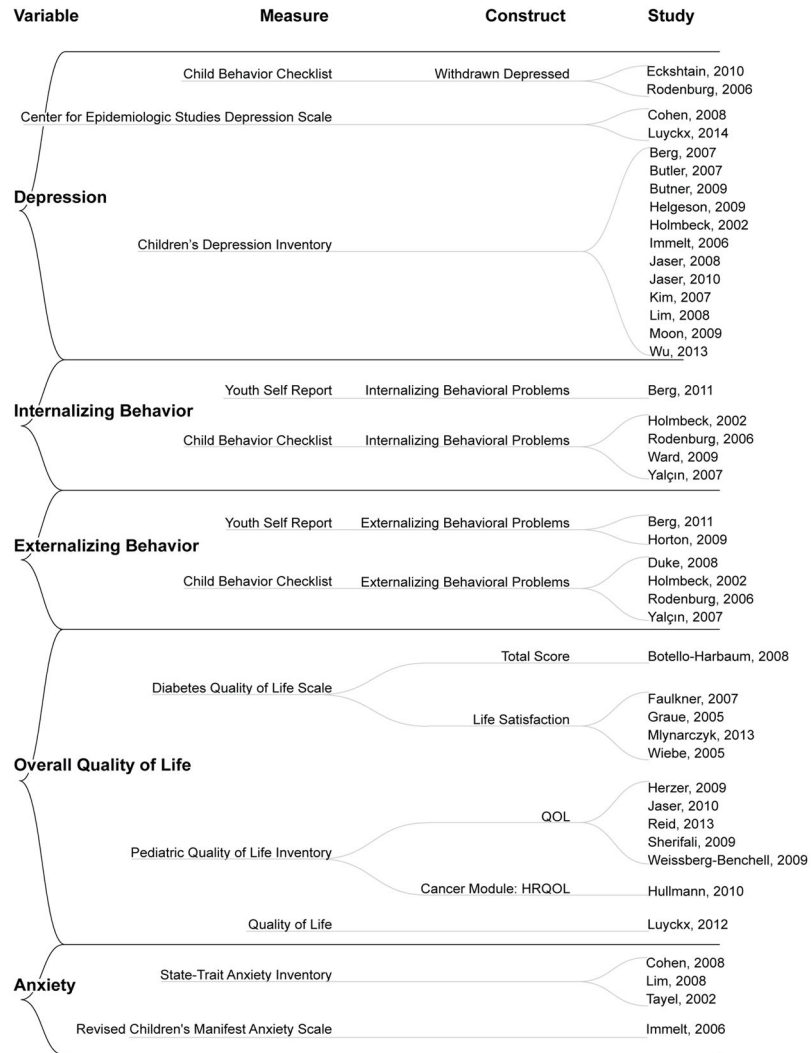
Dimension	Measure	Construct	Study	
<b>Coercion</b>	Parenting Practices and Dimensions Inventory	Control	Sherifali, 2009	
	Child Report of the Parental Behavior Inventory	Psychological Control	Butler, 2007	
	Iowa Family Interaction Rating Scales	Parental Influence	Jaser, 2010	
	Parental Bonding Instrument	Parental Control	Graue, 2005	
	Parenting Dimensions Inventory	Restrictiveness	Davis, 2001	
	Ta-ken Diagnostic Test for Parent-Child Relationship		Nagano, 2010	
	Parenting Practices Report	Authoritarian Mothering	Greene, 2010	
	Intrusive Support Scale		Berg, 2011	
	Parental Authority Questionnaire	Authoritarian Mothering	Shorer, 2011	
	Maternal perfection-seeking		Tayel, 2002	
	Authoritative Parenting Index	Psychological Control	Weissberg-Benchell, 2009	
	Parental Attitude Research Instrument	Controlling Parent		Rodenburg, 2013
		Discipline		Yalçın, 2007
	Child Interview	Reported Maternal Control		Wiebe, 2005
	Parental Bonding Instrument	Parental Care		Barakat, 2010 Graue, 2005
Alabama Parenting Questionnaire	Involvement		Eckstein, 2010	
Authoritative Parenting Index	Responsiveness		Botello-Harbaum, 2008 Weissberg-Benchell, 2009	
Child Report of the Parental Behavior Inventory	Acceptance		Butler, 2007 Cohen, 2008	
	Responsiveness		Luyckx, 2012 Luyckx, 2014	
Iowa Family Interaction Rating Scales	Child Centered		Jaser, 2010	
Diabetes Family Behavior Scale	Warmth and Caring		Duke, 2008 Faulkner, 2007 Geffken, 2008 Jaser, 2008 Lewin, 2006	
Child Report of Parental Acceptance and Rejection	Maternal Acceptance/support		Immelt, 2006	
Diabetes Family Behavior Checklist	Support for Diabetes Care		Ellis, 2007	
	Lack of Support for Diabetes Care (R)		Reid, 2013	
Parent Relationship Measure	Maternal Relationship Quality		Helgeson, 2009	
Social Support Scale for Children	Parental Support		Herzer, 2009	
Mother-Father-Peer Scale	Acceptance		Berg, 2011	
Parenting Dimensions Inventory	Warmth		Davis, 2001	
Shaefer Positive Parenting Attitude			Kim, 2007 Moon, 2009	
Observed Positive Parenting of Mother			Lim, 2008	
Child Empathy Questionnaire	Perceived Maternal Empathy		Lloyd, 2009	
Empathetic Concern			Penner, 2008	
Network of Relationships Inventory	Perceived Maternal Support		Seiffge-Krenke, 2013	
Parenting Practices and Dimensions Inventory	Support		Sherifali, 2009	
Camberwell Family Interview	Maternal Warmth		Worrall, 2002	
<b>Warmth</b>				

**Figure 3b**

Dimension	Measure	Construct	Study
Autonomy Support	Parental Bonding Instrument	Overprotectiveness (R)	Barakat, 2010
	Willingness to Grant Autonomy Questionnaire		Holmbeck, 2002
	Mother-Father-Peer Scale	Mother Encouraging Independence	Berg, 2011
	Child Interview	Mother Uninvolved	Butner, 2009
	Parent Protection Scale	Overprotection (R)	Berg, 2007
	Diabetes-Specific Parental Support for Adolescents' Autonomy Scale	Overprotection (R)	Hullmann, 2010
	Maternal overprotection (R)		Mlynarczyk, 2013
			Wu, 2014
			Tayel, 2002
		Parental Attitude Research Instrument	Parent Overprotection (R)
Structure	Social Problem Solving Inventory	Rational and Positive Problem Solving	Barakat, 2014
	Diabetes-Specific Maternal Monitoring		Berg, 2008
	Barber Scale of General Parental Monitoring	Demandingness	Berg, 2011
	Authoritative Parenting Index		Horton, 2009
	Child Report of the Parental Behavior Inventory	Firm Control	Botello-Harbaum, 2008
			Weissberg-Benchell, 2009
	Diabetes Family Behavior Scale	Guidance and Control	Butler, 2007
			Cohen, 2008
	Alabama Parenting Questionnaire	Poor Monitoring (R)	Duke, 2008
	Monitoring Scale	General Parental Monitoring	Faulkner, 2007
	Parental Involvement Scale	Parental Involvement	Jaser, 2008
	Parenting Practices Report	Authoritative Mothering	Lewin, 2006
	Parenting Styles and Dimensions Questionnaire	Authoritative Parenting	Greene, 2010
	Parenting Practices and Dimensions Inventory	Structure	Monaghan, 2012
	Parental Authority Questionnaire	Authoritative Mothering	Sherfall, 2009
Diabetes Family Responsibility Questionnaire	Parental Involvement in Diabetes Care	Shorer, 2011	
		Wu, 2013	
Rejection	Parental Expressed Emotion	Maternal Critical Comments	Liakopoulou, 2001
	Diabetes Family Behavior Checklist	Parental Negativity	Geffken, 2008
		Critical Parenting	Duke, 2008
	Iowa Family Interaction Rating Scales	Hostility Parenting	Lewin, 2006
	Observed Negative Parenting of Mother		Jaser, 2010
	Ta-ken Diagnostic Test for Parent-Child Relationship		Lim, 2008
	Parenting Dimensions Inventory	Physical Punishment	Nagano, 2010
	Nijmegen Parental Stress Index	Rejection	Davis, 2001
	Child Rearing Questionnaire	Harsh Parenting	Rodenburg, 2006
	Camberwell Family Interview	Maternal Number of Critical Comments	Ward, 2009
Parent Child Relationship Scale		Worrall, 2002	
		Yadav, 2013	
Chaos	Alabama Parenting Questionnaire	Inconsistent Discipline	Eckshtain, 2010
	Parenting Practices Report	Permissive Mothering	Greene, 2010
	Limit-setting Scale	Indulgent Parenting	Rodenburg, 2013
	Parental Authority Questionnaire	Permissive Mothering	Shorer, 2011

**Figure 3. Parent Dimensions with associated measures, constructs, and studies**  
 Note: (R)=reverse scored to maintain combinability with other measures.

**Figure 4a**



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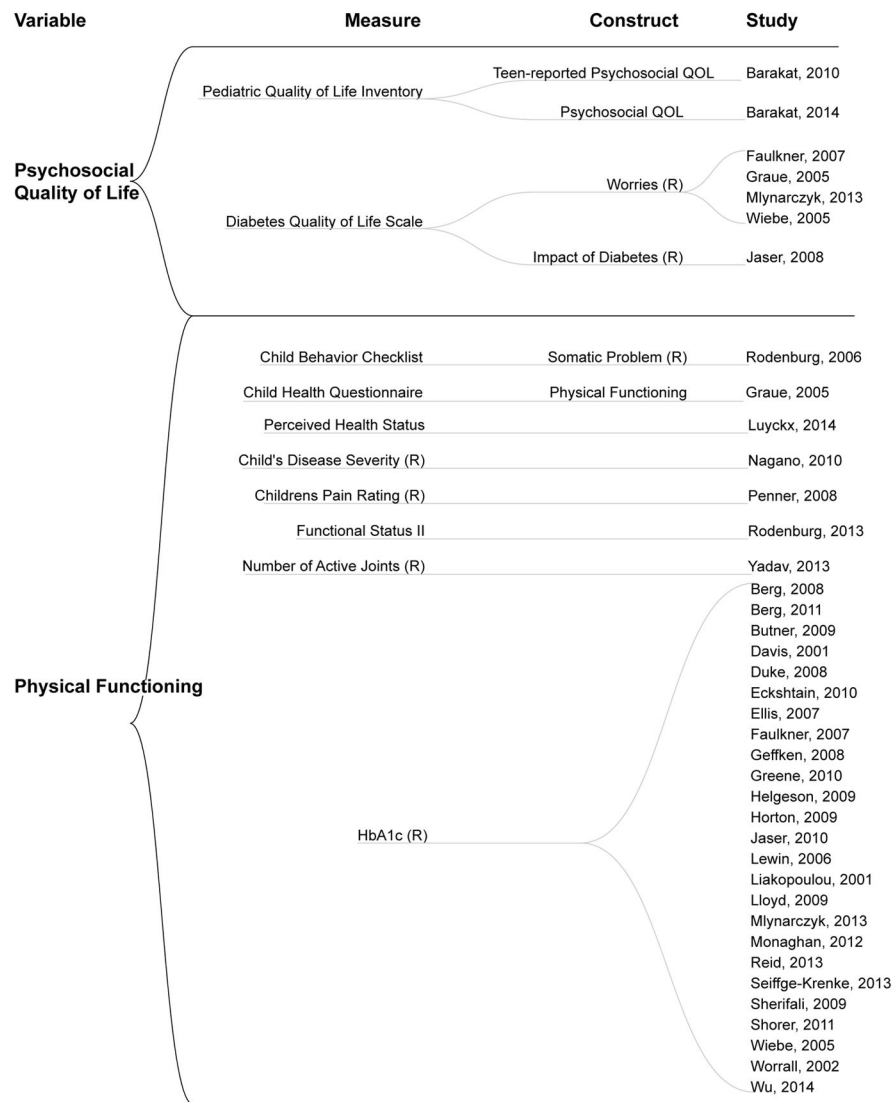
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**Figure 4b**



**Figure 4. Child wellbeing with associated measures, constructs, and studies**  
 Note: (R)=reverse scored to maintain combinability with other measures.

**Table 1**

## Core Dimensions of Parenting

<b>Dimensions:</b>	<b>Definition</b>
Warmth	Expression of love & caring, acceptance, kindness, regard
Rejection	Expression of active dislike, hostility, harshness, derision, disapproval, over- reactivity, explosiveness
Structure	Predictable, consistent, & clear expectations, guidelines, and rules for mature behavior; consistent & appropriate limit-setting, firm control
Chaos	Inconsistent, erratic, unpredictable, undependable behavior, lax control
Autonomy Support	Allows freedom of expression & action; encourages independent problem-solving, active participation in decision-making; communicates respect & deference for child opinions
Coercion	Restrictive, over-controlling, intrusive, strict obedience demanded, punitive discipline, psychological control, autocratic

Note: adapted from Skinner *et al.* 2005.

**Table 2**  
Results for each Parent-Child Relationship Cluster: No. of Reports/Children,  $r(p)$

Parent dimensions	Child wellbeing variables							
	Anxiety	Depression	QoL	Psych. QoL	Physical Functioning	Internalizing	Externalizing	
<b>Warmth</b>	3/477, -0.15 (0.2)	11/1632, -0.34 (<.001)	9/1288, 0.26 (<.001)	4/424, 0.35 (0.01)	18/2132, 0.14 (0.001)	1/252, -0.27 (<.001)	2/372, -0.26 (<.001)	
<b>Rejection</b>	1/242, 0.12 (0.06)	3/363, 0.35 (<.001)	1/30, -0.13 (0.5)		10/860, -0.25 (<.001)	2/208, 0.4 (<.001)	2/211, 0.46 (0.01)	
<b>Structure</b>	1/45, -0.17 (0.27)	5/425, 0.01 (0.95)	5/632, 0.16 (0.13)	4/405, 0.1 (0.06)	12/1480, 0.16 (<.001)	1/252, -0.11 (0.08)	2/372, -0.08 (0.13)	
<b>Chaos</b>		1/61, 0.04 (0.76)			4/263, -0.17 (0.01)			
<b>Autonomy Support</b>	1/146, -0.22 (0.04)	3/380, -0.1 (0.56)	2/191, 0.24 (<.001)	2/204, -0.004 (0.96)	4/778, 0.01 (0.86)	3/363, -0.14 (0.15)	2/320, -0.27 (<.001)	
<b>Coercion</b>	1/146, 0.22 (0.04)	2/108, 0.33 (<.001)	5/609, -0.21 (0.03)	2/242, -0.2 (0.32)	10/1220, -0.08 (0.01)	1/252, 0.17 (0.01)	2/295, 0.16 (0.29)	