# **UC Merced**

# **UC Merced Previously Published Works**

### **Title**

Associations Between Parental SES and Children's Health-Related Quality of Life: The Role of Objective and Subjective Social Status.

## **Permalink**

https://escholarship.org/uc/item/7x6068wk

## **Journal**

Journal of Pediatric Psychology, 43(5)

### **ISSN**

0146-8693

### **Authors**

Kim, Kay W Wallander, Jan L Peskin, Melissa et al.

## **Publication Date**

2018-06-01

### DOI

10.1093/jpepsy/jsx139

Peer reviewed

Associations Between Parental SES and Children's Health-Related Quality of Life:

The Role of Objective and Subjective Social Status

Kay W. Kim B.A., Jan L. Wallander Ph.D.

Psychological Sciences and Health Sciences Research Institute University of California, Merced;

Melissa Peskin, Ph.D., and Paula Cuccaro, Ph.D.

Prevention Research Center, University of Texas School of Public Health, Houston;

Marc N. Elliott, Ph.D.

RAND Corporation, Santa Monica, CA;

Mark A. Schuster, M.D., Ph.D.

Division of General Pediatrics, Boston Children's Hospital; Department of Pediatrics,

Harvard Medical School; and Kaiser Permanente School of Medicine, Pasadena, CA

*Journal of Pediatric Psychology*, in press

Acknowledgments: The Healthy Passages<sup>™</sup> study is funded by the Centers for Disease Control and Prevention, Prevention Research Centers (Cooperative Agreements CCU409679, CCU609653, CCU915773, U48DP000046, U48DP000057, U48DP000056, U19DP002663, U19DP002664, and U19DP002665). The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the CDC. The authors have no conflict of interest to disclose. No author received any form of payment to produce this paper. The contributions made to this research by study participants in the Birmingham, Houston, and Los Angeles areas, other Healthy Passages<sup>™</sup> investigators, field teams at each site, and the CDC Division of Adolescent and School Health are gratefully acknowledged.

Address correspondence to: Jan L. Wallander, Ph.D., SSHA, UC Merced, 5200 N. Lake Rd, Merced, CA 95343, <a href="mailto:jwallander@ucmerced.edu">jwallander@ucmerced.edu</a>. 209-756-5731, FAX 209-228-4007.

#### Abstract

**Objective:** We examined (1) the relationship that parental objective social status (OSS) and subjective social status (SSS) have with children's health-related quality of life (HRQOL), (2) whether SSS mediates the association between OSS and HRQOL, and (3) whether these associations differ among Black, Latino, and White children.

Method: Data came from 4,824 Black, Latino, and White 5<sup>th</sup> graders in the Healthy Passages<sup>™</sup> study. OSS was measured as parent educational attainment and net equivalent household income. SSS was measured by parent rating of community and national standing on the MacArthur Scale of Subjective Social Status. Child HRQOL was measured with child report on the PedsQL physical and psychosocial scales. Structural equation modeling path analysis was conducted using Mplus version 7.4.

**Results:** The data supported the hypothesized measurement and structural models. Whereas parental OSS was positively related to psychosocial HRQOL for all three racial/ethnic groups and to physical HRQOL for Latino children, parental SSS was not related to either for any of the racial/ethnic groups. Therefore mediation by SSS was not supported for any group.

Conclusion: OSS was confirmed to have stronger association with children's HRQOL than parental SSS. This is in contrast to some research on adults, raising the questions of how best to assess SSS relevant to children and at what point in development SSS may be influence children's health and well-being. The persistent relationship found between parental OSS and child health suggests that efforts to improve low socioeconomic resources in families may contribute to improve children's health.

Associations Between Parental SES and Children's Health-Related Quality of Life:

The Role of Objective and Subjective Social Status

Unequal distribution of resources in the United States, often defined in terms of socioeconomic status (SES), has resulted in a graded relationship between SES and health. Termed the
social gradient of health, it indicates that people who are less advantaged in SES have worse
health and shorter lives than those who are more advantaged along the whole social continuum
(Marmot et al., 1991). Since the social gradient was first introduced in early 1990s (Adler,
Boyce, Chesney, Cohen, Folkman, & Syme, 1994; Marmot et al., 1991), vast research has
replicated findings across countries, ages, and indicators of health (Jarrin, McGrath, & Quon,
2014; Reiss, 2013; Theodossiou & Zangelidis, 2009). The social gradient is now considered to be
universal (Hamming & Bauer, 2013). This relationship is also apparent in health and healthrelated quality of life (HRQOL) of children; those with higher compared to lower SES at each
point on the continuum have decreased morbidity and mortality rates (Braveman, Cubbin,
Egerter, Williams, & Pamuk, 2010), better health status (von Rueden et al, 2006), and better
HRQOL (Wallander et al., 2012). In this study, we attempt to further illuminate how the social
gradient may affect children's health broadly in the form of HRQOL.

One reason we focus on HRQOL is that because relatively few children experience any one specific disease (Bloom, Jones, & Freeman, 2012), HRQOL is a useful measure of health in the population (Varni, Burwinkel, Seid, & Skarr, 2003). Another reason is that HRQOL matches well the World Health Organization's (1948) definition of health as being "a complete state of physical, mental, and social well-being, not merely the absence of disease." Moreover, HRQOL is important to examine in youth not just because it reflects health broadly, but also because it conveys information about their essential daily functioning (Wallander & Koot, 2016). Physical

HRQOL addresses how youth are able to engage in daily activities, whereas psychosocial HRQOL captures how they feel about and perceive themselves and their lives, the quality of their relationships, and how well they function in critical roles, such as a student (Varni, Burwindkel, Seid, & Skarr, 2003; Wallander et al., 2012).

### Two Approaches to SES

Whereas SES is conceptualized as the social standing of an individual or a group (APA, n.d.), generally, two approaches are used to operationalize this concept. *Objective social status* (OSS) is commonly indicated by wealth (family income) and educational attainment (Singh-Manoux, Marmot, & Adler, 2005). Although these indicators are highly correlated (Shavers, 2007), income reflects more one's financial power, whereas education reflects more one's prestige (Chen, Martin, & Matthews, 2006). In comparison, subjective social status (SSS) captures individuals' perceptions of their position in the social hierarchy (Goodman, Adler, Kawachi, Frazier, Huang, & Colditz, 2001), thus representing a psychological process (Demakakos, Nazroo, Breeze, & Marmot, 2008). People appear to make judgments of where they belong in the social hierarchy relative to others based on cognitive averaging of their current OSS using different reference groups, such as neighborhood or nation (Singh-Manoux, et al., 2005). Whereas there is a significant literature supporting a link between OSS and a variety of health outcomes (e.g., Ma & McGhee, 2013; Wallander et al., 2012), there is a growing body of research also documenting this for SSS (Shaked, Williams, Evans, & Zonderman, 2016; Theodossiou & Zangelidis, 2009). For example, if people perceive themselves to be subordinate to others, they report lower self-esteem and greater stress, and they are likely to suffer from diseases more often than people who do not regard themselves to be of lower status (Bogart et al., 2013).

## SES and Children's HRQOL

Because children are dependent on their parents throughout development, children's SES is defined by their parents' SES. The influence of parental OSS on children's health and HRQOL is profound (Chen, Matthews, & Boyce, 2002). Increased family income is related with better health outcomes for children (Fletcher & Wolfe, 2014). In addition, children of parents with higher education level reported better physical and psychological wellbeing, mood, and emotions than those of parents with lower educational attainment (von Rueden et al., 2017). This has also been demonstrated for children with chronic disease (Kumar, Kroon, & Lalloo, 2014). Whereas this link between parental OSS and child health has been well substantiated (Chen, et al, 2002), we are not aware of research that has examined whether SSS also plays a role in children's health. It can be argued that parents' SSS can be passed onto children because children absorb how parents behave, intentionally and unintentionally. Parents who perceive low status may transmit their experience of vulnerability and stigma to children. As children mature, they also begin to compare their social status to that of their friends' and others in their community (Ursache, Noble, & Blair, 2015) and can more directly experience the physiological effects of lower perceived social status.

## Race/Ethnicity, SES, and Children's HRQOL

The number of children in the U.S. from non-White racial/ethnic groups is growing dramatically, such that by the year 2020, these groups are expected to constitute more than half of the childhood population (Federal Interagency Forum on Child and Family Statistics, 2017). Yet, disparities in health and HRQOL among different racial/ethnic groups remain prevalent, which is at least partially explained due to differences in the SES distribution across racial/ethnic groups (Wallander et al., 2012). White families are on average situated in higher OSS compared

to Black and Latino families, which may be a factor why White children have better health than other racial/ethnic groups (Flores, 2010). Yet, OSS may have a different relationship with health in different racial/ethnic groups. Whereas White and Latino children showed the expected negative linear relationship between parental education and obesity prevalence, this was not the case for Black children, whose obesity prevalence when parents were college educated was no different from that when parents had lesser educational attainment (Fradkin et al., 2015).

Moreover, individuals make different choices regarding which group they compare themselves to and therefore how they perceive their SSS. There are indications these choices may also differ among racial/ethnic groups. For example, although Black individuals are in lower OSS than Whites on average, they appear more likely to view their SSS higher than Whites when they compared themselves to their neighbors (Wolff, Subramanian, Acevedo-Garcia, Weber, & Kawachi, 2010). Also, Latinos marked their social standing higher when they compared themselves to their immediate community or other Latino immigrants in the U.S., but lower when compared to others in the U.S. or Whites (Wolff, Acevedo-Garcia, Subramanian, Weber, & Kawachi, 2010). Therefore, OSS and SSS may serve a different role in different racial/ethnic groups.

## **Current Study**

To our knowledge, no study has compared the relationships that parental OSS and SSS have with younger children's HRQOL. Previous research into these relationships focused on adults (e.g., Mielck, Vogelmann & Leidl, 2014) leads to the hypothesis that parental SSS partly mediates the effect of OSS on children's health because people rely partly on objective indicators to evaluate their SSS through cognitive averaging (Adler et al., 1994). For example, path analysis revealed that the effect of OSS on quality of life in adults was mediated by their SSS (Netuveli &

Bartley, 2012). In addition, SSS fully mediated the associations of education and occupation with illness, disability, diabetes, and depression in men and of education with HDL-cholesterol in women (Demakakos et al, 2008). However, this hypothesis has not been tested with children, nor has it been examined across racial/ethnic groups.

The model depicted in Figure 1 identifies our hypothesized relationships among OSS, SSS, and HRQOL in children, pointing to three specific aims: To examine (1) the relationships of parental OSS and SSS and children's HRQOL, (2) whether parental SSS mediates the association between parental OSS and children's HRQOL, and (3) whether these associations differ among Black, Latino, and White children.-

#### Methods

Data came from Healthy Passages<sup>™</sup> Wave I, a multi-site community study funded by the Centers for Disease Control and Prevention. It focuses on risk and protective factors, health behaviors (e.g., dietary practices, tobacco use, violent activity), health (e.g., diabetes, obesity, sexually transmitted diseases), and HRQOL outcomes among youth to illuminate disparities among subpopulations (e.g., race/ethnicity). Data were collected in 2004-2006 (Schuster et al., 2012). Institutional review boards at all research sites approved this study.

## **Participants**

Participants were recruited from 5<sup>th</sup> grade public schools in three areas: (1) ten contiguous public-school districts in and around Birmingham, Alabama, (2) 25 contiguous public-school districts in Los Angeles County, California, and (3) the largest public-school district in Houston, Texas. To ensure adequate sample sizes of (non-Latino) Black, Latino, and (non-Latino) White youth, a random sample of schools were taken using probabilities that were a function of how closely a school's racial/ethnic mix corresponded to the site's racial/ethnic target. Of the 6,663

parents or primary caregiver (hereafter referred to as parent) who agreed to be contacted after receiving information about the study, interviews were completed for 5,147 (77%) child and parent dyads (for all but 15 cases). Children were excluded from participation if they were not attending a regular academic classroom or if they or their parent could not complete interviews in English or Spanish. There were no other inclusion or exclusion criteria. To focus on the three largest racial/ethnic groups, the 6% who were not identified as being Black, Latino, or White were omitted from the analysis. Of the 4,824 constituting the final sample, the unweighted (weighted) distribution was 51% (51%) female, 36% (30%) Blacks, 38% (47%) Latinos, and 26% (23%) Whites, and child age M = 11.12 (SD = 0.56). Whereas detailed demographic information has been presented elsewhere (Schuster et al., 2012), additional information about parents is presented in Table 1.

### **Procedures**

This research was conducted in compliance with APA ethical standards in the treatment of participants. Two trained interviewers administered the Healthy Passages<sup>™</sup> protocol with the child and parent at their home or a research facility. The parent provided informed consent and the child provided assent. The interviews were conducted in private spaces with the child and parent separately, using both computer-assisted personal interview (CAPI) and audio self-interview methods (CASI). Parents could choose whether to complete the interview in English or Spanish. Parents received \$50 and children received a \$20 gift card for completing the interview.

### **Measures**

Objective social status (OSS) was based on highest household educational attainment and total household income, which are the two most commonly used indicators (Shavers, 2007).

Parents reported highest education completed, which were coded as (1) 8<sup>th</sup> grade or less, (2)

some high school, (3) high school graduation or GED, (4) some college or two-year college degree, (5) four-year college degree, and (6) more than four-year college degree. Parents also reported total household income for the past 12 months from among 20 income ranges (referenced as per week, month, and year). They were prompted with multiple examples to consider all sources of income from all household members. Income was transformed to percentage of federal poverty level (FPL) and adjusted for household size, by dividing reported total household income by the government issued poverty level for the number of people reported in the household (U.S. Department of Health and Human Services, 2017). Higher scores indicate higher net household income. Because FPL was positively skewed (skewness = 1.99, kurtosis = 4.70), a square root transformation was applied to improve normality (skewness = 0.59, kurtosis = 0.31). No other variables deviated from normality.

Subjective social status (SSS) was measured with the MacArthur Scale of Subjective Social Status (Adler, Epel, Castellazzo, & Ickovics, 2000) where the parent is asked to indicate her social standing on two 10-rung ladders where the best-off are located at the top and the worst-off at the bottom. One ladder reflected standing with respect to one's community and the other with respect to the nation, resulting in two indicators of SSS.

Child health-related quality of life (HRQOL) was measured with the self-report form of the Pediatric Quality of Life Inventory Version 4.0 (PedsQL; Varni, Seid, & Kurtin, 2001), a widely used, well-validated measure of HRQOL in childhood. The PedsQL provides scores for physical (7 items) and psychosocial (15 items) domains, the latter consisting of subscales addressing emotional, social, and school functioning. This scale structure has been replicated across multiple racial/ethnic groups (Limbers, Newman, & Varni, 2009). Each item asks how much a certain behavior has been a problem in the past month (e.g., "it is hard for you to run,"

"you feel afraid or scared"). Responses are reported on 5-point scales (0 = never a problem, 4 = almost always a problem), but scale scores are constructed so that higher scores indicate better HRQOL on a scale from 1 to 100.

Child race/ethnicity was classified based on the parent's response (supplemented by child report when necessary) which one or more of seven categories best described the child. The child was classified as Latino if so indicated regardless of other racial/ethnic indication. The remainders were classified as (non-Latino) Black, (non-Latino) White, or other (including multiracial youth). Participants in the latter category were excluded from the analysis due to small sample size.

## **Statistical Analyses**

All analyses were performed with Mplus version 7.4 (Muthén & Muthén, 2017) using design weights to account for differential probabilities of selection of students according to their school and a cluster variable to account for clustering of students within schools (see Schuster et al., 2012). A latent variable model was evaluated where OSS was indicated by highest educational level of caregiver and total household income as a percent of FPL, and SSS was indicated by parent-report of community standing and national standing ratings.

The measurement models of relationships between latent variables (OSS and SSS) and observed variables (household income, parent education, and placement on national ladder and community ladder) were evaluated to ensure a good fit using confirmatory factor analysis (CFA) (Byrne, 2012). Three goodness-of-fit indices were examined to determine how well the model reproduced characteristics of the observed data: Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). CFI and TLI values above 0.95 are considered to indicate adequate fit while values greater than 0.90 are considered

to be acceptable fit. RMSEA values of 0.05 or less indicate a close fit, and values of 0.08 or less indicate adequate fit (Hu & Bentler, 1998). RMSEA also can be treated as an effect size for testing the power of SEM models (MacCallan, Browne, & Cai, 2006).

After ensuring the adequate fit of the measurement model, structural models were examined. Initially, we tested the hypothesized models (Fig. 1) on both the total sample and across three racial/ethnic groups using a multi-group analysis first. However, the RMSEA indicated poor fit in the multi-group analysis. Therefore, to evaluate the fit of the models for each racial/ethnic group we had to test them separately. To test the hypothesized mediation effect from OSS through SSS on each child variable, a boot strapping approach with 1,000 iterations was used. As a result, only RMSEA is produced under these conditions, because CFI, TLI and chi-square cannot be provided for model evaluation when both design weights and bootstrapping are incorporated.

### **Results**

Table 2 presents descriptive statistics for study variables and correlations among variables. As shown in Table 3, all observed variables loaded significantly onto their respective latent factors when tested OSS and SSS for the total sample. This was also the case for each racial/ethnic group (details available upon request).

## Path and Mediation Analysis for Total Sample

Model fit was acceptable for both physical and psychosocial HRQOL for the total sample (RMSEA [90% C.I.]: physical = 0.00 [0.00, 0.02], psychosocial = 0.02 [0.00, 0.03]). As shown in Figure 2, the path from parental OSS to parental SSS was significant. Moreover, parental OSS was significantly related to both physical and psychosocial HRQOL. In contrast, parental SSS

was not significantly associated with either HRQOL variable. None of the mediation paths from parental OSS to any child HRQOL was significant for the total sample.

## Path and Mediation Analysis for Racial/ethnic Groups

Model fit was acceptable across racial/ethnic groups for both physical (RMSEA [90% C.I]: Black = 0.02 [0.00, 0.05], Latino = 0.00 [0.00, 0.03], White = 0.05 [0.02, 0.08]) and psychosocial HRQOL (RMSEA [C.I]: Black = 0.05 [0.02, 0.07], Latino = 0.00 [0.00, 0.04], White = 0.04 [0.02, 0.07]) HRQOL. As shown in Figure 2, the path from parental OSS to parental SSS was consistently significant across Black, Latino, and White groups ( $\beta$ s  $\geq$  .35, p < .05). Parental OSS was significantly related to psychosocial HRQOL also in each racial/ethnic group ( $\beta$ s  $\geq$  .15, p < .05). The path between parental OSS and child physical HRQOL was only significant in the Latino group ( $\beta$  = .13, p < .05). In contrast, parental SSS was not significantly associated with either child physical or psychosocial HRQOL for any of the racial/ethnic groups. Likewise, the mediation was not supported for any racial/ethnic groups.

### **Discussion**

This study demonstrated that objective socioeconomic family resources, such as parental education attainment and income level, are more powerful correlates of children's physical and psychosocial HRQOL than parents' perception of their social status. Parents' view of their social status was associated with objective measures of their SES, consistent with prior research (Shaked, et al., 2016). Furthermore, we found that parental SSS does not mediate the relationship between parental OSS and children's physical and psychosocial HRQOL. These relationships with psychosocial HRQOL were significant across Black, Latino, and White groups; however, the association between OSS and physical HRQOL was only significant for Latino children.

In contrast, some recent studies with adults have reported that SSS is a stronger predictor of health than OSS because the former captures how a person places him or herself in a socioeconomic hierarchy (Singh-Maoux et al, 2005), which involves psychosocial processes potentially more influential to health (Brown, Adler, Worthman, Copeland, Costello, & Angold, 2008). Psychosocial risk factors such as depression, neuroticism, optimism, resiliency or coping mechanisms were reported to be associated with SSS (Cundiff, Smith, Uchino & Berg, 2013). Thus, greater exposure to stress and reduced psychosocial resources may cause worse health.

However, in what we believe to be the first test to date with children not yet of adolescent age, parental SSS is not supported as a prominent influence on their HRQOL. One explanation for our findings could be the parents' perceptions of their location in a social hierarchy are not yet transmitted to children at this young age, at least in a way that affects the children's HRQOL. Parents may not share their perceived social status with their children to protect them, or children are too young to grasp the meaning of this. Alternatively, it could take longer time for the psychosocial processes involved in parents' SSS to affect children's HRQOL than is the case for more objective socioeconomic conditions. Thus, relationships among OSS, SSS, and HRQOL should be examined later in adolescence, where SSS may be more prominently experienced.

Among several limitations, foremost is that because this is a correlational study, causation cannot be determined. In addition, the cross-sectional design limits interpretations of mediation analysis (Maxwell & Cole, 2007). These results therefore must be viewed as preliminary, requiring further testing using an appropriate separation of variables in a longitudinal design. Also, potential biases in children's self-report of HRQOL must be acknowledged. This research only obtained information on the primary parent's perception of her/his SSS, and this may differ between both parents involved with the youth. Moreover, future research should examine social

status perception of youth themselves to provide a fuller understanding of its role in their health across development, schools and neighborhoods, to illuminate the role of broader social determinants of health.

These findings might not generalize to the population of the United States because participants were sampled from three geographic areas, which may present selection bias. Also, other races/ethnicities were excluded from the study. Because the Latino participants were recruited in Los Angeles and Houston, they had familial roots primarily in Mexico and Central America. Due to their heterogeneity, caution must be exercised in generalizing to Latino groups with other origins. Moreover, as Latino children in immigrant families acculturate to the U.S., their developmental and health outcomes appear to become less favorable, a phenomenon termed the immigrant paradox (García Coll & Marks, 2012). A more nuanced perspective on the HRQOL of Latino children would be achieved in future studies by considering their generational status in the U.S. Lastly, this sample contained additional distinctions, for example including a majority of parents who were married or living with a partner or being employed full-time, which may also limit generalizability of findings to populations that differ markedly.

These findings suggest that the effects of parental SSS do not appear to contribute to HRQOL of young children in 5<sup>th</sup> grade, certainly when contrasted with parental OSS. However, this must be considered only as a first study into these relationships. Given that adults' SSS appears to play a role in their health, future research need to parse out when in development SSS begin to exert an effect on child HRQOL independent of OSS. As this research moves forward, it needs to incorporate youth perspectives on SSS. This would enable examination of the role of concordance and discordance between parent and child reported SSS for child health status. This research is important because socioeconomic conditions profoundly affect health and

development in children (Chen et al., 2002). This occurs through multiple pathways including psychological processes (Schreier & Chen, 2013), but we do not understand well what psychological processes mediate the social gradient in child health. The subjective experience of one's social status is a promising candidate that warrants further research into its role for child health. At the same time, in trying to further understand the mechanism by which objective social conditions may affect child HRQOL, it is necessary to examine specific factors and processes constituting the socioeconomic environment to differentiate influence on child health outcomes (Chen et al., 2002). Additional research on neighborhood and school SES, beyond parental OSS, could be meaningful to understand the pathways between types of OSS and children's HRQOL.

The persistent relationship found between parental OSS and child HRQOL suggest that efforts to improve socioeconomic resources in families and to eliminate poverty at an earlier age may be effective in improving children's health and well-being. For example, when income supplements were provided annually, American Indian families were shown to move out of abject poverty, which had a significant positive impact on children's psychosocial development and mental health, but only if provided early in their lives (Costello, Compton, Keeler, & Angold, 2003). Alternatively, providing high quality intensive early childhood education during the first five years of life has been shown to mitigate the effects of growing up in a low OSS environment for Black and White children on biomarkers of health measured around 35 years of age (Campbell et al., 2014). Similar approaches to improving children's quality of life should be considered. Furthermore, holistic efforts at the society and community levels, such as educational training, interventions designed to increase children's nutrition and physical activity, and environmental policies to ensure clean water and air, among others, should be considered in attempting to reduce the social gradient in health.

#### References

- Adler, N. E., Boyce, W. T., Chesney, M. A., Folkman, S., & Syme, S. L. (1994). Socioeconomic inequalities in health: No easy solution. *Journal of the American Medical Association*, 269, 3140 3145.
- Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: preliminary data in healthy White women. *Health Psychology*, *19*, 586 592.
- American Psychological Association, *Socioeconomic Status*, Retrieved from <a href="http://www.apa.org/topics/socioeconomic-status/">http://www.apa.org/topics/socioeconomic-status/</a>
- Bloom, B., Jones, L. I., & Freeman, G. (2013). Summary health statistics for U.S. children: National Health Interview Survey, 2012. *Vital Health Statistic*, *10*, 1 75.
- Bogart, L. M., Elliott, M. N., Kanouse, D. E., Klein, D. J., Davies, S. L., Cuccaro, P. M., ...

  Schuster, M. A. (2013). Association between perceived discrimination and racial/ethnic disparities in problem behaviors among preadolescent youths. *American Journal of Public Health*, *103*, 1074 1081.
- Braveman, P.A., Cubbin, C., Egerter, S., Williams, D.R., & Pamuk, E. (2010). Socioeconomic disparities in health in the United States: what the patterns tell us. *American Journal of Public Health*, *2010*, s186 s196.
- Brown, R. A., Adler, N. E., Worthman, C. M., Copeland, W. E., Costello, E. J., & Angold, A. (2008). Cultural and community determinants of subjective social status among Cherokee and white youth. *Ethnicity & Health*, *13*, 289 303.
- Byrne, B. M. (2012). *Structural equation modeling with Mplus: Basic concepts, applications, and programming*. New York: Routledge/Taylor & Francis Group.

- Campbell, F., Conti, G., Heckman, J. J., Moon, S. H., Pinto, R., Pungello, E., & Pan, Y. (2014).

  Early childhood investments substantially boost adult health. *Science*, *343*(6178), 1478 1485.
- Centers for Disease Control and Prevention: Measuring Healthy Days: Population assessment of health-related quality, Retrieved from <a href="http://www.cdc.gov/hrqol/">http://www.cdc.gov/hrqol/</a>
- Chen, E., Martin A.D., & Matthews, K.A. (2006). Socioeconomic status and health: do gradient differ w/t childhood and adolescence? *Social Science and Medicine*, *62*, 2161 2170.
- Chen, E., Matthews, K., & Boyce, W. (2002). Socioeconomic differences in children's health:

  How and why do these relationships change with age? *Psychological Bulletin*, *128*, 295 329.
- Costello, E. J., Compton, S. N., Keeler, G., & Angold, A. (2003). Relationships between poverty and Psychopathology. *JAMA*, *290*, 2023 2029.
- Cundiff, J. M., Smith, T.W., Uchino, B. N., & Berg, C.A. (2013). Subjective social status: construct validity and associations with psychosocial vulnerability and self-rated health. *International Journal of Behavioral Medicine*, *20*, 148 158.
- Demakakos, P., Nazroo, J., Breeze, E., & Marmot, M. (2008). Socioeconomic status and health:

  The role of subjective social status. *Social Science & Medicine*, *67*, 330 340.
- Federal Interagency Forum on Child and Family Statistics (2017). America's Children: Key

  National Indicators of Well-Being, Retrieved from

  <a href="https://www.childstats.gov/americaschildren/demo.asp">https://www.childstats.gov/americaschildren/demo.asp</a>
- Fletcher, J. & Wolfe, B. (2014). Increasing our understanding of the health-income gradient in children, *Health Economics*, *32*, 473 486.

- Flores, G. & The Committee on Pediatric Research (2010). Technical report-racial and ethnic disparities in the health and health care of children, *Pediatrics*, *132*, 979 1020.
- Fradkin, C., Wallander, J. L., Elliott, M. N., Tortolero, S., Cuccaro, P., & Schuster, M. A. (2015).

  Associations between Socioeconomic Status and Obesity in Diverse, Young Adolescents:

  Variation across Race/Ethnicity and Gender. *Healthy Psychology*, *34*, 1 9.
- García Coll, C. & Marks, A. K. (2012). The immigrant paradox in children and adolescents. Is becoming American a developmental risk? Washington D.C.: American Psychology Association.
- Goodman, E., Adler, N. E., Kawachi, I., Frazier, A. L., Huang, B., & Colditz, G. A. (2001).

  Adolescents' perceptions of social status: Development and evaluation of a new indicator. *Pediatrics*, *108*, e31 e31.
- Hamming, O. & Bauer, G. F. (2013). The social gradient in work and health: a cross sectional study exploring the relationship, *BMC Public Health*, *13*, 1170.
- Hu, L. T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, *3*, 424 453.
- Jarrin, D.C., McGrath, J.J., & Quon, E.C. (2014). Objective and subjective socioeconomic gradients exist for sleep in children and adolescents. *Healthy Psychology*, *33*, 301 305.
- Kumar, S., Kroon, J., & Lalloo, R. (2014). A systematic review of the impact of parental socioeconomic status and home environment characteristics on children's oral health related quality of life, *Health and Quality of Life Outcomes*, *12*, 41.
- Limbers, C. A., Newman, D. A., & Varni, J. W., (2009). Factorial invariance of child self-report across race/ethnicity groups: a multigroup confirmatory factor analysis approach utilizing the PedsQL 4.0 Generic Core Scales. *Annals Epidemiology*, *19*, 575 81.

- Ma, X. & McGhee, S. M. (2013). A cross-sectional study on socioeconomic status and health-related quality of life among elderly Chinese. *BMJ Open*, 3, 1-9.
- MacCallum, R. C., Browne, M. W., & Cai, L. (2006). Testing differences between nested covariance structure models: Power analysis and null hypotheses. *Psychological Methods*, *11*, 19 35.
- Marmot, M. G., Smith, G. D., Stansfled, S., Patel, C., North, F., Head J, White I., Brunner, E., & Feeney, A. (1991). Health Inequalities among British civil servants: the Whitehall Study, *The Lancet*, 337, 1387 − 1393.
- Maxwell, S. E. & Cole, D. A. (2007). Bias in Cross-Sectional Analyses of Longitudinal Mediation. *Psychological Methods*, *12*, 23 44.
- Mielck, A., Vogelmann, M., & Leidl, R. (2014). Health-related quality of life and socioeconomic status: inequalities among adults with a chronic disease, *Health and Quality of Life Outcomes*, *12*, 58.
- Muthén, L. K., & Muthén, B. O. (1998-2017). *Mplus User's Guide. Seventh Edition*. Los Angeles, CA: Muthén & Muthén.
- Netuveli, G., & Bartley, M. (2012). Perception is reality: Effect of subjective versus objective Socio-economic position on quality of life. *Sociology, 46*, 1208 1215.
- Reiss, F. (2013). Socioeconomic inequalities and mental health problems in children and adolescents: A systematic review, *Social Science & Medicine*, *90*, 24 31.
- Schreier, H. M. C. & Chen, E. (2013). Socioeconomic status and the health of youth: a multi-level, multi-domain approach to conceptualizing pathways. *Psychological Bulletin*, 139, 606 654.

- Schuster, M. A., Elliott, M. N., Kanouse, D. E., Wallander, J. L., Tortolero, S. R., Ratner, J. A., ... Banspach, S. W. (2012). Racial and ethnic health disparities among fifth-graders in three cities. *New England Journal of Medicine*, *367*, 735 745.
- Singh-Manoux, A., Marmot, M. G., & Adler, N. E. (2005). Does subjective social status predict health and change in health status better than objective status? *Psychosomatic Medicine*, 67, 855 861.
- Shaked, D., Williams, M., Evans, M.K., & Zonderman, A. B. (2016). Indicators of subjective social status: Differential associations across race and sex. *Social Science & Medicine Population Health*, *2*, 700 707.
- Shavers, V. L. (2007). Measurement of socioeconomic status in health disparities research. *Journal of the National Medical Association*, 99, 1013 1023.
- Theodossiou, I. & Zangelidis, A. (2009). The social gradient in health: The effect of absolute income and subjective social status assessment on the individual's health in Europe, *Economics and Human Biology, 7*, 229 237.
- U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation (2017, April 04). Retrieved August 31, 2017, from <a href="https://aspe.hhs.gov/frequently-asked-questions-related-poverty-guidelines-and-poverty">https://aspe.hhs.gov/frequently-asked-questions-related-poverty-guidelines-and-poverty</a>
- Ursache, A., Noble, K. G., & Blair, C. (2015). Socioeconomic status, subjective social status, and perceived stress: Associations with stress physiology and executive functioning.

  \*Behavioral Medicine\*, 41, 145 154.
- Varni, J. W., Burwinkel, T.M., Seid, M., & Skarr, D. (2003). The PedsQL 4.0 as a pediatric population health measure: feasibility, reliability, and validity. *Ambulatory Pediatrics*, *3*, 329 341.

- Varni, J. W., Seid, M., & Kurtin, P. S. (2001). PedsQL™ 4.0: Reliability and validity of the pediatric quality of life Inventory™ version 4.0 generic core scales in healthy and patient populations. *Medical Care*, 39, 800 812.
- von Rueden, U., Gosch, A., Rajmil, L., Bisegger, C., Ravens-Sieberer, U., & the European KIDSCREEN group. (2006). Socioeconomic determinants of health-Related quality of life in childhood and adolescence: results from a European study, *Journal of Epidemiology and Community Health*, *60*, 130 135.
- Wallander, J. L., Fradkin, C., Chien, A. T., Mrug, S., Banspach, S. W., Davies, S., ... Schuster,
  M. A. (2012). Racial/ethnic disparities in health-related quality of life and health in children are largely mediated by family Contextual differences. *Academic Pediatrics*, *12*, 532 538.
- Wallander, J. L., & Koot, H. M. (2016). Quality of life in children: A critical examination of concepts, approaches, issues, and future directions. *Clinical Psychology Review*, *45*, 131 143.
- Wolff, L. S., Acevedo-Garcia, D., Subramanian, S. V., Weber, D., & Kawachi, I. (2010).

  Subjective social status, a new measure in health disparities research: Do race/ethnicity and choice of referent group matter? *Journal of Health Psychology*, *15*, 560 574.
- Wolff, L. S., Subramanian, S.V., Acevedo-Garcia, D., Weber, D., & Kawachi, I. (2010).

  Compared to whom? Subjective social status, self-rated health, and referent group sensitivity in a diverse US sample. *Social Science & Medicine*, *70*, 2019 2028.
- World Health Organization (1948). Retrieved August 31, 2017, from <a href="http://www.who.int/about/mission/en/">http://www.who.int/about/mission/en/</a>

Table 1. Demographic information about the parent/caregiver respondent

	%
Relationship to child	
Biological mother	86.
Biological father	6.
Grandparents	2.
Adoptive/step/foster parents	2.
All other	2.
Relationship status	
Married	56.
Living with a partner	7.
Widowed	1.
Divorced	11.
Separated	7.
All other	15.
Employment status	
Working full-time	55.
Working part-time	15.
Unemployed	5.
Retired	1.
Disabled	3.
Student	1.
Homemaker	18.
Not in labor force	1.
Education level	
8th grade or less	14.
Some high school, but did not graduate	11.
High school graduate & GED	19.
Some college or two-year degree	27.
Four-year college graduate	16.
More than a four-year college degree	11.
Employment status of spouse/partner	
Working full-time	76.
Working part-time	15.
Unemployed	4.
Retired	1.
Disabled	0.
Student	0.
Homemaker	1.

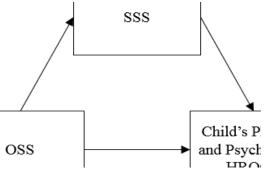
		Mean (SE)					
	S cale	T otal	Black	Latino	White		
Objective social status							
Highest education of caregiver	0-6	3.30	3.65	2.37	5.56		
		(0.11)	(0.06)	(0.10)	(0.14)		
Household income as % FPL	%	237.16	162.45	145.60	501.33		
		(17.62)	(9.59)	(9.80)	(25.57)		
Subjective social status							
Community standing	1-10	5.98	6.11	5.66	6.41		
		(0.05)	(0.06)	(0.05)	(80.0)		
National standing	1-10	5.46	5.45	4.93	6.49		
		(80.0)	(0.04)	(0.07)	(0.15)		
Child HRQOL							
Psychosocial HRQOL	1-100	74.03	73.33	72.66	77.72		
		(0.42)	(0.54)	(0.48)	(0.68)		
Physical HRQOL	1-100	83.91	84.11	81.94	87.61		
		(0.38)	(0.42)	(0.46)	(0.43)		

Note: SE, standard error; FPL, federal poverty level; HRQOL, health-related quality of life

Table 3. Correlations and factor loadings among variables in total sample

Correlations	1	2	3	4	5	6
1. Highest education in household	-					
2. Household income as % FPL	.56	-				
3. Community SSS	.24	.28	-			
4. National SSS	.36	.41	.59	-		
5. Psychosocial HRQOL	.18	.18	.08	.11	-	
6. Physical HRQOL	.17	.15	.05	.09	.62	-
Factor Loadings						
Objective Social Status	.74	.82				
Subjective Social Status			.64	.93		

*Note.* All correlations and factor loaders \*\*p < 0.01, FPL = U.S. federal poverty level, SSS = subjective social status, HRQOL = health-related quality of life



*Figure 1*. Hypothesized mediation model for the relationships of parental objective (OSS) and parental subjective (SSS) social status with child's health-related quality of life (HRQOL).

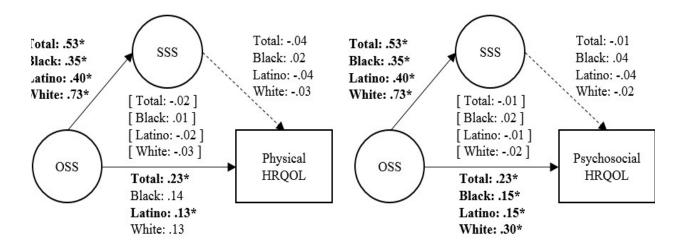


Figure 2. Relationships among objective social status (OSS), subjective social status (SSS), and child health-related quality of life (HRQOL) among Total sample and Black, Latino and White children. Oval indicates latent variable and rectangle indicates observed variable (see Statistical Analysis section). Models include indirect (mediation) effects from OSS to child's physical and psychosocial HRQOL via SSS, which are reported in brackets. \*p < .05, which is also indicated in bold.