Predictors of Children's Subjective Well-Being in Rural Communities of the United States

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Abstract This study examined children's subjective well-being in a rural Midwestern United States sample of children (N=1,286). Fifth grade (M_{age}=10.66, SD=.55, range 10–12 years) and 7th grade (M_{age}=12.63, SD=.55, range 12–14 years) children completed an adapted version of the previously tested Children's Worlds survey, measuring children's subjective well-being. Surveys included individual factors (age, gender, number of residences), contextual factors of home and family (home environment, family relationships, parent involvement), life and neighborhood (financial resources, life stress, neighborhood quality), school (teacher relationships, school climate, school satisfaction), and peers (peer relationships), and subjective well-being measures for life satisfaction, mental health, and self-image. Though children's subjective well-being was predicted by a number of individual, home and family, life and neighborhood, school, and peer variables, the strongest predictors of child well-being were relationships, school, and gender (males had higher scores). The reliability of the regression models were assessed by bootstrap resampling. Results are discussed in the context of an ecological, relationship-based framework of child well-being.

Keywords Childhood · Well-being · Ecological context · Rural · Relationships

A child's subjective well-being within school, home, peer, and community settings is a critical indicator of environmental impacts on child and youth development (Casas et al. 2012; Children's Worlds 2011; Kamerman et al. 2009). In the United States, child

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well-being indices have been developed using an array of administrative data from state and federal sources, but these data are drawn primarily from adults' perspectives on issues related to material support and resources, such as household income and services for education, physical health, and mental health (Lawler et al. 2011a, b). Recent international efforts to measure child well-being include children's perspectives and variations in children's subjective well-being within diverse ecocultural contexts (Ben-Arieh 2010, 2012a, b; Casas et al. 2012; Dinisman et al. 2013; Langton and Berger 2011; Stuart and Jose 2012). In this relatively new approach to measuring child well-being, specific factors have been identified as predictive of children's subjective well-being, including individual variables (e.g., age, gender), relationship variables (e.g., parent, peer, teacher relationship quality), and other contextual factors (e.g., family structure and finances, home, school, and neighborhood environments), with effects varying by geographic location and local culture (e.g., Bendayan et al. 2013; Broberg 2012; Casas et al. 2013; Dinisman et al. 2012; Goudena and Vermande 2002; Lagacé-Séguin and Case 2010; Puroila et al. 2012).

Children's subjective well-being is comprised of children's self-evaluations of their lives, and includes cognitive judgments of life satisfaction and affective evaluations, such as moods and emotions, using objective indicators and non-material subjective measurements (Casas et al. 2012; Singh and Lal 2012). The cognitive and emotional components of child well-being are related, but commonly treated as distinct and measured separately (Antaramian et al. 2008; Dinisman et al 2012; Gilman and Huebner 2003). Generally, child subjective well-being research aims to assess children's life satisfaction, including life domains of school, family, community, and interpersonal relationships (Casas et al. 2012; Child Trends 2013a; Chu et al. 2010; Jutras and Lepage 2006; Langton and Berger 2011; Suldo et al. 2009). Further, subjective child well-being research focuses on child, family, and community strengths and well-being, as opposed to risk factors for maladaptive development (Ben-Arieh 2012a; Casas et al. 2012; Child Trends 2013a, b; Gilman and Huebner 2006; Leon 1999; Park 2004). The current study extends existing subjective child well-being research (e.g., Newland et al. 2014) by examining the subjective well-being of children in the 5th and 7th grades in Midwestern United States, rural communities in the contexts of their homes, families, schools, peer relationships, and neighborhoods,

1 Contextual Influences on Child Well-Being

In order to best understand contextual influences on child subjective well-being, multiple dimensions of child well-being must be examined within several interactive contexts (Bronfenbrenner 1989; Gilman and Huebner 2003; Oberle et al. 2011). Previous research on well-being has identified family, neighborhood, school, and peer influences on well-being with distinct differences in rural and urban settings (Coyl-Shepherd and Newland 2013; Kelly et al. 2011; Oberle et al. 2011). Bi-directional relationships across contexts and influential features of each context must also be accounted for in order to understand relative contributions to child well-being (Bokhorst et al. 2010; Newland et al. 2010; Zullig et al. 2005).

Bronfenbrenner (1989) identifies microsystems (e.g., home, family, school, peers, neighborhood) as the contexts directly influencing an individual child and his or her development. In the current study, we examine the impact of microsystem contexts on subjective well-being of children within macrosystems of rural communities of the United States.

Individual Some studies have found that age may serve as a moderator of contextual influences on child well-being with effects of context increasing with a child's age (Booth et al. 2008; Chu et al. 2010). However, other research reports that child well-being indicators are relatively stable from early school years to adolescence (Bokhorst et al. 2010). Regarding gender differences on child well-being, girls have been found to display greater social well-being and boys exhibit better emotional well-being (Bokhorst et al. 2010; Dinisman et al. 2013) with women generally reporting higher negative affect than men (Diener et al. 1999). Other research found no effects of age or gender on child well-being (Bendayan et al. 2013; Suldo et al. 2009).

Home and Family Context Several aspects of the home environment and family life relate to child well-being. Residential status (e.g., living with parents or with non-parental guardians), family structure (e.g., single-parent versus intact two-parent families and step-families), and transitions from one residence to another can be disruptive to children's well-being (Antaramian et al. 2008; Langton and Berger 2011; Merritt and Franke 2010). Safety and physical environment of the home are related to child well-being, including material resources and subjective factors such as stress (Bendayan et al. 2013; Bradley and Corwyn 2004).

Decades of research in developmental and psychological science conclude that relationship quality and stability are the foundations for healthy child development and well-being (e.g., Lawler et al. 2011a, b; Li and Julian 2012). Family relationship quality affects children's life satisfaction and well-being, including self-esteem, self-concept, and mental health, (Corsano et al. 2006; Coyl-Shepherd and Newland 2013; Gilman and Huebner 2006; Goswami 2012; Proctor et al. 2010). Parent involvement with children in a variety of activities (e.g., communicating, playing, learning, and family meals) is related to a range of positive developmental outcomes across the childhood years, in part because involvement can lead to family cohesion and bonding (Crespo et al. 2011; Coyl et al. 2010; Coyl-Shepherd and Newland 2013; Newland et al. 2010; Newland et al. 2013a, b).

Life and Neighborhood Context Socio-economic status, family and child life stress, and available social support influence family interactions and child well-being throughout childhood (Bendayan et al. 2013; Bradley and Corwyn 2004; Coyl et al. 2010; Coyl et al. 2002; Coyl-Shepherd and Newland 2013; Gilman and Huebner 2003, 2006; Ho et al. 2008; Newland et al. 2014). Children and families are also part of regional and neighborhood contexts, which have been shown to influence children's, as well as their parents' and families', material, physical, and socio-emotional well-being. (Edwards 2006; Eriksson et al. 2011; Jutras and Lepage 2006; Mrug and Windle 2009; Oberle et al. 2011).

School Context General school climate (e.g., safety, order, discipline, access to resources, appearance of school buildings, and positive interactions with classmates) and children's perceptions of the school environments are related to life satisfaction and child well-being (Jutras and Lepage 2006; Suldo et al. 2008). Instrumental and emotional support from teachers and positive relationships with teachers predict children's subjective well-being (Gilman and Huebner 2006; Jutras and Lepage 2006; Suldo et al. 2008). Overall, children's satisfaction with school life (e.g., classmates, grades, experiences, and school quality) is associated with global life satisfaction (Gilman and Huebner 2006; Proctor et al. 2010; Suldo et al. 2008).

Peers Peer relationships are important contexts for supporting child well-being (Goswami 2012; Puroila et al. 2012). In fact, children report similarly high levels of social support from peers and parents, which are related to child well-being (Bokhorst et al. 2010; Chu et al. 2010; Oberle et al. 2011). Numerous studies have reported correlations between social competence, peer relationship quality, social acceptance, positive interactions with peers within and outside of school, popularity, and child physical, social, and emotional well-being and life satisfaction (Bendayan et al. 2013; Corsano et al. 2006; Gilman and Huebner 2003; Goudena and Vermande 2002; Oberle et al. 2011; Newland et al. 2010; Proctor et al. 2010; Zullig et al. 2005).

2 Rural Communities

The influences of rural environments on children's well-being are not completely understood (Kelly et al. 2011). Children in rural communities appear to be well-protected on measures of connectedness to their families and communities. For example, parents and children report that rural children feel a greater sense of trust and safety, in comparison to urban children, with strong family and community support, including family rituals such as regularly eating meals together (Eriksson et al. 2011; Glendinning et al. 2003; Health Resources and Services Administration [HRSA] 2011). However, living in rural communities can create unique challenges for raising children due to social isolation, health disparities, cultural and social differences, economic stress, persistent poverty, limited job opportunities, transportation challenges, and poor access to goods and services (Eriksson et al. 2011; Glendinning et al. 2003; HRSA 2011; Kelly et al. 2011; Menanteau-Horta and Yigzaw 2002; Slovak et al. 2011). Despite the emerging evidence that rural areas serve as unique contexts for development, few studies to date have examined child and adolescent well-being in rural areas, and studies of rural populations in the social welfare research literature are lacking (Slovak et al. 2011).

3 Purpose of the Study

This study examines children's well-being within two rural samples in the Midwest of the United States (5th grade students and 7th grade students). It adds to the existing research literature by using a self-report measure of children's well-being (including life

satisfaction, mental health, and self-image), as opposed to parental report or administrative data. The Children's Worlds (2011) survey (http://www.isciweb.org/) has been adapted to be developmentally appropriate for children and has been tested extensively to verify sound psychometric properties and cross-cultural validity (Ben-Arieh 2012b). In addition, this study examines prediction of rural children's well-being from a variety of individual (age, gender, number of residences), home and family (home environment, family relationships, parent involvement), life and neighborhood (financial resources, life stress, neighborhood quality), school (teacher relationships, school climate, school satisfaction), and peer (peer relationships) factors. It is the first known study of children's subjective well-being in the United States with a large rural sample, and replicates a study with a smaller preliminary sample (Giger et al. 2013; Newland et al. 2014).

4 Research Questions

1) How are contextual factors related to children's subjective well-being?
2) How are children's subjective well-being indicators inter-related?
3) How are contextual factors inter-related?
4) Which individual and contextual factors predict children's subjective well-being?

5 Method

5.1 Sample

Participants were a convenience sample of 1286 students currently enrolled in the 5th grade ($n=502$) or 7th grade ($n=784$) in six rural Midwestern United States school districts. In the 5th grade sample, child age ranged from 10 to 12 years old, mean= 10.66 years old. In the 7th grade sample, child age ranged from 12 to 14 years old, mean =12.63 years old. The sample was approximately evenly distributed on gender (5th grade boys 54.81 %, girls 45.19 %; 7th grade boys 49.10 %, girls 50.90 %). The majority of children (78.10 %) lived in one home, primarily with their mother/mother figure and their father/step-father/father figure. A relatively small percentage lived with one or more grandparents or another adult in the home (15.32 %), while 76.54 % lived with siblings in one or both homes. Nearly all children (98.60 %) reported that one or more adults in the home(s) had a paid job. Nearly all of the children (98.76 %) were born in the United States.

The school districts from which the participants were sampled are classified as rural, per the White House's Office of Management and Budget (OMB) designation as a Non-Metro population of less than 50,000 (see The White House's Office of Management and Budget 2012) and agreed to participate in the study at the request of the researchers. Children lived in areas within or outside of towns ranging in population from approximately 1500–15,000 residents. Ethnicity for residents in these districts is primarily Caucasian (46.78–94.34 %), American Indian (1.19–47.12 %), or biracial (1.334.10 %). Ethnicity for the remaining residents is Black, Asian, Hispanic, or Pacific Islander (<2.00 %).

5.2 Procedure

Following Institutional Review Board (IRB) approval from the authors' institution, researchers requested permission from the superintendents and middle school principals of six Midwestern United States school districts. Once permission was granted, an information packet was sent to each school. The principal was given a protocol for collecting data within the school and was asked to complete a demographic questionnaire about the school district. An informational letter was given to teachers to explain the project, ask for their assistance, and instruct them on data collection procedures which ensured anonymity and confidentiality of student responses. Teachers were instructed to send the parental informed consent home with each child approximately 5 days before scheduled data collection. The study was granted by the IRB a Waiver of Documentation of Informed Consent. Per IRB procedures, parents were provided informed consent documents without signature lines, informing them that "your child's completion and return of the survey implies that he/she agrees to participate in the research." Parents and children were informed that they could decline participation at any time.

Teachers collected data within each classroom during regular school hours and at times that did not conflict with exams, major projects, or other significant school events. During survey administration, children were informed that the survey is anonymous and responses are confidential, there are no right or wrong answers, they do not have to participate, and they do not need to answer any questions that they do not want to. Children were not asked to provide written assent as that would have allowed their personal data to be linked to child names. Rather, children were given the choice to participate in the study or not, which was explained in the survey instructions read aloud by the teachers. It took children approximately 15 min to complete the survey. When they were finished, surveys were placed in a manilla envelope which was sealed and then mailed back to the researchers. Response rate for this sample was 99 %.

5.3 Measures

Children completed an adapted versions of the Children's Worlds (2011) survey, an international survey instrument which measures children's subjective well-being in childhood and adolescence. The survey has been tested extensively by researchers in a wide range of countries, including the United Kingdom, Spain, Brazil, Honduras, Israel, Palestine, Algeria, Romania, Nepal, South Korea, Uganda, and the United States (Ben-Arieh 2012b). The scales which are included in the survey have shown strong internal consistency across a wide variety of samples with male and female children of varying ages, grades, family structures, and geographic regions around the world, including Australia, Brazil, Chile, Romania, Spain, and several locations in the United States (i.e., Casas et al. 2012, 2013; Cummins and Lau 2005; Dinisman et al. 2012; Huebner 1991; Seligson et al. 2003; Tomyn and Cummins 2011). Some of the included scales have been tested for stability over time and found to have strong test-retest reliability (e.g., Huebner 1991), and construct validity has been established through exploratory and confirmatory factor analysis procedures, correlations of scales with other criterion measures, and convergent and discriminant validity verification via a multitrait-multimethod matrix (see Casas et al. 2012, 2013; Huebner 1991; Seligson et al. 2003; Tomyn and Cummins 2011).

An adapted version of the Children's Worlds 10-year old survey was used for 5th graders and an adapted version of the Children's Worlds 12-year old survey was used for 7th graders. Adaptations to the Children's Worlds surveys included additional questions of interest to the researchers (especially family involvement items) and the survey language was revised for local United States English vernacular. Principals at participating schools confirmed that English is the primary language used by children in the home. Items on the survey are rated dichotomously (yes/no), on a scale of 0 to 4 (strongly disagree to very much agree), or on a scale of 0 to 10 (completely dissatisfied to completely satisfied). Frequency items which ask children how often they or their family engage in or experience something are rated on a scale of 0 to 3, with three representing frequent or daily occurrences. To assess the impact of individual and contextual factors on subjective well-being within rural communities, separate scales used in the current study, developed from the Children's Worlds survey and tested by the authors in a previous study (Newland et al. 2014), measured individual demographics, home and family life, neighborhood and life context, school relationships and quality, peer relationships, and child subjective well-being.

Individual Children's surveys included several demographic items which assessed person and family variables. Children reported on their age, gender, and country in which they were born (within the United States or not). They also reported on the number of residences in which they live (e.g., one or more than one, not including holiday or summer houses), their living arrangements (e.g., with family, in a foster home, or in a children's home), and the people who live with them in their home(s), including mother, father, mother's partner, father's partner, grandmother, grandfather, brothers and sisters, other children, and other adults.

Home and Family Three scales measured children's perceptions of home and family life. The Home Environment scale included two items measuring home environment quality (e.g., "I feel safe at home" and "I have a quiet place to study at home"), $\alpha = .49$ (5th grade) and $\alpha = .61$ (7th grade). The Family Relationship Quality scale included seven items measuring children's perceptions of parenting in the home (e.g., the extent to which parents listen to them, treat them fairly, challenge them to try new things) and the quality of parent–child and other family relationships (e.g., "We have a good time together in my family" and "I am satisfied with my family life"), $\alpha = .73$ (5th grade) and .82 (7th grade). The Parent involvement scale included five items measuring the frequency of parent involvement in a variety of parent–child activities (e.g., talking, having fun, learning, eating a meal, and playing together), $\alpha = .76$ (5th grade) and $\alpha = .82$ (7th grade).

Life and Neighborhood Three scales measured children's perceptions of their life and neighborhood context. The Family Financial Resources scale included three items measuring indicators of family financial security (e.g., child has clothes in good condition, child has access to a computer at home and internet), $\alpha = .58$ (5th grade) and $\alpha = .60$ (7th grade). The Life Stress scale included five items measuring significant changes in the child's life within the past year (e.g., moved or changed area, moved from one house to another, changed schools, lived with different parents or caregivers compared to 1 year ago, and lived in another country), $\alpha = .70$ (5th grade) and $\alpha = .69$

(7th grade). The Neighborhood Quality scale included five items measuring the quality of the child's neighborhood and community (e.g., feeling safe when walking in the area, feeling that there are sufficient number of places to play or have a good time) and the child's satisfaction with aspects of his/her neighborhood (e.g., outdoor areas for children's use, people in the area, and overall neighborhood quality) $\alpha=.76$ (5th grade) and $\alpha=.78$ (7th grade).

School Three scales measured children's perceptions of their school relationships and school quality. The Teacher Relationship scale included two items measuring children's perceptions of their interactions with their teachers (e.g., "My teachers listen to me and take what I say into account" and "My teachers treat me fairly"), $\alpha=.79$ (5th grade) and $\alpha=.84$ (7th grade). The School Climate scale included four items measuring indicators of school safety (e.g., I feel safe at school, I like going to school) and school bullying (e.g., frequency of being hit or left out by other children; items reverse coded), $\alpha=.55$ (5th grade) and $\alpha=.61$ (7th grade). The School Satisfaction scale included four items measuring children's satisfaction with aspects of his/her school environment (e.g., classmates, grades, school experiences, and overall school quality) $\alpha=.80$ (5th grade) and $\alpha=.83$ (7th grade).

Peers One scale measured children's perceptions of their peer relationships. It included six items measuring frequency of peer interactions (e.g., how often in the past week they have talked together apart from at school, had fun together, and met to study together) and satisfaction with peer relationships (e.g., satisfaction with friends, satisfaction with the number of friends, and perceptions that "friends are usually nice to me"), $\alpha=.72$ (5th grade) and $\alpha=.75$ (7th grade).

Child Subjective Well-Being Three scales measured children's perceptions of their well-being. The Life Satisfaction scale included eight items measuring children's positive perceptions of their lives (e.g., "My life is going well" and "I have what I want in life"), with negatively worded items reverse coded to represent higher levels of satisfaction (e.g., "I would like to change many things in my life"), $\alpha=.83$ (5th grade) and $\alpha=.86$ (7th grade). The Mental Health scale included nine items measuring children's current and recent emotions (e.g., feeling happy, positive about the future, safe, worried, lonely, sad, angry), interactions with others (e.g., getting into fights with other people), and satisfaction with her/his feelings and future. Items indicating poor mental health were reverse coded such that the scale measured mental health well-being, $\alpha=.80$ (5th grade) and $\alpha=.81$ (7th grade). The Self-Image scale included four items measuring children's satisfaction with aspects of his/her self-image (e.g., the things he/she wants to be good at and his/her self-confidence, looks, and overall self-satisfaction), $\alpha=.84$ (5th grade) and $\alpha=.89$ (7th grade).

5.4 Data Analysis Procedures

Descriptive statistics, Pearson's correlation (r), and multiple regression analyses were performed. Due to the exploratory nature of the study, multiple regression procedures were conducted by entering all of the contextual predictors into the model in one block to

ascertain which predictors were associated with each of the child well-being outcomes. Additionally, regression models were bootstrapped, a computationally-intensive resampling technique, to estimate the reliability of the models and improve overall accuracy and power of the findings (Efron and Tibshirani 1993; Erceg-Hurn and Mirosevich 2008). Robust estimates were based on 1000 resamples and 95 % confidence intervals were calculated using bias corrected and accelerated intervals as recommended by Efron and Tibshirani (1993) and others (see Field 2013). Robust regression parameter estimates were computed such that comparisons between parametric and bootstrap methods of estimation could be made to examine the overall stability of the models.

6 Results

6.1 Descriptive Statistics for Predictor and Outcome Variables

Descriptive statistics for the key study variables for both samples are displayed in Table 1. Overall, children reported fairly high quality home environments and family relationships while parent involvement levels tended to vary more. Children reported, on the whole, that they had high levels of family financial resources and neighborhood quality, and quite low levels of life stress. In regards to school relationships and quality, children generally rated teacher relationship quality, school climate, and school satisfaction positively. They also reported largely positive peer relationships. In regards to the subjective well-being indicators, children reported relatively high levels of life satisfaction, mental health, and positive self-image.

6.2 Contextual Factors Related to Children's Well-being

Research question 1 asked "How are individual and contextual factors related to children's subjective well-being?" Analyses were conducted separately by sample, and results are presented in Table 2. For 5th graders, there were small to large statistically significant associations between the contextual factors measured in this study and all three well-being indicators in children. Children's life satisfaction, mental health, and self-image were most strongly related to home environment, family relationships, parent involvement, neighborhood quality, school climate, school satisfaction, and peer relationships. They had weaker associations with family financial resources, teacher relationships, and life stress (which were inversely related to child well-being). Patterns of associations in the 7th grade sample were very similar to those in the 5th grade sample. While values for correlation coefficients differed slightly, the strength and direction of all associations mirrored findings from the 5th grade sample.

6.3 Inter-relation of Children's Well-being Indicators

Research question 2 asked, "How are children's subjective well-being indicators inter-related?" Associations among children's subjective well-being indicators are shown separately for the two samples in Table 2. The associations were all strong, positive, statistically significant, and in the expected direction. The strongest association was between children's life satisfaction and mental health in both samples.

Table 1 Descriptive statistics for predictor and outcome variables for 5th and 7th grade children ($N=1,286$)

Variable	Range	Minimum	Maximum	M	SD
Home environment					
5th	8.00	0.00	8.00	6.26	1.55
7th	8.00	0.00	8.00	6.63	1.50
Family relationships					
5th	33.00	13.00	46.00	39.97	6.07
7th	41.00	5.00	46.00	39.83	6.51
Parent involvement					
5th	15.00	0.00	15.00	10.39	3.12
7th	15.00	0.00	15.00	9.74	3.47
Family financial resources					
5th	3.00	0.00	3.00	2.77	.58
7th	4.00	0.00	4.00	2.86	.48
Life stress					
5th	5.00	0.00	5.00	1.00	1.28
7th	4.00	0.00	4.00	.70	1.10
Neighborhood quality					
5th	38.00	0.00	38.00	30.40	7.45
7th	38.00	0.00	38.00	30.49	6.89
Teacher relationship					
5th	8.00	0.00	8.00	6.33	1.68
7th	8.00	0.00	8.00	5.93	1.83
School climate					
5th	14.00	0.00	14.00	10.03	2.87
7th	14.00	0.00	14.00	10.32	2.82
School satisfaction					
5th	40.00	0.00	40.00	33.37	7.21
7th	40.00	0.00	40.00	32.38	7.55
Peer relationships					
5th	25.00	2.00	27.00	19.84	4.50
7th	27.00	0.00	27.00	20.56	4.22
Life satisfaction					
5th	37.00	1.00	38.00	29.87	6.67
7th	38.00	0.00	38.00	29.45	6.99
Mental health					
5th	48.00	6.00	54.00	42.18	8.55
7th	47.00	7.00	54.00	42.95	8.197
Self-image					
5th	40.00	0.00	40.00	34.99	6.64
7th	40.00	0.00	40.00	33.33	7.77

$n=502$, 5th Graders, $n=784$, 7th Graders

Table 2 Correlations between contextual factors and subjective well-being for 5th and 7th grade children

Variables	Grade level	Subjective well-being		
		Life satisfaction	Mental health	Self-image
Home environment	5th	.43***	.43***	.30***
	7th	.47***	.45***	.38***
Family relationships	5th	.61***	.52***	.52***
	7th	.65***	.56***	.52***
Parent involvement	5th	.44***	.47***	.43***
	7th	.49***	.44***	.39***
Family financial resources	5th	.22***	.25***	.19***
	7th	.17***	.13***	.13***
Life stress	5th	−.24***	−.19***	−.17***
	7th	−.11**	−.11**	−.08*
Neighborhood quality	5th	.51***	.56***	.55***
	7th	.51***	.55***	.51***
Teacher relationship	5th	.37***	.30***	.28***
	7th	.38***	.41***	.33***
School climate	5th	.42***	.45***	.36***
	7th	.50***	.58***	.48***
School satisfaction	5th	.52***	.54***	.57***
	7th	.57***	.64***	.59***
Peer relationships	5th	.52***	.52***	.46***
	7th	.49***	.49***	.43***
Life satisfaction	5th	–	.70***	.66***
	7th		.81***	.71***
Mental health	5th	–	–	.67***
	7th			.73***
Self-image	5th	–	–	–
	7th			

Note. *p<.05, **p<.01, ***p<.001. n=502, 5th Graders, n=784, 7th Graders

6.4 Inter-relation of Contextual Factors

Research question 3 asked, "How are contextual factors inter-related?" Associations for both samples are presented in Table 3. The associations ranged from weak to strong, but were generally statistically significant, in the expected direction, and very similar across both samples. All contextual factors were positively interrelated, with the exception of life stress, which showed weak but negative correlations with all other contextual factors. Some of the strongest associations were between family relationships and home environment, parent involvement, neighborhood quality, and school satisfaction. In addition, school satisfaction had a moderate to strong association with neighborhood quality, teacher relationships, and school climate. Teacher relationships

Table 3 Inter-correlations among contextual factors in 5th and 7th grade children

Variables		1	2	3	4	5	6	7	8	9	10
1. Home environment	5th	—	.54***	.41***	.14**	-.13**	.39***	.35***	.31***	.29***	.36***
	7th	—	.61***	.35***	.21***	.09**	.41***	.33***	.37***	.37***	.28***
2. Family relationships	5th	—	—	.56***	.22***	-.21***	.60***	.46***	.39***	.51***	.49***
	7th	—	—	.58***	.20***	-.13***	.51***	.40***	.40***	.53***	.38***
3. Parent involvement	5th	—	—	—	.14**	-.11*	.47***	.38***	.35***	.39***	.44***
	7th	—	—	—	.12**	.00	.43***	.34***	.34***	.39***	.38***
4. Family financial resources	5th	—	—	—	—	-.18***	.19***	.06	.08	.16***	.17***
	7th	—	—	—	—	-.10**	.14***	.11**	.09*	.14***	.12**
5. Life stress	5th	—	—	—	—	—	-.14**	-.12**	-.12**	-.13**	-.11*
	7th	—	—	—	—	—	.11**	.08*	.12**	.14***	.02
6. Neighborhood quality	5th	—	—	—	—	—	—	.36***	.37***	.57***	.48***
	7th	—	—	—	—	—	—	.46***	.50***	.66***	.46***
7. Teacher relationship	5th	—	—	—	—	—	—	—	.52***	.49***	.29***
	7th	—	—	—	—	—	—	—	.58***	.56***	.33***
8. School climate	5th	—	—	—	—	—	—	—	—	.60***	.39***
	7th	—	—	—	—	—	—	—	—	.66***	.50***
9. School satisfaction	5th	—	—	—	—	—	—	—	—	—	.48***
	7th	—	—	—	—	—	—	—	—	—	.52***
10. Peer relationships	5th	—	—	—	—	—	—	—	—	—	—
	7th	—	—	—	—	—	—	—	—	—	—

*p<.05, **p<.01, ***p<.001. n=502, 5th Graders, n=784, 7th Graders

and school climate were moderately interrelated, and peer relationships were associated with both school climate and school satisfaction.

6.5 Factors Predicting Children's Well-being

Research question 4 asked, "Which individual and contextual factors are the strongest predictors of children's subjective well-being?" Regression analyses for both 5th grade and 7th grade samples (Table 4) indicate that children's life satisfaction is predicted by number of residences, home environment, family relationships, school satisfaction, and peer relationships (5th grade $R^2=.50$, $F=36.97$, $p<.001$; 7th grade $R^2=.56$, $F=74.71$, $p<.001$). Additionally, in the 5th grade sample, life stress negatively predicts life satisfaction, and in the 7th grade sample life satisfaction is also predicted by child gender (with girls reporting lower satisfaction), parent involvement, and school climate.

Children's mental health in both 5th grade and 7th grade samples is predicted by gender (with girls reporting lower mental health), home environment, parent involvement, neighborhood quality, school climate, school satisfaction, and teacher and peer relationship quality (5th grade $R^2=.51$, $F=39.32$, $p<.001$; 7th grade $R^2=.56$, $F=73.18$, $p<.001$). Additionally, in the 5th grade sample, mental health is also predicted by number of residences and family financial resources, while in the 7th grade sample, mental health is also predicted by family relationships.

Children's self-image in both 5th grade and 7th grade samples is predicted by gender (with girls reporting lower self-image), family relationships, neighborhood quality, school satisfaction, and teacher and peer relationship quality (5th grade $R^2=.47$, $F=33.02$, $p<.001$; 7th grade $R^2=.49$, $F=55.50$, $p<.001$). Interestingly, students with less

Table 4 Individual and contextual factors predicting subjective well-being in 5th and 7th grade children

Variables	Well-being indicators					
	Life satisfaction β		Mental health β		Self-image β	
	5th	7th	5th	7th	5th	7th
Age	−.05	.00	−.07	−.00	−.05	.02
Gender	−.02	−.13***	−.08*	−.12***	−.11***	−.19***
Number of residences	−.07*	−.05*	−.07*	−.01	−.04	−.05
Home environment	.08*	.07*	.14***	.09**	−.02	.03
Family relationships	.27***	.34***	.04	.16***	.16***	.18**
Parent involvement	.04	.10***	.14***	.07*	.12**	.06
Family financial resources	.05	.02	.09**	−.00	.03	.01
Life stress	−.08*	−.02	−.05	−.02	−.05	.02
Neighborhood quality	.07	.04	.19***	.08*	.18***	.11*
Teacher relationship	−.00	−.04	−.11**	−.07*	−.10*	−.09*
School climate	.07	.12***	.14***	.22***	.00	.13**
School satisfaction	.15**	.16***	.20***	.27***	.34***	.32***
Peer relationships	.18***	.18***	.15***	.14***	.10*	.11*

*$p<.05$, **$p<.01$, ***$p<.001$. $n=502$, 5th Graders, $n=784$, 7th Graders. Gender (male=1, female=2)

positive self-images reported stronger relationships with their teacher in both samples. Additionally, in the 5th grade sample, self-image is predicted by parent involvement, and in the 7th grade sample, self-image is also predicted by school climate.

6.6 Bootstrap Analyses

Bootstrap regression analyses were seeded for replication purposes and produced robust standard errors and bias corrected and accelerated 95 % confidence intervals (BCa). Robust regression parameter estimates (see Table 5) indicate that overall the regression models presented in Table 4 were quite stable for both samples, except on seven of the 78 coefficients. The resampling analyses revealed robust prediction from home environment to life satisfaction for 5th graders, for 7th graders it was not significant, and the prediction from number of residences to life satisfaction was not significant for 7th graders. In addition, robust prediction of mental health became significant for age for the 5th grade sample, but was not significant for neighborhood quality or teacher relationship quality for the 7th grade sample. Lastly, prediction from teacher relationship quality to self-image was not significant for the 5th grade sample.

7 Discussion

Consistent with other research, small to large relations were found between children's subjective well-being (i.e., life satisfaction, mental health, and self-image) and individual (i.e., age, gender, number of residences) and contextual factors of home and family (i.e., home environment, family relationships, parent involvement), life and neighborhood (i.e., financial resources, life stress, neighborhood quality), school (i.e., teacher relationship, school climate, school satisfaction), and peers (i.e., peer relationships; Bendayan et al. 2013; Broberg 2012; Chu et al. 2010; Gilman and Huebner 2003; Glendinning et al. 2003; Goudena and Vermande 2002; Lagacé-Séguin and Case 2010; Oberle et al. 2011; Proctor et al. 2010; Puroila et al. 2012; Zullig et al. 2005). When considered together, relational, school, and gender variables emerged as the strongest predictors of child well-being. These findings build on previous research with a small sub-sample of 7th grade children ($n=149$) from this study's sample that reported relational variables as the strongest predictors of child well-being (Giger et al. 2013; Newland et al. 2014).

Peer relationships were a consistent predictor of child well-being for both 5th and 7th graders across all three indicators of child well-being: life satisfaction, mental health, and self-image. Family relationships predicted child well-being for all indices except for mental health in 5th graders. Further, parent involvement predicted mental health in both groups, life satisfaction in 7th graders, and self-image in 5th graders. These findings affirm other research describing the critical nature of relationships for children's subjective well-being (Merritt and Franke 2010; Puroila et al. 2012; Zullig et al. 2005). Beginning in infancy, family relationships form a foundation for mental health and foretell well-being throughout the life span (Broberg 2012; Coyl et al. 2002; Lawler et al. 2011a, b). From early childhood through the school years, relations with peers and teachers become increasingly important to healthy child development and well-being (Chu et al. 2010; Gorrese and Ruggieri 2012; Puroila et al. 2012). Across

Table 5 Characteristics of significant robust bootstrap estimates on subjective well−being indicators for 5th and 7th grade children

Variables	Grade level	Well-being indicators					
		Life satisfaction		Mental health		Self-image	
		SE B	BCa 95 %CI	SE B	BCa 95 %CI	SE B	BCa 95 %CI
Age	5th	NS	NS	.50	(−2.12, −.05)*	NS	NS
	7th	NS	NS	NS	NS	NS	NS
Gender	5th	NS	NS	.54	(−2.42, −.12)*	.47	(−2.33, −.50)**
	7th	.35	(−2.62, −1.13)***	.40	(−2.72, −1.16)***	.40	(−3.77, −2.26)***
Number of residences	5th	.56	(−2.22, −.05)*	.69	(−2.72, −.09)*	NS	NS
	7th	NS	NS	NS	NS	NS	NS
Home environment	5th	NS	NS	.29	(.23, 1.32)**	NS	NS
	7th	NS	NS	.25	(−.01, .99)*	NS	NS
Family relationships	5th	.07	(.16, .43)***	NS	NS	.08	(.03, .32)*
	7th	.05	(.26, .46)***	.06	(.08, .35)**	.07	(.09, .34)**
Parent involvement	5th	NS	NS	.12	(.14, .60)**	.10	(.07, .45)**
	7th	.07	(.07, .34)**	.08	(.02, .32)*	NS	NS
Family financial resources	5th	NS	NS	.46	(.44, 2.24)**	NS	NS
	7th	NS	NS	NS	NS	NS	NS
Life stress	5th	.20	(−.80, −.04)*	NS	NS	NS	NS
	7th	NS	NS	NS	NS	NS	NS
Neighborhood quality	5th	NS	NS	.07	(.09, .35)**	.05	(.07, .26)**
	7th	NS	NS	NS	NS	.04	(.02, .17)*
Teacher relationship	5th	NS	NS	.24	(−1.06, −.08)*	NS	NS
	7th	NS	NS	NS	NS	.19	(−.75, .01)*

Table 5 (continued)

Variables	Grade level	Well-being indicators						
		Life satisfaction		Mental health		Self-image		
		SE B	BCa 95 %CI	SE B	BCa 95 %CI	SE B	BCa 95 %CI	
School climate	5th	NS	NS	.13	(.17, .67)**	NS	NS	
	7th	.11	(.09, .49)**	.13	(.38, .87)***	.14	(.08, .65)**	
School satisfaction	5th	.06	(.02, .26)*	.08	(.08, .39)**	.07	(.18, .45)***	
	7th	.05	(.05, .25)***	.05	(.19, .40)***	.06	(.20, .44)**	
Peer relationships	5th	.07	(.12, .41) ***	.11	(.08, .47)**	.07	(.01, .29)*	
	7th	.06	(.17, .41)***	.07	(.13, .40)***	.08	(.05, .37)*	

BCa 95 % CI bias corrected and accelerated 95 % confidence interval, *ns*, not significant. *p<.05, **p<.01, ***p<.001. *n*=502, 5th Graders, *n*=784, 7th Graders. All bootstrap estimates are based on 1000 resamples

the research literature, social support from families, friends, and teachers has been consistently linked to indices of child well-being (Bendayan et al. 2013; Chu et al. 2010; Corsano et al. 2006; Gilman and Huebner 2006; McDougall 2011; Oberle et al. 2011; Proctor et al. 2010).

School satisfaction was predictive of all child well-being indices. In addition, school climate predicted mental health for both groups of students and life satisfaction, as well as self-image for 7th graders. These findings point to the importance of general school environment in sustaining children's socio-emotional health and well-being (Jutras and Lepage 2006; Suldo et al. 2008). Teacher relationships inversely predicted mental health (for 5th graders) and self-image (for 7th graders) suggesting children struggling in these areas of well-being may be seeking teacher support. As described in other studies (e.g., Gilman and Huebner 2006; Proctor et al. 2010; Suldo et al. 2008), school climate was found to be a critical factor in children's perceptions of their well-being.

Gender was predictive of all well-being indicators except for life satisfaction for 5th graders. In this study, boys reported higher life satisfaction, mental health, and self-image than girls. These findings appear to be consistent with other research that suggests girls display more social well-being, such as behavioral control, and boys express greater levels of emotional well-being, such as happiness and higher self-esteem (Moksnes and Espnes 2013). Also, women have been found to generally report more negative affect than men (Bendayan et al. 2013; Bradley and Corwyn 2004), but it is not clear from the findings if this same construct for adults is operating on children in the current sample.

Smaller and medium associations were found between well-being indicators and variables of number of residences, family financial resources, life stress, and age. Number of residences inversely predicted life satisfaction and mental health for 5th graders, and may reflect the adverse effects of familial instability or personal transitions on child well-being (Formby and Cherlin 2007). Previous research suggests family socioeconomic status may be more related to child well-being for children living in impoverished environments where basic needs are not being met (Bradley and Corwyn 2004; Gilman and Huebner 2003; McDougall 2011; Newland et al. 2014). In the current research, the contextual factor of neighborhood quality predicted mental health (for 5th graders) and self-image for both groups and may have been a representation of children's perceptions of family resources or socioeconomic status in the study's rural communities. Life stress was significantly related only to life satisfaction for 5th graders despite stronger associations found in other studies of child well-being (Bradley and Corwyn 2004; Coyl et al. 2002; Gilman and Huebner 2003, 2006; Ho et al. 2008). Age was not highly related to child well-being in this study, predicting only mental health for 5th graders (with bootstrap methods but not in multiple regression), which is consistent with prior studies reporting less variation in child well-being across age groups (e.g., Bokhorst et al. 2010). However, other studies found that age may influence child well-being (Booth et al. 2008; Chu et al. 2010). Further, the current study's sample of children from distinct school grade levels limited age variation.

Though findings from the 5th and 7th grade samples were generally similar to each other, there were some notable differences. For 7th graders, the individual and contextual variables of age, number of residences, family financial resources, and life stress did not predict any of the well-being indicators. In contrast, the same variables with 5th

graders predicted 1 or 2 well-being indicators each. These differences may be related to higher associations between relational, school and gender variables and well-being indicators for 7th graders. As such, factors predicting 7th graders well-being appear to be weighted toward the variables most strongly related, in both samples, to child well-being in this study (e.g., peer relationships, school satisfaction, family relationships, gender) and may reflect previous research that suggests the effects of context on well-being increases with age (Booth et al. 2008; Chu et al. 2010). This difference may also represent a developmental shift for children from 5th to 7th grade who learn with age to more precisely discriminate between those variables contributing to their well-being.

Children's subjective well-being indicators were inter-related in this study. Overall, children's life satisfaction, mental health, and self-image were highly positive and all strongly related to one another. These findings are similar to previous studies which reported associations among life satisfaction, mental health indicators, optimism, and self-esteem (Bendayan et al. 2013; Bradley and Corwyn 2004; Gilman and Huebner 2006; Oberle et al. 2011; Proctor et al. 2010; Zullig et al. 2005). Contextual factors were also inter-related within contexts and across contexts in this study, in the expected directions. Individual, home and family, neighborhood, school, and peer variables were all inter-correlated except family financial resources was not correlated with teacher relationships or school climate, and parent involvement was not correlated with life stress in 7th graders.

Considering the contextual interactions of this study, an ecological model, accounting for multiple interactive features within and across contexts, is confirmed as an important theoretical paradigm for understanding factors predicting child well-being (Bokhorst et al. 2010; Bronfenbrenner 1989; Gilman and Huebner 2003; Gorrese and Ruggieri 2012; Mrug and Windle 2009; Newland et al. 2014; Newland et al. 2010; Oberle et al. 2011; Zullig et al. 2005). In the rural Midwestern United States macrosystem of this study, children's subjective well-being, as measured by life satisfaction, mental health, and positive self-image, were generally optimistic and predicted by a number of individual and microsystem contexts, but most strongly by peer and family relationships, good schools, and being male.

8 Strengths and Limitations

One of the primary strengths of this study was the use of a self-report measure of child well-being, which is important because of differences in child and adult perceptions of child well-being (Ben-Arieh 2010, 2012a, b; Langton and Berger 2011; Stuart and Jose 2012). A second strength was the inclusion of multiple valid indices of child well-being, which measured both cognitive and emotional components of subjective well-being (Gilman and Huebner 2003). A third strength was the use of a rural sample to further build on the knowledge base about the unique characteristics of rural populations (Eriksson et al. 2011; Glendinning et al. 2003; HRSA 2011; Kelly et al. 2011; Menanteau-Horta and Yigzaw 2002; Slovak et al. 2011).

There are study limitations which could affect the conclusions of the study. First, this study used a non-probability sample from a rural area of the United States, which may limit the generalizability of findings to other geographic regions. Second, ethnicity was reported for each school district rather than individually by participating children,

limiting the analyses that could be conducted by child ethnicity. Third, this sample included children ages 10–14 years old in the 5th and 7th grades in the Midwest of the United States so results may not generalize to children in other age groups. Fourth, internal consistency for 3 measures of contextual variables (i.e., home environment, family financial resources, school climate) was relatively low ($\alpha < .70$), but this may reflect the broad content area as well as variations in the difficulty of the items. Hence, future research should include exploratory factor analysis to further examine the internal reliability of these measures. Fifth, the scales from the study are composed of items from the Children's Worlds (2011) survey and would benefit from additional testing with national and international samples to see how they function with other populations. Finally, this study did not purposively sample at-risk children, so it is unclear if the model is equally predictive of child well-being in various at-risk populations.

9 Implications and Future Directions

This study has important implications for understanding children's perceptions of their well-being in rural communities, the United States, and beyond. The current findings support the belief that rural areas offer strong family and community support (Eriksson et al. 2011; Glendinning et al. 2003), but further testing is needed with other populations to assess subjective child well-being variation among geographic or ethnic cultures, as well as between urban or rural environments. These results for rural children, ages 10–14 years old, may add to other research examining the overall health and well-being of populations in rural and remote communities (Kelly et al. 2011).

The ecological, relationship-based model of child well-being that emerged from this study acknowledges the importance of building upon existing support structures in children's environments (McDougall 2011). By recognizing the bidirectional influences between children and the contexts of home and family, life and neighborhood, school, and peers, and the well-being outcomes of life satisfaction, mental health and self-image, communities may come together to identify needs and strengths to develop comprehensive, community-based programs that promote optimal socio-emotional outcomes in children (Child Trends 2013b; Leon 1999; McDougall 2011; Newland et al. 2014). Moreover, interdisciplinary partnerships in health, mental health, schools, social welfare, and others have the potential to promote healthy child and youth development by enhancing the contextual variables children view as most important to their well-being.

The network of international researchers using versions of the Children's Worlds (2011) survey to assess subjective child well-being globally offers many unique opportunities to share data and explore inter-cultural similarities and differences relative to children's perceptions of their lives. Ideally, the data from rural United States communities will inform other research efforts in rural communities in other regions of the world to help shape practices and policies that determine children's subjective well-being.

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