

Text for:

Lamb, V.L. and Land, K.C., (2013) Methodologies Used in the Construction of Composite Child Well-Being Indices. In Asher Ben-Arieh (ed.), *Handbook of Child Well-Being*. New York: Springer.

Methodologies Used in the Construction of Composite Child Well-Being Indices

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Methodologies Used in the Construction of Composite Child Well-Being Indices

Abstract

The focus of this chapter is on conceptual frameworks and methodologies used in the study of *composite indices of overall child well-being* rather than well-being studies with specific emphases in areas such as life satisfaction and subjective well-being, deprivation and poverty, or health. In order to understand the methodologies utilized in the construction of indices of overall child well-being, one must first consider the specific theoretical perspectives or motivations for studying child well-being. Such perspectives and motivations highly influence the methodologies used to measure and define overall child well-being. Overviews of four methodological perspectives were examined in this chapter: The Annie E. Casey Foundation's KIDS COUNT Index, The Foundation for Child Development Child and Youth Well-Being Index, The Child Development perspective guiding research at Child Trends, and the United Nations Convention for the Rights of the Child.

Key words: Methodology, KIDS COUNT, Child and Youth Well-Being Index, Child Development, UN Convention for the Rights of the Child (CRC), Composite Indices of Child Well-Being

Introduction

Over the past 20 years, the research on measuring child well-being has grown enormously with the increasing availability of statistical data for the construction of indicators (Ben-Arieh 2005, 2008; Brown 2008; Ben-Arieh and Fronese 2009). Measures of overall child well-being have been developed using composite scores or indices from a collection of indicators that often cover a variety of domains. A recent review of 19 key studies indicated there is little agreement on the number of domains that should be used to construct a composite index of child well-being; however, the key domains most used were material well-being, education, and health (O'Hare and Gutierrez 2012).

The focus of this chapter is on the conceptual frameworks and methodologies used in the study of *overall child well-being* rather than well-being studies with specific emphases in areas such as life satisfaction and subjective well-being, deprivation and poverty, or health. In order to understand the methodologies utilized in the calculation of overall child well-being, one must first consider the specific theoretical perspectives or motivations for studying child well-being. Such perspectives and motivations highly influence the methodologies used to measure and define overall child well-being. Studies typically have a specific measurement aim or goal and collect and calculate composite indices of child well-being according to such aims.

This chapter reviews four methodological perspectives: (1) The Annie E. Casey Foundation's KIDS COUNT Index, which is based on ten negative indicators in order to inform legislators, child advocacy groups, and the lay public on state-level trends in individual indicators of child well-being and to rank individual states in the United States on overall child well-being. (2) The

Foundation for Child Development Child and Youth Well-Being Index, also developed for the U.S., which calculates percent changes in overall child well-being for subsequent years as compared to a base year value. (3) The Child Development perspective, guiding research at Child Trends, which separates child “well-being” from child “context” indicators and uses microdata to calculate the number of negative (or positive) well-being outcomes or social contexts that are experienced by individual children. (4) The United Nations Convention for the Rights (CRC) of the Child, which recognizes childhood as both a current status as well as a transition to adulthood. The guiding principles of the CRC promote the protection of children’s basic human rights and the inclusion of children and youth voices in all matter that affect childhood.

The Annie E. Casey Foundation’s KIDS COUNT (KC) Project

The KIDS COUNT project, funded by the Annie E. Casey Foundation (AECF), was initiated in 1989 in response to consultants’ recommendations to make information about the well-being of children available to state-level legislators, child advocates, policy makers, and leaders across the United States (O’Hare 2012). At that time, basic factual information, such as child poverty rates or infant mortality rates, was not easily or uniformly available to persons responsible for decisions regarding the development, implementation, and assessment of programs and policies affecting children.

In 1990, the first *KIDS COUNT Data Book* was published. The *Data Book* contained ten key indicators of child well-being for each U.S. state. States were ranked on each indicator and on an

index that summed the standardized scores of the ten indicators in an easy to understand format. The *KIDS COUNT Data Book* has been published every year since 1990 primarily under the leadership of William P. O'Hare (O'Hare 2012).

Since its beginning, the KIDS COUNT project developed a set of criteria to be used in the selection of the key statistical indicators published in the annual *KIDS COUNT Data Book* for the purposes of measuring change over time and annually ranking the states. These seven criteria were designed to meet the twin goals of using only the highest quality data and communicating the results clearly and concisely. The criteria are: (1) the statistical indicator must be from a reliable source; (2) the statistical indicator must be available and consistent over time; (3) the statistical indicator must be available and consistent for all states; (4) the statistical indicator should reflect a salient outcome or measure of well-being; (5) the statistical indicator must be easily understandable to the public; (6) the statistical indicators must have a relatively unambiguous interpretation; and (7) there should be a high probability that the indicator will continue to be produced in the near future. To fulfill these criteria, the KIDS COUNT project uses indicators from U.S. governmental agencies. In addition, a small circle of data experts are called upon to examine and re-examine the quality of the data and possible changes in data collection methodologies and procedures. A major goal of the project is to reach an educated lay public regarding the well-being of children and youths in the 50 states and the nation using clear and unambiguous measures. As the popularity and widespread use of the *Data Book* increased, the AECF recognized that it was serving an important role in "data-based child advocacy," a phrase coined by the foundation (O'Hare 2012).

The indicators for the KIDS COUNT Index have always been negative measures, such as child poverty, teen births, and infant mortality. Such indicators came primarily from federal statistical sources and there were few child-specific indicators available for the 50 states when the project first started in 1989. To combine negative and positive indicators into a summary index would be problematic in that there was no accepted methodology available at the time (O'Hare 2012). In addition, the goal of the KC Index was to rank the states in an easily understandable way. Lower rankings indicate better child well-being. The negative indicators also point to specific state-level needs for child advocacy or new policies or programs.

There are several steps in the method used to construct the KIDS COUNT Index. The mean national value for each indicator is calculated across all 50 states. This mean national value is then subtracted from each observed state value and divided by the standard deviation for the distribution of that indicator across all states to create a standard score. The ten standardized indicator scores are summed to obtain an overall composite standard score for each state and then states are ranked from high to low, 1 to 50.

The ten indicators in the KC Index represent both risks and outcomes associated with child well-being. The ten indicators have changed over time as stronger measures have replaced weaker ones and as new data became available. In the 1990s, many indicators were based on 3- to 5-year rolling averages, such as child poverty rates from the Census Bureau's Current Population Surveys, to smooth trends based on small state-level samples. Since 2000 many single-year indicators have come from state-level measures from the Census Bureau's American Community Survey (such as percent of children in poverty and percent ages 16 to 19 not in school and not

working). Although one stated characteristic of the KIDS COUNT indicators is its “holistic approach to assessing the well-being of children” (O’Hare 2012) three of the ten indicators in the 2011 *Data Book* were measures of mortality (infant, child, and teen). There was a recognition that that the composition of the KC Index should be updated (O’Hare 2012).

The 2012 *KIDS COUNT Data Book* introduced a new KIDS COUNT Index. The new index was the culmination of extensive research including consultations with statistical and substantive experts in the field; an extensive review of national and international research, including the use of domains; and the identification of new state-level indicators. The decisions affecting the choice of indicators within the new index were: (1) an acknowledgement that children’s lives are affected by both positive and negative factors, (2) to recognize that children are also affected by their social and physical environment, (3) capturing both survival and quality of life indicators, (4) using domains that represent important influences on children’s lives, (5) the incorporation of the developmental stages of childhood, and (6) to capture current child well-being indicators in addition to indicators that affect the trajectory to adulthood (The Annie E. Casey Foundation 2012).

The new 2012 KIDS COUNT Index is composed of four domains with four indicators within each domain. The four domains (and indicators) are: economic well-being (children in poverty, children whose parents lack secure employment, and children living in households with a high housing cost burden), education (children not attending preschool, fourth graders not proficient in reading, eighth graders not proficient in math, and high school students not graduating on time), health (low birth weight babies, children without health insurance, child and teen deaths

per 100,000, and teens that abuse alcohol or drugs), and family and community (children in single-parent families, children in families where the household head lacks a high school diploma, children living in high-poverty areas, and teen births per 1,000) (The Annie E. Casey Foundation 2012). Even though there is an acknowledgement that there are positive and negative influences in the lives and well-being of children (point one above), all of the indicators in the new index are negative, presumably to continue to facilitate ease in constructing and interpreting the indices. To create the overall child well-being index for each state, the indicators are first standardized and then summed to create the domain-specific indices, which are summed to create the overall KIDS COUNT Index. States are then ranked from 1 to 50 (high to low) overall and for each domain.

Although based on ten indicators (until 2012), the KIDS COUNT Index has been successful in attaining the goals of annually comparing states on child well-being, impacting both state and national policy related to child issues, and being a consistent and reliable source of state and national level indicators of child well-being. The 2012 transition to the use of four domains and 16 key indicators in constructing the KIDS COUNT Index enhances the understanding of child well-being in the 50 states on an annual basis.

The Foundation for Child Development Child and Youth Well-Being Index (CWI)

In 1994, the U.S. Federal Interagency Forum on Child and Family Statistics was founded to foster cooperation and collaboration among the U.S. federal agencies that collect data on children and families. Initially, there was a proposal to produce a child well-being index using

the varied measures collected and calculated by the participating federal agencies, but the proposal was not supported because some areas of child well-being were underrepresented in the data and there was no methodology or guidelines for the selection and weighting of indicators to develop an overall index of child well-being. Instead, the members decided to publish a report that presented separate trends for the key child well-being indicators that were organized in four domains: economic security, health, behavior and social environment plus a section on demographic measures of family and child statistics. The first report, *America's Children: Key National Indicators of Well-Being*, was published in 1997 and presented data on 25 key indicators of child well-being (Federal Interagency Forum on Child and Family Statistics 1997). *America's Children* continues to be published annually with many indicators presented by sub-groups such as age groups, gender, or race/ethnic groups.

The availability of a collection of key indicators led the Foundation for Child Development to support the construction of an overall index of child well-being – the Foundation for Child Development Child and Youth Well-Being Index (FCD-CWI, or CWI, for short). The CWI was developed by Kenneth C. Land, Vicki L. Lamb, and colleagues at Duke University to address the following questions: Are the circumstances of life for children and youths of the United States bad and worsening or good and improving? Has the well-being of America's children improved or deteriorated? Their objective was to measure the circumstances of children's lives in a way that reflects their well-being – to assess their quality of life – and to track changes in well-being and over time.

A major goal for the CWI was to develop a composite indicator or index of well-being that encompassed different domains of children's lives. Work on the CWI began (Land et al. 2001; Land et al. 2007; Land 2012) with the observation that there were numerous statistical indicators of trends in the well-being of children and youth, such as those in the *America's Children* reports, but it was difficult to extract a sense of the overall direction of changes in child well-being from the many diverse statistical series. To bring order to these data, Land et al. drew on the work of Cummins (1996). His review of empirical studies of adults that identified specific domains of subjective well-being revealed that approximately 68 percent of the 173 different domain names and 83 percent of the total reported data could be grouped into the following seven domains of life: (1) economic or material well-being (e.g., command over material and financial resources and consumption); (2) health (e.g., health functioning, personal health); (3) safety (e.g., security from violence, personal control); (4) productive activity (e.g., employment, job, work, schooling); (5) place in community/community engagement (e.g., socioeconomic (education and job) status, community involvement, self-esteem, and empowerment); (6) intimacy (e.g., relationships with family and friends); and (7) emotional well-being (e.g., mental health, morale, spiritual well-being) (Cummins 1996). According to Cummins, the empirical studies indicate that all of these seven domains are very relevant to the overall concept of subjective well-being or quality of life.

It should be noted that these seven domains of well-being were derived from subjective assessments in focus groups, case studies, clinical studies, and sample surveys that cannot, by definition, be replicated in studies of the quality-of-life that utilize objective data. Nonetheless, as recommended in a comprehensive review of numerous quality of life indices (Hagerty et al.

2001), the domains identified by Cummins (1996) can and should be used to guide the selection and classification of indices of quality-of-life that are based on objective data. Land and colleagues also identified studies that focused on children and adolescent participants and their articulation of subjective or positive well-being. These child and youth-based studies also highlighted themes or domains that were similar to the seven that were identified by Cummins. Thus, these seven domains of well-being were adapted to focus on children and youths in the construction of the CWI.

A number of data sources were examined to identify key indicators of child well-being. The five criteria for the selection of key indicators were that each indicator must be: (1) easy to understand by broad audiences, (2) objectively based on substantial research connecting them to child well-being and based on reliable data, (3) balanced so that no single area of children's lives dominates the CWI, (4) measured regularly so that they can be updated and show trends over time, and (5) representative of large segments of the target population, rather than one particular age group.

A total of 28 Key Indicators were compiled and grouped into seven domains. Using the Cummins (1996) domains as a guide, the overall CWI domains are: (1) family economic/material well-being (child poverty, secure parental employment, median family income for families with children under age 18, and children covered by health insurance); (2) health (infant mortality, low birth weight, mortality for ages 1-19, children with very good or excellent health, children with activity limitations, and obese children and adolescents); (3) safe/risky behavior (teen births, violent crime victimization, violent crime offenders, cigarette smoking, binge drinking, and illicit

drug use); (4) productive activity/educational attainment (reading test scores and mathematics test scores); (5) community engagement (preschool enrollment, receipt of high school diploma, receipt of bachelor's degree, youth not working nor in school, and voting in Presidential elections); (6) social relationships (single-parent headed families and moving residences within the past year); and (7) emotional/spiritual (suicides, weekly attendance of religious services, and reporting religion is very important). Many of the indicators refer to broad age groups (ages 0 to 17) and some indicators are age-group specific. Also, the indicators represent both positive and negative measures of child well-being.

These 28 indicators come from statistical time series data based on annual (calendar year) time periods at the national level and most could be dated back to 1975. The data sources included federal data, a number of sample surveys of youth (such as the Monitoring the Future Study and the National Crime Victimization Survey), and sample surveys of adults reporting on youth and families. An expanded CWI was also developed that added 16 additional time series indicators for a total of 44 key indicators that date back to 1995 (Land et al. 2007). The CWI thus is an evidence-based composite social index of trends over time in the well-being of children and youth in the United States in two ways: (1) its conceptual framework of domains of well-being is based on qualitative and quantitative empirical studies of subjective well-being, and (2) its use of empirical data on indicators grouped into the domain (Land et al. 2001; Land et al. 2007; Land 2012).

To measure changes in overall well-being, Land et al. (2001) adopted an index number approach. In its broadest sense, an index number is a measure of the magnitude of a variable at one point

(such as a specific year that is termed the current year) relative to its value at another point (called the reference or base year). Index numbers are widely used in economics, such as the Consumer Price Index (CPI), to compare the general price level of goods at different points in time. Although persons may not consume all of the items used to calculate the CPI, most consumers are interested in how general price levels are changing and fluctuating. Similarly, in any given year no single child encounters all of the social conditions that are part of the overall Child Well-being Index (CWI) that we develop in this project. However, fluctuations over time in the CWI can be interpreted as signaling changes in the overall social context of social conditions encountered by children and youth. Such changes would be of interest to policy makers, officials, adults, parents, and young people to understand how well children and youth are doing at one point in time, say 1999, compared to another point in time, such as 1985.

Because efforts to construct composite indices of child and youth well-being were in their infancy, Land et al (2001) chose the simplest possible aggregation function. Thus the index formulas are of the following type:

$$CWI \text{ in Year } t = (1/N) \sum_i \{100 + [(\Delta R_{it} / R_{ir}) \times 100]\}, \quad (1)$$

where N denotes the number of Key Indicators on which the index is based, R_{it} denotes the i th child and youth well-being indicator rate in the year $t > r$, R_{ir} denotes the i th rate in the reference or base year r , R_{it} and R_{ir} are called rate relatives, and the summation is taken over N indicator rates. In Equation (1), $\Delta R_{it} = R_{it} - R_{ir}$ denotes the numerical value of the finite-difference or change in indicator i from the base year r to year t . Each change rate ratio $\Delta R_{it}/R_{ir}$ is a finite approximation to the time derivative of the logarithm of the rate R_i , with the accuracy of the approximation deteriorating as time increases from the base year.

Each change rate ratio in Equation (1) is multiplied by 100 in order to measure the percentage change in the rate from the base year value. Index values for years subsequent to the base year that are greater, equal, or lesser than 100, indicate improvement, no change, or deterioration, respectively, in the time series relative to its base year value.

Both positive and negative indicators are used in constructing the CWI. Positive indicators are those in which higher numbers denote improved conditions, such as median family income or high school graduation rate. Negative indicators are those in which higher numbers signify worsening conditions, such as infant death rate or cigarette smoking rate. In order to track indicator trends in a consistent manner, the change rate ratio values for positive indicators will be added to the base year index of 100 and the change rate ratios for negative indicators will be subtracted from the base year index of 100. The trend of indicator performance relative to the base year value will then be in the same direction regardless of whether the particular indicator is positive or negative.

Thus, the CWI first fixes a base year for the calculations. The most historical base year used by the CWI is 1975, which corresponds to the period in which many of the 28 Key Indicator time series began to be available at the national level in the U.S. Other base years that have been used in various CWI studies are 1985, 1995, and 2000. Given the base year, the CWI then calculates an equally-weighted composite index of changes for all indicators within each of the seven domains of well-being. After constructing composite indicators of changes over time for each

well-being domain relative to base year levels, the overall composite CWI then is calculated as an equally-weighted average for each year of the domain-specific index values.

Initially in Land et al. (2001), the choice of equal weighting methods was based on ease of calculation and transparency. Subsequent statistical analyses showed, however, that the equal weights method of composite index construction produces a *minimax estimator*, in the sense that it minimizes extreme disagreements among all possible weighting schemes (Hagerty and Land 2007). While it is possible that a continuing stream of research on child well-being indices will eventually produce information sufficient to guide the specification of a differential weighting scheme for the various indicators and domains of a composite index, this property of the equal weighting method endows it with a solid statistical foundation.

The CWI methodology has been used to measure changes and differences in child and youth well-being by gender (Meadows et al. 2005), for African American children (Lamb et al. 2005), and by racial/ethnic, income, and immigrant status disparities (Hernandez et al. 2012). In addition, the CWI methodology has been used to compare separate trends in child well-being based on 10 KIDS COUNT indicators, 28 CWI Key Indicators, and 36 indicators from the *America's Children* annual reports (O'Hare and Bramstedt 2003). Using state-level data, the CWI methodology has been used to measure trends based on the ten KIDS COUNT indicators for 1990-2000 (O'Hare and Lamb 2004), for 2000-2005 (O'Hare and Lamb 2009), and an expanded set of 18 key statistical indicators for 2000-2008 (Lamb and O'Hare 2012). The CWI methodology also has been applied to measure changes in child well-being at the regional/sub-

state level using 16 indicators for counties in the San Francisco Bay Area (Lee, Land, and Lamb 2009).

The FCD-CWI continues to be updated, and since 2004 the research team has issued an Annual Report on the overall Child and Youth Well-Being Index. In addition, Special Reports have been issued, either in conjunction with the Annual Report or as a separate report, that focuses on a particular topic such as a teen births, child well-being by specific age groups, or the impact of the recession on child well-being (see <http://www.soc.duke.edu/~cwi/>).

Child Trends and the Child Development Perspective

Founded in 1979, Child Trends is an independent, nonpartisan research center dedicated to improving the lives of children and their families. The organization uses a child development perspective to conduct research on children and their families (Moore et al. 2008). This perspective focuses on separating the study of child growth and outcomes (child “well-being”) from the study of the environment in which the child exists (child “context”). Another focus of Child Trends’ child development perspective is to use microdata rather than aggregate data when possible to study child outcomes and contexts. Microdata are preferred in order to have the individual child as the unit of analysis. Then it is possible to examine the multiple outcomes associated with a child rather than aggregate distributions of an indicator, and the distinction of measures of child growth and outcomes from contextual variables becomes feasible. Kristin Anderson Moore has spearheaded this direction of research in collaboration with colleagues from Child Trends.

One such study used data from the National Survey of America's Families (NSAF) (Moore et al. 2008). The NSAF is a repeated cross-section study of children, adults, and families. The data were collected in 1997, 1999, and 2002 on over 30,000 children as reported by an adult in the household. Using the child development perspective, three domains were selected to represent child well-being (child health and safety, child educational attainment and cognitive attainment, and child social and emotional development) and two contextual types of indicators were selected (family processes and family demographic, social, and economic status). The well-being measures focus on the child and how well the child is doing across the domain indicators. The contextual indicators represent the family environment in which the child lives, and the contextual factors can have positive or negative effects on the child's well-being. The well-being and contextual measures were combined to create an index of the "overall condition of the child" (Moore et al. 2008).

To create the index scores using the NSAF, Moore and colleagues first set thresholds for "problematic levels" or negative values for each indicator. Children were assigned a score of one for a negative score on each of the indicators or were assigned a score of zero otherwise. The scores were then summed for each domain. To standardize the scores across the domains, each child's domain score was multiplied by $10/N$, where N is the number of indicators within a domain. This resulted in a maximum score of ten for each domain. The three well-being domains were then summed, with the highest child well-being score equaling 30. Since the scoring was based on negative values, higher scores indicated more problems per child. An "overall condition of the child index" added the two family-based contextual domain scores to

the well-being scores yielding a possible high score of 50. An average of the children's domain index scores was used to represent national averages for child well-being and of overall condition of the child.

The domain scores were used to categorize the children into groups with and without problems. The cut-point was whether the child had more than 50 percent of the potential problems in the three well-being domains. Children were then categorized as having zero, one, two, or three domains with over 50 percent of the indicators in the negative range for each of the survey years (1997, 1999, and 2002). The researchers then examined the distribution of the negative domains across a number of demographic and contextual variables.

This child development-based methodology to measure child well-being and the overall condition of the child was used on second micro-dataset, the National Survey of Children's Health (Moore et al. 2008). This new dataset offered richer measures of the child's well-being including 14 measures on physical health, 14 on social health, 8 on psychological health, and 6 on educational functioning and cognitive development. This allowed the researchers to create sub-domains within the domains capturing child well-being. In this study, the scoring was reversed in that children with positive well-being scored a 1 and those without well-being scored 0 based on cutoff points that were established at the beginning of the study. Index scores for sub-domains, domains, and indices of child well-being and contextual conditions were calculated based on predetermined cut-points. Separate indices were calculated for ages 6-11 and 12-17. Tables were produced that indicated the distribution of domain scores by demographic characteristics and contextual indicators.

The use of microdata presents opportunities to study child well-being at the level of the individual child and to study correlates associated with outcome indices. This area of research potentially offers richer results; however, one limitation is the availability of repeated cross-sectional sample surveys of children and their families.

The United Nations Convention on the Rights of the Child (CRC)

In 1989, the United Nations adopted the Convention on the Rights of the Child, which has been ratified by all members of the United Nations except Somalia and the United States of America (United Nations 1989). The purpose of the CRC is to grant children the full range of human rights including: the right to survival; to develop to the fullest; to protection from harmful influences, abuse and exploitation; and to participate fully in family, cultural, and social life (UNICEF n.d.). There are four core principles that encompass the human rights to be held by children: (1) non-discrimination (Article 2), (2) devotion to the best interests of the child (Article 3), (4) the right to life, survival, and development (Article 6), and (4) respect for the views of the child (Article 12) (United Nations 1989). The CRC therefore recognizes that children are citizens with entitled rights in addition to being dependents of their families. Associated with the direct focus on children as citizens with basic human rights is the hope that child well-being and child quality of life will improve (Casas 1997).

According to Article 1 of the Convention, a child is defined as “every human being below the age of eighteen years unless, under the law applicable to the child, majority is attained earlier”

(United Nations 1989: 2). The CRC indicates that childhood is to be recognized as a separate phase in life, and children are to be considered active members of the society. The fourth CRC core principle on the respect for the views of the child has had an impact on the methods and indicators in the study of child well-being. Research has shown that understanding the perspectives of children is important for a number of reasons. Children's perspectives differ from those of adults, and thus children should be respected as persons that can contribute to informing policymakers and child advocacy concerns, and children should be better socialized about legal and political issues that directly affect their lives (Ben-Arieh 2005).

Many scholars have called for a greater focus on children's involvement in all phases of child well-being research. Ben-Arieh (2005) discussed possible roles of children in conjunction with child well-being research. (1) Children should be part of the design of studies to enhance the development of indicators and measures that are based on the experiences of all children, including those in disadvantaged groups. (2) Children should be used as sources of information to inform and stimulate child well-being research. In modern society, most adults spend much of their time away from their children and may not know the details of children's daily lives, regular activities, and their understanding and concerns about the world that surrounds them. (3) Children can be part of the data collection process as trained interviewers to possibly get around methodological problems associated with unequal power relationships between adult interviewers and child respondents. (4) Children could be part of the data analysis to bring their subjective perspectives to the gathering and interpretation of information regarding child well-being indicators and domains. The children's participation in the data analysis process could enhance the (adult) researchers' understanding of the data that have been collected. (5) The

second core principle of the CRC emphasizes that “In all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, *the best interests of the child shall be a primary consideration*” (our emphasis, United Nations 1989: 3). Thus, Ben-Arieh argues that children should be partners in disseminating and utilizing data results, to add their voice to the political, legal, and administrative processes that directly affect their lives.

Part II of the CRC directs countries that have ratified the Convention to “make the principles and provisions of the Convention widely known, by appropriate and active means, to adults and children alike” (United Nations 1989: 18). In addition, each country or state is to establish a “Committee on the Rights of the Child” to implement the provisions stated within the CRC and to report efforts that are made to adopt the provisions therein. In fulfilling these obligations, a number of countries are collecting data or reviewing current data using a number of methodologies to establish the baseline rights and concerns of children as citizens with defined human rights.

Using a CRC child rights approach, Jonathan Bradshaw and colleagues have conducted a number of cross-sectional, cross-national studies of the well-being of children in Europe. One such study sought to establish a multi-dimensional child well-being index for the 25 European Union countries (EU25) (Bradshaw et al. 2007).

Bradshaw et al. (2007) used several overriding principles in the selection of indicators within each domain. (1) Indicators were chosen “that best represented a constituent domain of the

concept of child well-being” (p.138). (2) Efforts were made to use indicators in which the child, rather than the family or household, was the unit of analysis. (3) They used the most up-to-date data for each indicator, although all indicators were not measured the same year. Efforts were made to select indicators that were measured in 2003 or later. However, some indicators, particularly from sample surveys, were measured somewhat earlier. (4) The same data source was used for a single variable to reduce problems with comparability across the EU countries. (5) To retain as many satisfactory indicators as possible the researchers established a 70 percent cut-off. Indicators were included in the EU25 child well-being index if at least 70 percent of the countries had the indicator available. (6) When countries had missing indicators within a domain, the domain average score was calculated based on the country’s available indicators within that domain. (7) For the four countries that had less than 70 percent response rates overall (Cyprus, Luxembourg, Malta, and the Slovak Republic), sensitivity analysis was used regarding the effect of their inclusion on the index position of the other countries. The selected indicators came from sample surveys of children and youth, such as Program for International Student Assessment (PISA), Health Behaviour in School-aged Children (HBSC), and European School Survey Project on Alcohol and other Drugs (ESPAD), and from indicators regularly collected by international organizations such as World Bank and World Health Organization (WHO).

The proposed EU25 child well-being index was composed of 51 indicators, which were classified into 23 domains that were organized into eight clusters. The eight clusters were material situation (poverty, deprivation, and jobless parents), child health (health at birth, immunizations, and health behaviors), education (educational attainment, participation, and youth labor market outcomes), housing and environment (overcrowding, local environment, and

housing problems), children's relationships (family structure and relationships with parents and peers), children's subjective well-being (self-defined health, personal well-being, and well-being at school), risk and safety (mortality, risky behavior, and experiences of violence), and civic participation (participation in civic activities and political interest) (Bradshaw et al. 2007).

The methodology used to create the overall index was based on standardized (z) scores. They first converted the 51 indicators to z scores and then calculated the average z scores for each of the 23 domains. The domain z scores were then averaged to compute each cluster z score, and the eight average cluster z scores were averaged to create the overall child well-being index for each country. The researchers decided to use z scores to have consistent measures of both rank order and range of dispersion for the measures (Bradshaw et al. 2007).

The EU25 child well-being index created by Bradshaw and colleagues was considered a causal indicator model, in that the indicators *cause* the domain (or latent variable) (Bollen and Lennox 1991), and thus the indicator variables are each making separate contributions to a domain.

There was no assumption that the indicators within a domain are strongly correlated with each other as each indicator was considered to contribute to the domain. Equal weighting was used in the calculation of the domains, clusters, and overall index for each EU country.

For reporting the results, Bradshaw and colleagues presented a series of figures indicating the high to low distribution of countries by z scores (mean=0, SD=1) for the 23 domains and for the eight clusters (mean=100, SD=10). A comparison of the domain and cluster figures reveals that a number of countries did well in some domains and poorly on others.

The construction of the overall child well-being index for each EU country was the average of the 23 domains, rather than the 8 clusters, because the domains were considered to represent the “essence” of the concept of child well-being (Bradshaw et al. 2007). When the average overall child well-being indices for all EU states were ordered from high to low, the trend indicated that there was a relationship between the child well-being ranking and wealth of the country.

However, there were a few exceptions—Spain and Slovenia were in the top third and the United Kingdom was in the bottom third (Bradshaw et al. 2007).

Bradshaw and colleagues have used this cross-sectional cross-national child well-being index methodology in a number of different studies, including OECD countries (Bradshaw et al. 2006), Central and Eastern European countries and the Commonwealth of Independent States (Richardson et al. 2008), and the EU countries plus Norway and Iceland (Bradshaw and Richardson 2009). These studies have also explored country-level correlates of child well-being such as per capita GDP, spending on family benefits and services, and inequality.

Although these studies of overall child well-being have directed more focus on child-centered indicators as advanced by the CRC, the data sources are sample surveys, administrative records, and information provided by international organizations, and thus the resultant child well-being indices are limited to the data that are available and most complete. Fortunately, there has been an increase in the number and types of surveys in which children and youth provide their own responses rather than having responses that are provided by only parents and teachers. However, as Bradshaw and his colleagues acknowledge, children are not included in all phases of the data

collection and interpretation process in their research. It would be rather difficult to elicit significant and meaningful involvement from children in the selection of indicators already collected, particularly for cross-national research. But, as Bradshaw et al. (2006) have indicated, the children's perspectives can also be represented in prior qualitative and quantitative research that elicits children's views and experiences.

There have been efforts in national and sub-national areas to include children and youths in the research process to add their voices and concerns to the understanding of their well-being. A number of these efforts were associated with the development of diverse measures in order to create "State of the Child" reports that could be used to identify troubling inequalities and disparities, highlight positive areas, and develop policies to improve the lives of children and youth.

One such effort was in the Republic of Ireland. The National Children's Strategy was developed in 2000, and a key objective was to develop a national set of child well-being indicators that encompassed the many facets of children's lives to be used in a Nation's Children Report (Hanafin et al. 2007). The overarching perspective was to focus on the "whole child" acknowledging that children are active participants in their own lives and that the process of selecting indicators of overall child well-being must include and respect the voice of the child.

A four-step approach was used to develop the national set of child well-being indicators (Hanafin et al. 2007). First, there was a review of indicators, domains, and other measures that had been used in previous research and reports on child well-being yielding over 2,500 indicators. The

review also addressed the selection criteria for the identification of appropriate indicators. Second, national statistics and data sources were examined as possible sources for the development of indicators as identified in the first step. Then the indicators in the first step were classified as to whether or not the information could be obtained from such data sources. At that time all the indicators were categorized into 56 main areas. Third, a panel composed of persons with expertise in areas of children's lives was used via the Delphi technique to gain consensus on broad areas of indicators to be used in the National Children's Report for the Republic of Ireland. The experts included service providers, researchers, policy makers, and parents. And fourth, concurrent with the rounds of the Delphi process, a study was conducted on "children's understandings of well-being" (Hanafin et al. 2007).

The first two rounds of the Delphi process narrowed the set of broad areas of indicators. In the first round the panel members were asked to rate each of 56 indicator categories with a score from 0 (not important) to 10 (very important). At the same time, data were collected from children at both individual and group levels. The children expressed a range of perspectives on well-being with an emphasis on inter-personal relationships with family and friends, the value of pets and animals, and the value of activities or things to do. The latter two topics were considered, but not addressed further because there were no available indicators addressing these areas. Communication and feedback regarding responses about areas of child well-being occurred between the Delphi panel and those conducting the children's study. With the responses from the children's study and feedback from the first round, the experts were then asked to further prioritize the most important areas. After round two, the list had been reduced to 26 areas. In round three, specific indicators for each area were presented and the experts judged

the merit of each indicator. The finalized set of indicators was composed of 42 child well-being indicators and 7 demographic indicators. The selected indicators were drawn from census and administrative data and European or international surveys of children, particularly adolescents.

A number of challenges occurred in the preparation of Ireland's first *State of Nation's Children* report that was released in 2006. The key challenges included issues related to the availability of data, inconsistency in the quality of data, problems with consistent international measures of demographic variables such as poverty, and challenges in the construction and organization of the report (Hanafin and Brooks 2009). Nonetheless, this project represents a step towards inclusion of the multiple shareholders in the analysis of overall child well-being. In addition, a National Strategy on Children's Lives was formed to address the data availability of indicators to encompass the topics expressed by the children regarding their well-being.

There has been widespread use of qualitative methods to engage children in defining and explaining their current concepts of "well-being." In New South Wales, Australia, Fattore et al. (2007, 2009) used a phenomenological/ethnographic approach to the study of positive well-being in which children ranging in age from 8 to 15 years were allowed to articulate their ideas regarding well-being. The researchers used multi-stage processes to understand children's and youths' conceptualizations of well-being and the dominant domains of well-being through individual and group interviews and engaging in task-oriented projects (Fattore et al. 2007, 2009).

Their findings indicated children's ideas and dominant themes of well-being were defined through feelings and were related to their relationships with family and peers, their sense of self, and the importance of safety and security. Many of the themes mentioned by children were similar to those in adult-developed studies; however, the focus was slightly different. For example, the children discussed material and economic resources in the sense of having what is needed to provide a decent standard of living for families and households. There also was a stronger emphasis by children on the overlapping areas of their emotional lives, a domain that has proven difficult to measure with quantitative indicators. Indeed, one of the issues associated with obtaining rich results from qualitative research is that it must be followed with the development of quantitative measures to capture children's perspectives regarding well-being and this often is difficult.

Advances continue to be made in child well-being research that is based on the principles of the CRC. An overview of more recent advancements and challenges in research with and by children was the focus of a special issue of *Child Indicators Research* (2011, Volume 4, #2).

Summary

In 2005, Asher Ben-Arieh outlined changes in the field of research on child well-being. He indicated that there have been four major shifts in the field: from survival to well-being, from negative to positive, from well becoming to well-being, and from traditional to new domains. Early social indicators on children were focused on children's physical health and threats to survival. Such indicators included infant mortality rates, school dropout rates, etc. The field

shifted when there was the acknowledgement that child indicators should also focus on child development and well-being. With this shift from survival to well-being came the shift from negative to positive indicators. No longer could one assume the absence of a negative behavior or outcome indicates that the child is developing to his or her full potential. The third shift, from well becoming to well-being, was in part due to the recognition that childhood is not just a status in transition to *becoming* an adult. The sociology of childhood and the Convention for the Rights of the Child shifted focus to childhood as a separate stage of the life course, and thus research should shift to the child's current *well-being* in addition to well *becoming*. Finally, the transition to new domains follows from the other shifts and the increasingly interdisciplinary nature of the study of child indicators. New domains include more child-centered measures that include subjective well-being, happiness, and security. The child has increasingly become the unit of analysis rather than the family or the perceptions of adults regarding childhood. The inclusion of children in all stages of the research process yields new areas to study and measure. In addition, there has been an increase in the sources of indicators calculated from administrative records, national and international data collection, and sample surveys of children and adolescents (Ben-Arieh 2008).

This review of methodologies and composite measures of child well-being represent some of these shifts. Composite studies of overall child well-being acknowledge the importance of a multidimensional and holistic approach to represent children's lives and children's futures. In addition, the methodologies that are used to study child indicators are greatly influenced by factors such as the purpose of the study, the theoretical and disciplinary perspective(s) guiding

the study, the available data, and the “consumers” of the data and indices. The methodological study of child well-being will continue to shift and evolve as these factors change in the future.

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