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N.A. Child Health Indicators

► American Indian/Alaska Native Child Health Indicators

Names

► Nominal Scales

Narrative

► Storytelling

Narratives

► Storytelling

Natality

► Fertility Rate

Nation's Report Card

► National Assessment of Educational Progress (NAEP)

National Accounts of Well-Being

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Synonyms

Accounting system for societal well-being; National indicators of subjective well-being and ill-being; National time accounting; National well-being accounts; National well-being index

Definition

"National accounts of well-being" is a name for the proposal, made by a number of authors, for a set of subjective measures of population well-being to be collected and published regularly and systematically by national governments. The proposal is modeled on established national accounting systems that governments use to track their countries' economic activity.

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It aims to enable public policy decisions to take full account of people's experiences of their lives, the factors that influence them, and the differences in these experiences between different groups within the population.

Description

Introduction

During the first decade of the twenty-first century, a number of authors made proposals that measures of subjective well-being should be used to create indicators to guide national public policy. These proposals for national accounts of well-being are intended to aid policy making. They seek to provide all those interested in how to improve the lives of the population – including decision makers, others involved in policy debates, and the public – with direct information about how those lives are experienced.

The proposals for national accounts of well-being are motivated by the belief that the system would:

- Encourage society to recognize and value well-being as the ultimate goal of public policy
- Compensate for the focus on economic indicators which currently dominate policy discussions
- Provide evidence allowing concrete policy actions to be taken
- Broaden and systematize subjective measures of well-being used to date by researchers

The various proposals differ in the suggestions they make for how the accounts could be constructed, while they share an approach that advocates collecting together measures which relate either to different moments in time or to different aspects of people's subjective experiences into a headline indicator. The key proposals have been made in Diener and Seligman (2004), Kahneman, Krueger, Schkade, Schwarz, and Stone (2004), Diener (2005), Diener and Seligman (2006), Krueger, Kahneman, Schkade, Schwarz, and Stone (2009), Michaelson, Abdallah, Steuer, Thompson, and Marks (2009), and Diener and Tov (2012).

Motivation for the Proposals

Recognizing and Valuing Well-Being as the Ultimate Goal of Public Policy

The fundamental motivation for the proposals is the contention that well-being should become the explicit primary focus of policy makers. The proposal authors (henceforth "the proposers") argue that it should be recognized as the ultimate goal around which economic, health, and social policies are built, with well-being recognized as the common desired outcome of a desirable society, as well as the cause of other outcomes valued by policy makers and society. The proposers contend that a well-being indicator system would help bring about this recognition because societies measure what matters to them. What a society measures will influence what it seeks to achieve and what it values.

As well as focusing policy attention, there is seen to be great value in a well-being indicator system's ability to attract public attention. Diener and Tov (2012) describe such indicators as able to "draw attention and inspire discussion." It is argued that they would stimulate thought and attention, shifting public discourse and promoting a society-wide discussion about priorities. The indicators could help people to think about the choices they make that affect their own well-being, such as how they allocate their time to different activities.

Complementing Economic Measures

The proposers argue that the aim of policy *should* be to maximize well-being, rather than growth in economic indicators such as gross domestic product (GDP), but that the central role such indicators currently play within policy and public discourse has a distorting effect on decision-making. While policies should be assessed as a means to ultimately enhance well-being, they are frequently considered predominantly in terms of their impact on economic indicators.

The authors point out that there are clear discrepancies between economic indicators and subjective measures of well-being. Economic indicators are described as "no longer a complete approximation of how well a nation is doing"

(Diener & Seligman, 2006). Oft-cited examples are the divergence between GDP growth and reported ▶ life satisfaction in many developed countries and the rise of "ill-being" measures such as depression, anxiety, and decrease in social connectedness. The evidence from well-being research suggests that the strength of the relationship between economic factors and well-being is not as strong as it was thought and that some aspects of economic growth may in fact be harmful to well-being. Well-being indicators assess the full range of inputs to quality of life and so, it is argued, would ensure that factors beyond just the economic and market-based are considered when decisions are made about societal structures and policy interventions. This means that trade-offs between the various factors that are important to well-being can be taken into consideration in policy deliberations, for example, in the case of investment in transport infrastructure, between the well-being gains from access to services and the well-being losses from air pollution.

The proposers suggest that while economists previously believed that direct experiences could not be robustly measured, the wealth of evidence which has now established the robustness of subjective well-being measures means that this is now a viable option. The discovery of this evidence can be seen as part of a cycle, in which the neoclassical economic approach – based on utility from preference satisfaction – was born in the nineteenth century from a sense that "inter-personal comparisons of happiness are impossible," to which the "rediscovery within economics of ▶ subjective well-being accounts" in the 1970s spurred a "counterrevolution" (MacKerron, 2011). Diener and Tov (2012) offer a comprehensive account of the evidence: the convergence of subjective well-being measures with other measures (e.g., biological indicators of brain function and other parameters; reports from other people who know the individual; behaviors such as reaction time, smiling, and sociability; answers to open-ended questions), predictions of future behavior, changes of the measures with people's changed life circumstances, and the use of the measures to produce understandable patterns of findings. However, they also recognize the number of potential measurement artifacts which can arise from subjective well-being indicators and the need to avoid these in the way that measurement is carried out.

A number of specific concerns are raised about the characteristics of GDP as the currently dominant economic indicator. Authors point to the fact that it systematically excludes the effects on well-being from production and consumption of goods and services which fall outside the market. This means that, for example, care provided by one family member for another would not be captured in GDP, while that from a paid carer would. GDP increases with defensive expenditure on social bads or "regrettables" and does not capture what economics regards as "externalities" – the side effects of production and consumption that do not result in market transactions.

Fundamentally, the use of economic measures as ultimate arbiters of policy decisions is seen to rest on a model of individuals as agents of rational choice, with income used as a proxy for the choices available to individuals, which is in turn a proxy for their well-being. A large amount of empirical evidence from behavioral economics has called into question this model. This suggests that increasing the choices open to individuals by increasing their income will not necessary make them better off.

Particular historical reasons for the dominance of economic indicators are recognized by the proposers, including the huge unmet basic needs faced by Western populations in the past and the emphasis on production during the Second World War, when economic national accounting systems were being developed.

Proposers do not suggest completely replacing the measurement of economic factors. Instead, measuring both is seen as allowing the exploration of the relationship between economic growth and well-being, and identification of when the two do, and do not, move in tandem. Hence, the proposal is seen to enhance the value of existing economic and social indicators.

Providing Evidence Allowing Concrete Policy Actions to Be Taken

The substantial body of research in "well-being economics" has established relationships between a large number of policy-relevant factors and well-being. In addition, high well-being predicts a number of beneficial outcomes already valued by policy makers. The proposers suggest that well-being indicators can bring this type of evidence into the heart of policy making to improve the decisions that are made. This is seen to avoid a situation, described by Diener and Seligman (2004), where "policies are being created on the basis of mere guesses and romantic sentiments about what will enhance well-being." Using this evidence in policy making could help understand the lives of specific groups in the population, identify life domains where well-being can be improved, and help to assess the case for policy intervention to produce outcomes for which values are not given by the market.

Need to Systematize Well-Being Measurement

Common to all the proposals is the desire to extend well-being measurement beyond global reports of reported life satisfaction, which has been the basis for much well-being research to date, to a broader range of more nuanced measures. The proposers note a number of the problems with the life satisfaction measure: its generality and inability to distinguish between different aspects of well-being, the fact that responses are formed without reference to particular experiences, the large measurement error likely to be associated with a single measure, the extent to which responses depend on people's expectations, and the potential cultural differences driving people's global self-descriptions.

In addition, there are seen to be advantages from systematizing well-being measurement, so that while many research findings are currently based on life satisfaction measures, others are based on measures including stress, depression, and positive emotions, with little guidance about the cross-comparability of these findings. A number of the proposers argue that accepting a broad conception of well-being requires measurement of a number of distinct concepts, including aspects of ▶ eudaimonic well-being, as well as hedonic well-being.

Nature of the Proposals

The key features of each of the prominent proposals for national accounts of well-being are outlined in Table 1.

Critiques and Rejoinders

The proposers address a number of critiques often made about this type of proposal.

The first set of critiques address the politics of the proposal. Collecting well-being measures is often seen as unacceptably paternalist, falsely setting up the role of government as that of making people happy. The proposers point out that governments already intervene in many areas of life which could be seen as private, including people's economic lives, and argue that the aim of the measures is to ensure that this intervention is beneficial and not harmful. They say that national accounts of well-being would lead governments to create the conditions which enable people to flourish rather than directly intervening in people's lives. The measures themselves are neutral about intervention and could in principle reveal that less intervention leads to higher well-being. Proposers recognize that factors beyond the control of policy makers influence well-being measures, but note that the same is true of economic measures.

Some proposers argue that national well-being indicators should be seen as politically neutral and point out that existing well-being evidence appears to support policies advocated by both left- and right-wing political perspectives – in some cases suggesting interventions requiring additional expenditure but also emphasizing the huge benefits from people's own friendship and family ties (Diener & Seligman, 2004). Most note that the well-being measures are not intended to replace but to complement economic measures. A perceived pressure on people to be or present themselves as happy can be avoided through clarity that

National Accounts of Well-Being, Table 1 Elements of national accounts of well-being proposals

Proposers	Elements of proposal
Diener and Seligman (2004)	The authors propose that a set of national indicators of well-being should:
	• Include questions that are relevant to policy
	• Broadly and representatively sample various population groups
	• Include measures of broad facets of both eudaimonic well-being and hedonic well-being, such as having purpose and meaning in life, trust, engagement, depression, and positive and negative emotions
	• Include narrower well-being measures related to different life domains, such as work, health, family, community, and leisure
	• Include permanent measures used in all samples as well as topical measures and samples that focus on specific current policy issues
	• Measure experience as it occurs (experience sampling) for sub-samples
	• Track subsamples longitudinally
	• Draw on a large-scale research program which aims to refine indicators of well-being.
Kahneman, Krueger, Schkade, Schwarz, and Stone (2004)	The authors make a proposal for Time-Based National Well-being Accounts – where national well-being is measured by weighting the time allocated to various activities by the subjective experiences associated with those activities
	The authors state that measures of well-being should:
	• Represent actual hedonic and emotional experiences as directly as possible
	• Assign appropriate weight to the duration of different segments of life
	• Be minimally influenced by context and standards of comparison
	They propose the Day Reconstruction Method which asks respondent to fill out a diary corresponding to events of their previous day, as a more practical alternative to experience sampling. Respondents describe each episode and are then asked to rate nine affect dimensions for each episode. National well-being is calculated as a sum of each individual's experienced well-being in different blocks of time
Diener and co-signatories (Diener, 2005)	The signatories call for a set of guidelines for national indicators of subjective well-being and ill-being. They say that:
	• Global assessments of subjective well-being, such as life satisfaction, can be helpful to policy, but should be used alongside measures of separate facets of well-being
	• Surveys carrying the measures should be administered to large samples to reliably detect trends or changes
	• To ensure measures are sensitive to change, measurement should include longitudinal designs, time sampling and diary recording of experiences, and collection of data from targeted populations, as well as single-point cross-sectional measures
	• Instruments with established psychometric properties and proven validity should be used – with new measures used cautiously until their additional contribution has been demonstrated
	• Well-being measures should be used with sensitivity to their likely biases, with steps taken to correct them where possible, and the limitations applied to the conclusions that are drawn from them
	• Well-being and ill-being measures should be seen as part of the democratic process, providing information useful in policy debates. The measures do not override other sources of information, but provide one type of knowledge that can be used to create better policies

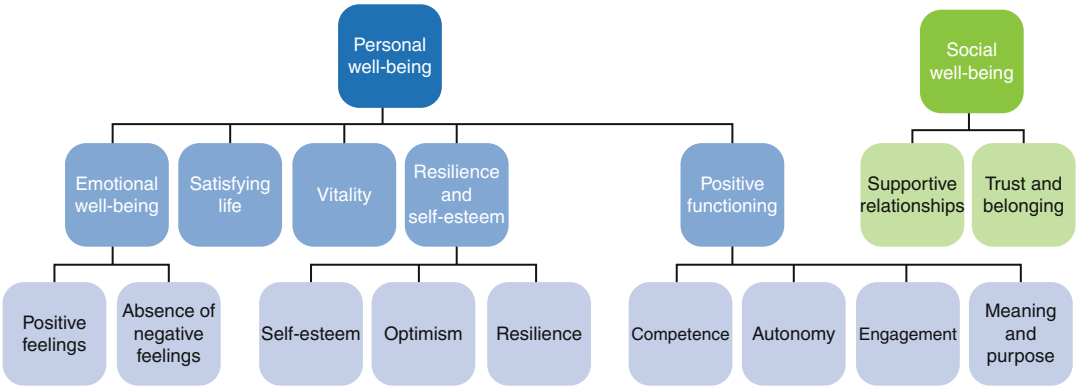
(*continued*)

National Accounts of Well-Being, Table 1 (continued)

Proposers	Elements of proposal
New economics foundation (Michaelson et al., 2009)	The new economics foundation's example framework for National Accounts of Well-being, constructed using data from 22 European countries, is based on two headline measures, of personal and of social well-being, which sit at the top of a hierarchical structure of indicators (see Fig. 1)
	The personal well-being indicator is an aggregation of five component indicators, some of which are broken down further into sub-components (shown in brackets):
	• Emotional well-being (positive feelings, absence of negative feelings)
	• Satisfying life
	• Vitality
	• Resilience and self-esteem (self-esteem, optimism, resilience)
	• Positive functioning (autonomy, competence, engagement, meaning)
	The social well-being indicator is aggregated from two components:
	• Supportive relationships
	• Trust and belonging
	In addition, a well-being at work indicator was constructed as an example of an indicator of well-being within a particular life domain
Krueger, Kahneman, Schkade, Schwarz and Stone (2009)	The authors set out an approach for measuring features of society's subjective well-being, based on "evaluated time use" (which can be seen as a development of their Kahneman et al., 2004 proposal). They describe a method based on existing time use surveys, which additionally ask about respondents' feelings during activity episodes. The proposal uses illustrative data from a telephone survey, the Princeton Affect and Time Survey, modeled on the American Time Use Survey. After describing their activities of the previous day, respondents are asked to rate the extent to which they experienced six feelings (positive and negative) during three randomly selected activity episodes. The results are shown to be similar to those obtained through the more established Day Reconstruction Method. Results from the survey are used to construct the "U-index," which reports the fraction of an individual's waking time that is spent in an unpleasant state. The authors argue that tracking the U-index over time, for a representative sample of the population, can act as a complement to the National Income Accounts, providing a partial measure of society's well-being. The proposers suggest that the method could also be adapted to measure people's sense of purpose about their daily routines
Diener and Tov (2012)	The authors say that national well-being measurement should:
	• Assess several different factors contributing to subjective well-being
	• Include different temporal measures of affect, both in-the-moment evaluations and recall measures, including global evaluations
	• Cover cognitive judgments and measures of motivational concepts
	• Use different measures most relevant to different policy questions
	To be useful for policy analysis, measures must be accurate, valid, and should:
	• Assess factors that are seen as legitimate concerns of the government
	• Measure issues in which governments have the power to intervene
	• Capture information that is not available in other existing indicators

well-being is about lives going well overall and not cheerfulness or euphoria (Diener & Tov, 2012).

A second set of critiques relates to characteristics of the measures themselves. Proposers acknowledge that there are likely only to be small changes in the measures year on year, but point out that annual changes in economic measures such as GDP also tend to be at the level of a few percentage points at most. They note the crucial interest in being able to examine the links between changes in circumstances and in levels of well-being.



National Accounts of Well-Being, Fig. 1 The new economic foundation's *National Accounts of Well-Being* prototype indicator framework for personal and social well-being (Adapted from Fig. 1, p. 21 of Michaelson et al. (2009))

Proposers also note that caution is needed in interpreting cross-national differences. This is not just in relation to measurement error potentially introduced by different response styles but also because of the possibility that cultural differences genuinely affect levels of well-being. This is a particular risk when satisfaction-based measures are used, which depend in part on people's standards and expectations.

Policy-Level Action

While no national government has yet implemented a comprehensive system of subjective indicators of well-being of the type described in these proposals, recent years have seen high-level policy action moving towards this sort of approach. Bhutan's gross national happiness indicator, which includes a number of measures of subjective well-being, has done much to raise the profile of the agenda internationally. In France, the Commission on the Measurement of Economic Performance and Social Progress, established by President Sarkozy and led by Professors Stiglitz, Sen, and Fitoussi, was motivated by "increasing concerns. . .about the adequacy of current measures of economic performance. . .[and] about the relevance of these figures as measures of societal well-being." The resulting ▶ Stiglitz report recommended that subjective measures should be collected by governments and recognized a need for these measures to be textured and multidimensional, although suggested that these were just one of a number of dimensions of quality of life that should be collected into a summary measure (Stiglitz, Sen, & Fitoussi, 2009).

Subsequently, the UK's Prime Minister David Cameron has announced a program of measuring national well-being, including but not limited to four subjective well-being measures which have been included on the largest social survey run by the UK's Office for National Statistics. Other countries including Italy, Germany, Spain, the United States, Australia, China, and Ecuador are also taking steps to measure quality of life as well as economic growth (Seaford, 2011). Eurostat, the European statistics agency, is working on developing a set of official well-being indicators, roughly half of which will be subjective indicators. In addition, programs such as the Better Life Initiative of the Organisation for Economic Co-operation and Development are exploring similar issues at the international level.

Cross-References

- ▶ Daily Diary Methodology
- ▶ Eudaimonic Well-Being
- ▶ Gross Domestic Product (GDP) and Happiness
- ▶ Life Satisfaction, Concept of
- ▶ Stiglitz Report
- ▶ Subjective Well-Being

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National Assessment of Educational Progress (NAEP)

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Synonyms

Nation's Report Card; US national assessment

Definition

The National Assessment of Educational Progress (NAEP) is the largest nationally representative and continuing assessment of what America's students know and can do in various subject areas. Assessments are conducted periodically in mathematics, reading, science, writing, the arts, civics, economics, geography, US history, and beginning in 2014, in technology and engineering literacy (TEL).

Description

The National Assessment of Educational Progress (▶ NAEP) is a monitoring assessment that provides data about the status of and the changes in academic achievement of fourth, eighth, and twelfth grade students in the Unites States. It is a legally mandated project of the National Center for Education Statistics (NCES) within the Institute of Education Sciences of the U.S. Department of Education.

The fact that there is no national curriculum in the United States and that each state conducts its own assessment to evaluate student achievement provides NAEP with a unique role. NAEP is often referred to as the Nation's Report Card, the only common "yardstick" that provides data on how states, districts, and various student groups perform against common achievement standards and compare to each other in terms of these standards.

NAEP was originally designed to provide results at the national level only. Between 1969 and 1990, NAEP conducted more than 50 assessments and reported results at the national level. The first state level NAEP assessment was conducted in 1990 in eighth grade mathematics, with voluntary state participation. The No Child Left Behind Act (NCLB) of 2001 was another milestone in the policy-relevant role of NAEP (Carr, Dogan, Tirre, & Walton, 2007, p. 323). The legislation required states to participate in NAEP's fourth and eighth grade reading and mathematics assessments to be eligible

for Title I, the major national program for providing funding to schools and school districts with a high percentage of low-income students. NAEP initiated the Trial Urban District Assessment (TUDA) program in 2002 with six urban school districts. Twenty-one districts participated in 2011. The Future of NAEP (2012) identifies trends affecting the evolution of NAEP, including new technologies and increased interest in cross-national comparisons.

NAEP assessments are conducted in various subjects such as reading, mathematics, and science with different periodicity. Reading and mathematics assessments have been conducted every 2 years at grades four and eight since 2003. Assessments in other subjects are conducted less frequently. Each assessment is based on a ▶ representative sample. The number of students can be as large as 150,000, depending on the grade and subject being assessed. Similarly, the number of schools in larger NAEP assessments can reach over 5,000.

In the absence of a national curriculum, assessment frameworks that define the test content are developed by recognized experts and form the basis for the test specifications. This process is conducted by the National Assessment Governing Board, created in 1988, which is a panel made up of educators, lawmakers, testing and curriculum experts, business leaders, and members of the general public (Jones & Olkin, 2004, p. 209). Members are appointed by the U.S. Secretary of Education.

NAEP assessments include both multiple-choice and constructed-response items. In a typical NAEP assessment, students spend half of the assessment time responding to multiple-choice items and half responding to constructed-response items. A major difference between NAEP and other assessments is that in NAEP, each student takes only a portion of the assessment to minimize testing time. (Each student is tested for about an hour.) As a result, it is not possible to create reliable scores for individual students that reflect their achievement on the entire domain being assessed. Using ▶ Item Response Theory and marginal maximum likelihood methods, NAEP results are reported for student groups (e.g., by gender, race/ethnicity, ▶ poverty level, English language learners), by way of average scale scores and percentage of student groups at and above three achievement levels: *Basic*, *Proficient*, and *Advanced*. The achievement levels are developed by the Governing Board and indicate what students should know and can do for the given subject and grade. *Basic* level denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade. *Proficient* level represents solid academic performance. *Advanced* level represents superior performance (Bourque, 2009). Results of the 2011 NAEP reading assessment indicated, for example, that 67 % of fourth graders were at or above *Basic*, and 34 % were at or above *Proficient*.

The main vehicle NAEP uses to disseminate the results of each assessment is the ▶ Nation's Report Card. In addition to the Report Card, NCES publishes research reports using NAEP data that are aimed at informing educational policy debate in the United States. For example, in 2011, NCES released a report that demonstrated that there is a great deal of variation among the states' proficiency standards. Other reports focused on achievement gaps between Black and White students and between Hispanic and White students in grades four and eight nationwide. In addition to the Report Card and various research reports, NCES makes NAEP data available for secondary analysis. Researchers can conduct such analysis either by using an online tool (NAEP Data Explorer) available to the public or by obtaining a restricted-use data license.

Cross-References

- ▶ Education
- ▶ Item Response Theory
- ▶ Reliability
- ▶ Representative Sample

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National Attachment

► Measuring National Identity

National Belonging

► Measuring National Identity

National Census

► Census

National Connectedness

► Measuring National Identity

National Election Study (NES)

► American National Election Studies

National Eye Institute Visual Function Questionnaire

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Synonyms

Disease-specific questionnaire; NEI VFQ

Definition

The National Eye Institute Visual Function Questionnaire (NEI VFQ) is a disease-specific ► patient-reported outcome measure designed to assess vision-related functioning and the impact of vision problems on health-related quality of life (HRQL) across a number of common eye conditions.

Description

The National Eye Institute sponsored the development of the Visual Function Questionnaire to create a measure that would assess domains of vision-specific functioning. The NEI VFQ was developed by Mangione, Berry, et al. (1998) for clinicians and researchers to assess the impact of vision problems on HRQL and vision-related functioning. The NEI VFQ developers conducted 26 focus groups in five geographic areas (in the United States) including patients with different eye diseases to identify the content areas and aspects of visual disability important to patients (Mangione, Lee, et al., 1998). They interviewed 82 patients with glaucoma, 58 patients with diabetic retinopathy (DR), 42 patients with cataract, 35 patients with ARMD, 17 patients with cytomegalovirus (CMV) retinitis, and 12 patients with low vision from any cause.

The final instrument contained 51 questions in 13 subscales. The questionnaire underwent psychometric evaluation in a sample of patients similar to the development sample plus a reference group of participants with normal vision. The results of this study and multiple subsequent studies have shown the NEI VFQ to have adequate psychometric properties. To decrease patient and interviewer burden, a 25-item version of the questionnaire (NEI VFQ-25) was developed through item-reduction analysis of the original 51-item version (Mangione et al., 2001). Based on these analyses, the NEI VFQ-25 consists of a base set of 25 items organized into 11 subscales (general vision, near vision, distance vision, driving, peripheral vision, color vision, ocular pain, vision-specific role difficulties, vision-specific dependency, vision-specific social function, and vision-specific mental health), plus an additional single-item rating general health. A composite score can be calculated as an unweighted average of responses to all items except the single-item general health subscale. The NEI VFQ-25 also includes an appendix of additional items from the 51-item NEI VFQ which can be used to create up to a 39-item version. These additional items are selected to add to the content of a subscale, for example, near and distance vision, in the ANCHOR and MARINA clinical trials (Bressler et al., 2009; Chang et al., 2007).

All NEI VFQ items are scored so that a high score represents better functioning. Items within each subscale are averaged together to create the subscale scores. Items that are left blank (▶ missing data) are not taken into account when calculating the scale scores. Therefore, scores represent the average for all non-missing items. Subscales with at least one item answered can be used to generate a subscale score. To calculate an overall composite score, simply average the subscale scores, excluding the general health question. Averaging the subscale scores gives equal weight to each subscale whereas averaging items would give more weight to scales with more items (Mangione, 2000).

The NEI VFQ-25 was developed for interviewer-administration. However, a self-administered version does exist. Telephone administration has also been used (Balcer et al., 2000; Miskala, Bressler, & Meinert, 2004; Miskala et al., 2003), with acceptable results. Both the interviewer- and self-administered versions have been translated into many languages with acceptable psychometric characteristics.

The NEI VFQ-25 has evidence supporting its psychometric properties across several different ocular conditions (Mangione et al., 2001). ▶ Reliability, including ▶ internal consistency and test-retest, has been demonstrated in the VFQ-25. The instrument also demonstrates adequate validity in a variety of settings and across patients with various eye diseases.

The NEI VFQ-25 has demonstrated adequate internal consistency reliability in patients with a variety of eye diseases, including ARMD, optic neuritis, age-related cataracts, diabetic retinopathy, CMV retinitis, glaucoma, and low vision and also in persons without eye disease (Broman et al., 2001; Clemons, Chew, Bressler, & McBee, 2003; Cole, Beck, Moke, Gal, & Long, 2000; Globe et al., 2003; Mangione et al., 2001). Cronbach's alpha scores are consistently highest for the near vision (range 0.77–0.91), distance vision (range 0.76–0.91), dependency (range 0.84–0.92), and role difficulties (range 0.79–0.90) subscales and consistently lowest for the driving subscale (range 0.65–0.86) (Broman et al., 2001; Clemons et al., 2003; Cole et al., 2000; Orr et al., 2011; Revicki, Rentz, Harnam, Thomas, & Lanzetta, 2010).

Test-retest reliability has been assessed in the NEI VFQ-25 with acceptable reproducibility reported across 14 (Mangione, Lee, et al., 1998) and 21 days (Nichols, Mitchell, & Zadnik, 2002), with ICCs of 0.57–0.91.

▶ Construct validity of the NEI VFQ-25 has been assessed via correlations with objective clinical indicators of visual function, other vision-specific instruments, and generic HRQL instruments. Interestingly, the correlations with visual acuity varied depending on which eye was

measured: better-seeing, worse-seeing, or both. Some found higher correlations between visual acuity and the better-seeing eye (Mangione et al., 2001; Revicki et al., 2010); however, others found correlations of higher magnitude when scores were correlated with visual acuity of the worse eye (Clemons et al., 2003).

The NEI VFQ-25 overall composite, near activities, distance activities, and vision-specific dependency subscale scores were moderately correlated with best-corrected visual acuity (BVCA) of the better-seeing eye (r = 0.50–0.68, 0.48–0.71, 0.54–0.64, and 0.49–0.61, respectively; all $P < 0.0001$) (Orr et al., 2011; Revicki et al., 2010). The NEI VFQ-25 overall composite, near activities, distance activities, and vision-specific dependency subscale scores were moderately correlated with contrast sensitivity of the better-seeing eye (r = 0.46–0.53, 0.45–0.56, 0.44–0.49, and 0.39–0.49, respectively; all $P < 0.001$) (Orr et al., 2011; Revicki et al., 2010).

Results highlight the importance of not only noting which visual acuity assessment is used when analyzing data but of considering the visual acuity of both eyes. A number of analytical techniques (e.g., using the visual acuity of better- or worse-seeing eye, or a weighted average of the better- and worse-seeing eye visual acuity) have been derived to accomplish this task; however, there seems to be no consensus on which methodology performs best.

▶ Concurrent validity has been assessed with the ▶ SF-36. Correlations between the NEI VFQ-25 total score and the SF-36 variables were mostly low and significant, with the exception of the correlation between bodily ▶ pain and driving (r = 0.06, NS). The near and distance vision subscales demonstrated generally low but significant correlation with the SF-36 subscale and summary scores (range: r = 0.10–0.31 (P = 0.01–0.0001)). Correlations between the NEI VFQ-25 total score and the physical and mental component summary scores were 0.24 ($P = 0.0001$) and 0.32 ($P = 0.0001$), respectively.

▶ Discriminant validity has also been assessed in the NEI VFQ-25. Clemons et al. (2003) demonstrated decreasing scores on all subscales for patients with decreasing ARMD status. Miskala et al. (2004) studied 120 patients with ARMD and found significant differences in a 37-item (the 39-item version with the exclusion of the two general health items) NEI VFQ overall score and all subscales except peripheral vision and ocular pain. They also used linear regression models to explore the relationship between visual acuity and NEI VFQ score. They found that visual acuity was the primary influence on the NEI VFQ overall score and all subscales except peripheral vision and ocular pain. Klein, Moss, Klein, Gutierrez, and Mangione (2001) found the NEI VFQ-25 to discriminate scores by level of diabetic retinopathy severity. Patients with a visual acuity worse than 20/40 scored significantly lower on all subscales than patients with visual acuity of 20/40 or better (Broman et al., 2001). Interestingly, the NEI VFQ-25 also seems to discriminate by level of self-reported depression (Paz, Globe, Wu, Azen, & Varma, 2003).

Revicki et al. (2010) found that mean NEI VFQ-25 overall scores were significantly higher in groups with better visual acuity (all $P = 0.05$), indicating better vision-related functioning. Statistically significant differences in mean NEI VFQ-25 subscale scores by BCVA category of the better-seeing eye were observed (all $P = 0.01$), with the exception of general health. As visual acuity decreased, NEI VFQ-25 subscale scores also decreased, indicating worsening vision-related functioning and health-related quality of life. A similar pattern of differences in mean NEI VFQ-25 scores were observed by BCVA for the worse-seeing eye. Mean NEI VFQ-25 total and subscale scores, except for general health, significantly varied by BCVA group (all $P = 0.01$). Orr et al. (2011) found that mean NEI VFQ-25 overall scores as well as near activities, distance activities, and vision-specific dependency scores were significantly higher in groups with better visual acuity in the better-seeing eye (all $P = 0.05$).

ANCOVA models, controlling for age and sex, were used to examine the association between contrast sensitivity and the NEI VFQ-25 subscale and total scores and showed a similar pattern of differences in mean NEI VFQ-25 scores as those

found with BCVA (Revicki et al., 2010). Mean NEI VFQ-25 total scores were significantly higher in patients with better contrast sensitivity (all $P = 0.05$), indicating better vision-related function. Statistically significant differences in mean NEI VFQ-25 subscale scores between the best and worst contrast sensitivity categories were observed (all $P = 0.05$), with the exception of general vision. As contrast sensitivity decreased, NEI VFQ-25 subscale scores decreased, indicative of worsening vision-related functioning and health-related quality of life.

Responsiveness has been assessed after patients have undergone behavioral intervention (Brody et al., 2002) and tenotomy procedure (Hertle et al., 2003). The VFQ-25 seems to be responsive to such interventions, although the Brody study had a very small sample. Miskala et al. (2003) examined responsiveness of the NEI VFQ over time to changes in visual acuity. One-year changes in total score and in all but two subscales (color vision and ocular pain) were significantly linearly related to 1-year changes in better-eye visual acuity. Although Miskala and colleagues used the 37-item version of the questionnaire in their studies, they also examined the NEI VFQ-25 scores. The total score and subscale scores were similar for the 37- and 25-item versions. The Age-Related Eye Disease Study Research Group (2005) also found that the NEI VFQ (39-item version) was responsive to progression of AMD and loss of visual acuity. Mean changes ranged from 11 to 25 points for the near and distance activities, general vision, social functioning, mental health, role difficulties, dependency, and driving subscales. The VFQ-25 has performed well in studies of its responsiveness to change, although further examination is warranted.

The interpretation of clinically important differences or changes in HRQL measures is based on accumulating evidence from multiple studies about the association between changes in scores and other clinically relevant criteria and distribution based methods (Guyatt et al., 2002). Effect sizes, standardized response means, standard error of measurement (SEM), and the results of previous clinical trials inform these differences (or changes) in a HRQL outcome measure. Suñer et al. (2009) found the clinically meaningful difference in NEI VFQ scores associated with a 15-letter BCVA change was four to six points for the overall score and the near and distance activities and vision-specific dependency. Others have found a five- to ten-point difference in NEI VFQ-25 scores to be clinically meaningful (Cahill, Stinnett, Banks, Freedman, & Toth, 2005; Globe, Wu, Azen, & Varma, 2004; Miskala et al., 2003). A 3-line loss in visual acuity (a common endpoint in clinical trials) has been associated with a decrease of almost three points in VFQ-25 total score and up to six points in the near and distance activities subscales. Miskala et al. (2003) found that a 1-line change in better-eye visual acuity was associated with a 1.2- to 3.6-point change in the overall NEI VFQ score and 9 of the 11 subscales. Conversely, no change in better-eye visual acuity was associated with no significant changes in NEI VFQ scores. A 3-line loss in visual acuity has been used as the primary outcome in clinical trials of treatments for ARMD (Bressler & Treatment of Age-Related Macular Degeneration with Photodynamic Therapy (TAP) Study Group, 2001; Treatment of Age-Related Macular Degeneration with Photodynamic Therapy (TAP) Study Group, 1999).

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National Health Interview Survey (NHIS)

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Synonyms

NHIS

Definition

The National Health Interview Survey (NHIS) is an annual, cross-sectional survey that tracks the health and well-being of the noninstitutionalized, civilian population of the United States (Botman, Moore, Moriarity, & Parsons, 2000; Kovar & Poe, 1985; Massey, Morre, Parsons, & Tadros, 1989; National Center for Health Statistics, 1975, 1999). The NHIS is conducted by the National Center for Health Statistics (NCHS), which is part of the Centers for Disease Control and Prevention (CDC).

Description

The National Health Interview Survey (NHIS) is one of several key sources of information on the health of the noninstitutionalized civilian population of the United States (Centers for Disease Control & Prevention, 2011). The content of the NHIS changes over time as the survey is updated, but in recent years, it has asked about health indicators including functional limitations, medical conditions, self-rated health, health behaviors, body mass, and mental distress; demographic indicators including age, race/ethnicity, sex, and whether born in the United States; and socioeconomic status indicators including education, income from various sources, employment status, work hours, and occupational status. The sample size is relatively large – approximately 80,000 respondents aged birth to 85 or older in recent years, and over 100,000 respondents each year in prior years – thereby enabling analyses of relatively small demographic groups and relatively rare health conditions.

The NHIS is comprised of repeated, annual cross-sectional surveys of the US population. Currently, there are publicly available data from the 1963–2011. The data for a given year are typically released in the summer of the year following their collection. Thus, 2012 data will likely become available to the public in the summer of 2013.

The NHIS draws its sampling frame from the United States Census and is representative of the 50 United States and the District of Columbia. The sampling frame is revised following the United States Census, and typically the questions are updated at that time. Many of the "core" questions remain unchanged over time (e.g., age, sex, less detailed race variables) or are available over time and can be made compatible with relative ease (e.g., family income, education). The NHIS also fields a series of supplements, each year, that collect information on topics of particular interest, typically from a randomly selected subset of the individuals in the survey. For example, some recent supplements ask specifically about topics including detailed health conditions and health behaviors, children's health, or cancer risk factors.

Survey Design and Organization

In addition to the points noted above, there are several notable features of the NHIS. First, the NHIS data are considered to be high quality because they are collected in face-to-face

interviews that are conducted in English and Spanish. Because of the face-to-face interview format, and because of the persistence and high level of training of interviewers, the response rates for selected households have been about 85 % in recent years and have been even higher in prior years (Centers for Disease Control & Prevention, 2005).

Second, the NHIS data collects data on all individuals in sampled households and provides variables that indicate family and household relationships among individuals. Adults aged 17 and older are encouraged to respond for themselves, but knowledgeable adults (typically parents) provide data on children aged birth through 16. As such, the NHIS is unique among national health surveys (e.g., National Health and Nutrition Examination Survey, Behavioral Risk Factor Surveillance System) in that it allows detailed analysis of family relationships and health.

Third, the NHIS oversamples demographic groups of interest. In recent years, the NHIS has over sampled blacks, Hispanics, and Asians and has provided detailed information on Hispanic and Asian subgroups. The use of oversampling, in combination with the large sample size in the NHIS, makes these data a valuable resource for assessing health disparities in the United States population.

Fourth, the NHIS uses state-of-the-art methods to deal with missing values on socioeconomic data – a common problem for many social surveys. Across waves, over 20 % of households fail to provide detailed family or individual income data. Thus, the NHIS provides public use and multiple imputation data files for the socioeconomic data (Schenker et al., 2006). NHIS uses both publicly released variables and confidential data on respondents that are not released to the public, to improve the quality of their imputations.

Linkages to Other Data Sources

The value of the NHIS is further augmented by their linkage to other survey and administrative data sources. Respondents in the NHIS are matched to the administrative data sources described below on various characteristics including items like the Social Security Number; last name; first name; middle initial; month, day, and year of birth; sex; state of birth; and so on. The particular criteria will vary depending on the data being linked to the NHIS. These matches become less precise as individuals refuse to provide more identifying information at the time of survey. As such, depending on the administrative data source and the rate of refusal to provide identifying information – which has increased in recent years with respondents' concerns about protecting their own privacy – between 3 % and 20 % of respondents are ineligible to be linked to the data in question.

Some of the linked data are available to the public, whereas others are only available to researchers through NCHS's Remote Data Center (RDC), in order to protect the confidentiality of survey respondents. Data that include any geographic identifiers smaller than Census Region (i.e., Northeast, Midwest, South, West) – at least in recent years – are only available through the RDC. Often, when administrative data linkages are released to the public, some detail on key variables may be concealed or statistically perturbed to reduce the probability that individuals can be identified. At least in the case of matches to the National Death Index, some research suggests that such perturbations will have little impact on results in statistical analyses (Lochner, Hummer, & Cox, 2007).

Longitudinal Mortality Files (LMF): Beginning in 1986, the NHIS data are linked to prospective mortality in the National Death Index (NDI). In 2010, 1986–2004 waves of the NHIS were linked to mortality through 2006, allowing researchers to examine prospective mortality (overall and cause specific). These data are particularly valuable to health researchers as they transform the NHIS from a cross-sectional survey into a prospective data source that allows the assessment of mortality over time.

Centers for Medicare and Medicaid Services (CMS): The 1994–1998 waves of the NHIS are linked to the 1991–2007 years of the CMS data, and the 1999–2005 waves of the NHIS are linked to the 1999–2007 waves of the CMS data. The CMS data provide information on the dates and

coverage of claims to Medicare and Medicaid, for inpatient and outpatient care.

Social Security and Benefit History Data: The 1994–2005 waves of the NHIS are linked to data from the Social Security Administration (SSA), including both benefits received from and payments into the SSA, eligibility for disability-related benefits including Supplemental Security Income, and the SSA's assessments of disability status for those who receive or apply for disability-related benefits.

Medical Expenditure Panel Survey (MEPS) Linkage Files: The MEPS data offer detailed insight into individuals' medical expenditures in a variety of domains (i.e., pharmaceutical usage, outpatient, inpatient, emergency). Each year, the MEPS draws its household sample from the respondents to the NHIS in the prior years. As such, it is possible to link respondents in the NHIS to respondents in the MEPS.

National Immunization Provider Records Check Survey (NIPRCS): The 1997–1999 waves of the NHIS data are linked to the NIPRCS data for children aged 12–35 months of age, who also responded to the NHIS Immunization Supplement in those years. These files allow researchers to validate the caregiver-reported immunization reports against records from the immunization providers.

Integrated Health Interview Series (IHIS)

The University of Minnesota – with funding from the Eunice Kennedy Shriver National Institute of Child Health and Human Development (one of the National Institutes of Health) – produces the IHIS (Minnesota Population Center and State Health Access Data Assistance Center, 2012). The IHIS data use the public release files of the NHIS and harmonize them so that they have consistent coding of variables over time wherever possible. This makes the NHIS data easier to use for students and researchers, especially when there is an interest in analyses that examine trends in variables over time.

Other Sources of Health Data

Although the NHIS is a powerful data set that offers some advantages to researchers, there are several other federal data sets that collect information on health and well-being. Key surveys include the National Health and Nutrition Examination Survey, the Behavioral Risk Factor Surveillance System, the Longitudinal Study of Aging. There are also various surveys that have been initiated by researchers, but that are also widely used to study health and well-being, including the Health and Retirement Study and the National Longitudinal Study of Adolescent Health.

Cross-References

- ▶ Health Behavior
- ▶ Mortality
- ▶ Socioeconomic Status (SES)

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National Identification

► Measuring National Identity

National Indicators of Subjective Well-Being and Ill-Being

► National Accounts of Well-Being

National Integrity System (NIS)

► Corruption

National Neighborhood Indicator Partnership

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Synonyms

NNIP

Definition

The National Neighborhood Indicators Partnership (NNIP) is a collaborative effort by the Urban Institute and local NNIP partners to further the development and use of neighborhood-level information systems in local policymaking and community building.

Description

The National Neighborhood Indicators Partnership (NNIP) is a collaborative effort by the Urban Institute and local NNIP partners to further the development and use of neighborhood-level information systems in local policymaking and community building. The partnership was initiated by six organizations who were previous recipients of the Rockefeller Foundation's Community Planning and Action Program, under the leadership of James O. Gibson of the Foundation. Under the Rockefeller grant, the organizations gave special emphasis to data development and use to help in informing and empowering low-income neighborhoods. When the grant was completed, the organizations wanted to keep learning from each other and approached the Urban Institute (UI), a nonprofit policy research organization, to coordinate their network. Since that time in 1995, UI has served as the coordinator and fiscal agent for the activities of NNIP. The network is governed by UI and the NNIP Executive Committee, which is comprised of six representatives from local NNIP partners. As of 2012, NNIP partnership activities are sponsored by the Annie E. Casey Foundation, the Macarthur Foundation, and the McKnight Foundation.

All NNIP local partners have built advanced information systems with integrated and recurrently updated information on neighborhood conditions in their cities. Creation of this capacity, which did not exist in any US city 20 years ago, represents an important technical and institutional breakthrough. To succeed, NNIP partners needed to overcome resistance of local public agencies to sharing administrative data. Because of major cost reductions made possible through new information technologies, they have shown that such systems can be locally self-sustaining. Their indicators cover topics such as births, deaths, crime, health, public assistance, and housing.

Perhaps most important is the way they use their data. NNIP partners operate very differently from traditional planners and researchers. Their theme is democratizing information. They facilitate the direct practical use of data by city and community leaders. And all have adopted as a primary purpose using information to build the capacities of institutions and residents in distressed urban neighborhoods. As of 2012, NNIP has local partners in 36 cities.

Several partners participate in comprehensive indicator reviews for their cities or regions, including Boston Indicators Project by the Boston Foundation, Vital Signs by the Baltimore Neighborhood Indicators Alliance, Greater Portland Pulse by the Institute for Portland Metropolitan Studies, and Community Counts by Public Health-Seattle and King County.

The partnership undertakes work spanning across the local partners, including informing local policy initiatives through cross-site projects and in-depth studies. Past cross-site projects have focused on parcel-based data systems (Kingsley & Pettit, 2008), school readiness (Kingsley & Hendey, 2010), and the impact of foreclosure on children (Pettit & Comey, 2012). The partnership also develops tools and guides, encourages the formation of new NNIP partners in additional cities, and strengthens the existing network through partner meetings, workgroups, and other services. NNIP staff also work to build leadership in the community information field through informing federal initiative planning and collaborating with other organizations and networks working to support community information (Kingsley, 2011; Kingsley & Pettit, 2011a). For more information, see Kingsley and Pettit 2011b and the NNIP website at http://www.neighborhoodindicators.org.

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National Power Measurement

▶ Measures of National Power

National Pride

▶ Measuring National Identity

National Product

▶ Gross National Product (GNP)

National Subjective Well-Being

▶ International Well-Being Index

National Time Accounting

▶ National Accounts of Well-Being

National Well-Being Accounts

► National Accounts of Well-Being

National Well-Being Index

► National Accounts of Well-Being

National Well-Being Indicators

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Synonyms

Happiness in nations; Life satisfaction indicators; Well-being indicators, national; Well-being, subjective

Description

National Well-Being Indicators

There is increasing interest in both academic and policy communities in the study and understanding of well-being, broadly defined. The objective is an understanding of quality of life which goes beyond income-based measures of economic progress. This approach was considered experimental and was at the margins at the beginning of the millennium. Ten years hence it features front and center in debates about policy and even the nature of our metrics. In many countries, there is now serious discussion on the inclusion of national well-being indicators to complement income-based measures such as GNP.

The broader approach to measuring well-being was formally proposed by the highly publicized Sarkozy Commission in 2008 chaired by Nobel Prize winners Amartya Sen and Joseph Stiglitz and hosted by the OECD, among others. The British and French governments have already opted to include well-being metrics in their national statistics, and the Brazilian government has included happiness as a goal in its constitution. The government of Bhutan replaced GNP with the concept of Gross National Happiness (GNH) over a decade ago. Meanwhile, there is even discussion of adopting well-being metrics in the United States.

Subjective well-being not only has inherent value to individual citizens, but it may have positive spillover effects for society as a whole. There is increasing evidence that higher levels of subjective well-being produce beneficial social outcomes, whereas depression and prolonged negative states tend to produce undesirable social outcomes (Diener, 2007; Graham, Eggers, & Sukhtankar, 2004).

What, then, are national well-being indicators? Generally speaking, they entail the inclusion of a range of measures of subjective well-being into national statistical gathering and their usage to complement income-based benchmarks of progress, such as GNP. The metrics can, in theory, be used to track progress in well-being across individuals within nations and over time, as well as to compare well-being levels across nations. The metrics can also serve at least three additional roles. These are the following: informing policy design, monitoring policy progress, and appraising policy success.

Richard Layard, who has written extensively on well-being and is one of the primary advisors to the British government's ongoing efforts, has made the important point that to be useful, national well-being indicators need to be publicly acceptable, understandable, and measurable (Dolan, Layard, & Metcalf, 2011). Ed Diener, one of the leading psychological scholars of subjective well-being, has made the point that the measures that are chosen need to be varied and based on a range of dimensions of well-being, to be sensitive to changes in subjective well-being so as to be able to detect the effects of a policy intervention, to have proven validity in terms of their psychometric properties, and to

be seen as part of the democratic process, in which citizens and their leaders are given information that can be used in policy debates.

At this juncture, national well-being indicators remain primarily a theoretical concept. At the same time, the above-noted efforts in several countries to incorporate well-being metrics into national statistics are an important first step towards developing such indicators. Over time, it is quite possible that countries will coordinate their statistical gathering efforts in the same way that there was eventual coordination and consensus on what GNP measures would and would not include, so that they could be compared across countries and over time.

A Note on the Terminology Underlying the Metrics

It is important to clarify what we mean when we use the terms "happiness," "well-being," "subjective well-being," and "life satisfaction," among others. They are often used interchangeably in the economics literature, while psychologists take much more care in distinguishing the nuances between them. The nascent discussion on policy and national well-being indicators, meanwhile, forces more definitional clarity precisely because the differences in the meaning of these terms could have vastly different policy implications.

While the terms are related, they have distinct meanings. Happiness is perhaps the most open-ended and least well defined of the terms, although it is the one that gets the most public attention and interest. It is also the term that appears in the US Declaration of Independence. It is a general question that attempts to gauge how happy people feel about their life in general. From an empirical research perspective, this question is useful precisely because it does not impose a definition of happiness for the respondents and they conceptualize happiness for themselves. From a policy perspective, however, this lack of definitional clarity is more problematic, at least in the absence of a discussion about what conceptualization of happiness a particular policy intervention and/or public deliberation is focused on.

Life satisfaction is a closely related concept, and responses to happiness and life satisfaction questions correlate very closely – at a correlation coefficient of roughly 0.5 (see Graham, 2008 and Blanchflower & Oswald, 2004). Yet life satisfaction is a slightly more structured concept than happiness and correlates more closely with income. When people are asked about their satisfaction with their lives, as opposed to happiness in general, they are more likely to evaluate their life circumstances as a whole, in addition to their happiness at the moment.

The ladder of life question, introduced by sociologist Howard Cantril decades ago and now an integral part of the Gallup World Poll, is also often used interchangeably with happiness as a research tool. It also introduces a relative component as it asks respondents to compare their present lives to the best possible life they can imagine for themselves. Not surprisingly, responses to the ladder of life question correlate even more closely with income than either happiness or life satisfaction questions do, as most respondents compare their lives to a national or international reference norm (Graham, 2009).

Subjective well-being, as noted above, is a term that encompasses all of the ways in which people report their well-being, from open-ended happiness to satisfaction with different domains, such as work, health, and education. Psychologists in particular conduct separate analysis in each of these domains, comparing the results of each of them with particular variables of interest. Well-being, finally, is the most encompassing of all of these terms and implies an evaluation of human welfare that extends beyond the components that income can accurately capture or measure from both objective and subjective perspectives. The definition that is the basis for analysis can result in quite different conclusions, with varying degrees of relevance for policy.

Beyond the specific questions that are used to measure subjective well-being, there is increasing agreement that it is composed of two broad and complementary domains: evaluative and experienced well-being. Evaluative well-being

implies how people think of their lives in a broader sense over the course of the entire life. Experienced well-being implies how people experience their lives on a daily basis. While the two dimensions are not unrelated, they are distinct and correlate differently with key variables of interest, such as income. Both correlate closely with income at low levels of income, but the relationship only holds for evaluative well-being at higher levels of income (Kahneman & Deaton, 2010; Diener, Ng, Harter & Arora, 2010). People may value one or the other dimension of well-being more, depending on their character traits on the one hand and on their capabilities and environment on the other.

Some individuals place more emphasis on factors which are more important to life evaluation, such as work and health, while those with less place a greater emphasis on those that enhance daily living, even in contexts of adversity, such as religion, friendships, and family. Different societies, meanwhile, will also place different values on these dimensions (Graham, 2011). The inclusion of measures which capture all of these dimensions into national accounts does not impose values on either of them; rather they provide individuals and societies with better information to assess progress in each of these areas within and across societies.

There is also a fairly broad consensus among academics in the field that in order to get a complete picture of well-being in all of its dimensions, statistics should include the following: a measure of life evaluation or global life satisfaction (happiness or life satisfaction); a measure of purpose in life; measures of positive and negative affect; measures of daily experiences (Kahneman & Krueger, 2006); a measure of happiness in a relative sense, such as the best possible life; and, finally and if possible, measures of domain satisfaction such as in the health, job, and education arenas.

Policy: Questions and Promises

At this juncture in the state of the research, the inclusion of well-being metrics into national statistical accounts, whether under the rubric of well-being indicators or not, is becoming common and accepted practice that can be adopted by interested nations at minimal cost or risk. Yet there are also more complex and as yet unresolved questions surrounding how different societies will choose to utilize the metrics, whether one dimension or another of subjective well-being should be valued more than the other, and how and what is the best way for such information to be disseminated to and discussed by publics.

We know, for example, that having purpose in life and employment is important to happiness. But we also know that having friendships, family, and good health also matter a great deal to happiness. National well-being accounts can easily measure both dimensions of well-being. But different societies may well place very different values on one versus the other as they assess national progress.

There are also inter-temporal issues. For research purposes, scholars do not need to define happiness in terms of time dimensions; indeed they can study how it varies across those dimensions, such as day-to-day experienced utility versus happiness as evaluated over the course of life. They can measure things like pleasure and pain as distinct from life satisfaction in a broader sense and over time. That indeed works from a measurement perspective, but should we prioritize one versus the other dimensions of happiness when we think in terms of policy?

Well-being surveys provide us with a metric to evaluate the effects of particular policy interventions. They do not, however, answer the more difficult question of whether or not the policy interventions are desirable in the first place and whether we should be more concerned about their effects on well-being in the daily experience or life evaluation sense. Yet the surveys can give us a better sense of what some of the trade-offs are when emphasizing one dimension over the other, as well as strong information about the importance of relevant variables, ranging from stable employment and good health to commuting time and air quality, to well-being.

There are also many policies, such as trimming unsustainable fiscal deficits or achieving national

security objectives through fighting unpopular wars, that are designed to enhance the well-being – and indeed the life opportunities – of the next generation as much as that of this one. Indeed, such policies often come at the expense of present happiness in the daily experience sense, if they entail foregoing desired current consumption or even worse, the migration of a family member to another country in pursuit of better economic opportunities in future. How can or should we account for inter-temporal trade-offs in happiness? Should we estimate happiness discount rates, in the same way that we estimate the value of future versus current income, for example? While this is not an unresolvable question, it is one that requires informed public discussion – and adopting a universal norm by consensus.

There are also unresolved issues of cardinality versus ordinality of the indicators. As research tools, happiness surveys are ordinal; there is no cardinal value attached to the particular categories, such as very unhappy versus somewhat happy. But from a policy perspective, should we care more about relief of misery rather than increasing the happiness of the already happy? There is plenty of evidence showing the deleterious effects of depression and mental illness on a host of health and other outcome variables, suggesting that there is more urgency to reducing unhappiness and misery.

Yet if we only worry about relieving misery, we will never develop strategies or policies for moving the aggregate marker forward. In other words, in the same way that economic growth seeks to increase GNP in the aggregate, with reducing poverty as one of many objectives, presumably a policy designed to better aggregate happiness or welfare would seek to raise overall levels of well-being, with reducing the unhappiness of the miserable as one of many related objectives.

These are, in the end, deep questions which will require both further research and extensive public discussion to resolve. Yet if that process encourages publics and societies to debate and evaluate these choices, they will also deepen our capacity to understand and ultimately enhance human well-being. The addition of well-being metrics to national statistics and their eventual compilation into national well-being indicators in some countries will, no doubt, be an important part of that process.

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Nationalism

▶ Measuring National Identity

Nationness

▶ Measuring National Identity

Native American Child Health Indicators

► American Indian/Alaska Native Child Health Indicators

Native American Children and Youth's Well-Being Indicators

► Well-Being Indicators for Native American Children

Native American Children's Well-Being Indicators

► Well-Being Indicators for Native American Children

Native American Resiliency

► Well-Being Indicators for Native American Children

Native Education

► Education, Traditional

Native Science

► Education, Traditional

Natural Area

► Parks and Quality of Life

Natural Attitude

► Everyday Life Experience

Natural Environment Protection

► Environmental Protection, Satisfaction with

Natural Field Experiments and WTP

► Willingness to Pay for Private Environmental Goods

Natural Resource Management (NRM)

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Synonyms

Ecosystem management; Environmental management; Resource management

Definition

Natural resource management refers to the management of natural resources such as land, water, soil, plants, and animals.

Description

The term natural resource management often used interchangeably with ► resource management or ► environmental management first appeared in the United States around the early 1960s (Johnston, Gregory, Pratt, & Watts, 2000).

But long before that, natural resource management practices have been used among Indigenous peoples for millennia. In Western society, the early seventeenth century saw the introduction of wildlife management through recreational and sport hunting and fishing regulation (Camp & Daugherty, 2002). A century later, two eminent environmental movements emerged: preservation and conservation (Weber, 2000). John Muir, the founder of the Sierra Club, spearheaded the preservation movement (late nineteenth century) to halt the human-caused devastation of the wilderness and nature, whereas conservationists Teddy Roosevelt and Gifford Pinchot (early twentieth century) supported commodification of natural resources for humans' material and economic benefit (Weber, 2000). The words natural resources in the phrase natural resource management have thus generally been interpreted from a Western worldview as "substances, organisms, and properties of the physical environment that are valued for their perceived ability to satisfy human needs and wants" (Johnston et al., 2000, p. 706), and the word management insinuates the need for state-affiliated experts and natural scientists to control or handle natural resource decision-making (Bryant & Wilson, 1998; Mitchell, 2002). This anthropocentric conceptualization of natural resources has largely shaped the field of natural resource management over the course of the twentieth century (Castleden, 2009).

Climate change, natural resource depletion, ▶ population growth, and rising ▶ poverty have led to heightened concern for human survival in the last three decades (Dearden & Mitchell, 2005). The term ▶ sustainable development was introduced in the early 1980s and thereafter popularized by the World Commission on Environment and Development (also referred to as the Brundtland Commission) in the report *Our Common Future*. Sustainable development is defined in the report as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment & Development, 1987, p. 8). Since then, various natural resource management approaches, such as comanagement, ecosystem-based management, and adaptive management, have been applied as a means to achieve principles of ▶ sustainability, which could be described as eco-centric responses to the aforementioned rising concerns. Bocking (1994) argues that the goal of natural resource management should not be to manage, handle, or control ecosystems but rather, to manage humans' interactions with the surrounding environment and resources; humans should be perceived as are part of, not separate from, the natural environment (Mitchell, 2002). An ▶ ecosystem approach, for example, considers the *whole* ecosystem, that is, all living species (human and nonhuman) and their natural environment (Bocking, 1994; Mitchell, 2002). Nevertheless, conventional natural resource management practices and decision-making continue to prevail in many jurisdictions.

Ecosystem-based and other alternative approaches to natural resource management require skills, knowledge, and expertise beyond the natural sciences; inclusion of non-state actors, extending across the social sciences, is critical to understanding the political, economic, and cultural forces shaping human-environment interaction (Berkes & Folke, 1998; Bryant & Wilson, 1998). Human geography has made significant contributions to natural resource management as a process, practice, and field of study (Sack, 1992; Williams & Patterson, 1996; Williams & Stewart, 1998). Williams and Patterson (1996) assert that effective management of natural resources that "exist in a meaning-filled spatial (and temporal) context" (p. 509) requires an engagement with human geographic concepts/theories such as "sense of place" to better understand the human subjective experience of the human-nature relationship (Mitchell, Force, Carroll, & McLaughlin, 1993; Brandenburg & Carroll, 1995; Schroeder, 1996). ▶ Sense of place, when applied in theory to natural resource management, is intended to effectively "capture the rich variety of human relationships to resources, lands, and landscapes, and ecosystems" (Williams & Stewart, 1998, p. 20).

While Western natural and social sciences, particularly human geography, sociology, and history, have contributed to changes in

approaches to natural resource management, other ways of managing the human-nature relationship, including Indigenous worldviews, have been largely ignored by those in positions of power (Berkes, 1999). This despite the fact that many Indigenous peoples across the globe have, for the most part, sustainably managed their local natural resources for millennia (Berkes, 1993, 1999; Lertzman & Vredenburg, 2005). ▶ Indigenous knowledge, which has no simple definition, includes ▶ traditional ecological knowledge (Battiste & Henderson, 2000; McGregor, 2004) and is a valid and essential source of scientific, local, social, and spiritual information about the natural environment and its resources, the use of natural resources, and the relationships between peoples and the land (Berkes, 1993, 1999; Usher, 2003). Wolfe-Keddie (1995) and Chapman (2003), among others, highlight the importance of including Indigenous peoples in natural resource management and decision-making in the face of our global climate, energy, and environmental and population crises.

The Ottawa Charter for Health Promotion, affirmed in 1986, urged people to take care of each other, communities, *and* natural environments. From there, the Ottawa Charter provided a platform for ▶ EcoHealth, an approach described by Waltner-Toews (2009) as "participatory, system-based approaches to understanding and promoting health and well-being in the context of social and ecological interactions" (p. 87). EcoHealth, as a field of study, crosses many disciplinary boundaries, including anthropology, epidemiology, ▶ public health, geography, and ecology (Bunch, Morrison, Parkes, & Venema, 2011; Forget & Lebel, 2001; Kay, Regier, Bowle, & Francis, 1999; Lebel, 2003; Parkes, 2011). EcoHealth researchers and practitioners argue that social, economic, cultural, and human health benefits are derived from healthy ecosystems (Charron, 2012). In fact, a growing number of projects initiated across Australia, Canada, Ecuador, New Zealand, and the United States (Kingsley, Townsend, Phillips, & Aldous, 2009; Johnston, Jacups, Vickery, & Bowman, 2007; Nasivvik Centre for Inuit Health & Changing Environments [NCIHCE]; Tipa & Nelson, 2008; Wernham, 2007) have combined EcoHealth principles with Indigenous knowledge to expand the field of Indigenous health promotion embracing the notion that healthy lands and healthy peoples are interconnected (Greenwood & de Leeuw, 2009; Johnston et al., 2007; Parkes, 2011). EcoHealth researchers and practitioners also view health and well-being as important outcomes of effective natural resource management (Bunch et al., 2011). The integration of EcoHealth and natural resource management is now gaining momentum at least in theory, if not also in practice, in areas such as water resource and food systems management (Bunch et al., 2011; Parkes & Horwitz, 2009; Waltner-Toews, 2009).

Cross-References

- ▶ EcoHealth
- ▶ Ecosystem
- ▶ Health
- ▶ Indigenous Knowledge
- ▶ Quality of Life
- ▶ Sense of Place
- ▶ Sustainability
- ▶ Sustainable Development

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Natural Versus Nonnatural Value Theories

▶ Value Theories

Naturalistic Objectivist Value Theories

▶ Value Theories

Naturalistic Subjectivist Value Theories

▶ Value Theories

Nature and Well-Being

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Synonyms

Biophilia; Nearby parks and quality of life; Neighborhood green spaces; Urban forests

Definition

There is strong evidence indicating that everyday contact with green spaces – parks, open spaces with trees and grass, and even areas with street trees – can enhance the resources necessary to manage the demands and pressures of modern living.

Description

There is growing recognition that the environments in which we live, work, and play have considerable impact on our health. The conditions of modern living (work and life pressures and the physical places we inhabit) threaten the ▶ health of billions of people across the earth. The combination of chronic stress and unhealthy settings puts individuals at higher risk for cardiac disease, stroke, and obesity. The psychological strain also threatens mental health.

There is mounting evidence, however, that exposure to some aspects of the built environment can enhance the resources necessary to manage the demands and pressures of modern living. Places that provide views of, or direct exposure to, trees and other forms of vegetation are associated with an increased sense of ▶ well-being, higher levels of self reported peace and quiet, and greater satisfaction with home and neighborhood, less crime, lower levels of domestic violence, and, for some urban residents, lower levels of mortality.

How is it possible that such diverse outcomes could be associated with exposure to green spaces? Scholars agree that there are at least three mechanisms or pathways through which exposure to green spaces impacts well-being. Settings that include trees, grass, and open space have been shown to reduce the symptoms of mental ▶ fatigue and promote recovery from ▶ stress. And green places promote stronger ties among neighbors and seem to support the development of social capital – which we know has important consequences for ▶ health. These three mechanisms are described in turn below (Fig. 1).

Nature and Well-Being, Fig. 1 Neighborhood green spaces promote well-being by reducing the symptoms of mental fatigue, aiding in the recovery from stress, and by creating settings in which nearby neighbors can get to know one another (Photo by W. Sullivan)

Recovery from Mental Fatigue

Everyday contact with nearby nature helps restore and replenish a resource that is essential to functioning in our modern world: our ability to pay attention. As anyone who has ever written or graded a paper, planned a budget, solved a difficult social problem, or even planned a vacation can attest, one's ability to pay attention is not only limited, but it is also essential to accomplishing all our goals.

Attention Restoration Theory recognizes that humans have two modes of absorbing information. Some objects, ideas, settings, and situations are effortlessly engaging and require no work as we take them in. Kaplan and Kaplan call this mode *involuntary attention* (1989). Other stimuli and settings oblige us to focus on the matter at hand, that is, they require us to pay attention or, as the Kaplans say, to *direct attention*.

Our capacity to direct our attention is subject to fatigue. Just like muscles that require rest after a period of intense use, our capacity to deliberately direct attention declines with use. The costs of attentional fatigue (what many call mental fatigue) are considerable. An individual experiencing mental fatigue will have a reduced ability to concentrate and is likely to become irritable, distractible, impulsive, and accident-prone. Thus, it is not surprising that mentally fatigued individuals are more likely to have trouble meeting their goals.

Kaplan and Kaplan observed that settings and stimuli that draw primarily on involuntary attention give directed attention a chance to rest and restore. They note that contact with nature should assist in the recovery from mental fatigue because green settings draw primarily on involuntary attention (Kaplan & Kaplan, 1989; Kaplan, 1995). And indeed, there is a wealth of evidence to support this view.

Evidence demonstrating the impact of exposure to nearby nature on individuals comes from a variety of settings: the workplace, homes, schools, hospitals, and community gardens. At home, for instance, the research shows that views of, and direct exposure to, nearby nature will increase resident's cognitive functioning (Kuo & Sullivan, 2001; Rappe & Kivela, 2005), sense of well-being (Day, 2008; Kaplan, 2001; Rappe & Kivela, 2005; Rappe, Kivela, & Rita, 2006), sense of peace and quiet (Day, 2008; Yuen & Hien, 2005), and satisfaction with home and neighborhood (Kaplan, 2001; Kearney, 2006; Lee, Ellis, Kweon, & Hong, 2008).

The benefits of exposure to nearby nature seem to be available across the life span. For children, exposure to nature near home and school is associated with enhanced cognitive functioning (Matsuoka, 2010; Taylor & Kuo, 2009). For adults, significant reductions in mental fatigue were associated with views of, or walks within, urban green spaces (Berman, Jonides, & Kaplan, 2008; Ogunseitan, 2005). In older adults, regular access to natural settings has been associated with enhanced powers of concentration (Jansen & von Sadovszky, 2004; Ottosson & Grahn, 2005; Rappe & Kivela, 2005) (Fig. 2).

Nature and Well-Being, Fig. 2 Even small pockets of nature can create views that help individuals restore their capacity to pay attention (Photo by W. Sullivan)

Recovery from Stress

An individual's capacity to moderate the demands and pressures of everyday life has profound and far-reaching consequences for their health and well-being. Chronic stress can lead to significant health problems such as an increased risk for cardiac disease (Curtis & O'Keefe, 2002; Leenen, 1999) and stroke (Brook & Julius, 2000; Julius, 1998; Julius & Valentini, 1998). What may be surprising to learn is that everyday exposure to nature has been shown to reduce levels of stress.

Philosophers and poets have written about the tranquility and serenity associated with nature (Emerson, Thoreau, Whitman), and scientists have shown that exposure to urban nature is related to an increased capacity to deal with difficult life problems (Kuo & Sullivan, 2001); increase "peacefulness," "tranquility," and "relaxation" (Ulrich, 1993); and reduce the physiological indicators of stress (Chang & Chen, 2005; Parsons, Tassinary, Ulrich, Hebl, & Grossman-Alexander, 1998; Ulrich et al., 1991). Today, perhaps more than ever, given the chronic stress that grows from modern living (e.g., commuting, parenting, financial woes, work-related stress, relationship stress), the link between exposure to nature and lower levels of stress is welcome news.

Given the well-established links between chronic stress and the onset of disease, some scholars have wondered if there might be a link between having greater contact with urban green spaces and living longer. And indeed, there is evidence for such an association. In a study of older people in Tokyo, individuals living near an urban green space were found to live longer than their counterparts who lived in less green areas of Tokyo. This study found that living in areas with walkable green spaces was positively associated with longevity of senior citizens independent of their age, sex, marital status, baseline functional status, and socioeconomic status (Takano, Nakamura, & Watanabe, 2002). In other words, after taking into account conditions that are known to be associated with longevity (e.g., married people tend to live longer), this study found that access to green space was a significant predictor of how long a person lived. The greater the access to green spaces, the longer the person tended to live.

A study of all residents of England between the years 2001 and 2005 extended these findings. Mitchell and Popham (2008) classified the population of England at younger than retirement age ($n = 40{,}813{,}236$) into groups on the basis of income and exposure to green space. They obtained individual mortality records ($n = 366{,}348$) and established that an association between income and mortality varied by exposure to green space. Mitchell and Popham report that all-cause mortality and mortality from circulatory diseases were lower in populations living in the greenest areas. The effects were particularly impressive for individuals in the middle- and low-income categories.

Although we do not yet know the dose-response curve for the impact of green space on

Nature and Well-Being, Fig. 3 Individuals who live in relatively barren neighborhoods seem not to recover from a stressful experience as quickly as someone who has access to green neighborhood spaces. Recent research indicates that green views may be associated with longevity (Photo by W. Sullivan)

the experience of stress – that is, we cannot yet prescribe a certain dose of nature to deal with a specific level of stress – there is compelling evidence suggesting that exposure to urban green spaces reduces the level of stress that individuals feel and that, over the years, these lower levels of stress result in longer, healthier lives (Fig. 3).

Enhancing Neighborhood Social Ties

Thus far, we have seen that having everyday exposure to nearby nature reliably reduces mental fatigue and stress. A third way in which greener settings enhance well-being is by promoting social ties among neighbors.

A number of recent studies demonstrate the positive impacts that access to urban nature can have on the amount of social interaction, and ultimately the strength of social ties among neighbors. These are important findings because social integration and the strength of social ties are powerful predictors of well-being and, for older adults, of longevity. But how might greener spaces promote stronger social relations among neighbors?

Neighborhood green spaces seem to enhance ties among neighbors by drawing residents from their homes and providing places in which neighbors greet and get to know one another (Sullivan, Kuo, & DePooter, 2004). The contrary is also true; people avoid barren outdoor spaces and, in doing so, miss opportunities to create a stronger neighborhood social fabric in places that are devoid of trees.

Among residents of an urban public housing neighborhood, researchers found that higher levels of nearby vegetation (e.g., trees, grass) were associated with greater use of outdoor spaces (Coley, Kuo, & Sullivan, 1997) and higher levels of social activity in the neighborhood (Kuo, Sullivan, Coley, & Brunson, 1998; Kweon, Sullivan, & Wiley, 1998; Sullivan et al., 2004). Furthermore, residents of buildings with more trees and grass report that they know their neighbors better, socialize with them more often, have stronger feelings of community, and feel safer and better adjusted than do residents of more barren, but otherwise identical buildings (Kuo et al., 1998).

The social benefits of green neighborhood spaces are not restricted to individuals who live in public housing neighborhoods. On school grounds, more natural playscapes are associated with more active, social play among children (Dyment & Bell, 2008; Fjørtoft, 2004; Herrington & Studtmann, 1998). Community gardens have been linked with increased social interaction leading to improved social networks among neighbors (Armstrong, 2000), increased community building among nearby neighbors (Teig et al., 2009), and enhanced interpersonal relationships among juvenile offenders (Cammack, Waliczek, & Zajicek, 2002).

By increasing opportunities for residents to meet and interact, greener neighborhood spaces facilitate the development and maintenance of neighborhood social ties. Compared to barren neighborhood settings, greener settings are considerably more supportive places for the development of vital neighborhoods (Fig. 4).

Discussion

In this entry, we have seen that views to, and experiences in, urban green spaces provide

Nature and Well-Being, Fig. 4 Green neighborhood spaces provide opportunities for neighbors to get to know one another. Research shows that individuals who live near green spaces have stronger ties to their neighbors than do their counterparts who live in more barren surroundings (Photo by W. Sullivan)

a variety of benefits to psychological health and well-being. When individuals are exposed to urban nature on a regular basis, they show an enhanced capacity to concentrate and pay attention, greater ability to cope with the stressors in their lives, higher levels of ▶ life satisfaction, and increased levels of psychological well-being.

It is clear that exposure to nature near places in which people work, reside, and recreate, as well as where individuals are hospitalized or educated, leads to a variety of psychological benefits that the vast majority of individuals would welcome in their own lives.

With our growing understanding of how everyday exposure to green spaces promotes well-being comes the responsibility to use this knowledge to create places in which individuals, families, and communities thrive. One way to make progress on this goal would be to ensure that residents have nature at every doorstep.

Cross-References

- ▶ Community Support
- ▶ Green Exercise
- ▶ Health
- ▶ Peace of Mind
- ▶ Social-Ecological System(s)
- ▶ Social Support
- ▶ Stress
- ▶ Urban Design
- ▶ Well-Being, Philosophical Theories of

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Nature Relatedness

▶ Affective Connection to Nature

Nature Relatedness and Subjective Well-Being

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Synonyms

Connectedness with nature and well-being; Environmental identity; Inclusion of nature in self; Interdependence with the environment; Love and care for nature

Definition

Nature relatedness refers to the subjective sense of connection people have with the natural environment (similar terms are connectedness with nature or inclusion of nature in self). This sense of relatedness encompasses emotions, cognitions (e.g., beliefs, attitudes, knowledge), as well as the experiences people have in nature. Nature relatedness is a relatively stable individual difference but may fluctuate momentarily, for example, with exposure to the natural environment, and may be influenced by environmental education. The more connected people are, the more they are likely to be concerned about and protect the environment. Nature relatedness is associated with greater levels of ▶ subjective well-being.

Description

Nature Relatedness and Measurement of Individual Differences

Nature is the term often used to describe elements of the natural or physical environment such as flowers, trees, rocks, soil, plants, animals, and places such as landscaped areas, parks, green spaces, forests, fields, rivers, lakes, and oceans. There are many interpretations of what constitutes nature (e.g., wild versus cultivated nature, nearby urban nature versus remote wilderness), but research suggests that minimal or even simulated exposure to nature has benefits for human health and well-being.

Connection to nature can be considered both objectively and subjectively to describe how people relate to and interact with nature. Proximity to green space, and the frequency of regular contact with the natural environment are objective indicators of connection. People having little or no contact with nature (e.g., those living in ▶ urban areas) might be (objectively) disconnected. There are individual differences in the subjective sense of connection people have with nature (Mayer & Frantz, 2004; Nisbet, Zelenski, & Murphy, 2009; Schultz, 2002), and these likely represent more than differences in levels of objective contact. Some people may be very connected to the ecosystem in which they live, whereas others may view themselves as completely separate from nature and have no desire to explore or connect with the natural world. Researchers are increasingly interested in human-nature relationships and how connection (or disconnection) with the natural environment influences human health and well-being, as well as environmentally sustainable behavior.

Arne Naess (1973) was one of the first scholars to focus attention on these links through his work on ecological identity or "ecological self." An ecological sense of self is a ▶ self-concept that includes the entire earth. Those who identify with nature feel empathy for other living things, and see themselves as part of, rather than separate from the natural environment. Human-nature relationships also include emotions and experiences in nature (Chawla, 1999; Kals, Schumacher, & Montada, 1999). Recently, researchers have drawn on this scholarship to develop a number of questionnaires that assess subjective connections with nature. Clayton's (2003) environmental identity scale assesses the role of nature in a person's self-concept as well as the ▶ enjoyment experienced in nature. The Connectivity with Nature scale (Dutcher, Finley, Luloff, & Buttolph Johnson, 2007) measures the perception of a shared essence with nature. The Commitment to Nature scale (Davis, Green, & Reed, 2009) assesses psychological ▶ attachment to the natural environment. Schultz's (2002) single-item Inclusion of Nature in Self scale measures interconnectedness using images of overlapping circles which represent varying degrees of subjective connection. The Connectedness to Nature scale (Mayer & Frantz, 2004), ▶ Emotional Affinity Toward Nature scale (Kals et al., 1999), and ▶ Love and Care for Nature scale (Perkins, 2010) capture emotional affiliations. The Nature Relatedness scale (Nisbet et al., 2009) assesses affective and cognitive elements – the feelings and thoughts people have about their relationship with nature – as well as interest in, fascination with, and desire for nature contact.

Despite some distinctions between these various measures, they are all used to examine how people differ in their sense of relatedness to the natural environment.

Nature relatedness is an understanding of human interconnectedness with all other living things. It is not simply a love for nature, or enjoyment of only the superficially pleasing facets of nature (e.g., sunsets and snowflakes), but rather an awareness and understanding of all aspects of the natural world, even those that are not always aesthetically appealing or useful to humans (e.g., insects, rodents), as part of healthy ecosystems. Nature relatedness is associated with more concern and pro-environmental ▶ attitudes. Nature relatedness can be thought of as a relatively stable individual difference characteristic, similar to a personality trait or aspect of the self-concept.

Nature Relatedness and Well-Being

Trait-level differences in nature relatedness are associated with a variety of happiness indicators across student, business, and community samples. Happiness or ▶ subjective well-being is conceptualized in a variety of ways. The hedonic approach focuses on the quantity of positive and negative emotions, and satisfaction with one's life (Diener, 2000). Nature-related people report greater levels of life satisfaction, as well as more positive emotions (Mayer & Frantz, 2004; Zelenski & Nisbet, 2012).

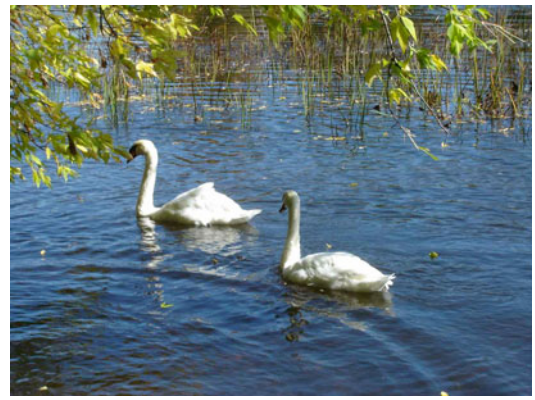
The humanistic or eudaimonic perspective on happiness views psychological well-being more broadly, placing less emphasis on pleasurable experience and more emphasis on adaptive personal characteristics. However, assessment typically includes subjective measures that capture a sense of purpose and ▶ meaning in life (Ryff & Keyes, 1995). Nature relatedness is positively associated with the autonomy and ▶ personal growth dimensions of Ryff's (1989) model of psychological well-being. Nature-related people also report more vitality (Cervinka et al., 2011; Zelenski & Nisbet, 2012), a central indicant of ▶ eudaimonic well-being and a characteristic of fully functioning and psychologically healthy people (Ryan & Frederick, 1997). Connection with nature predicts these various aspects of well-being, controlling for environmental attitudes. In fact, environmental attitudes may not be helpful for happiness; the relationship between nature relatedness and happiness gets stronger when controlling for environmental attitudes (Zelenski & Nisbet, 2012). Controlling for social connections (strong predictors of happiness) also does not remove the relationship between happiness and nature relatedness (Zelenski & Nisbet, 2012). Thus, nature relatedness appears distinct from similar individual differences in predicting well-being, further indicating its unique importance.

There are a number of possible explanations for the relationship between nature relatedness and happiness. At the broad, universal level, our attraction to nature may stem from our evolutionary history. To survive and thrive, early humans would have needed to understand nature, being drawn to life supporting aspects (e.g., food, water) and avoiding threats (e.g., storms, predators). Wilson (1984) proposed the concept of biophilia to describe humans' innate need to connect with other living things. Given that humans began living in cities, separate from nature, relatively recently in terms of our evolutionary development, Kellert and Wilson (1993) argue that we cannot erase the learning and appreciation of biodiversity embedded in our biology. While it is not possible to directly test the evolutionary basis of our attraction to nature, the popularity of outdoor wilderness activities, ▶ gardening, our relationship with animals, and our fondness for natural scenery are evidence of biophilia (see Kahn, 1999, for a review of the empirical support for biophilia). Biophobia (innate fears about harmful or threatening aspects of nature, e.g., spiders, snakes) would also have been an important adaptive advantage for early humans dependent on the natural environment. Thus, strong connections with nature do not require loving all aspects of it. Expanding on the biophilia hypothesis, Kellert (1997) suggests that our innate tendencies drawing us to nature are essential for optimal emotional and

psychological development. In other words, we need nature and becoming more connected to nature may make us healthier and happier. This also implies that a disconnection from the natural world has negative consequences for human psychological well-being.

Regardless of whether or not the biophilia hypothesis is correct, much empirical research shows that contact with nature has restorative, ▶ mood-enhancing, and energizing properties. Thus, another reason people high in nature relatedness may be happy is that they spend more time in contact with nature (Mayer & Frantz, 2004; Nisbet et al., 2009), enjoying more of these benefits. People who score higher on nature relatedness are also more mindful and have the ability to focus awareness on the present moment (Cervinka, Röderer, & Hefler, 2011; Howell, Dopko, Passmore, & Buro, 2011). A vast amount of research indicates that nature images, scenery, and natural settings can restore or improve human physical and psychological health (see Frumkin, 2001 for a thorough review of the health benefits of nature). Being in nature engages our interest, curiosity, and imagination (Kellert, 1997). Research on people's experiences in forest environments indicates these places evoke fascination, relaxation, and other indicators of well-being (Williams & Harvey, 2001). Nature's benefits are not limited to remote or wilderness experiences, however. Just living in proximity to green space benefits health and longevity (Mitchell & Popham, 2008). Urban landscapes provide opportunities to observe the plants and animals that have adapted to cities and thrive in the midst of human activities (Ryan, 2005). Everyday nature provides aesthetically pleasing, positive, and meaningful experiences for people (Fig. 1).

Some or all of the benefits of nature may be accessible without venturing far from home or work. Fifteen-minute walks in urban nature settings can increase positive emotions and vitality, attentional capacity, and the ability to reflect on life problems (Mayer, Frantz, Bruehlman-Senecal, & Dolliver, 2009; Zelenski & Nisbet, 2012; Ryan et al., 2010). "▶ Green exercise" (e.g., in a city park, green space, or wilderness)



Nature Relatedness and Subjective Well-Being, Fig. 1 Many urban areas offer opportunities for viewing wildlife (Photo by E. Nisbet)

appears to have psychological health benefits that indoor fitness environments do not (Pretty, Peacock, Sellens, & Griffin, 2005). Those who ▶ exercise outdoors, in natural settings (a "green gym"), are less depressed and have better psychological well-being compared to people who exercise indoors (Bodin & Hartig, 2003). Active ▶ commuting (such as walking or biking) has direct benefits for physical health (increased exercise). This type of sustainable transportation also promotes health indirectly by reducing the emissions that cause air pollution and greenhouse gas effects. An additional benefit is the contact with nature.

Promoting Nature Relatedness

Early childhood experiences and past encounters in nature influence feelings about the environment (Chawla, 1999), and if these are not pleasant, they may be difficult to change. There may also be seasonal barriers that inhibit connectedness. Unpleasant weather may discourage people from spending time outside (Hartig, Catalano, & Ong, 2007). This also has consequences for happiness if people are unable to engage in the restorative activities nature offers. For people who maintain regular nature contact, however, there are positive mental health benefits. People may be more motivated to connect with nearby nature if they are aware of the potential for improving their happiness. This may be particularly useful for those who are poor, disabled, or otherwise

Nature Relatedness and Subjective Well-Being, Fig. 2 Unpleasant weather can make it challenging to connect with nature (Photo by E. Nisbet)

marginalized and who may benefit the most but have difficulty accessing more remote nature areas (Frumkin & Louv, 2007) (Fig. 2).

Increasing connectedness, even temporarily, seems to have psychological benefits. ▶ At-risk children who were disconnected from nature and deprived of green spaces had improved ▶ emotional well-being and increased empathy for nature (compared to a matched control group of students) following a summer "Eco-psych-4-Kids" intervention (Feral, 1998). Being immersed in nature, by viewing photographs of nature, made people feel more cooperative and generous toward others but also more autonomous and focused on intrinsic and pro-social life values such as personal growth and ▶ community (Weinstein, Przybylski, & Ryan, 2009). In contrast, people who viewed non-nature images felt less nature-related, less autonomous, and more focused on extrinsic aspirations such as money and fame. Shifting trait-level nature relatedness may require repeated and sustained nature contact in addition to environmental education. Extended wilderness adventures can evoke feelings of closeness with the earth as well as a sense of awe and wonder (Talbot & Kaplan, 1986), and even learning about natural history, biology, and geography seems to help students maintain a sense of nature relatedness and improve feelings of vitality (Nisbet et al., 2009; Zelenski & Nisbet, 2012). For people who are not (yet) highly connected, it may be easier to encourage nature relatedness and more regular contact if there is nature nearby.

Despite the well-being benefits of nature, people may underestimate how contact with the natural environment can be a happiness booster. For example, Canadian university students were randomly assigned to predict how they would feel walking either inside, through campus tunnels, or outside, on paths adjacent to a river and campus buildings. People underestimated how good the outdoor walk would make them feel, despite the walking routes being familiar (Zelenski & Nisbet, 2012). People may know that nature is likely to be relaxing and enjoyable but still underestimate the extent of nature's effects on happiness. This may signal a general disconnection and help to explain why people avoid nature (e.g., driving to the gym versus jogging through a park). In doing so, people may be missing out on opportunities to enhance their physical and mental well-being. In contrast, immersing people in nature (Mayer et al., 2009; Zelenski & Nisbet, 2012) – even virtual nature (cf.Weinstein et al., 2009) – can promote connectedness

Nature Relatedness and Subjective Well-Being, Fig. 3 Walking studies show that 15 min in nature increases happiness but that people underestimate nature's benefits (Photo by E. Nisbet)

and thus well-being. The challenge may lie in how to encourage more frequent nature contact in those who are disconnected. Confronting (and correcting) underestimates of nature's well-being benefits may be a first step (Fig. 3).

Nature Relatedness and Sustainable Behavior

Disconnection from nature may lead to environmental destruction as well as unhappiness. If people have little exposure to nature or neglect opportunities to immerse themselves in the natural environment, it may be difficult to feel protective or appreciative of nature. Conversely, if people enjoy their experiences in nature, it may motivate sustainable behavior (Hartig, Kaiser, & Bowler, 2001). Research suggests that pro-environmental behavior is related to happiness (e.g., Brown & Kasser, 2005; Corral-Verdugo, Mireles-Acosta, Tapia-Fonllem, & Fraijo-Sing, 2011), while materialistic values are linked to lower levels of happiness and vitality, increased ▶ anxiety, and less sustainable behavior (Crompton & Kasser, 2009). Ecological values and behavior seem consistent with greater well-being, countering the misperception that protecting the natural environment necessarily involves self-deprivation and sacrifice. This link between happiness and environmental behavior suggests a potential new way to motivate environmental activities.

It is possible that as people become more aware of environmental problems, they may feel some negative emotions. Particularly for people who have a strong connection with nature, concerns about the degradation of the environment may lead to negative emotions. People who are unsatisfied with local environmental conditions and government policy, for example, are likely to be frustrated and discouraged (Pelletier, Legault, & Tuson, 1996). The links between connectedness and happiness, however, suggest that nature-related people are able to feel concern for the state of the environment but also, simultaneously, feel positive about their individual relationship with nature.

Connectedness and nature contact are associated with what can be called "sustainable happiness," a pursuit that may be easier (for the individual) to maintain (cf. material-based happiness) and in harmony with ▶ ecological sustainability (O'Brien, 2008). Nature relatedness can be thought of as a personality characteristic conducive to sustainable happiness or an individual difference that predisposes people to think, feel, and act in ways that are ecologically and psychologically healthy (cf. the ▶ Happy Planet Index).

The links among nature relatedness, well-being, and environmental concern, as well as the concept of sustainable happiness, suggest that acting sustainably may even create or cause happiness (cf. Brown & Kasser, 2005), producing a positive feedback loop whereby nature-protective behavior becomes reinforcing for the good feelings and personal happiness it produces, and a healthier environment further promotes well-being. Finding ways to promote nature relatedness and nurture ▶ intrinsic motivation for environmental actions may help prevent environmentally destructive behavior and at the same time increase human health and well-being.

Cross-References

- ▶ Affective Connection to Nature
- ▶ Air Quality
- ▶ Aspiration Theory
- ▶ Biodiversity Conservation
- ▶ Commuting
- ▶ Ecological Literacy
- ▶ Ecological Well-Being
- ▶ Green Exercise
- ▶ Greenhouse Climate Response Index
- ▶ Outdoor Environment
- ▶ Sustainable Lifestyles
- ▶ Sustainable Transportation and Well-Being
- ▶ Urban Areas
- ▶ Urban Ecology
- ▶ Wildlife Conservation

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Nature Restoration

▶ Restorative Natural Environments

Nature-Friendly Behavior

▶ Proenvironmental Behavior

Nature-Friendly Index

▶ Environment Friendly Index

NDI

▶ Neck Disability Index

Nearby Parks and Quality of Life

▶ Nature and Well-Being

Neck Disability Index

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Synonyms

NDI

Definition

The Neck Disability Index (NDI) is a 10-item patient-rated instrument for assessing self-rated disability due to neck pain of mechanical origin. This would include categories such as "nonspecific neck pain," whiplash, whiplash-associated disorder, repetitive strain injury, sports-related neck pain, and neck and arm pain.

Description

Introduction

The Neck Disability Index (NDI) was developed in the late 1980s by Dr. Howard Vernon and first published in the Journal of Manipulative and Physiological Therapeutics in 1991 (Vernon & Mior, 1991). The NDI was modelled on a similar instrument for assessing self-rated disability in low back pain patients – the Oswestry Low Back Pain Disability Questionnaire (Fairbank, Couper, Davies, & O'Brien, 1980) – which had been in existence for about 8 years. Dr. Vernon received permission from the developer of the "Oswestry Index" to modify it for use in neck pain patients.

After selecting some of the original items from the Oswestry Index and then developing new items for neck pain patients, the prototype of the NDI was tested on a group of neck pain patients as well as chiropractors. Several modifications were made until a final version was acceptable. This version was then tested for reliability and validity, and the results of these tests were published in the 1991 article. When it was published, the NDI became the first instrument for testing self-rated disability in neck pain patients.

Since 1991, a number of other questionnaires for neck pain patients have been developed, but the NDI remains the oldest and most widely used of these instruments (MacDermid et al., 2009; Pietrobon, Coeytaux, Carey, Richardson, & DeVellis, 2002; Vernon, 2008). Here are some more details:

As of early 2013, over 1000 articles in the scientific literature have cited the NDI.

It has been used in over 50 studies related to whiplash injury.

It has been translated into over 30 languages.

It has been used in many treatment studies, including over 100 surgical studies, and many studies of nonsurgical treatments, most of which have been randomized clinical trials.

Primary Findings of the NDI

Vernon's review paper of 2008 (Vernon, 2008) is included in this manual and provides specific data from all of the studies of the psychometric properties of the NDI to that date. The following is a summary of these findings:

The NDI has been shown to be highly reliable on what is called "test-retest" reliability (MacDermid et al., 2009; Pietrobon et al., 2002; Vernon, 2008). The NDI has also been shown to be valid by comparing NDI scores to other measures of pain and disability (MacDermid et al.; Pietrobon et al.; Vernon, 2008).

An important finding was published in the late 1990s by Riddle and Stratford (Riddle & Stratford, 1998). They found that for patients with scores in the mild-to-moderate range (where most patients score), there was a certain number of NDI points that could be regarded as "minimally important clinical change" by patients. This number is 5 % or 10 %. So, if your patient first scores 15 out of 50 and then, 2 weeks later, scores 12, this would not be regarded as a clinically important change.

However, if they scored 10 or less, then this would be regarded as a clinically important change.

The dimensionality or factor structure of the NDI has been an interesting topic. The first study to investigate the factor structure was Hains et al. (Hains, Waalen, & Mior, 1998) in the late 1990s. They reported a single factor identified as "physical disability." Table 1 shows that several other reports have found either 1 or 2 factors. Some of this variability may be due to the variability in different samples amongst the people in the countries in which the NDI has been cross-culturally translated and studied.

As of 2008, 14 studies of the prognosis of whiplash patients reported original data (references available from author). The median follow-up time in these studies was 6 months (1–204 months) (see Table 2). The mean (sd) sample size was 137 (120). One case control study included 931 controls. Several recovery categorizations were reported, all of which correlated with the original NDI categories (see Table 3). Recovery cutoffs range from 10 to 20/50, with the average being 15/50. Odds or relative risk ratios for high initial NDI and poor recovery were reported from 1.1 to 11.2. Several predictive models including high initial NDI scores were reported, accounting for up to 84.6 % of variability in recovery status. Several studies reported that NDI score was the best predictor of outcome: Low initial NDI predicts recovery; high initial NDI recovery predicts chronicity.

The NDI has been shown to be highly useful in the prognostication of outcome following WAD injury either alone or within multivariable models. The NDI appears better than "pain level" as a measure of symptom/disability status for prognostic purposes. High NDI scores (>15/50) at 3–36 months postaccident are strongly correlated with several important measures of physiologic dysfunction and physical impairment, indicating that psychosocial and accident-related factors are not the only correlates of high self-rated disability in patients suffering chronic WAD and that attention to pathophysiologic factors such as muscular dysfunction and central sensitization is warranted.

Scoring the NDI

The NDI consists of 10 items, each with a score up to 5, for a total score of 50. The lower the score, the less self-rated the disability. The following guide to interpretation of a patient's score was initially established (Vernon & Mior, 1991):

0–4 = no disability
5–14 = mild disability
15–24 = moderate disability
25–34 = severe disability
35 or over = complete disability

More recently, several authors have employed 3 categories: mild, moderate, and severe. The "mild" category = 0–14; "moderate" = 15–25; and severe = >25.

Item Issues

Users should attempt to have all 10 items completed at all administrations. Some patients may find 1–2 items not applicable to their lives. This is especially true of "*driving*." This item may be omitted and the instrument scored out of 45, converted to 100 % and then divided by 2.

The other item which may cause some problem is "work." While the term "work" was meant for any circumstance, many people interpret it as "work at my job." Therefore, if they are not employed, they may decline to complete this item. In that case, please reinterpret this item as "housework" for anyone not working out of the house.

For missing items not explained above (simple omissions, etc.), only up to 2 missed items should be allowed. With 3 or more missed items, the administration would be regarded as unacceptable.

For 1–2 missed items, there are two strategies that amount to the same result:

- Take the score out of 45 or 40, convert to 100 %, and divide by 2.
- Insert the average item score (total score divided by 9 or 8) into each missing item.

Using the NDI

The NDI should be an important part of your first assessment of any patient with neck pain, especially due to trauma. The question arises: "When should I repeat the NDI?" Remember that the NDI measures self-rated disability, not just

Neck Disability Index, Table 1 Systematic review of studies of the psychometric properties of the NDI (references available from author)

Author (first author)	NP/WAD	Sample	Reliability	Internal consistency	Factor analysis	Responsivity
Knaap et al.	NP	46	0.91 at 1 day	0.81		
Wallace et al.	NP	38				12 weeks ES = 1.35 (59 % reduction)
Jette & Jette						ES = .75
Hains et al.	NP	237	Item order has no effect	0.92	1	
Westaway et al.	NP					c/w NDI and clinician's prediction of change = 0.54
Riddle & Stratford	NP	146				Positive for change
						Equivalent to SF-36 physical and mental scales for most issues
Stratford et al.	NP	48				MDC = 5
						MCIC = 5
Chok & Gomez	NP	46	0.9			Pre-post tx: z = -.3.88, p < .001
Ackelman & Lindgren	NP	59	2 days: 0.97			NDI c/w DRI = 0.95
			3 weeks: 0.95			NDI c/w SF-36 Phys = −0.88
			3 months: 0.94			NDI c/w VAS activity = 0.86
			Modified NDI at 2 days: 0.97			NDI c/w VAS pain = 0.60
Wlodyka-Demaille et al.	NP	101	0.93 at 1 day	0.93 at 1 day	2 factors*	
Hoving et al.	WAD	71				c/w NDI and problem elucidation technique (PET) = 0.57
Bolton	NP	102				ES =.80/.88
						4–6 weeks
Wlodyka-Demaille et al.	NP	71				ES = 0.55
						SRM = 0.55
						c/w GPC = 0.48
Cook et al.	NP	203	0.92 at 1 day; 0.48 at 7 days	0.74	1	
Cleland et al.	Cervical radiculopathy	38				MDC = 10.2
						MCID = 7.0;
						Change in stable patients: r = 0.68
Lee et al.	NP, controls	301	0.90	0.92		ES = 1.04;
						SRM = 1.17
						AUC re: GPE = 0.79
						Baseline pats vs
						controls: 32.8 vs 9.1 p < .01
Vos et al.	WAD	187	0.90 at 1 week			Responsiveness ratio = 1.82,
						MDC = 1.66
McCarthy & Grevit	NP	160	0.93 at 1–2 weeks	0.86		

(*continued*)

Neck Disability Index, Table 1 (continued)

Author (first author)	NP/WAD	Sample	Reliability	Internal consistency	Factor analysis	Responsivity
Stewart et al.	WAD	132				6 weeks: ES = .77,
						improved = .95,
						SRM = .91,
						improved =1.16;
						AUC c/w GPE = 0.76
Trouli et al.	NP	65	0.93 [0.84;0.97]	0.85	1 factor: EV = 4.48	MDC = 1.78
					Var. = 44.8 %	SEM = 0.64
						c/w GROC = 0.30
Mousavi et al.	NP	30	0.90	0.88		c/w SF-36
						c/w pain VAS = 0.71
Pool et al.	NP	183				MDC = 10.5
						AUC = 3.5 *
						* = preferred method

NP neck pain, *WAD* whiplash-associated disorder, *ES* effect size, *c/w* correlated with, *NDI* Neck Disability Index, *MDC* minimum detectable change, *MDIC* minimum clinically important change, *DRI* Disability Rating Index, *VAS* visual analogue scale, *tx* treatment, *wk* week, *SRM* standardized response mean, *AUC* area under the curve, *c/w* "correlated with", *GPE* global patient evaluation, *pats* patients, *GROC* global rating of change

Neck Disability Index, Table 2 Studies of prognosis in WAD using the NDI WAD: prognosis studies using the NDI

Author (First author)	Sample size	Baseline NDI	Follow-up time(s)	Results
Atherton et al.	480	N/A	1, 3, and 12 months	1. NDI ≥ 19 was 1 of only 5 factors in a multivariate model predicting persistent pain
				2. Relative risk ratios:
				NDI: 0–14 = 1.0
				15–22 = 1.6 [0.99–2.5]
				>22 = 2.8 [1.8–4.2]
Sterling & Kenardy	65	6 months = 17.67 (16.5)	2–3 years	1. NDI > 30 c/w:
		24–36 months = 15 (14.1)		High autonomic measures
				High TSK
				High GHQ-28
				High IES
				2. Odds ratio for persistent pain at 2–3 years:
				NDI >30 = 1.0–1.1 (ss)
				3. Predictive model of:
				Initial NDI score
				Age
				Cold pain threshold
				IES score
				Explained 56 % of variability of follow-up NDI scores
				For moderate/severe group (at follow-up), this model had an 84.6 % accuracy
				4. Low initial NDI significantly predicted likelihood of recovery (only variable)
				5. NDI is a better predictor of outcome than pain score alone

(*continued*)

Neck Disability Index, Table 2 (continued)

Author (First author)	Sample size	Baseline NDI	Follow-up time(s)	Results
Crouch et al.	170	N/A	4–6 weeks	1. At 4 weeks (according to NDI score):
				No disability = 37 %
				Mild disability = 37.6 %
				Moderate = 21.2 %
				Severe = 4.1 %
				2. Variables correlated to NDI score:
				Seat belt use = .038
				X-ray obtained = .004
				Midline tenderness = .008
				Saw a GP = .001
Sterling et al.	76	34.15 (2.4)	6 months	1. Significant corr. with NDI at follow-up:
				High initial NDI
				Cold hyperalgesia
				Older age
				Acute stress
Bunketorp et al.	WAD = 108	N/A	17 years	1. Persistent neck pain at 17 years:
	CON = 931			WAD = 55 %
				CON = 29 % p = .001
				NDI scores at 17 years:
				WAD = 22 (21.7)
				CON = 10.6 (15.2) p = .001
Lankester et al.	277	N/A	9 months–5 years	1. NDI score corr. with: GHQ = 0.58 (p <.01)
				Gargan/Bannister Scale = 0.72 (p <.01)
Joslin et al.	85			1. NDI score is corr. with litigation status (p = .000)
Sterling et al.	76		6 months	1. NDI score corr. with recovery categories:
				(a) Recovered = <8
				(b) Mild disability = 10–28
				(c) Mod/severe = >30
Nederhand et al.	82	24.4 (7.1)	24 weeks	1. NDI scores at 24 weeks:
				(a) Recovered = 14.2 [4.6–25.4]
				(b) Persistent pain = 27.9 [15.4–40]. P <.000
				2. Cutoff for recovery = <15
				3. Initial NDI score predicted recovery status at 53 %
				4. Addition of TSK score predicted a further 29 % = 83.3 %
Miettinen et al.	144		3 years	1. Recovery cutoff = 20
				2. Univariate OR for NDI > 20 to predict non-recovery = 7.4 (p <.05)
				3. Multivariate analysis = only NDI score signif. (p < .05) predicted poor outcome: OR = 11.2
Sterling et al.	76		6 months	1. NDI scores used to create recovery categories:
				(a) Recovered = 38 %
				(b) Mild disability = 39 %
				(c) Mod/severe = 23 %
				2. At 1 month, all groups had signs of hypersensitivity. At 6 months., only Mod/Sev group showed these signs
				So: Hi NDI scores c/w persisting hypersensitivity

(*continued*)

Neck Disability Index, Table 2 (continued)

Author (First author)	Sample size	Baseline NDI	Follow-up time(s)	Results
Sterling et al.	66		3 months	1. NDI scores used to create recovery categories:
				(a) Recovered = 38 %
				(b) Mild disability = 33 %
				(c) Mod/Severe = 29 %
				2. At 1 month, all groups had signs of high EMG, low JPE. At 3 months., only Mod/Sev group showed these signs
				So: Hi NDI scores c/w persisting motor dysfunction
Bunketorp et al.	108		17 years	1. Recovered vs persisting pain NDI: 8.5 (16) vs 32 (20), p = .000
				2. NDI scores c/w radiating arm pain: r = 0.61
Moog et al.	43	22.4	6 months	NDI score "not" c/w:
				(a) Litigation status
				(b) Presence of vibration –induced pain

N/A not applicable, *c/w* correlated with, *TSK* Tampa Scale for Kinesiophobia, *GHQ-28* Global Health Questionnaire-28, *IES* Impact of Events Scale, *ss* statistically significant, *disab.* disability, *GP* general practitioner, *corr.* correlation, *WAD* whiplash-associated disorder, *CON* control patient, *Mod.* moderate, *OR* odds ratio, *JPE* joint position error

Neck Disability Index, Table 3 Cutoff or category values for the NDI

Study	Findings
Atherton et al., 2006	NDI > 18: one of only 5 factors in a multivariate model predicting persistent pain at 1, 3, & 12 months
	RR for persisting pain:
	§ 0–14 = 1.0
	§ 15–22 = 1.6 [.99; 2.5]
	§ >22 = 2.8 [1.8; 4.2]
Sterling et al., 2003–2005	Established "recovery categories:
	Recovered = <4
	Mild disability = 5–14
	Moderate/severe disability = >15
Nederhand et al., 2004	At 24 weeks, cutoff value of 15 (0–14 vs 15>) strongly correlates with outcome
Miettinen et al., 2004	At 24 weeks, cutoff value of 20 strongly correlates with outcome

current pain level. This applies to a person's ability to perform their daily activities. A single, composite measure of this ability (the NDI score) is not likely to change over a short period of time. So, we recommend that the NDI be used on *2-week intervals* over the course of your treatment of a patient with neck pain.

Translations (References Available from Author)

As of 2011, there were 16 published translations of the NDI into French, Dutch, Swedish, Korean, Brazilian Portuguese, Catalan, Finnish, Greek, Spanish, Turkish, Polish, Chinese, Hindi, Thai, Italian, and Iranian.

In addition to these published translations, the author has worked with the MAPI Company of France to produce the following list of translations that are available at the MAPI website: www.proqolid.com

English for Australia
English for the USA
English for the UK
Danish

Dutch
Finnish
French
French Canadian
French for Switzerland
German
German for Switzerland
Italian
Italian for Switzerland
Norwegian
Polish
Portuguese
Spanish for Spain
Spanish for the USA

All of the MAPI translations were conducted using standardized methodologies of linguistic validation, including forward and backward translations by linguistic experts, pilot testing with clinicians and nonexperts in multiple iterations, final confirmation by the original author, and standard formatting and proofreading. No separate psychometric studies were conducted by the MAPI group on any of these translations.

Clinical Guidelines

The NDI is explicitly endorsed as the instrument of choice in the following guidelines for the management of WAD:

1. NHS Library:
   - Clinical Knowledge Summaries
   - Prodigy guidelines
   http://www.cks.library.nhs.uk/neck_pain
2. Transport Accident Commission, Victoria State, Australia
   http://www.tac.vic.gov.au/jsp/corporate/homepage/home.jsp
3. New South Wales Motor Accidents Authority, Guidelines for the Management of Acute Whiplash-Associated Disorders, 2nd Edition, 2007
   https://www.cebp.nl/media/m393.pdf
4. Clinical Practice Guidelines for the Physiotherapy Treatment of Patients with Whiplash-Associated Disorders. Leigh et al., 2004. British Columbia Physiotherapy Association
   http://www.bcphysio.org/pdfs/wad.pdf
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Cross-References

▶ Musculoskeletal Diseases

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Need

▶ Motivation

Need for Achievement

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Synonyms

Achievement motivation

Definition

The concept of need for achievement is most prominently linked to the theory of ▶ motivation developed by David McClelland and colleagues. According to their theoretical framework, the basis for this need lies in the affective gratification associated with mastering difficult tasks and/or improving one's performance relative to some standard of excellence. The need for achievement (often denoted as *n* Achievement) is an implicit (unconscious) motive acquired via hedonic reinforcement of behavior-consequence associations. It is theorized to interact with individuals' explicit (conscious) achievement motives (often denoted as *san* Achievement) to shape their achievement behavior, and recent evidence suggests that the degree of alignment between the two motivational systems is important to emotional well-being.

Description

In recent decades, the general term "achievement motivation" has grown to become an increasingly broad category of complementary and competing conceptions. For this reason, the current, necessarily brief, discussion will contain itself to theory and research within the McClelland tradition of the study of achievement ▶ motivation.

"Need for achievement" was originally identified by Henry A. Murray (1938) as part of his list of psychogenic needs. As developed in the work of David McClelland and colleagues, the basis of the need for achievement (denoted as *n* Achievement) is assumed to lay in the affective gratification associated with mastering difficult tasks and/or improving one's performance relative to some standard of excellence (McClelland, Atkinson, Clark, & Lowell, 1953). Traditionally a distinction has been made between two basic contrasting tendencies underlying *n* Achievement: active approach tendencies, or hope for success, and ▶ anxiety-driven avoidance tendencies, or fear of failure.

The need for achievement is an acquired drive rooted in the reinforcement of particular behavioral tendencies. A preference for certain behaviors becomes engrained in the individual as, over time, performance of those behaviors becomes associated with pleasurable consequences (▶ Positive Affect). Thus, anticipated positive affect becomes incentive to continue such behavior and forms the basis of approach-oriented tendencies. Alternately, avoidance-oriented tendencies develop as the performance of avoidance behaviors become associated with reduction of displeasure or negative affect. These conditioned behavior-consequence associations, or implicit motives, operate outside the individual's conscious awareness and are distinct in their effects from explicit, or self-reported, motives (McClelland, Koestner, & Weinberger, 1989). In the McClelland tradition, the need for achievement or *n* Achievement is one of three main implicit motives, along with *n* Power and *n* Affiliation (see Heckhausen & Heckhausen, 2008; Schultheiss & Brunstein, 2010).

Schultheiss and Brunstein (2005) elaborate the approach-avoidance tendencies distinction. They posit that achievement behavior varies along two dimensions: Is it goal directed or not (active or passive), and is it rewarded or punished (encouraging approach or avoidance)? Thus, there are four basic patterns of achievement-oriented behavior: *active approach* where the individual engages in goal-directed behavior and is rewarded for doing so, thereby increasing the probability of the individual repeating such goal-directed behavior in future. Conversely, *passive avoidance* mode results when the individual is punished for displaying goal-directed

behavior and so seeks to avoid future punishment by repressing goal-directed behavior. If the individual is punished for failing to engage in goal-directed behavior, this may result in *active avoidance* mode, as the desire to avoid further punishment increases the probability that the individual will engage in goal-directed behavior in future. Finally, if the individual is consistently rewarded for not engaging in goal-directed behavior, they may come to prefer the *passive approach* mode.

The passive avoidance mode is characterized by low achievement motivation and is associated with fear of success. The individual learns to avoid negative consequences (e.g., teasing or taunting from friends or coworkers) by inhibiting achievement-oriented behavior. Thus, students may restrict their academic effort or workers may reduce their productivity to avoid the disapproval of their peers (or more accurately, to avoid the negative affect – embarrassment and shame – elicited by peer disapproval). In contrast, both the active approach and active avoidance modes represent forms of high achievement ▶ motivation. The active approach, or hope of success, is characterized by goal-directed behavior that is displayed in anticipation of the rewards of success. Students work diligently to master their schoolwork in anticipation of the pleasant affect associated with the desired incentives (e.g., sense of mastery and accomplishment, feeling of pride). Alternately, achievement in the active avoidance, or fear of failure, mode is motivated by a defensive desire to avoid the anticipated negative consequences of not succeeding. The student works diligently to avoid parental or teacher nagging or feelings of guilt, shame, or ▶ anxiety. The affect-motivated nature of these associations means that little conscious intention is required; positive or negative feedback triggers automatic responses aimed at increasing or decreasing affective states. For example, the high achievement-motivated person automatically reacts to negative feedback by increasing their task-directed effort. Over time, the pleasure of attaining these affectively charged incentives becomes a form of ▶ intrinsic motivation for the person.

Implicit and Explicit Motives

According to McClelland (McClelland et al., 1989) and those building on his work (e.g., Baumann, Kaschel, & Kuhl, 2005; Brunstein & Maier, 2005; Brunstein, Schultheiss, & Grässmann, 1998), there are two separate levels or systems of ▶ motivation: implicit motives and explicit motives (goals). Implicit motives are affective preferences that operate unconsciously. Implicit motives are spontaneously aroused by environmental cues that signal opportunities to attain affectively charged incentives. Although implicit motives underlie behavior, the individual is unaware of the operation of these precognitive needs and so is unable to accurately report on their own implicit motives. Hence, implicit motives, such as *n* Achievement, must be measured indirectly via projective methods such as the picture story exercise (akin to the Thematic Apperception Test) where respondents are asked to describe what is happening in pictures presented to them. Explicit motives, or goals, are self-attributed motivators, priorities, and intentions. Explicit goals are a person's cognitively articulated view of their own motives and link the person's ▶ self-concept to their rational goal-directed behavior. Being self-generated, explicit goals (often denoted as *san* Achievement) are assumed to be accessible to introspection and therefore measureable by self-report methods such as questionnaires.

The need to achieve is fueled in different ways by both motivational systems: at the implicit level by unarticulated, affectively charged behavior-consequence associations and at the explicit level by conscious self-articulated values, goals, and related behavioral plans. Over several articles reviewing a number of studies, McClelland and colleagues (e.g., Koestner & McClelland, 1990; Koestner, Weinberger, & McClelland, 1991; McClelland et al., 1989) conclude that implicit motives better predict spontaneous long-term behavioral tendencies, whereas explicit motives better predict short-term choices and behaviors. They also suggest that the incentives operating upon implicit motives are more intrinsic to the performance of an activity (e.g., mastering a skill) and that individuals

with strong implicit achievement motivation strive primarily in reference to their own internal standards of excellence, whereas the incentives driving explicit motives are more socially contingent or extrinsically cued (e.g., external behavioral prompts) and individuals who explicitly prize achievement tend to be guided more by normatively defined standards and expectations.

Effects on Success and Well-Being

A number of studies have linked achievement motivation positively with academic achievement (e.g., Hustinx, Kuyper, & Dijkstra, 2009; Meyer, McClure, Walkey, Weir, & McKenzie, 2009; Steinmayr & Spinath, 2009), entrepreneurial success (e.g., Collins, Hanges, & Locke, 2004), and more dubiously, with economic growth (see Beugelsdijk & Smeets, 2007). At an interpersonal level, approach-oriented (hope for success) achievement motivation has been associated with more flexible and adaptive behavior and fewer interpersonal problems and dysfunction than avoidance-oriented (fear of failure) achievement motivation, which may have ramifications for understanding productivity, social success, and well-being (Conroy, Elliot, & Pincus, 2009). McClelland et al. (1989) suggested that the degree of congruence between implicit and explicit motives has significant implications for psychological and mental health. A growing body of research has since identified motivational congruence as an important determinant of well-being (e.g., Baumann et al., 2005; Brunstein et al., 1998; Schultheiss, Jones, Davis, & Kley, 2008).

Although a high degree of congruence between explicit goals and implicit motives is necessary to high ▶ emotional well-being, it is not sufficient (Brunstein, 2010). Even if motives and goals are congruent, emotional well-being also depends on the strength of commitment to goals and whether or not conditions are favorable to achieving those goals (goal attainability). Individuals who are highly committed to their goals (Brunstein et al., 1998) and whose goals are supported by strong implicit motives (Schultheiss et al., 2008) experience higher highs upon success and lower lows upon failure. Conversely, individuals strongly committed to the pursuit of motive-incongruent goals are more susceptible to impaired ▶ mood, as their investments in motive-incongruent goals undermine their pursuit of potentially more gratifying motive-congruent goals (Brunstein et al., 1998).

In light of these and similar findings, it would seem useful to identify techniques for helping individuals increase their motivational ▶ competence – that is, their capacity to bring implicit and explicit motives into greater alignment (Schultheiss & Brunstein, 2005). Preliminary research into this possibility shows some potentially promising results for approaches involving goal imagery (Schultheiss & Brunstein, 1999) and motive training (Rheinberg & Engeser, 2010).

Cross-References

- ▶ Anxiety
- ▶ Choice
- ▶ Competence
- ▶ Emotional Well-Being
- ▶ Fears
- ▶ Intrinsic Motivation
- ▶ Mood
- ▶ Motivation
- ▶ Positive Affect
- ▶ Self-concept

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Need for Approval Measures

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Synonyms

Common Beliefs Survey-III (CBS-III); Demand for approval scale; Dysfunctional Attitude Scale (DAS); Fear of Negative Evaluation Scale (FNES); General Attitude and Beliefs Scale (GABS); Importance of approval; Irrational Beliefs Inventory (IBI); Irrational Beliefs Test (IBT); Martin-Larsen Approval Motivation Scale (MLAM); Personal beliefs inventory; Social Avoidance and Distress Scale (SADA)

Definition

Need for approval measures are self-report questionnaires consisting of items designed to measure the tendency to want or to be sensitive to the approval of others.

Description

Various scholars have suggested that humans have what may be considered a ▶ need or demand for approval, ▶ love, affection, or positive regard. For example, Freud (1933/1973) noted that "a child's demands for love are immoderate, they make exclusive claims and tolerate no sharing" (p. 157). He also thought that the main precipitating factor for the development of neurosis was frustration, particularly the frustration of not being loved (Freud, 1912/1979).

This idea implies a need for love. Rogers (1959) proposed that individuals develop a need for positive regard which is universal, pervasive, and persistent. Horney (1937) wrote at length about the neurotic need for affection and distinguished between the non-neurotic wish and neurotic need to be loved. Ellis (1962) believed that this need was an irrational or dysfunctional belief that led people to being inappropriately upset when they felt that unloved or not sufficiently loved.

The first attempt to develop a self-report measure of this belief was the Demand for Approval Scale of the Irrational Beliefs Test (IBT; Jones, 1969). This scale consists of ten items, five of which are worded in a rational way (e.g., "If others dislike me, that's their problem, not mine") and five in an irrational way (e.g., "I have considerable concern with what people are feeling about me"). The items are answered on a 5-point ▶ Likert scale ranging from "Strongly disagree" to "Strongly agree." Jones (1969) found this scale to have a high 24-h test-retest correlation of .83 in 52 participants. Cramer (1993) found it to have a reasonable Cronbach's alpha reliability of .77 for 262 16–17-year-olds.

Three factor analytic studies have found some support for its factorial validity. Jones (1969) noted that seven of the items loaded above .30 on the eighth varimax rotated factor in 427 participants. In their principal components analysis on 897 introductory psychology and speech students, Lohr and Bonge (1982) reported that all ten items loaded saliently on a single factor either in their own or Jones' (1969) study. In a principal components analysis on 185 mainly female students, Cramer (1985) found that six of the items loaded above .39 on the second varimax rotated factor.

Four other measures assessing the irrational belief for need for approval have been developed. A 9-item Importance of Approval Scale is part of the Common Beliefs Survey III (CBS-III; Bessai, 1977). Items are answered on a 5-point Likert scale ranging from "Strongly agree" to "Strongly disagree." All but one of the items were worded in a rational way (e.g., "People do not need to be loved in order to accept themselves"). A principal axis factor analysis on 264 medical patients of the correlations between three groups of three items each for the six scales making up the questionnaire resulted in six factors, the fourth of which reflected Importance of Approval (Tosi, Forman, Rudy, & Murphy, 1986). A principal axis factoring with oblique rotation on 457 students found that all the approval items loaded on the sixth factor but the loadings were not reported (Ciarrochi, 2004). The test-retest reliability for this scale was .66 over a mean interval of about 19 days for 101 first year psychology undergraduates (Thorpe, Walter, Kingery, & Nay, 2001). The internal reliability at the first test was .69 for 107 students and .77 at the second test (Thorpe et al.). The internal reliability was .68 for 457 students (Ciarrochi, 2004).

Items assessing need for approval were included in the 100-item Dysfunctional Attitude Scale (DAS; Weissman, 1979) which was designed to measure the kinds of beliefs that Beck and his colleagues thought predisposed individuals to develop various psychological disorders (Beck, Brown, Steer, & Weissman, 1991). Two 40-item parallel forms of the scale were developed, called A and B. Factor analyses of Form A have found a factor reflecting need for approval (e.g., Rogers et al., 2009). This factor consisted of eight items with a loading of more than .39 in 422 adolescents with major depressive disorder (Rogers et al.). A principal components and a confirmatory factor analysis on the 100-item scale in 2,023 psychotherapy outpatients found a factor reflecting need for approval consisting of six items using the same 39 cutoff (Beck et al., 1991). One of the highest loading items in both these studies was "My value as a person depends greatly on what others think of me."

The 55-item General Attitude and Belief Scale (GABS; Bernard, 1990) also included items measuring need for approval. A factor analysis of this scale on 551 women and 297 men found a factor which comprised seven items assessing need for approval (Bernard, 1998). No details were given of the loadings of these items. All the items were worded in an irrational way such as "I can't stand being disliked by people who

are important to me, and it's unbearable if they dislike me." Items are answered on a 5-point scale ranging from "Strongly disagree" to "Strongly agree."

A demand for approval scale is part of the 50-item Irrational Beliefs Inventory (IBI; Koopmans, Sanderman, Timmerman, & Emmelkamp, 1994). This is said to consist of seven items, but one of them ("I hate to fail at anything") appears to measure the irrational belief of the need to be successful rather than the need to be approved. Five of the items are from Jones's (1969) Demand for Approval Scale and the remaining one ("What others think of you is most important") was originally from Hartman's (1968) 60-item Personal Beliefs Inventory. So this scale may be seen as mainly consisting of five of the items of Jones's Demand for Approval Scale.

The previously discussed scales were designed to measure the irrational or dysfunctional belief of need for approval. A self-report measure which assesses the need for approval rather than the belief for needing approval was developed by Crowne and Marlowe (1960). They called their measure the Marlowe-Crowne Social Desirability Scale (MCSDS). It consists of 33 items which are answered as being true or false. Of the items, 18 refer to socially approved but uncommon behavior (e.g., "I have never intensely disliked anyone"), and 15 items reflect socially disapproved but common behavior (e.g., "I like to gossip at times"). As its name implies, this measure is used to determine the extent to which an individual has a tendency to answer questions in a socially desirable way. The alpha reliability of this scale, for example, has been reported as .78 in 402 undergraduates (Holden & Fekken, 1989) and .80 and .83, respectively, in a representative community sample of 132 women and 93 men (Cramer, 2000).

Marlowe and Crowne (1961) defined social desirability as the "need for social approval and acceptance and the belief that this can be attained by means of culturally acceptable and appropriate behaviours" (p. 109). This scale has been found to be only weakly negatively associated ($r = -.15$) with the 9-item Importance of Approval Scale of the Common Beliefs Survey III (Ciarrochi, 2004). In other words, answering questions in a socially desirable direction may be only weakly related to thinking that social approval is less important. Compared with five other measures of social desirability, it was most strongly related ($r = .60$) to the Lie Scale of the Minnesota Multiphasic Personality Inventory in 425 undergraduates (Paulhus, 1984). It has also been found to be relatively strongly positively correlated with various forms of the Lie Scale of the Eysenck Personality Questionnaire. In one of the largest studies, the correlation with Form A of the Eysenck Personality Inventory (EPI) was .55 in 106 women and 109 men (McCrae & Costa, 1983).

Larsen, Martin, Ettinger, and Nelson (1976) aimed to develop a more direct questionnaire of the need for social approval by asking questions "on the degree to which individuals are dependent on and responsive to others" in various social situations (Martin, 1984, p. 509). The questionnaire was called the Martin-Larsen Approval ▶ Motivation Scale (MLAM). Its 21 items, the second of which was dropped, are answered on a 5-point scale ranging from "Strongly disagree" to "Strongly agree" with agreement indicating a greater need for approval (e.g., "It is wise to flatter important people"). This scale was later revised by Martin (1984) so that agreement on some of its 20 items would reflect a lower need for approval. It was only possible to do this for five items (e.g., "I would rather be myself than be well thought of"). Twelve items of the revised scale are from the original scale. The revised scale's alpha reliability varied from .64 in 129 psychology undergraduates to .75 in 181 psychology undergraduates. This scale was weakly negatively related to the Lie Scale of the MMPI ($r = -0.21$) and Form A of the EPI ($r = -0.15$) in 123 psychology undergraduates. This scale was negatively correlated with the Marlowe-Crowne Social Desirability Scale in five samples of psychology undergraduates, ranging from −.14 in 129 students to −.27 in 185 students. This negative relationship is similar in size to that between the Marlowe-Crowne

Social Desirability Scale and the Importance of Approval Scale of the Common Beliefs Survey III (Ciarrochi, 2004).

Finally, the 30-item Fear of Negative Evaluation Scale (FNES) may be considered another self-report measure of the need for social approval as it is thought that those with a high fear of negative evaluation may try to avoid social disapproval or to gain social approval (Watson & Friend, 1969). The scale consists of 17 items worded to indicate fear of negative evaluation (e.g., "I am afraid that others will not approve of me") and 13 items phrased in the opposite direction (e.g., "The disapproval of others would have little effect on me"). Each item is answered as "True" or "False." Although the items were partly chosen to minimize their relationship with the Marlowe-Crowne Social Desirability Scale, the two scales were negatively correlated ($r = -.25$) in 205 undergraduates. The scale's 1-month test-retest reliability was .78 for 154 undergraduates. It correlated .77 with the social approval/recognition scale of Jackson's Personal Research Form in 42 undergraduates. The social approval/recognition scale consists of 20 items (e.g., "My social standing is important to me") which are also answered as "True" or "False." A principal axis factor analysis with oblique rotation of the FNE scale and the 28-item Social Avoidance and Distress Scale (SADS) in 265 patients with anxiety disorder found two separate factors which reflected these two scales (Oei, Kenna, & Evans, 1991). The alpha reliability of both scales was .94. The FNE Scale has been shown to be strongly positively correlated with the Demand for Approval Scale of Jones's (1969) Irrational Beliefs Test in, for example, 451 and 189 undergraduates ($r = .65$ and .67; Deffenbacher, Zwemmer, Whisman, Hill, & Sloan, 1986).

To summarize, several different self-report questionnaires have been independently developed to assess what may be described as a tendency to want, or to be sensitive, to social approval. These scales generally show adequate internal reliability and factorial validity. However, measures of social desirability have been found to be weakly negatively related to measures which are more transparently worded to assess social approval, indicating that they are tapping separate constructs.

Cross-References

▶ Confirmatory Factor Analysis (CFA)

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Need Fulfillment

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Synonyms

Drives; Multiple Discrepancies Theory; Satisfaction of needs; Self-needs satisfaction

Definition

Needs should express what individuals require to live and to survive as human beings. Needs are anchored in individual dispositions like wants and drives, and their definition can be based, on the one side, on individual opinion and, on the other side, on expert judgements. The fulfillment of needs is a requirement for quality of life and social well-being. If needs stay unfulfilled, then a feeling of a lack or deficit arises which has negative consequences for individuals and society. Needs could function as key regulators for social development. Need research has produced different theories in respect to needs and their fulfillment.

Description

Need fulfillment research has dealt in particular with the differentiation of various need fulfillment categories. Primary needs (physiological) were distinguished from secondary needs (learned, acquired needs). With the differentiation of drive needs versus intellectual needs, often a less-higher valence was connected.

There are also need hierarchies: The need hierarchy of Maslow (1954) distinguishes basic deficiency motivations and growth motivations and develops on this basis six need classes – physiological needs, safety, love and membership, appreciation, self-realization, and transcendence form the six steps. The theory states that the satisfaction of needs at a certain level implies that the needs at the next level will receive priority. There is no empirical proof for this strict hierarchy of needs, but the need classes of Maslow have been widely used.

Other need theorists think that different needs are active in parallel, as proposed by Talcott Parsons (1951). The four basic needs are needs for care, needs for love, needs for approval, and needs for esteem. The personality system of a human is according to Parsons motivated by these four needs.

A particularly impressively simple categorization was contributed Allardt (1973): Having, loving, and being is, according to him, constitutive of the welfare of an individual. Having means, e.g., health, income, and living; loving refers to, e.g., community, family, and friendship; and being means, e.g., recognition, uniqueness, and activity. His theoretical assumption is that these three need fields have to be developed in parallel if a high level of welfare is to be achieved.

Hondrich (1973) speaks about need orientations instead of needs. In his view, a diffuse bundle of drive energies differentiates one's orientation to social situations, which produce directly or indirectly satisfaction. The development of needs depends on the social context; different social contexts lead to different needs, but basic needs like safety, love, social recognition, and self-realization stay relatively stable. These needs work as a regulatory system for opportunities of need fulfillment, and they are not arbitrarily manipulable, e.g., by commercials.

Inglehart's (1977) view has similarities to that of Maslow, insofar as needs have a certain hierarchy. His "scarcity hypothesis" refers to the idea that people have a variety of needs and high priority is given to those needs which are less fulfilled. While scarcity prevails in needs like hunger, thirst, and physical security, people give high priority to those needs. If these material needs are fulfilled, then focus will shift to nonmaterial goods like esteem, belonging, and intellectual satisfaction. In addition to his "Scarcity hypothesis," he constructs a "socialization hypotheses." This thesis states that a value change is initiated if many people of a younger generation experience prosperity in their childhood and youth.

A need-based model of quality of life holds that different needs are more or less fulfilled in different social contexts. Needs are not unlimited. Their satisfaction leads to a shift to other objects. The form of satisfaction can change. Minimal basic needs, as luxury needs, are culturally defined and depend on public and private goods. Measuring the extent to which needs of humans are fulfilled is one task quality of life researcher has to deal with.

Cross-References

- ▶ MDT
- ▶ Quality of Life, Satisfaction with

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Need Theory

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Synonyms

Livability theory

Definition

The view that happiness depends on the gratification of innate human *needs*, rather than on the meeting of socially constructed *wants*.

Description

Need theory of happiness is linked to affect theory, which holds that happiness is a reflection of how well we feel generally. In this view, we do not "calculate" happiness but rather "infer" it, the typical heuristic being "I feel good most of the time, hence I must be happy" (Schwarz & Strack, 1991).

Tenets

In this line of thought, one question is how we take stock of our affective experience. Another question is what makes us feel good or bad, and this links up to the wider question of the functions of affect.

Frequency of Affect

It would seem that our overall evaluation of life is geared by the most salient affective experiences and that these are typically intense affects. This view is common in fiction and is more or less implied in life reviews. Yet research using the Experience Sampling Method shows that it is rather the relative frequency of positive to negative affect that matters (Diener, Pavot, & Sandwick, 1991).

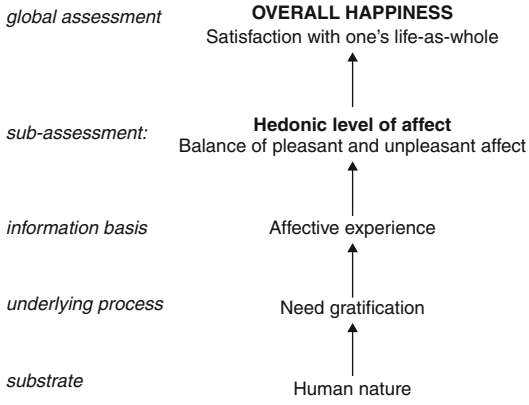
Mood as Informant

How do we assess that relative frequency? The cognitive view on affect procession suggests that we compute an affect balance in some way, using estimates of frequency and duration. A competing view is that this occurs automatically and that the balance is reflected in mood. In this view, mood is an affective meta-signal that, contrary to feelings and emotions, is not linked to specific objects. Emotions denote an affective reaction to something and prepare the organism to respond, while a negative mood signals that there may be something wrong and urges us to find out what that is.

Gratification of Needs

Why do we feel good or bad at all? Probably because it provides us information on how well we are doing. Affects are an integral part of our adaptive repertoire and seem to be linked to the gratification of human needs. "Needs" are vital requirements for survival, such as eating, bonding, and exercise. Nature seems to have safeguarded the gratification of these needs with affective signals such as hunger, love, and zest. In this view, a positive mood signals that all our needs are sufficiently met at that moment.

"Needs" in this theory should not be equated with "wants." Needs are inborn and universal, while "wants" are acquired and can vary across cultures. Wants can coincide more or less with needs and explained in Veenhoven (2008a, 2009). This theory is summarized in the scheme below (Fig. 1).



Need Theory, Fig. 1 Need theory of happiness

Which Needs?

Unlike "wants," human "needs" cannot be observed directly but must be inferred from universal motivation and from the consequences of non-gratification. There are several theories about what these universal needs are, and the most accepted theory is that of Maslow's (1943, 1954) theory. Maslow distinguishes between "deficiency needs" and "growth needs" and assumes that the former preponderates over the latter. Deficiency needs involve, in order of preponderance, (1) physiological needs, such as food and shelter; (2) safety; (3) companionship; and (4) esteem. Growth needs involve the use and development of one's capacities, which is called "self-actualization." Since the human repertoire is quite broad, this growth need can manifest in more diverse behaviors.

The notion of a need "hierarchy" has received little support in empirical research, but the assumption that these needs are part of a universal human nature still stands. From an evolutionary view, it is plausible that we share several needs with other animals, in particular the physiological needs (1) and the need for safety (2). The needs for sex should be added in this context, since this need is required to the continuation of the species. The need for companionship (3) is probably hardwired in all social animals, since bonds are essential in the survival strategy of these species. Likewise, the need for esteem (4) is functional for social animals that organize hierarchically, which is the case with most primates. The need to "grow" is not uniquely human either. Animals also have an innate drive to use and develop their potentials, which the young typically do though play. The difference is in the variety and therefore in the uniqueness of behavioral manifestations: in humans, actualization of potentials is more biased to *self*-actualization than that seen in other animals.

Theoretical Plausibility

This theory makes sense in an evolutionary perspective. It is likely that evolution has developed ways of monitoring needs gratification, in particular, in organisms that can make choice, as can primates, among which humans. It is unlikely that rational thinking is the main way, since this mental capability has developed late in evolution. It is quite likely that adaptation is guided by affective signals in the first place and that all higher animals can feel more or less well. It is unlikely that humans are an exception to this rule. The ability to think has been added on an existing affect system, and it has not replaced it. This can be seen in the structure of the human brain, where the affect system is located in the older parts that we have in common with other animals. Our ability of rational thinking is situated in the complex neocortex, something that is typical for homo sapiens, but not seen in such complexity in the higher primates and other social animals.

Empirical Support

Unlike "wants," "needs" cannot be measured and nor can "need gratification." A direct test of this theory is therefore not possible. Still we can test the implications of this theory. One implication is that people will be unhappy in conditions where basic human needs remain unmet, such as where they are subjected to chronic hunger, danger, and loneliness. This prediction is supported by the finding that average happiness is low in poor countries with failed states. Support for this view can also be seen in the rising happiness in modern nations (Veenhoven, 2010). At first sight, the prediction is contradicted by absence of a correlation between individual happiness and

income in rich nations, but this may mean that the material needs of even the poor are gratified. Gratification of social needs is less well secured in rich nations, and consequently, we do see a substantial impact of life events such as marriage and bereavement on happiness.

Another testable implication is that happy people must thrive better biologically. This has been shown to be the case, happy people live longer. Well-controlled long-term follow-up studies show sizable effects of happiness on longevity, comparable to smoking or not (Veenhoven, 2008b).

Cross-References

- ▶ Affective Component of Happiness
- ▶ Livability Theory
- ▶ Subjective Well-Being

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Needs and Wants in Ethiopian Communities

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Synonyms

WeD QoL

Definition

▶ Human needs are a category of human goals, achievement of which is essential for all human beings in order to avoid harm and to prosper. In contrast, wants are subjective goals which derive from individual preferences and their cultural environment. This research draws on fieldwork conducted in Ethiopia and compares respondents' goal preferences – their "wants" – with Doyal and Gough's Theory of Human Need, demonstrating the contestation regarding the necessity of "universal" needs. Analysis also highlights the challenge for development organizations, when the preferences of program "beneficiaries" do not correspond to development objectives rooted in basic needs approaches.

Description

Doyal and Gough's Theory of Human Need (THN) argues that there are two basic human needs, health and personal autonomy – defined as "*cognitive and emotional capacity*" and "*critical autonomy* . . . the capacity to compare cultural rules, to reflect upon the rules of one's own culture, to work with others to change them and, *in extremis*, to move to another culture" (Doyal & Gough 1991, p. 10, emphasis in original). Underlying these basic needs, they posit, are 11 intermediate needs which must be satisfied in order for the basic needs to be

satisfied. Their theory allows for these needs to be satisfied in many different ways in different cultural contexts, nevertheless maintaining that the needs themselves are universal.

The analysis that follows utilizes data generated by the Research Group on Well-Being in Developing Countries (WeD), in particular the goals section of WeD's quality of life-(QoL) survey. The survey was conducted in the four WeD-Ethiopia research sites, although this analysis focuses on two sites, Dessu in Amhara and Kedada in Oromiya. The survey was translated into local languages – Oromiffa and Amharic – and a small sample of 60 respondents was selected in each site. Respondents were asked "what things do you need to be happy?" and asked to state whether the goal in question was "not necessary," "necessary," or "very necessary." The assumption was made that respondents interpreted this question broadly, answering based on the goals that they felt were important to their lives in general, rather than focusing solely on narrowly defined ▶ happiness or hedonic well-being. Based on this assumption, the responses to the survey are broadly comparable with the respondents' interpretation of their needs. The WeD QoL survey covered a range of material, cultural, social, human, collective, and spiritual goals, including many of the needs suggested in THN. Table 1 lists THN's basic and intermediate needs and, where relevant, the comparable goals in the WeD QoL.

The analysis takes the mean of the coded responses (not necessary 0, necessary 1, very necessary 2) as an approximation of community norms regarding the importance of particular goals as well as examining the extent to which individuals deviate from these norms. Although the sample size is very small, one of the main purposes of the discussion is to highlight the considerable diversity of opinions regarding the importance of different goals. Consequently, while the sample may be insufficient to claim to be representative of the two communities, it is adequate to show considerable contestation. Similarly, the analysis makes no claim to be representative of Ethiopia as a whole.

Needs and Wants in Ethiopian Communities, Table 1 Human needs and goals covered in the WeD QoL

Basic human needs	Intermediate needs	WeD QoL goals
Health		Health
	Nutritional food and clean water	Daily food
	Protective housing	A place to live
	Nonhazardous work environment	
	Nonhazardous physical environment	
	Safe birth control and childbearing	
	Appropriate healthcare	
Autonomy		
	Secure childhood	
	Significant primary relationships	Good family relationships, good relationships with people, friends, marriage
	Physical security	
	Economic security	Economic independence, wealth
	Appropriate education	Education

Community Norms and Contestation

Basic needs such as daily food and shelter score very high, but they are not rated as the most essential goals. In Kedada being of good character (1.9, community average on a scale of 0, not necessary, to 2, very necessary), peace of mind (1.8), and clean and beautiful surroundings (1.8) are rated as more important than daily food (1.7) and equivalent to a place to live (1.8). Similarly, in Dessu communication with God (1.7) and being of good character (1.7) are rated as more important than a place to live (1.5). Despite serious problems of poverty and food insecurity in both of these sites, clearly the preferences of respondents are not limited to these most basic human needs. Nevertheless, health is considered the most important goal in both communities.

In contrast, the importance attributed to education varies considerably between the two

sites. People in Kedada view education both for themselves (1.5) and their children (1.9) to be far more important than residents of Dessu do (1.1 and 1.1, respectively). In both sites, men (Dessu 1.2, Kedada 1.9) believe education for their children to be slightly more important than women do (Dessu 1.0, Kedada 1.8), while women in Kedada (1.2) place substantially less emphasis on their own education than men (1.8). These two results suggest internalization of the society's perception of women as housewives and mothers (Nussbaum, 2000), for whom formal education is of little or no use. With women traditionally given far less access to education than men Woldehanna et al. 2005), in many cases women may also fail to recognize the potential opportunities that education opens up, as they themselves have never had access to them.

While 14 respondents in Dessu stated that education was not necessary for themselves and ten that it was not necessary for their children, only one person stated that knowledge was not important. This may indicate that many respondents in Dessu feel that while formal education is not relevant to their agricultural livelihoods, other forms of acquiring knowledge, such as learning by doing, or church and Quranic education are valued.

In both sites respondents consider material goals such as land, irrigation, and livestock to be more important than nonmaterial goals, including social relationships. This may in part be due to the severe land shortages in both communities, as well as the major productivity increases demonstrated on the limited amounts of available irrigable land. However, the results may also indicate that the strength of existing social relationships is taken for granted. Notably, in both sites men place greater emphasis on social relationships with friends, family, and people in general than do women. One possible explanation for this is that in both communities, women are expected to move to their husbands' village when they get married, leaving family and friends behind. Kiros and White (2004) propose that this causes women to be disconnected from their social networks and that cultural barriers make them less likely to integrate into their new community.

In both sites, men place more emphasis than women on marriage (Dessu men 1.4, women 1.1; Kedada men 1.4, women 1.3) and having children (Dessu men 1.4, women 1.0; Kedada men 1.5, women 0.7). Indeed, ten people in Dessu (two males and eight females) and eight in Kedada (five males and three females) stated that marriage was "not necessary." This is in contrast to the social unacceptability of women remaining unmarried and despite the key part that having children plays in the identity of women in rural communities and the fact that infertility is always perceived to be the fault of the woman, leading to stigmatization. Surprisingly, given the large family sizes in Kedada, having children is given relatively low importance, rated as the second least important goal overall. These results would suggest that despite strong cultural norms, which encourage marriage and having children, there is considerable contestation with respect to whether these goals are important for personal life satisfaction.

Household Examples

In addition to this community level analysis, examination of two households in greater detail sheds light on the difference of opinions within households as well as individuals' changing preferences. This analysis utilizes responses to the WeD QoL and additional qualitative fieldwork conducted by WeD including in-depth interviews and life histories.

The first case is of an Amhara Orthodox Christian household in Dessu, comprising a married couple and their six children. The parents and two eldest children completed the WeD QoL survey. For all members of the family education emerges as an important issue. Several years ago the father took part in a literacy program, which he believes enabled him to get a job at the local seedling station where he learnt about improved farming techniques. This experience in turn allowed him to make the most of his irrigable land and to become one of the wealthiest households in the community. As a result he considers education and education for his children to be "necessary." Nevertheless, his desire to educate his children has come into conflict with the household's need

for labor. Consequently, his eldest son and daughter were kept out of education in order to work on the farm and in the household in order to help support the rest of the family, while the younger children are all in education. In-depth interviews show that the failure to educate the eldest son and the limited opportunities available to him given his illiteracy is of considerable concern to the father. Equally, the son states that education is "very necessary" and the need for him to be a farmer while his siblings attend school is likely to be a source of considerable dissatisfaction. In contrast, while the mother feels that education is "not necessary," she states that education is "necessary" for her children, perhaps reflecting a perception of differing importance of education between generations. As a housewife and mother, she may consider formal education to be of little relevance to her everyday life, while opportunities outside the community necessitate a greater degree of education for her children.

The second case is an Oromo Muslim family in Kedada which comprises a male head with three wives, each with their own household on his compound. Between them they have had 18 children, although eight since passed away. The father is notable in considering that both marriage and having children are "not necessary," despite the great cultural importance that is placed on the family and children in Kedada. Indeed, he represents the ideal for a man in his 60s in Kedada – he rotates his time with his three wives, living with his children and grandchildren – yet he does not believe that these goals are important. Interestingly, neither his second wife, who has five children, nor his third wife, who has one, believes that having children is "necessary." Viewed in the context of the community norms examined in the previous section, this is not entirely surprising as the average response for women in Kedada is only 0.7. However, as previously discussed, this is unexpected given the great importance of children in the community expectations of women and the great stigmatization attached to infertile women. Given that both of these women do themselves have children, their responses, and those of other women in the community, may indicate a situation in which there is only a problem if the person is unable to have children and that women who do have several children do not always recognize their necessity.

Contrasting Needs and Wants

The results suggest that there is a considerable degree of support in both communities for the basic need of health and its constituent intermediate needs. Nevertheless, while the vast majority of respondents state that health, daily food, and a place to live are "very necessary," in each case there is a degree of contestation, with at least one respondent who believes that each is "not necessary." In contrast the intermediate needs that contribute to personal autonomy were given much lower priority by respondents in both communities, with the necessity of education and social relationships both called into question. In addition to the goals that correspond to intermediate needs, several other goals in the WeD QoL were rated extremely high. For example, to be of good character, communication with God and peace of mind were all rated among the most important goals in both sites. While the widespread support for these goals does not mean that they are themselves human needs, it is important to note that the achievement of universal human needs is not necessarily given priority over other objectives.

Discussion

This analysis highlights two particularly important findings. First, goal preferences are contested at all levels of analysis from the community to the household and the individual. At the community and household level, gender and age emerge as particularly important cleavages. Consequently, the use of average values as an indicator of support for particular policies, without acknowledgement of divergence from these norms, runs the risk of overrepresenting powerful groups and leading to policies that reinforce existing power relations. In addition, the cases highlighted both that individuals' preferences

can change over time and that competing priorities may force individuals to make choices that are not an accurate reflection of the importance they ascribe to particular goals. These challenges demonstrate some of the weaknesses of one-off measures which do not allow for peoples' changing views.

Second, some degree of contestation regarding of all of the human needs and the preference of many respondents for goals that are not considered human needs raises questions regarding what the objective of development should be. In particular, in the case that peoples' preferences differ from their best interests, according to human needs theories, should development organizations assist people in attaining what they *want* or merely give them what they *need*? Arguably, a human need agenda could be used by external actors to pursue paternalistic interventions on behalf of falsely conscious "beneficiaries" who do not know their own "best interests." This may have the potential to improve the quality of their lives, nevertheless this would also be a clear restriction of their freedom to think and to choose for themselves, and if that means making choices which are not in their own best interests, then they also have the freedom to make mistakes (NEF 2003). Drawing on the capabilities approach, therefore, the ideal role of development must instead be to expand freedoms by creating spaces in which people are supported and have access to knowledge. In this way, they may be able to become critically autonomous, as THN proposes, and sufficiently empowered to challenge existing norms and power structures, so that they are free to make informed decisions and to decide on the goals that they have reason to value, even to critique or reject "development" itself.

Cross-References

- ▶ Basic Needs
- ▶ Goal Achievement
- ▶ Happiness
- ▶ Human Needs
- ▶ Multiple Discrepancies Theory
- ▶ Well-Being in Developing Countries

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Needs Assessment

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Definition

Needs assessment is a process to identify factors that influence a mismatch between a person's current condition and a person's desired condition.

Description

Human needs exist when a person requires or desires something that is not available at the present time. According to the health literature, the concept of *need* refers to a condition characterized as "a disturbance in health and well-being" (Donabedian, 1973, p.62). The field of psychology defines a *need* as "what is necessary for an organism's health and well-being" (Harré & Lamb, 1988, p. 409) or a motivated state resulting from "A feeling of unfulfillment or deprivation in the biological system … evidenced by a drive to complete such a lack" (Colman, 2001, p. 631). In education, a need typically refers to special difficulties in

acquiring academic or social-emotional skills (Salvia, Ysseldyke & Bolt, 2007). A commonality among definitions of need from different professional disciplines is that a need is something of vital importance. Thus, a *need* is different than a *want* because a need is something that is truly essential. Furthermore, an unmet need is cause for concern.

Thompson et al. (2009) drew on work from Van Bilzen (2007) and Bradshaw (1972) in suggesting that needs can be understood in at least four distinct ways:

- *Normative need or objective need*: what a professional, expert, or social scientist defines as need in a given situation based on an individualized assessment; a professional standard is compared to an individual's actual situation.
- *Felt need*: what the person wants or perceives as needed. This felt need can be obtained by asking the person what is needed.
- *Expressed need or demand*: a felt need that has turned into action (e.g., a person requesting services).
- *Comparative need*: obtained by studying the characteristics of a population in receipt of a particular service. If there are people with the same characteristics not receiving service, they are *in need* of that service.

All types of assessments, including needs assessments, involve collecting information using a uniform procedure. This is true whether the assessment process is highly structured and formal or less structured and informal. This feature of assessment poses a challenge when designing a needs assessment in relation to the construct of quality of life. Because quality of life is defined by individuals in different ways, a structured process for assessing needs is suspect because it may not address elements of quality of life that are important to a particular individual. Since the standards and characteristics of a high quality of life are based on how each person perceives and evaluates his or her own situation rather than how others perceive and evaluate it, the validity of a needs assessment that purports to measure quality of life could vary from person to person.

Nevertheless, assessments designed to directly measure quality of life, or concepts closely aligned with quality of life (e.g., personal outcomes), have been developed. For instance, Robert Schalock and colleagues proposed a hierarchical, multidimensional quality of life model with three higher-order factors that encompass and eight subdomains. Specifically, the *Independence* factor includes the domains of *personal development* and *self-determination*; the ▶ *Social Participation* factor is comprised of ▶ *Social Inclusion* and *Rights*; and the *Well-being* factor includes ▶ *Emotional Well-Being*, ▶ *Physical Well-Being*, and *Material Well-Being*. A variety of observable and measurable indicators for each domain have been proposed over time (Wang, Schalock, Verdugo, & Jenaro, 2010), many of which were tied to ▶ activities of daily living. However, it was not until van Loon, Van Hove, Schalock, and Claes (2008) validated a subset of indicators for a population of citizens with ▶ intellectual disability and related ▶ developmental disabilities that an assessment tool was developed, namely, the ▶ *Personal Outcomes Scale (POS)*. The *POS* includes 82 items, 34 of which require short answers and are designed to inform clinical judgment and problem solving. The other 48 items are evaluated on a 3-point ▶ Likert scale under two conditions: subjective (self report) and objective (direct observation). The result of the assessment is a quality of life profile that could provide a needs assessment to identify where one's quality of life is relatively higher or lower. Another example is the ▶ *Flanagan Quality of Life Scale* (Burckhardt & Anderson, 2003), a self-administered questionnaire designed for people with chronic illness. This scale is comprised of 15 items that are rated on a 7-point ▶ Likert scale. The *POS, Flanagan Quality of Life Scale*, or any other assessment tool that measures constructs related to quality of life (e.g., tools based on ▶ happiness measures) can be used as a needs assessment to assist people in clarifying aspects of their lives that are important to maintain, as well as aspects that are important to change.

Another approach to needs assessment in relation to quality of life would be to examine

factors within the individual that are influencing quality of life. For example, a person with Major Depressive Disorder (i.e., clinical depression) displays a depressed mood or shows a lack of lack of interest or pleasure in activities for a prolonged period of time (American Psychiatric Association, 1994). There are numerous scales that qualified examiners can use to screen for and diagnose depression. If the use of such an assessment revealed the presence and severity of symptoms associated with clinical depression and was also used to inform the selection of treatments and therapies, it then would have also served as a needs assessment for quality of life. In cases where internal factors (e.g., clinical depression, anxiety disorders) as opposed to external factors are primarily responsible for an unsatisfactory quality of life, assessments of internal factors can serve as indirect quality of life needs assessments.

A third approach to needs assessment related to quality of life would be to assess factors related to the interaction of a people with the environments. For example, assessing a person's support needs would be useful if the root cause of an unsatisfying quality of life was lack of access to supports that were needed to engage in desired activities and/or participate in preferred settings. Many marginalized populations (e.g., ▶ disabled persons, the elderly) have extraordinary support needs that people from the general population do not have. Supports are resources and strategies that enhance human functioning and include assistance from others, environmental modifications, and assistive technologies (e.g., wheelchairs, augmentative communication devices). The *Supports Intensity Scale* (*SIS*; Thompson et al., 2004) was developed to assess the patterns and intensity of the support needs of people with intellectual and related developmental disabilities. It is composed of three sections. Section 1, the Support Needs Scale, consists of 49 life activities that are grouped into six support subscales. Section 2, a supplemental subsection, consists of eight items related to Protection and Advocacy Activities. Section 3, Exceptional Medical and Behavioral Support Needs, includes 15 medical conditions and 13 problem behaviors that typically require increased levels of support, regardless of a person's relative support needs in other life activity areas. The critical point is that the ▶ *SIS*, and other assessment tools that focus on person/environment interaction, can serve as a needs assessment for quality of life in cases where a lack of access to individualized supports affects quality of life.

Discussion

Needs assessment is associated with many professional disciplines and applied fields and has different meanings based on the context in which it is used. A variety of different tools and approaches have been developed to assess educational needs, health-care needs, psychological needs, etc. In relation to quality of life, a variety of tools and approaches could be used as long as they provided relevant information in regard to the gap between a person's current quality of life and desired quality of life. Developing a standardized approach to needs assessment related to quality of life is particularly challenging due to the variability in the ways people define and describe a high or low quality of life. Therefore, the most appropriate approach to needs assessment in relation to quality of life would be an openness to using a variety of assessment tools associated with different professional disciplines in combination with one another. Selecting approaches to needs assessment should be based on the characteristics of each individual, with special consideration given to the extent to which barriers to a satisfying quality of life stem from external factors, internal factors, or factors related to the interaction of individuals with their environments.

Cross-References

▶ Activities of Daily Living
▶ Anxiety Disorders
▶ Developmental Disability
▶ Disabled Persons

- ▶ Emotional Well-being
- ▶ Flanagan Quality of Life Scale
- ▶ Happiness Measures
- ▶ Intellectual Disability
- ▶ Likert Scale
- ▶ Personal Outcomes Scale
- ▶ Physical Well-being
- ▶ Social Inclusion
- ▶ Social Participation

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Negative Affect

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Synonyms

Negative emotions; Negative mood

Definition

Negative affect is classified under the classes of mood, emotion, and affect. It refers to the subjective experience of a group of negative emotional states such as anxiety, depression, stress, sadness, worry, guilt, shame, anger, and envy.

Description

Negative affect has been studied since the 1960s under the area of psychological well-being which is a key topic in quality of life research. It is regarded as one of the three interrelated components of a person's ▶ subjective well-being which, in addition to objective functioning, contributes to the person's quality of life (Diener, 2000). ▶ Life satisfaction and ▶ positive affect are the other two components of subjective well-being (Diener & Suh, 1997).

Negative affect can be conceptualized in terms of frequency and intensity. Diener (2000) concluded from studies on subjective well-being that it is the frequency rather than intensity of affect that influences a person's overall perception of well-being. People having mild-to-moderate pleasant moods most of the time report being happy, while intense positive emotions are rare even among the happiest persons. Changes in frequency and intensity indicate the stability of affect over time. Stability of affect is often

expressed in terms of state and trait negative affect. State negative affect refers to transient states of negative emotions that tend to be situation specific. Trait negative affect, also called negative affectivity or neuroticism, refers to a more stable state typified by negative emotions, occurring over an extended period of time and across diverse situations.

Early in the 1960s, Bradburn (1969) suggested that negative affect balanced with positive affect to define ▶ happiness. Russell (1980) extended on this to suggest that positive and negative affects were the two ends of a single bipolar dimension. He also suggested that the two affects interrelated systematically in a circular pattern and the affective concepts could be represented by a circular model in the order of ▶ pleasure (0), excitement (45), arousal (90), ▶ distress (135), displeasure (180), depression (225), sleepiness (270), and relaxation (315). Other researchers proposed that negative and positive affects were core and independent dimensions (Diener & Emmons, 1984; Watson & Tellegen, 1985). Diener and Emmons (1984) conceptualized these two affects as independent over time in people's lives. According to these authors, how much a person experiences one of these affects over his/her life is unrelated to how much the same person experiences the other affect. These two affects are inversely correlated only when one feels strongly emotional for a short period of time. These two views on the structure of affect have been a topic of debate for many years. Russell's proposed definition was supported by Carroll, Yik, Russell, and Barrett (1999) who provided evidence that positive affect and negative affect correlated at an angle within a circular ordering. Many other studies presented evidence to support the view of the two distinct dimensions of positive and negative affect (Huppert & Whittington, 2003; Watson, 1988; Zautra et al., 1995).

Watson (1988) examined the relationship of positive and negative affect with health complaints, perceived stress, and daily activities. Among the 89 participants who completed a daily questionnaire for 6–8 weeks, the level of physical complaints and perceived stress was correlated with individual differences in negative affect but not in positive affect (Watson, 1988). Zautra et al. (1995) differentiated the affective aspects of quality of life among patients with ▶ rheumatoid arthritis. Those with higher pain and limitations from rheumatoid arthritis reported higher maladaptive coping which was associated with higher negative affect and lower positive affect. Koller et al. (1996) reported that cancer patients' negative affect was strongly correlated with their own report of somatic symptoms and was the single predictor of their global quality of life. Authors noted the need for taking negative affect as an important factor to be considered in interventions. There is also preliminary evidence that negative affect of cancer patients could moderate the effect of psychosocial interventions on quality of life (Lee et al., 2009).

In 2003, Huppert and Whittington argued for the need to measure both positive and negative well-being in studies of ▶ health outcomes and quality of life. In a sample of 6,317 who completed the General Health Questionnaire (GHQ-30) at recruitment and then 3,778 who completed the same questionnaire 7 years later, they found that over one third of participants had either low scores or high scores on both the positive and negative well-being measures. Other factors such as ▶ disability, lack of social roles, and having paid employment had different effects on positive and negative measures. Findings showed these two are independent factors and warrant equal attention in assessing quality of life.

Carver and Scheier (1990) offered an explanation to the origins and functions of positive and negative affect. They proposed that both forms of affects are part of the meta-monitoring feedback system which is in operation simultaneously and in parallel with another ▶ monitoring feedback system. The meta-monitoring system is in control of unintentional behavior, and the monitoring system is fundamental to the control of intentional behavior. Both systems are crucial in determining the process of self-regulation of emotions and actions. In the meta-monitoring system, perceptions are determined both by information gathered from the existing situations and also

information from memory. The negative (or positive) affective state would exert bias in the use of these sources of information and thus influence the meta-process. This bias leads to gathering external information which may be facilitated by enhanced access to memories that are consistent with the current affective state. Thus, negative affect makes negative materials more accessible, thus maintaining the individual in a negative ▶ mood state.

Bradburn's (1969) positive affect (PA) and negative affect (NA) were the only measures available for positive and negative affects before the 1980s. Both PA and NA consist of five yes-no items to assess the affect the respondent experienced during the past few weeks. Later, scales with better psychometric properties were developed. Most measures assess state rather than trait negative affect. The most common measure used in quality of life research is the ▶ Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS consists of a list of 20 adjectives to describe positive and negative affect, such as active, enthusiastic, and excited for positive affect and guilty, upset, and nervous for negative affect. Watson and Clark further expanded the scale to a 60-item PANAS-X which assesses 11 specific emotional states including fear, sadness, guilt, hostility, shyness, ▶ fatigue, joviality, self-assurance, attentiveness, ▶ serenity, and surprise (Watson & Clark, 1999). An international short form of a 10-item scale, I-PANAS-SF, was later developed and validated on cross-cultural samples with acceptable psychometric properties (Thompson, 2007). Respondents rate on a scale from 1 (never) to 5 (always) the extent to which they generally feel in terms of those adjectives. Other similar measures using adjective checklists include the Nowlis Mood Adjective Checklist (36 adjectives), the Profile of Mood States (65 adjectives), and the Multiple Affect Adjective Checklist (132 adjectives). Trait negative affect/negative affectivity can be assessed by a self-report measure called the Neuroticism, ▶ Extroversion, and Openness to Experience Personality Inventory. For the circular model, there are measures such as the Chinese Circumplex Model of Affect (CCMA) scales to assess the circumplex structure of core affect (Yik, Russell, & Steiger, 2011). However, these scales have not been adopted in quality of life studies.

Future research could focus on further clarifying the relationship between negative affect and quality of life. Negative affect could be conceptualized as one component of quality of life. It could also be an independent factor that could impact on quality of life or, in other words, be a predictor of quality of life. The role of negative affect in moderating the efficacy of psychological interventions on quality of life outcomes is also another area that deserves greater attention.

Cross-References

- ▶ Affect Balance Scale
- ▶ Disability
- ▶ Distress
- ▶ Extroversion
- ▶ Fatigue
- ▶ Fears
- ▶ Happiness
- ▶ Life Satisfaction
- ▶ Monitoring
- ▶ Mood
- ▶ Pleasure
- ▶ Positive Affect
- ▶ Positive and Negative Affect Schedule (PANAS)
- ▶ Rheumatoid Arthritis
- ▶ Serenity
- ▶ Subjective Well-being

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Negative Affect and Daily Stressors in Older Adults

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Synonyms

Daily hassles; Negative emotions; Negative mood

Description

▶ Quality of life studies often include assessments of ▶ emotional well-being – a measure constructed from reports of daily positive and negative emotional experiences. These experiences are captured by statements such as feeling "full of life," "on top of the world," "downhearted and blue," or "bored" (Carstensen et al., 2011). Early studies established that successively older groups of adults report similar, if not higher, levels of emotional well-being than do younger adults (see review by Charles, 2010). Across younger, middle-aged, and older adults, people report lower levels of ▶ negative affect and higher levels of ▶ positive affect relative to their younger counterparts (see review by Pinquart, 2001). The only documented departure from this linear increase in well-being has been found in studies of older adults ranging from age 60 to over 90; some studies reveal that positive affect experiences level off across later adulthood (e.g., Carstensen et al., 2011; Charles, Luong, Almeida, Ryff, Sturm, & Love, 2010), and others find slight upturns in the reports of negative emotions, such as depressive symptoms (e.g., Davey, Halverson, Zonderman, & Costa, 2004).

More recently, psychologists have shifted their studies from documenting the age trajectory of affect to focusing on causal factors explaining this phenomenon. Given the complexity of emotional experience, a variety of factors probably

contribute to this age-related change. One such factor is the occurrence of major ▶ life events. Major life events influence ▶ subjective well-being directly by increasing negative affect and distress (Luhmann, Hofmann, Eid, & Lucas, 2012) and indirectly by eroding psychological factors such as sense of control and mastery that are tied to affective well-being (Cairney & Krause, 2008). Because older adults encounter these events less often than do younger and middle-aged adults, they are less likely to experience their ill effects.

Daily stressors – those relatively minor events, such as getting caught in traffic on your way to a doctor's appointment or having an argument with a friend – have also been used to explain the age-related decrease in negative affect. Daily stressors increase negative affect on the day they occur (e.g., Neupert, Almeida, & Charles, 2007). Additionally, their effects are hypothesized to accumulate over time, sometimes resulting in more serious affective disorders (e.g., ▶ anxiety and depression; Almeida, 2005). Similar to major life events, daily stressors decrease in frequency with age (Almeida & Horn, 2004; Charles et al., 2010). The reason for the decrease in both major life events and daily stressors may partly stem from role differences across age groups. Younger and middle-aged adults are generally juggling multiple roles simultaneously, such as being a parent, an adult son or daughter, and an employee. Each of these roles provides an avenue for the experience of minor stressors. Older adults, in contrast, have typically finished raising children and are closer to retirement, if not already retired.

Other researchers have proposed that, in addition to roles, deliberate strategies used by older adults may lead to a decrease in daily stressors. Socioemotional Selectivity Theory argues that growing older is intrinsically tied to the awareness that time left to live is diminishing (Carstensen, 2006). This time perspective results in a focusing of goals toward harmony and emotional well-being in the present moment. As a result, older adults are more motivated to use emotion regulation strategies to maintain emotional well-being than are younger adults. One such strategy is situation modification, an emotion regulation strategy whereby people decrease their exposure to negative experiences. Researchers have examined situation modification most often in the context of social relationships. These studies suggest that older adults engage in conflict avoidance more often than do middle-aged and younger adults. For example, in one study of almost 200 participants who ranged from 13 to 99 years old, people were interviewed about their recent ▶ social interactions (Birditt & Fingerman, 2005). Problem interactions that had been experienced were described in detail along with the strategies that were used to overcome those conflicts. These strategies were then coded by raters. Strategies fell into one of four categories having to do with how active or passive the strategy was, as well as whether the strategy was constructive or destructive. Older adults were more likely to use passive, constructive strategies and less likely to use active, destructive strategies than younger adults. These results suggest that older age is associated with avoidance strategies in times of social conflict (Birditt & Fingerman, 2005).

Strategies to avoid negative events appear to serve emotion regulatory benefits for older adults (Charles, Piazza, Luong, & Almeida, 2009). A daily diary study revealed that older adults, but not middle-aged adults, experience less negative affect reactivity when they avoid potential arguments as opposed to when they confront these types of conflict (Charles et al., 2009). Another study tested the hypothesis that reduced numbers of daily stressors with age would explain why older age is associated with lower levels of negative affect (Charles et al., 2010). Community-dwelling, healthy women aged 55 years and older participated in an eight-day diary study. Each evening, a phone interview was conducted in which participants reported the occurrence of both stressors and uplifts during their day. Stressors included things like arguments or avoided arguments, and uplifts included positive interactions with others in the home or at work. Results showed that older age was associated with lower levels of negative affect and fewer daily stressors across the week.

Importantly, the number of stressors reported fully explained the age differences in negative affect.

In addition to the use of situation modification, older adults may be more likely to engage in strategies of reappraisal, such that situations are viewed less negatively and more positively by older than by younger adults. For example, across adults ranging from 25 to 74 years old, younger adults reported greater perceived severity of the stressors they experienced in their daily life; in contrast, objective coders rating their daily stressors found no difference in the severity of daily events by age of the reporter (Almeida & Horn, 2004). In another study, older couples reported higher rates of marital satisfaction than did middle-aged couples, and this satisfaction explained why older adults also rated their spouses as being warmer when they discussed a conflict in the laboratory (Smith et al., 2009). Finally, a study was conducted in which adult daughters and their mothers carried on a conversation that was audiotaped. They were later asked to recall this conversation. During recall, mothers reported higher positive and lower negative emotions than did their daughters (Lefkowitz & Fingerman, 2003).

The research above suggests that older adults engage in strategies such as conflict avoidance and cognitive reappraisals so that they encounter fewer stressors in their lives, and that they perceive the stressors they encounter as less negative. These strategies may help to explain why older adults experience fewer daily stressors than do younger adults, which leads them to experience lower levels of negative affect. Although these strategies are effective for many older adults, some people encounter situations for which these strategies are difficult – and sometimes impossible – to employ. The theory of Strength and Vulnerability Integration (SAVI; Charles, 2010) posits that emotion regulation strategies are used by older adults to offset their physical vulnerabilities. As physical vulnerabilities increase with age (McEwen & Seeman, 2003), it becomes particularly important to regulate our emotions during times of stress. For those older adults who are incapable of regulating emotions during times of stress, physiological effects (e.g., temporary increases in blood pressure) of minor stressors will be most apparent. As a result, older adults show greater physiological reactivity to stressors than do middle-aged adults (Uchino, Berg, Smith, Pearce, & Skinner, 2006). Although more research is necessary to examine the physiological effects of stressful experiences when they cannot be avoided, existing research suggests that the majority of older adults are successful at managing the events and emotions of their daily lives.

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Negative Emotions

► Negative Affect
► Negative Affect and Daily Stressors in Older Adults

Negative Mood

► Negative Affect
► Negative Affect and Daily Stressors in Older Adults

Negative Stereotypes

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Definition

Negative stereotypes are traits and characteristics, negatively valenced and attributed to a social group and to its individual members.

Description

From an etymological point of view, the term stereotype refers to a rigid and stable model. In printing activities, it represents a duplicate, fixed copy of a typographic element. These aspects of fixity and replicability inspired Walter Lippmann (1922) in applying the term stereotype to the field of social perception and, in particular, to the mental images that are generally referred to a social group. In the following years, the concept was defined in a more precise way and progressively lost its stability feature. In particular, social cognition considered stereotypes as characteristics of a group included in its mental representation. Thus, stereotypes are stored in individual memory and often endorsed automatically to group members, but they could also be changed and abandoned.

According to social cognition (Devine, 1989; Fiske & Taylor, 1991), a social group is represented in memory as a network of discrete nodes, constituted by a category (e.g., Italians)

connected through associative links to the stereotypic characteristics generally attributed to this category (e.g., extroverted, loud). These traits could be both positive and negative. However, when favoritism for one's own group (in-group) and derogation of other groups (out-group) are involved, the links between the category and negative traits prevail: these negative traits strongly associated to a category correspond to negative stereotypes (Lepore & Brown, 1997). In this sense, negative stereotypes could be considered as the cognitive component of ▶ prejudice, which is defined as a general negative evaluation of a social group. Negative stereotypes are also related to discrimination, that is, to negative behaviors directed toward individuals because of their group membership.

Why does the mental representation of out-group contain negative traits? Social psychologists have developed different theories to explain the motivational roots of negative stereotypes and prejudice (Hewstone, Rubin, & Willis, 2002). According to individualistic approaches, people characterized by particular types of personality or beliefs are more prone to evaluate out-groups in a negative way; individual differences responsible for negative stereotypes could be authoritarianism, social dominance orientation, and dogmatic personality (Sibley & Duckitt, 2008). Context-based explanations of negative stereotypes are related to the perception of conflicts between groups in the society or to the feeling of ▶ deprivation due to the loss of economic and social power: both these situations push individuals to consider out-group members as enemies, competitors, or threat sources, and these perceptions justify the emergence of negative judgments and feelings toward them. Among social psychologists, however, the most widely accepted explanations refer to social identity and intergroup relations: considering themselves as members of a social group, individuals are motivated to protect and promote its positivity, culture, and values, and this could be done by enhancing the differentiation from salient out-groups; as a consequence, out-groups are derogated and perceived as characterized by negative stereotypes.

The consequences of being target of negative stereotypes could be deleterious for individual well-being and quality of life. Mays, Cochran, and Barnes (2007) analyzed various ▶ health indicators among African Americans in the United States, concluding that the disproportionally high percentages of African Americans affected by diabetes, cardiovascular heart disease, hypertension, and obesity were not fully explained by socioeconomical factors, such as ▶ poverty and minority status. Instead, factors related to race-based discrimination, like residential ▶ segregation, exposure to stressful environments, and low access to economic opportunities and social capital, are associated to specific physiological responses, such as elevated blood pressure and heart rate, that eventually result in health disadvantage, disease, and mortality (Massey, 2004). Moreover, the ▶ stress caused by actual or even anticipated discriminations may favor, as apparently useful coping strategies, unhealthy behaviors like alcohol, tobacco, and drugs consumption, with clear detrimental effects on well-being and quality of life.

The negative consequences of prejudice and stereotyping are also related to cognitive and motivational processes. Concerning this point, Steele and Aronson (1995) demonstrated a specific phenomenon, named "stereotype threat": when group members are worried that their performance could be judged according to the negative stereotype of their group, they show a contextual decrease in efficacy and abilities, consistent with the stereotype itself. Clearly, stereotype threat is detrimental for quality of life, as it causes individuals to experience low ▶ self-esteem, ▶ anxiety, and disappointment and sometimes may even push them to adopt self-handicapping strategies with the aim of escaping its negative consequences.

Given the harmful consequences of negative stereotypes and ▶ prejudice, it is important to establish efficient strategies able to counteract these phenomena. Among the various strategies proposed by social psychologists, the most powerful seem to be intergroup contact, perspective taking, and category-based

interventions. Intergroup contact, that is, the interactions between members of different groups, in particular if characterized by cooperation, equal status, acquaintance potential, and support of authorities, has proven to be a potent strategy for reducing negative stereotyping and, more broadly, ▶ prejudice and discrimination (Pettigrew & Tropp, 2006): given that the endorsement of negative stereotypes to a whole category is by definition a generalization process, positive encounters with single group members are likely to clarify the illfoundedness of such a generalization and thus reduce the strength of associative links between the category node and negative traits. Taking the perspective of out-group members, or putting oneself in their shoes, is related to a cognitive overlap between mental representations of self and others: this overlap, which is likely to involve the positive traits generally associated to the self, makes the activation of negative stereotypes less likely, as others are no more judged in relation to their group but to the self of the perspective taker (Galinsky & Moskowitz, 2000). Finally, category-based approaches undermine negative stereotypes by affecting the very process of categorization, for instance, including in-group and out-group in a common group identity, emphasizing the possible crossings between all available categorizations in a social context, or pushing individuals to perceive their own identities as a complex intersection between social categories: the common outcome of these processes is that the rigid in-group-out-group distinction, which is fundamental for defining the meaning and the content of negative stereotypes, loses in significance and eventually vanishes (Crisp & Hewstone, 2007).

Cross-References

- ▶ Anxiety
- ▶ Health
- ▶ Motivation
- ▶ Poverty
- ▶ Prejudice
- ▶ Relative Deprivation Theory
- ▶ Segregation
- ▶ Self-Esteem
- ▶ Social Dominance Theory
- ▶ Stress
- ▶ Stress Reactivity

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Negative Transitory Cycles

- ▶ Well-Being and Progress Measurement

Negligence of Children

► Child Maltreatment: Neglect

NEI VFQ

► National Eye Institute Visual Function Questionnaire

Neighborhood

► Community Quality of Life and Third Places in the USA

Neighborhood Active Living Potential (NALP)

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Synonyms

Active living communities; Neighborhood built environment

Definition

The neighborhood active living potential (NALP) is a conceptual construct for assessing the potential opportunities for a neighborhood to facilitate physical activity through its physical and social structures. It draws on the notion of neighborhood "walkability" that emerged out of the transportation literature and extends it to understand and measure how environmental exposure can facilitate or constrain various types of physical activity, not only walking. It takes into account the role of individual agency on environmental impacts, and as such, the built environment is assessed for its *potential* for physical activity, which may or may not be realized depending on how individual-, environmental-, social-, and population-level factors interact (Gauvin et al., 2005). NALP encompasses both social and physical features of a neighborhood and has been evaluated using density of destinations, activity friendliness, and safety features (Gauvin et al., 2008). These domains are able to capture various macrosocial aspects such as neighborhood social cohesion or disorder (Gauvin et al., 2005). By incorporating a wide range of features, NALP involves variables influencing both recreational and utilitarian physical activity. This conceptual understanding of neighborhood influences provides a basis for examining associations between neighborhood exposure, behavior, and health outcomes.

Description

A neighborhood active living potential (NALP) tool was first developed in 1999 and uses observational data collection techniques to assess features of a neighborhood's built environment that act to promote or discourage walking to work. The NALP tool follows an "econometrics" approach to understanding and measuring the environment; "econometrics" uses systematic observation and analysis techniques to statistically test and control for environmental variables. The tool looks specifically at three domains: activity friendliness, safety, and density of destinations. In 1999/2000, researchers used observational data of 27 diverse neighborhoods in three Canadian provinces to assess the impact of neighborhood features on walking to work.

The tool was later applied by Craig, Brownson, Cragg, and Dunn (2002) in Montreal, Quebec, in order to examine specific variables influencing both recreational and utilitarian walking among middle-aged or older adults.

In 2010, the tool was tested in a small sub-sample in Saskatoon, Saskatchewan, and found to be applicable. It was used later that year to assess 60 residential neighborhoods for the Smart Cities, Healthy Kids study (Fuller & Muhajarine, 2010). For this study, the tool was adapted to capture 22 specific items within four domains of neighborhood features. These domains included the original three (activity friendliness, safety, density of destinations) and a fourth domain, universal accessibility.

Cross-References

- ▶ Neighborhood Change
- ▶ Neighborhood Design and Quality of Life in Saskatoon
- ▶ Neighborhood Effects
- ▶ Neighborhood Unit
- ▶ Neighborhood Well-Being

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Neighborhood Analysis

- ▶ Neighborhood Change

Neighborhood and Health

- ▶ Environment and Health

Neighborhood Built Environment

- ▶ Neighborhood Active Living Potential (NALP)

Neighborhood Change

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Synonyms

Neighborhood analysis; Neighborhood planning; Neighborhood regeneration

Definition

Neighborhood change is a term to describe processes of physical and socioeconomic change within and in-between neighborhoods. The term can have a positive meaning, analyzing processes of neighborhood change over time, or it can have a normative meaning in the sense of actively changing neighborhoods.

Description

Following this definition one needs to clarify first what is meant by the term neighborhood. It usually describes a residential or mixed use area in an urban or suburban context. The spatial extent of a neighborhood can be determined by factors such as common features of residents and physical demarcations such as major road/railway

tracks or postcode/administrative borders. Particularly in suburban locations, a defining feature can also be that an area was developed around the same time with a homogenous type of built environment and residents moving into the area around the same time. Apart from these measurable factors, neighborhoods can also be defined by a shared identity or experience of residents within a quarter. Depending on factors such as population density, the size of neighborhoods can vary significantly – from a few hundred residents in a low-density suburb to thousands of residents in dense urban environments.

Empirical methods applied to observe neighborhood change include qualitative methods such as interviews, observation, or local questionnaire surveys, particularly when studying specific conditions and processes of change in individual neighborhoods. Beyond this a systematic analysis of neighborhood change over time and in comparison between different areas requires quantitative research methods often relying on indicators based on official statistics and data sources. This can have number of limitations. For example, some indicators such as unemployment figures or the number of benefit recipients are only published down to a certain spatial scale. Other indicators, such as housing transaction datasets, might follow a different set of geographic boundaries, such as postcodes. Then finally one can consider physical change taking place within neighborhoods. Quantifiable information about this can include raster datasets, for example, aerial photography for the analysis of green infrastructure and open space distribution. Or it can consist of point/vector datasets indicating vacancy rates of buildings or quality of the built environment. Beyond these measurable factors within a neighborhood, it is also important to consider spatial links with other areas. These can include social networks of residents, commuting/-shopping/leisure trips, and migration patterns. A well-known example for such processes impacting on neighborhood change is gentrification – so the change in the socioeconomic structure of a neighborhood through a process of selective in- and out-migration, often linked to improvements of the built environment (Glass, 1964).

The analysis of neighborhood change takes place within multiple disciplines and follows different schools of thought, including the ecological perspective rooted in the Chicago school of sociology, subcultural approaches, and the political economy perspective (Temkin & Rohe, 1996).

Beyond its positive use, the term neighborhood change can also have a normative meaning in the sense of developing or improving a place-based local community on a neighborhood scale. This is linked to community-based concepts for new urban settlements such as the garden city (Howard, 1902) or the neighborhood unit (Perry, 1929) but more importantly to community planning and urban regeneration aiming at improving existing neighborhoods.

Cross-References

- Community Planning
- Deprivation
- Garden City Movement
- Neighborhood Perceptions
- Neighborhood Unit
- Social Change
- Social Exclusion
- Urban Renewal

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Neighborhood Characteristics and Children's Safety

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Synonyms

Child indicators and neighborhood safety; Community context; Neighborhood effects; Neighborhood safety

Definition

The challenge in defining neighborhood characteristics as they influence children's safety lies in defining neighborhood itself. In a footnote, McDonell (2010) noted that neighborhood generally refers to a geographic area with residential and commercial structures that form a relational unit from the perspective of people who live in the area. As such, the definition of a neighborhood may differ among people in the same local area. Other terms that may substitute for neighborhood include village, hamlet, ward, barrio, and quarter.

Child safety is the extent to which there is reasonable assurance that children will not experience adverse consequences resulting from delineated physical and social conditions. More to the present point, it is the extent to which steps are taken at home, at school, and in the community to keep children from physical, social, and emotional harm as they go about their daily lives.

Description

The neighborhood context plays a pivotal role in child well-being and safety. Indeed, place attachment and locality-based social connections are increasingly recognized as fundamental to research on child well-being (Jack, 2010; Manzo & Perkins, 2006; Tanner, 2009). Research over the last several decades has shown that neighborhood physical and social characteristics influence children's academic success (Emory, Caughy, Harris, & Franzini, 2008), mental health (Edwards & Bromfield, 2010), food insecurity (Kimbro, Denney, & Panchang, 2012), outdoor play (Kimbro, Brooks-Gunn, & McLanahan, 2010), aggression and interpersonal conflict (Evans, 2006), and social engagement (Petit, 2004), among other indicators.

Perhaps more germane for the present purpose is the effect that the neighborhood physical and social context has on children's safety. In the USA, children are injured at alarming rates, with a fatal child injury rate of 11 per 100,000 (Centers for Disease Control and Prevention. [CDC], 2012) and a nonfatal injury rate of just over 13,000 per 100,000 (Borse et al., 2008). Automobile accidents, suffocation, drowning, poisoning, fires, and falls are among the leading causes of injuries to children (CDC, 2012). Globally, about 2,300 children die each day from preventable injuries; by age 5, unintentional injuries are the greatest threat to child survival (Peden et al., 2008).

Friesthler, Gruenewald, Ring, and LaScala (2008) found that child injuries were associated with a number of population and environmental factors, including rates of female-headed households, adult to child ratio, neighborhood disadvantage, residential instability, and neighborhood social capital. Several studies have found that the risk of injuries to children from motor vehicle accidents increases as a result of changes in the physical environment that reduce neighborhood ▶ walkability, including eliminating sidewalks and widening streets (Johnson & Lu, 2011; Schieber & Vegega, 2002). Shenassa, Stubbendick, and Brown (2004) found that the age of housing stock and rates of owner-occupied housing were significant predictors of injuries to young children. Housing characteristics mediated the effects of ▶ poverty and other neighborhood-level factors and were independent of individual-level factors.

Neighborhood physical and social features may influence the risk of injuries to children in the context of their most intimate relationships. Studies have shown that neighborhood structural

characteristics, including high rates of poverty, a large number of children relative to the number of adults in the neighborhood, low rates of residential tenure, and high rates of female-headed households, place children at greater risk of maltreatment (Ben-Arieh, 2010; Irwin, 2009; Merritt, 2009). Rothman et al. (2011) found that lower ▶ collective efficacy and social control, and neighborhood disorder were associated with an increased risk of physical dating violence perpetration for adolescents.

Several authors have reported that neighborhood cohesiveness and neighborhood social ties are protective factors for children's injuries. Children living in socially cohesive neighborhoods may be more aware of norms for neighborhood safety, and neighborhood adults may be more willing to enforce safety ▶ norms in cohesive neighborhoods (Pebley & Sastry, 2003). Leininger, Ryan, and Kalil (2009) found that the children with mothers who had very low levels of ▶ social support were at greatest risk of injuries, suggesting that social isolation plays a role in children's safety risk. There is evidence that neighborhood cohesion moderates the risk of child injuries even when parenting behavior and child characteristics suggest a high risk of injuries (Soubhi, Raina, & Kohen, 2004).

In addition, several studies have found that parents tend to be more protective of children in neighborhood settings perceived as dangerous. Letiecq and Koblinsky (2004) found that African-American fathers were more likely to monitor children closely, help children learn to recognize risks, and take direct action in neighborhoods seen as posing a high level of injury risk. Similarly, Kling, Liebman, and Katz (2001) found that parents who feared for their own safety in the neighborhood were more likely to keep a closer watch on children. A recent study (White & Roosa, 2012) found that higher levels of perceived neighborhood danger mediated family cohesion and was associated with higher levels of internalizing behaviors among Mexican-American adolescents.

While the evidence for ▶ neighborhood effects on child injuries is compelling, there is a notable lack of research on directly observable neighborhood characteristics as they influence children's safety. However, there has been recent progress on developing observational measures of neighborhood characteristics (Caughy, O'Campo, & Patterson, 2001; Laraia et al., 2007; Leonard, Caughy, Mays, & Murdoch, 2011; McDonell & Waters, 2011; Zenk et al., 2007), improving and expanding strategies for linking neighborhood factors and child outcomes.

Two recent studies are pertinent in this regard. In the first, McDonell (2007) used an observational measure of neighborhood characteristics (McDonell & Waters, 2011) to assess the effect of neighborhood physical and social features on parent reports of children's safety in the home and on parenting behaviors. The overall model for children's safety in the home was significant, $F(12, 185) = 5.8$, $p < .001$, with neighborhood factors accounting for 23% of the variance in parent reports. Neighborhood physical appearance, the condition of parks and other public spaces, symbolic barrier density (e.g., "beware of dog" signs, "no trespassing" signs), and the adequacy of trash receptacles were significant predictors. A model of neighborhood effects on self-reported nurturing parenting behavior was weaker but still significant, $F(12, 192) = 2.1$, $p < .05$, accounting for 6% of the variance in self-reported parenting practices. Indicators of resident vigilance (e.g., "neighborhood watch" signs, "children at play" signs) were the only significant neighborhood predictor.

In a related study, McDonell and Skosireva (2009) examined the effect of observable neighborhood characteristics on ICD-9-CM-coded child injuries suggesting child maltreatment (Ben-Arieh & McDonell, 2009) and on founded rates of child maltreatment. Using the Neighborhood Observation Scale (McDonell & Waters, 2011), the authors found that neighborhood factors significantly predicted child physical abuse, $F(10, 140) = 6.67$, $p < .001$, accounting for 28 % of the variance; ▶ child sexual abuse, $F(10, 140) = 4.67$, $p < .001$, accounting for 20% of the variance; ▶ child neglect, $F(10, 140) = 2.61$, $p < .01$, accounting for 10% of the variance; and ICD-9-CM-coded child injuries suggesting maltreatment, $F(8, 141) = 9.04$,

Neighborhood Characteristics and Children's Safety, Table 1 Regression beta coefficients and standard errors for neighborhood predictors of child physical and sexual abuse and neglect

Predictor	Physical abuse β (SE)	Sexual abuse β (SE)	Neglect β (SE)
Condition of streets	1.13 (.37)**	.25 (.17)	.33 (.42)
Residential decorations	.85 (.36)*	.17 (.16)	.15 (.40)
Abandoned/boarded-up dwellings	−.75 (.35)*	−.36 (.16)*	−1.07 (.40)**
Resident interaction in neighborhood	1.65(.46)**	.15 (.21)	.53 (.52)
Physical barrier density	−1.31 (.31)**	.08 (.17)	−.42 (.43)
Indicators of cultural traditions	−1.62 (.41)***	−.70 (.18)***	−.87 (.46)
Indicators of communication network	.14 (.48)	.59 (.21)**	.52 (.54)
Indicators of organized neighborhood life	−1.00 (.34)**	−.44 (.15)**	−.33 (.39)
Condition of public transportation stops	1.14 (.60)	.52 (.27)	.60 (.67)

*$p < .05$; **$p < .01$; ***$p < .001$

Neighborhood Characteristics and Children's Safety, Table 2 Regression beta coefficients and standard errors for neighborhood predictors of ICD-9-CM-coded child injuries suggesting maltreatment

Predictor	β (SE)
Litter in neighborhood	−4.67 (1.31)***
Indicators of neighborhood name	−2.75 (1.35)*
Residential decorations	4.28 (1.32)**
Neighborhood social organization	−5.84 (2.34)*
Resident interaction in parks/public spaces	2.70 (1.22)*
Vehicles speeding in neighborhood	4.41 (1.40)**
Adequacy of public telephones	7.91 (2.70)**

*$p < .05$; **$p < .01$; ***$p < .001$

$p < .001$, accounting for 30% of the variance. Table 1 shows the significant predictors for the child abuse and neglect models, while Table 2 shows the significant predictors for the ICD-9-CM-coded child injuries.

Discussion

This brief review of the literature and summary of two recent studies clearly indicates the importance of neighborhood effects in understanding child injuries. In particular, the physical appearance of the neighborhood, neighbor-to-neighbor social interactions and general neighborhood social organization, and indications of neighborhood safety are related to the extent to which neighborhood residents take steps to keep children safe from harm and injuries to children in intimate relationships.

Despite a recent surge in interest, neighborhood effects research is nascent, especially as it relates to child injuries. This is due, in part, to a lack of consensus among researchers on how to define neighborhood and measurement limitations. Typically, researchers rely on aggregated survey data to characterize neighborhood effects or use macro-level proxy indicators of neighborhood characteristics, drawing on census or other government sources.

The increasing use of observational methods of capturing neighborhood level data is quite promising as several of the studies reported here demonstrate. However, caution is needed when using such measures in research. There still remains the problem of defining neighborhood, and work is still needed to adequately account for spatial autocorrelation effects. Observational methods perhaps are best used as one strategy, combined with survey and macro-level data to provide a more robust set of indicators.

Still, the need to account for neighborhood physical and social features in research on child injuries is undeniable. The two studies summarized here showed quite robust neighborhood-level effects, accounting for sizable proportions of the variance in children's safety at home, child

maltreatment rates, and ICD-9-CM-coded child injuries suggesting child maltreatment. Indeed, the brief literature review offered here shows that neighborhood effects are critical to understanding a wide range of child well-being outcomes.

It is important to understand that the neighborhood characteristics assessed through direct observational measures are generally amenable to change. It may take little capital investment to improve the physical appearance of dwellings and to repair roads and sidewalks. Planting flowers and trees, cleaning up residential areas and parks, creating community gardens, and the like may go a long way to improve neighborhood appearance and provide avenues for resident-to-resident social interaction. Keeping residents abreast of community events through postings in public spaces or public service advertisement is a way to build cohesion. Informing residents of the value of vigilance, as in neighbors looking after each other's property and keeping an eye on strangers in the neighborhood, is likely to foster a sense of safety.

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Neighborhood Design and Quality of Life in Saskatoon

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Synonyms

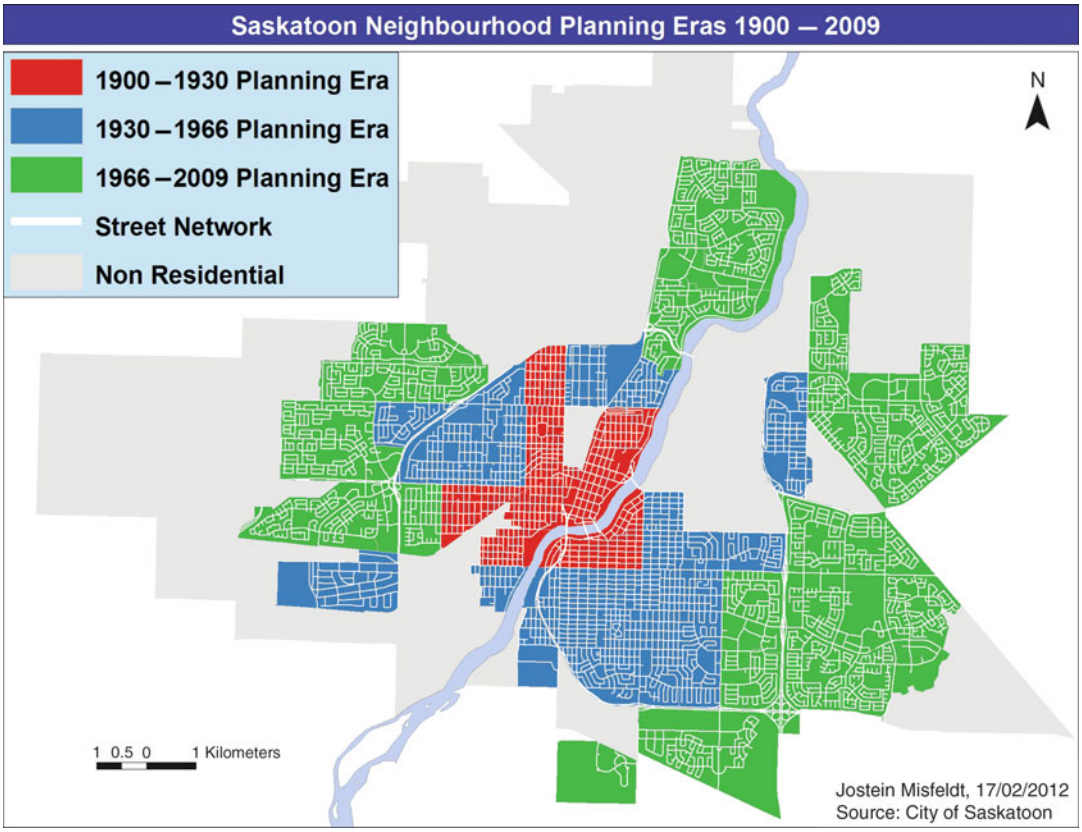
Saskatoon built environment

Definition

Safety in the context of neighborhood design refers to protection from crime against a person and against property for members of a neighborhood.

Description

Quality of life indicators describe people's subjective interpretations of their experiences in a given community and provide a context for the choices citizens make every day. Safety, defined as safety from crime against a person and property crimes for the purposes of this entry, is a key quality of life indicator that contributes to a citizen's engagement in his or her community, including making choices related to healthy behaviors. For example, perceptions of safety may influence the choice that a mother makes when deciding whether she will allow her children to walk or bike to school or whether she will drive them. This is important in that it has health implications for children, who benefit greatly from the adoption of active lifestyles, which would include walking or biking instead of being driven to regular activities.



Neighborhood Design and Quality of Life in Saskatoon, Fig. 1 Map of Saskatoon by planning era (Smart Cities, Healthy Kids, 2012)

While crime poses a multitude of threats to the well-being of parents and children, the perception of the immediate severity of these threats may not necessarily reflect the actual statistics on safety. For example, although national police-reported crime has been steadily decreasing since the early 1990s in both severity and frequency, with 2010 levels being the lowest since the early 1970s (Brennan & Dauvergne, 2011), quality of life research done in Saskatoon shows that safety from crime still ranks as a primary concern for citizens (Chopin, Holden, Muhajarine, & Popham, 2010). This may be due to the fact that the city historically has one of the higher crime rates recorded in Canada (Dauvergne & Turner, 2010).

Neighborhood design contributes greatly to both perceptions of safety from crime and actual safety. When measuring safety in neighborhoods, researchers assess the presence or absence of attributes such as well-maintained alleys, sidewalks, and paths; graffiti, litter, and discarded needles; spaces that could be used for lurking; and people on the street who can provide natural surveillance. Since the founding of the city in 1906, city planning in Saskatoon has resulted in neighborhoods with four distinct designs, some of which feature design elements that are perceived as safer than others (see Fig. 1).

In this entry, we will look at safety from crime in Saskatoon neighborhoods from three distinct perspectives:

- Perceived neighborhood safety measured by quality of life research
- Potential neighborhood safety measured using observational inventory surveying
- Reported crime statistics by neighborhood

The differences between what people *perceive* as unsafe, what researchers *observe* as potentially

unsafe, and what the statistics show about *actual crime rates* raise interesting questions for researchers to explore further, give policymakers a broad-based understanding of the state of safety in Saskatoon, and could inform future planning directives to build safer communities.

History of Neighborhood Design in Saskatoon

Formed in 1906 to unite three districts surrounding the South Saskatchewan River into one city, Saskatoon, Saskatchewan has undergone considerable growth in the century since and utilized various neighborhood design philosophies that can be separated into several eras of neighborhood planning, as shown in Fig. 1. From 1906 to 1930, neighborhoods were designed with 25-ft lot widths for houses and roads arranged in a grid pattern, with a high degree of mixed land use and cross-cutting alleyways. With the introduction of Saskatoon's first zoning bylaw in 1930, the typical neighborhood design shifted to a fracture grid pattern (a mix of grid and curvilinear streets) signaling a new era of neighborhood planning and development that lasted from 1930 to 1966. In 1966, with the City of Saskatoon's establishment of a Community Planning Scheme, the concept of a Suburban Development Centre was introduced into neighborhood planning. This concept focused on creating neighborhoods with curvilinear streets and larger sprawled-out residential corridors surrounding a central commercial hub. In 1998, in order to mitigate the effects of what was now identified as urban sprawl, the City of Saskatoon modified the Community Planning Scheme, introducing a modified grid pattern which enabled continuing use of curvilinear street design while also featuring the density, connectivity, and diversity of the grid pattern (Muhajarine & SCHK, 2011).

Perception of Neighborhood Safety Measured by Quality of Life Research

Exploring the lived experience of citizens gives researchers insight into why people make certain life choices over others and what contributes to the overall well-being of communities. Saskatoon has been the subject of several quality of life research studies, the largest of which was undertaken by the Community-University Institute for Social Research (CUISR), who published a survey of their decade-long mixed-methods studies conducted between 2001 and 2010 (Chopin et al., 2010). This research is extensively documented elsewhere (http://www.usask.ca/cuisr/); briefly, the approach consisted of three sequenced stages:

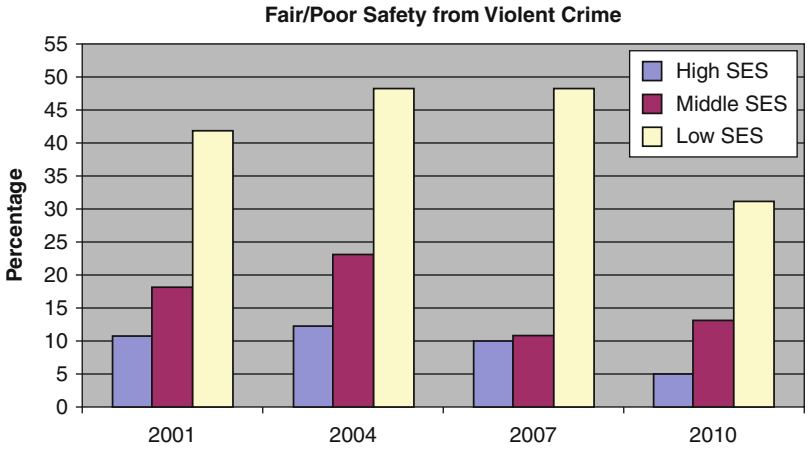
Stage 1 involved surveying 1,000 Saskatoon residents randomly drawn from three neighborhood clusters representing high, middle, and low socioeconomic status neighborhoods.

Stage 2 featured in-depth face-to-face interviews with a subsample of participants from the survey. These interviews explored personal quality of life concerns, as well as neighborhood and city issues in Saskatoon.

Stage 3 involved focus groups and participant groups selected for their possible underrepresentation in the survey and/or based on themes or topics of special and timely interest related to quality of life. For example, focus group interviews were held with participants drawn from marginalized socioeconomic or cultural communities, core (low socioeconomic) or urban youth, disabled people, recent immigrants, Aboriginal people, and single parents. This qualitative data focused on specific concerns of underrepresented groups and how their issues pertain to quality of life in Saskatoon in general.

A key finding from Saskatoon's quality of life studies is the persistent and increasing income gap at the neighborhood level and how this shapes both quality of life and determinants of quality of life in Saskatoon. Though safety is a common concern among all neighborhoods, perceptions of safety varied by the socioeconomic status level of neighborhoods.

This research showed that a far greater proportion of low socioeconomic status neighborhood residents consistently reported



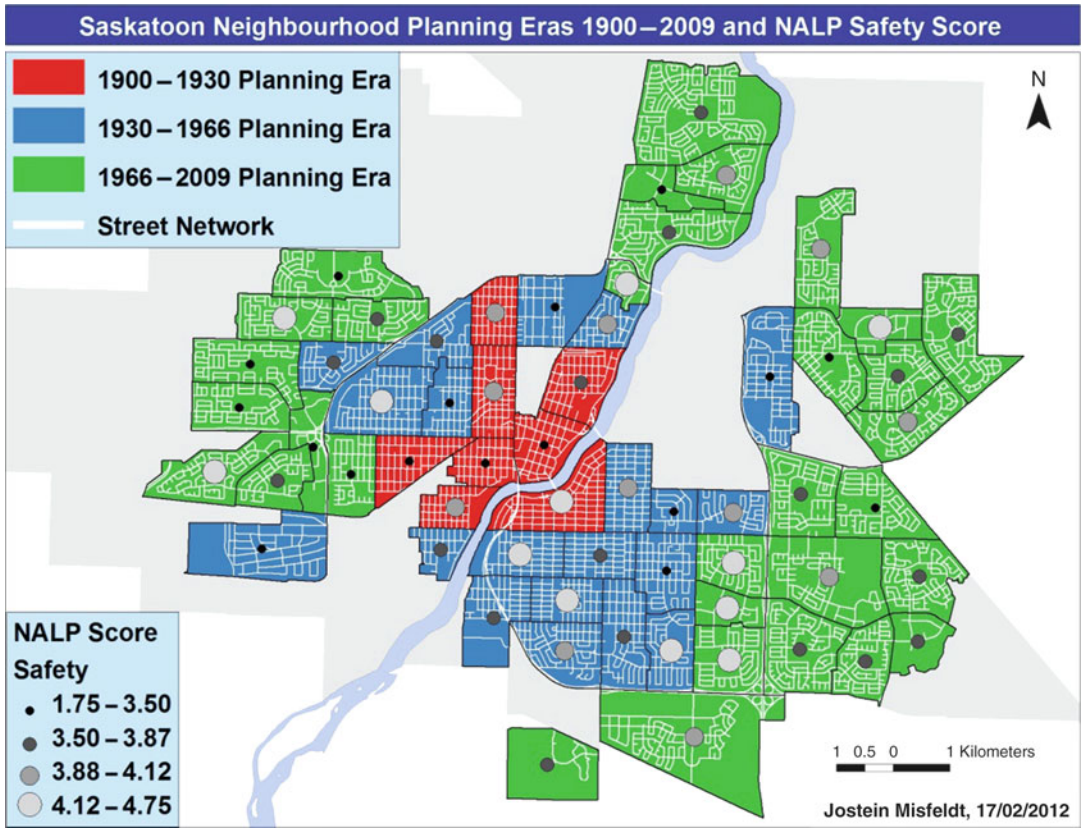
Neighborhood Design and Quality of Life in Saskatoon, Fig. 2 Fair/poor safety from violent crime by neighborhood group (Chopin et al., 2010)

Neighborhood Design and Quality of Life in Saskatoon, Fig. 3 Fair/poor safety from property crime by neighborhood group (Chopin et al., 2010)

"fair/poor" safety from violent crime as well as from property crime than the proportions in middle or high SES neighborhoods (see Figs. 2 and 3). However, the results available for the most recent survey year show a marked improvement in the proportion of residents in low socioeconomic status neighborhoods indicating that they felt unsafe in their neighborhoods.

When residents participating in qualitative studies were asked to elaborate on safety, much more nuance was revealed. Many high socioeconomic status neighborhood residents reported that they believed high crime, homelessness, and prostitution would lead to diminishing community cohesion in low socioeconomic status neighborhoods. They also felt that these neighborhoods were dangerous overall.

Contrary to this, low socioeconomic status residents, though recognizing the higher safety risks in their neighborhoods, reported that because people are taking more pride in the neighborhood and are looking out for each other's safety, safety is improving. In fact, residents living in low socioeconomic status neighborhoods reported that there was improvement in community cohesion and pride: Getting to know people in the neighborhood helped these respondents feel safer in their community, while this was less emphasized in the high socioeconomic respondents.



Neighborhood Design and Quality of Life in Saskatoon, Fig. 4 Saskatoon neighborhood planning eras 1900–2009 and NALP safety score (Smart Cities, Healthy Kids, 2012)

One high socioeconomic status neighborhood respondent showed that this fundamental lack of *perspective* by this population is not necessarily borne out of ambivalence or apathy but rather is the result of ignorance:

> There is a real divide, the river divides our city and somehow we need to break down the barrier. We need some understanding of their lives.

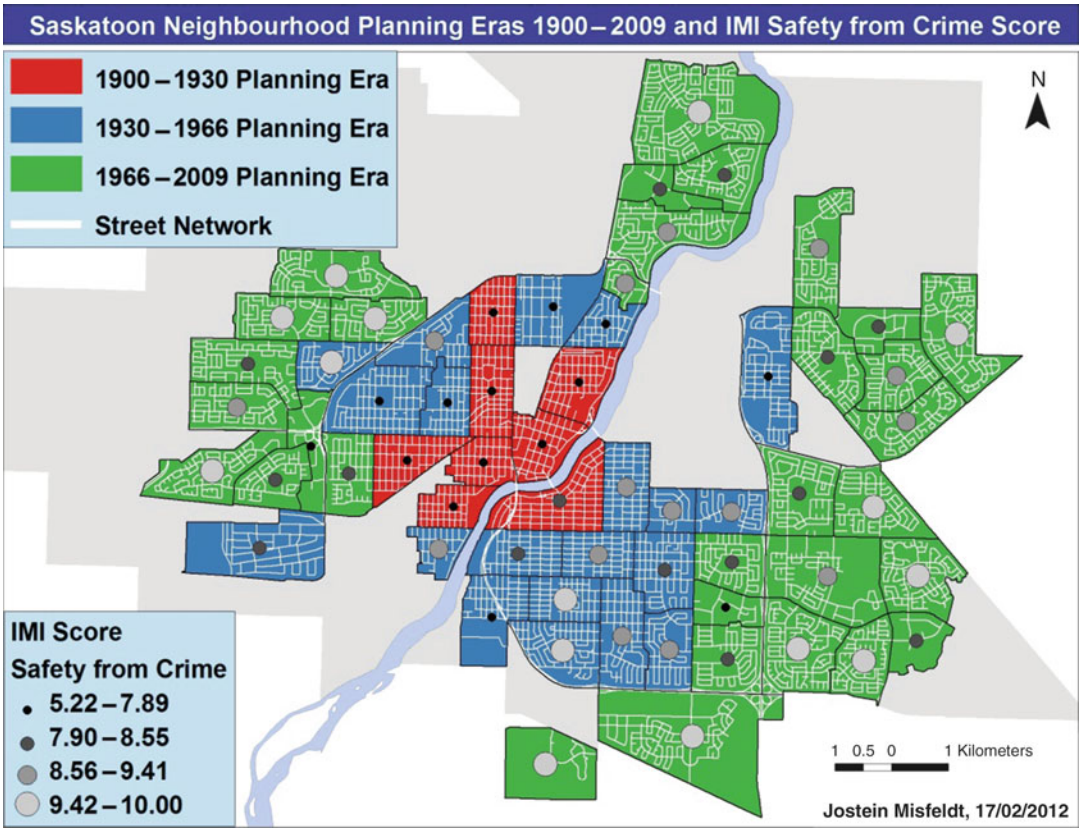
Graffiti, decrepit housing, and lack of well-maintained parks and facilities for community activities were neighborhood design elements cited by inner-city (low socioeconomic) neighborhood youth as contributors to their perceptions of personal and public safety. These variables are indeed among many physical elements used in standardized observational surveys to assess neighborhood safety.

Potential Neighborhood Safety Measured Using Observational Methods

To get a cross-sectional picture of the physical and built environments of Saskatoon, Muhajarine et al. (Smart Cities, Healthy Kids, 2012) observationally assessed 60 neighborhoods in Saskatoon using modified versions of the Neighborhood Active Living Potential (NALP) and Irvine-Minnesota Inventory (IMI) surveys. Safety from crime and safety from traffic were among the items and domains measured. Results indicated that, generally, newer neighborhoods scored higher in general safety and safety from crime (see Figs. 4 and 5).

Reported Crime Statistics by Neighborhood

Publicly available data show that reported crimes against persons, as well as crimes against



Neighborhood Design and Quality of Life in Saskatoon, Fig. 5 Saskatoon neighborhood planning eras 1900–2009 and IMI safety from crime score (Smart Cities, Healthy Kid, 2012)

property, both by neighborhood, were markedly higher in low income neighborhoods in 2011 (CommunityView, 2012). These trends in reported crime are consistent with both perceived notions of crime and measured crime potential (NALP/IMI) reported above.

Citywide Perception Versus Reality

It is important to note that though there are differences in crime perception and reported crimes between socioeconomic classes of neighborhoods, a 2012 province-wide study of Saskatchewan residents shows that Saskatonians as a whole are overall highly sensitive to reports on crime. From a survey of 1,750 Saskatchewan conducted by the University of Saskatchewan, 34 % of Saskatoon residents thought that crime has increased in the last 3 years, 48 % thought it stayed to same, and 13 % thought it has dropped. The Saskatoon Star Phoenix reports that in reality, there has been a 9 % decrease in criminal charges and charges against youth have dropped 6 %, between 2008 and 2011 (French, 2012).

Designing Cities with Safety in Mind: Crime Prevention Through Environmental Design and Local Area Planning

It is difficult to overstate the importance of safety when discussing quality of life. The threat of harm is a profound arbiter of mental, physical, and emotional health and has implications in our understanding of sociological forces of power, gender, and social justice. Unearthing the nuances of "safety" at an urban, neighborhood level is a feasible way to understand how to

address the crime, with solutions that may apply to urban communities around the world.

This article focused on findings specifically regarding the physical-environment aspect of safety in Saskatoon. The congruity across the data indicates that safety is dependent on socioeconomic status, as well as to a large extent, the physical design of neighborhoods. Other cities have set precedents for the revitalization of their neighborhoods. One example involves the employment of the Crime Prevention Through Environmental Design (CPTED) principles.

Crime Prevention Through Environmental Design (CPTED) is a design framework introduced in 1971 and refined since, which has been shown to be effective in reducing actual and perceived crime rates through designing around six domains: territoriality, activity upport, surveillance, neighborhood image/maintenance, target hardening, and access control (Cozen, Saville, & Hillier, 2005).

Among the features of CPTED design are mixed land use that encourages positive activity at night, pedestrian environments that promote natural surveillance, strategically placed entrances and exits to neighborhoods, improved neighborhood image, community programming that supports safe activities, and the removal of known crime generators such as pawn shops and liquor stores. While CPTED principles are not required for development, Saskatoon's official community plan (OCP) encourages them (City of Saskatoon, 2011).

Another OCP feature is local area plans (LAPs). These are community-based, long-range plans aimed at renewing older neighborhoods. Historically, these neighborhoods focused on a main street central to interaction among residents, with commercial services in walking distance. Over time, these commercial areas declined as commercial activity moved elsewhere.

The aim of the LAPs is to preserve the historic feel of these areas but at the same time revitalize them so that they become vibrant commercial and communal hubs once again. The plans emphasize community involvement, collaborative decision-making with citizens, and neighborhood development planning that springs from the ground up.

Cross-References

- Neighborhood Active Living Potential (NALP)
- Neighborhood Characteristics and Children's Safety
- Neighborhood Perceptions
- Urban Design

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Neighborhood Disadvantage

▶ Neighborhood Disorder

Neighborhood Disorder

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Synonyms

Community disadvantage; High-risk neighborhoods; Neighborhood disadvantage

Definition

Neighborhood disorder refers to observed or perceived physical and social features of neighborhoods that may signal the breakdown of order and social control, and that can undermine the ▶ quality of life. Social disorder can be exemplified by behaviors in public places such as people drunk or taking drugs on the streets, drug dealing, hostile arguing, conflict and fighting, people loitering, rowdy groups and gang activity, street prostitution, and other cues such as high levels of police activity. Vacant or abandoned housing, vandalized and run-down buildings, abandoned cars, graffiti, and litter in the streets can exemplify physical disorder (Sampson & Raudenbush, 1999; Skogan, 1990; Taylor, 2001; Wilson & Kelling, 1982).

Description

The concept of neighborhood disorder can be traced back to social disorganization theorists from the Chicago school of urban sociology, and the idea that structural characteristics of neighborhoods (e.g., ▶ poverty, residential instability, ethnic diversity) can undermine social control and facilitate crime, and other negative outcomes (e.g., Park & Burgess, 1925; Sennett, 1970; Shaw & McKay, 1942; Wilson, 1987; Wirth, 1938). ▶ Fear of crime, ▶ delinquency and crime rates, reporting crime, confidence in police, neighborhood decay and disadvantage, concentrated social problems, ethnic and racial segregation, health, and overall ▶ well-being are among the issues linked to the concept of neighborhood disorder (e.g., Diez-Roux & Mair, 2010; Gracia & Herrero, 2006, 2007; Perkins & Taylor, 1996; Perkins, Wandersman, Rich, & Taylor, 1993; Ross & Mirowsky, 2001, 2009; Sampson, Raudenbush, & Earls, 1997; Sampson & Wilson, 1995; Skogan, 1990; Taylor, 1997, 2001; Wilson & Kelling, 1982). This reflects the popularity and wide appeal of the concept to a disparate number of disciplines (e.g., sociology, criminology, public policy, public health, epidemiology, environmental psychology, or social psychology).

Particularly influential in the popularity of disorder or incivilities models (Hunter, 1985; Skogan, 1986, 1990; Wilson & Kelling, 1982) was the "Broken Windows Theory" (Wilson & Kelling, 1982). For Wilson and Kelling (1982), even minor cues of disorder, such as unrepaired broken windows, could lead to further disorder, fear, and crime. According to this thesis, physical and social cues of neighborhood disorder would signal the breakdown of formal and informal social controls. As neither residents nor external agencies (e.g., police and other authorities) are able or willing to intervene and maintain social order, more disorder is facilitated, and criminal activity is attracted. According to disorder models, neighborhood disorder would also trigger a number of community processes that contribute to social disorganization and neighborhood decline (Skogan, 1986, 1990). The sense of fear, insecurity, and mistrust leads residents to disinvest in and withdraw from community life, diminishing residents' capacity for collective action and informal control and deteriorating ▶ community life. This promotes out-migration for residents and businesses (with associated job loss), prevents new residents and businesses to move in, and increases neighborhood deterioration, decline, and crime.

Another reason explaining the wide influence of disorder or incivilities models based in "broken windows" was that it gave law enforcement authorities a basis from which to design public control policies and guide police practices (Kelling & Coles, 1996). The idea was that by reducing or eliminating visible signs of disorder, urban police departments could make significant reductions in crime. Broken windows explanations of crime and other negative outcomes, its empirical predictions, and its implications for policing policies have been, however, questioned (Harcourt, 2001; Sampson & Raudenbush, 1999, 2004; Taylor, 2001). For example, regarding the link between observed disorder and crime, research has found no differences in crime rates between high- and low-disorder neighborhoods once other variables are controlled for (i.e., collective efficacy and structural antecedents). In this regard, both disorder and crime have been considered as outcomes that can be explained by other community characteristics - for example, concentration of disadvantage - and processes - for example, ▶ collective efficacy (Sampson et al., 1997; Sampson & Raudenbush, 1999).

Disorder models based in broken windows relies mainly on objective and unambiguous cues of disorder, assuming the equivalence between external and perceived signs of disorder. Empirical tests of this assumption, however, have not always been supportive (Perkins et al., 1993; Sampson & Raudenbush, 2004; Taylor, 2001). Questioning "broken windows" assumptions, a growing body of literature emphasizes the socially constructed nature of perceived disorder. It is not just the presence of signs of disorder that is important but also their meaning for the individual and the collective, a meaning that is shaped by much more than actual disorder (Sampson & Raudenbush, 2004; Sampson, 2009). For example, Sampson and Raudenbush (2004) showed that perceptions of disorder were also shaped by neighborhoods' racial, ethnic, and socioeconomic composition, and that these structural characteristics were more powerful predictors of perceived disorder than observed disorder. Perceptions of disorder appear to be contingent, influenced by personal and structural factors, and shaped also by shared racial stereotypes and neighborhood ▶ prejudices (i.e., stigmatized or disrepute areas). From this viewpoint, as Robert Sampson argues (2009; Sampson & Raudenbush, 2004), it is perceptions of disorder, rather than observed disorder, that matters. First, because people act on their perceptions, perceptions of disorder may influence decisions of, for example, residents (actual or prospective), law enforcement authorities, potential offenders, investors, urban planners, or policy makers; second, if shared perceptions of disorder carry stereotypes and stigmatizing views, it can contribute to social differentiation (i.e., ethic and economic segregation) and the reproduction of social inequality at the neighborhood level; and third, if perceptions of disorder are socially mediated, change is then possible, and therefore, it may become a potential target for intervention (Sampson, 2009).

Violence, delinquency and crime-related outcomes, urban decline, concentration of disadvantage and minority groups, and public control strategies have been traditionally the main subject matter of theoretical discussions and research on neighborhood disorder. More recently, however, a growing body of research has also emerged examining neighborhood disorder as an important determinant of ▶ health and psychological well-being. A number of studies have linked perceived neighborhood disorder to psychological ▶ distress (e.g., Hill, & Angel, 2005; Latkin & Curry, 2003; Ross & Mirowsky, 2001, 2009; Ross, Mirowsky & Pribesh, 2001). According to Ross and Mirowsky (2001, 2009), the subjective experience of disorder may foster negative views of human nature and social relations (e.g., people are untrustworthy, and life is beyond personal control), leading to feelings of isolation and powerlessness that in turn may promote feeling of anxiety, anger, and depression. It is also argued that psychological, behavioral, and physiological responses to disordered environments perceived as threatening and dangerous can undermine health – for example, avoidance of physical activity and negative coping behavior such as heavy drinking, symptoms of autonomic arousal, or altered serum cortisol levels (Dulin-Keita, Casazza, Fernandez, Goran, & Gower, 2012; Hill & Angel, 2005;

Hill, Ross, & Angel, 2005). However, evidence regarding relations between neighborhood disorder and health outcomes is still scant, and a number of conceptual, theoretical, and methodological challenges remain (Diez-Roux & Mair, 2010; Kawachi & Berkman, 2003; Sampson, 2009; Sampson, Morenoff, & Gannon-Rowley, 2002).

Cross-References

- ▶ Community QOL Measures
- ▶ Community Well-Being Index
- ▶ Neighborhood Perceptions
- ▶ Neighborhood Effects
- ▶ Social Cohesion
- ▶ Social Indicators
- ▶ Urban Areas
- ▶ Urban Ecology

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Neighborhood Effects

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Synonyms

Community effects

Definition

Neighborhood effects refer to (a) the processes by which various neighborhood conditions influence the well-being of residents collectively or individually or (b) outcomes associated with negative neighborhood conditions.

Description

Current interest in neighborhood effects is most often attributed to the excitement generated by the research and theoretical foundations of Shaw and McKay (1942), and Shaw, Zorbaugh, and McKay (1929). Shaw and McKay's publications, like earlier works, documented the coexistence of several negative ▶ social indicators such as concentrated ▶ poverty, ▶ crime and ▶ delinquency, family disruption, infant mortality, and ▶ child abuse in some neighborhoods. More importantly, they noted that rates of ▶ residential mobility and levels of ethnic or cultural diversity, primarily high concentrations of immigrants, differentiated neighborhoods with concentrated poverty that also exhibited other negative social indicators from those that did not. ▶ Residential mobility or instability and ▶ cultural diversity among residents made it very difficult for those in economically disadvantaged neighborhoods to develop strong social networks within the neighborhood that would allow residents to come together to prevent or overcome shared problems. Social disorganization, a concept related to social control (Bursik, 1988), was the label given to the inability of community residents to come together to achieve common goals, and this term became the foundation for social (dis)organization theory which dominated research on neighborhood effects in the last third of the twentieth and early twenty-first centuries.

In recent decades, much of the advancement in theoretical and empirical understanding of neighborhood effects has been led primarily by the work of Robert Sampson and colleagues (Sampson, 1999, 2001; Sampson, Raudenbush, & Earls, 1997) on social disorganization theory. This work has shown that neighborhood disadvantage, typically represented by multiple census indicators (e.g., rates of families in poverty, female headed single parent households, unemployed males), ▶ residential mobility, and ethnic/cultural diversity, account for much of the difference between neighborhoods in the rates of violence or ▶ delinquency as well as individual risk for delinquency and violent offending. Perhaps more importantly (Sampson, 1999, 2001; Sampson et al., 1997), it has identified mechanisms through which neighborhood-level sociodemographic factors influence ▶ crime and other problems. Thus, high levels of neighborhood disadvantage,

► residential mobility, and ethnic/cultural diversity have been shown to undermine the development of social networks within a community. When considering children, this also means lower levels of reciprocal exchange, social interactions related to shared child care, and intergenerational closure, parents knowing the parents of their children's friends and playmates, two processes that commonly contribute to building social support networks among neighbors. The reduction in social networks, in turn, contributes to lower levels of ► collective efficacy, a combination of mutual trust among residents and their willingness to share responsibility for controlling public behavior of adolescents and generally work for the good of the neighborhood. This chain of events then leads to low levels of social organization, the degree to which neighborhoods are able to achieve shared goals including maintaining social controls that limit misbehavior among residents. (Note: Much of the writing on neighborhood effects refers exclusively to neighborhood disorganization instead of organization.)

Empirical examinations of social disorganization theory clearly support the thesis that social characteristics vary systematically with ► personal well-being across neighborhoods (Bursik, 1988). In most cases, the influence that neighborhood context has on various indicators of well-being is, however, expected to be indirect (Leventhal & Brooks-Gunn, 2000). Social disorganization theory, and associated empirical work, identified key neighborhood-level processes mediating the association between neighborhood organization and resident well-being. Later scholars suggested examining both mediators and ► moderators of neighborhood effects at multiple levels, including, for example, the neighborhood, the family, the peer group, and the individual (Leventhal & Brooks-Gunn, 2000). Such examinations were supported by advances in ► multilevel modeling, the statistical procedure necessary for analyzing data that otherwise do not meet the common assumption of independence because of nesting at various levels (Raudenbush & Bryk, 2002). Increasingly, models and theories were presented and refined to understand and study the processes, beyond those specified by social disorganization theory, through which neighborhood risk influenced individual outcomes in diverse domains, including educational attainment, labor market success, sexual behavior, mental health, physical health, and ► crime.

Some more recent models conceptualize neighborhoods as a source of perceived ► stress to residents (Aber, 1994; Conger, Conger, & Martin, 2010; Roosa, Jones, Tein, & Cree, 2003). In the transactional model (Roosa et al., 2003), residents subjectively interpret objective neighborhood conditions (e.g., neighborhood disadvantage) and also actively respond to neighborhood-level processes (e.g., collective efficacy). Further, families may respond to members' perceptions of the neighborhood with changes in family-level processes, such as parenting quality, family cohesion, and marital relationship quality. Individual characteristics can also play a mediating role (e.g., coping strategies, daily hassles, ► stressful life events), as can peer groups (e.g., deviant peer interactions). In essence, work by Leventhal and Brooks-Gunn (2000) expanded on social disorganization theory's focus on neighborhood-level mediators to include family, peer-group, and individual-level mediators of the association between neighborhood quality and resident well-being.

Both the transactional model (Roosa et al., 2003) and the work of Leventhal and Brooks-Gunn (2000) recognized the potential for moderation: wherein the impact that neighborhood-level characteristics or processes have on outcomes is conditional on some other variable. ► Moderators that have been examined include individual characteristics (gender, nativity, language spoken), family characteristics (e.g., family structure), and neighborhood characteristics (e.g., neighborhood cultural orientation). Further, both the transactional model (Roosa et al., 2003) and the person-environment fit perspective (Lerner, 1983) emphasize the interactive nature of individuals and neighborhoods. The former recognizes that both individual and collective actions of residents influence the quality of the neighborhood

(Roosa et al., 2003). The latter framework highlights that resident adaptation depends upon characteristics of the context, of the individual, and the relation between the two: positing that individual resident adaptation may depend largely on the match between individual and contextual characteristics (Lerner, 1983).

We anticipate that researchers will continue examining how the qualities of neighborhoods affect the quality of life of residents, with increasing attention given to racial/ethnic groups other than the almost exclusive focus on European Americans and African Americans to date. Advances in neighborhood research will involve refinements to both theory and methodological approaches. Improvements in both objective (e.g., census data) and subjective (e.g., perceptions of neighborhood) indicators of neighborhood quality would strengthen future tests of models of neighborhood effects. Similarly, spatially defining neighborhoods consistent with residents' experiences offers an improvement to the common practice of relying on census-defined geographic boundaries that may not reflect the geographically permeable network of local social ties and associations of more modern neighborhoods (Sampson, 2001). Similarly, improvements in understanding how individuals react to neighborhood qualities or events may come about through the use of biological and neurological mediators such as blood pressure, cortisol assays, and brain scans. Finally, we expect that longitudinal studies of neighborhood effects on developmental processes may be one of the most likely ways to stimulate theoretical advancements in explaining the processes through which neighborhood effects work.

Cross-References

- ▶ Child Abuse
- ▶ Collective Efficacy
- ▶ Crime
- ▶ Cultural Diversity
- ▶ Delinquency
- ▶ Immigrants, an Overview
- ▶ Moderators
- ▶ Neighborhood Characteristics and Children's Safety
- ▶ Neighborhood Perceptions
- ▶ Personal Well-Being
- ▶ Person-Environment Fit Theory
- ▶ Poverty
- ▶ Residential Mobility
- ▶ Social Indicators
- ▶ Stressful Life Events
- ▶ Subjective Indicators
- ▶ Unemployment

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Neighborhood Green Spaces

▶ Nature and Well-Being

Neighborhood Involvement

▶ Neighborhood Participation

Neighborhood Participation

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Synonyms

Neighborhood involvement

Definition

The defining characteristic of "neighborhood participation" is as simple as it sounds: collaborating with those who live in your neighborhood, to increase the quality of life in your community, both social and physical.

Description

Everyone lives in a neighborhood. Whether you reside in a suburban detached home with a two-car garage, or a small urban apartment, or in a rural farmhouse, we all have neighbors and we all can play a role in shaping the future of our communities.

Neighborhood participation can take many forms. At the highest level of engagement, citizens can take part in electoral politics, sit on issue-based committees, take a leadership role in a local residents group, or join the advocacy efforts of a nonprofit organization. In the ▶ United Kingdom, this citizen involvement is often referred to as "the new localism" (Gaventa, 2004).

But there are also smaller ways to get involved, and these are just as important. For example, organizing a street party for you and your neighbors is a great way to build community and strengthen the social ties in your neighborhood. Advocacy can also come in small packages: advocating for a speed bump, for example, or a stop sign.

There are many benefits of active participation. For the ▶ community, the benefits of an engaged population include an increase in safety, innovation, ▶ social cohesion, creativity, and informed, sustainable design. For the individual, it is an act of ▶ empowerment to take an active role in shaping your neighborhood and increases the ▶ quality of life by introducing a ▶ sense of community and collaboration. The Strong Neighbourhoods Task Force of Toronto defines these community-building social relationships as one of the three interconnected dimensions of a strong neighborhood. The other two are a dimension related to "place," such as an active street life, and a dimension related to both social relationships and "place," such as safety (Freiler, 2004).

As our cities grow in size, it can become increasingly difficult to participate. The relationship between citizens and politicians has become more distant, as the sizes of electoral districts have grown. Newer suburban developments also hinder participation, by encouraging motorized mobility, rather than walking, biking, or transit – all of which are more social in nature. Therefore, it's important that we actively encourage participation and create accessible avenues of participation.

Some cities in North America have invested significant resources into facilitating neighborhood participation. Los Angeles, for example, has a municipal office called the "Department of Neighborhood Empowerment" (or DONE), which supports 90 elected neighborhood councils across the city. Portland has an "Office of Neighborhood Involvement" supporting 95 neighborhood associations.

In New York City, there are 59 community boards, whose members are appointed. These boards deal with local planning and design issues, allowing citizens to be directly involved with city building. Many municipalities also have issue-based citizen advisory panels that focus on topics such as cycling, pedestrian safety, accessibility, human rights, and ▶ environmental sustainability.

The concept of neighborhood participation often has a negative reputation, described as NIMBY (Not In My Back Yard) or CAVE (Citizens Against Virtually Everything). It's possible that these circumstances of neighborhood opposition, rather than proposition, are in fact a symptom of a population disengaged from decision making. When citizens are excluded from the planning process, and only "consulted" as a formality after plans are already finished, they are likely to be opposed to the change. However, if these same citizens are actively involved in the decision-making process – from the beginning – they can be transformed into creative collaborators.

Another opportunity for neighborhood participation is through participatory budgets, which allow residents to vote directly on local municipal expenditures that affect their community. Quite popular in South America, participatory budgeting is starting to take hold in the USA as well, with pilot projects taking place in both Chicago and New York City. The exercise is both empowering and educational for those citizens who participate.

Other small ways to participate in your neighborhood include ▶ volunteering for a charity, getting involved with a faith-based group, participating in a fund-raiser for a social cause, meeting with your local councilor, contributing to a community garden, or simply inviting your neighbors over for tea. The more connected we are to our neighbors, the more empowered we are collectively to shape our communities. Engaged communities have a louder voice and are more likely to be heard within the corridors of the city hall. As "participants" in our neighborhoods, rather than simply "residents," we cultivate a shared sense of inclusion and possibility.

Cross-References

- ▶ Community Capacity Building
- ▶ Community Festivals
- ▶ Community Participation
- ▶ Community Support
- ▶ Neighborhood Characteristics and Children's Safety
- ▶ Neighborhood Effects
- ▶ Neighborhood Perceptions
- ▶ Participation in Community Organizing

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Neighborhood Perceptions

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Synonyms

Community perceptions; Neighborhood well-being; Quality of place

Definition

Perceptions of neighborhoods include perceptions of social contexts and personal well-being and the condition of the built and natural environment. Neighborhood perceptions are also concerned with defining the spatial extent of neighborhoods.

Description

This discussion of neighborhood perceptions will focus on the case study of Durban, South Africa, where quality of life surveys have been undertaken since 1998 (O'Leary, 2007).

The case study of Durban needs to be read in the following historical context. The attainment of democracy in 1994 brought equal rights and freedom for all South Africans. However, due to discriminatory development during apartheid, not all South Africans were on equal socioeconomic terms in 1994 (O'Leary, 1999). The postapartheid development agenda included the delivery of infrastructure and social services to deprived areas and has focused strongly on employment equity.

In 1996, the local government council in Durban adopted a developmental vision, which included the statement "with its residents living in acceptably serviced housing, and with a generally high ▶ Quality of Life that can be sustained." This aspect of the vision provided the motivation to undertake this research.

The Quality of Life Project in Durban is owned and driven by ▶ local government and therefore to undertake research on residents' perceptions of their neighborhoods is essentially a customer satisfaction exercise.

This research intended to avoid the tendency to equate progress in service delivery with the quantity of additional units of services delivered to an area. Wee (2000) has raised the concern that objective indicators of the quality of a place are not sufficient to reflect the quality of life in a locale.

Wong (2000), in analyzing the relationship between local economic development and quality of life, found that ensuring that the traditional factors of production are in place is necessary for local economic development but that quality of life factors are essential for successful economic development.

In response to this concern that objective and subjective domains should be researched, the experiences of the South African Quality of Life Trends Project (Møller, 2007) and the Detroit Area Study (Marans & Couper, 2000) were drawn on.

The pilot phase of the project used focus group workshops and in-depth and structured interviews in order to determine the key issues of residents. As in the Sustainable Communities Program (Grunkmeyer & Moss, 2002), this pilot research set out to discover the relevant objective and subjective factors through dialog with communities.

Following the pilot survey the questionnaire was modified to ensure that issues important to communities and to local government service providers were accommodated.

Broadly speaking, this research undertakes residents' assessment of the quality of neighborhoods and their satisfaction with life domains.This serves as a means by which local government can assess how satisfied their customers are and which interventions can maximize neighborhood improvements. The following sections are contained in the questionnaire:

Household socioeconomic status:

- Dwelling type; family structure; age, education, employment status, transportation, basic necessity affordability, and household income

Housing and home improvement:

- Tenure, dwelling satisfaction, and home improvements

Household services and billing:

- Level of and satisfaction with basic household services, household assets, municipal consultation with communities, general municipal efficiency, and accessibility and efficiency of the municipal billing system

Neighborhoods:

- Rating of the features of neighborhoods, rating of public amenities, and improvement and deterioration of neighborhoods

Personal well-being:

- Satisfaction with subjective domains of life, blockages to employment, economic outlook, safety and crime, sense of belonging, leisure, every day problems, and health

Transportation:

- Trip time, traffic congestion, condition of roads, and satisfaction with public transport

Perceptions of the city:

- Rating of municipal achievement of vision statement and optimism that Durban will become a leading world city

When administering such a questionnaire in the field, one must account for the fact that perceptions of the extent of neighborhoods by residents can vary from the extents defined by census tracts and town planning schemes (Coulton, Jill Korbin, Chan & Su, 2001). Coulton et al. (2001) have observed that the maps drawn by residents of neighborhood boundaries vary from the census tract definition of the neighborhood. The result of this boundary mismatch is that the social indicator values can vary between the neighborhood as defined by the residents and between the neighborhood as defined by the census tract. It is therefore necessary that sample and questionnaire design minimizes boundary mismatch.

Cross-References

- ▶ Community-Based Planning
- ▶ Community Cohesion
- ▶ Community Diversity
- ▶ Community Participation
- ▶ Community QOL Measures
- ▶ Community Satisfaction
- ▶ Community Well-Being Index
- ▶ Neighborhood Change
- ▶ Neighborhood Effects
- ▶ Neighborhood Participation
- ▶ Neighborhood Well-Being
- ▶ Sample

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Neighborhood Planning

- ▶ Community-Based Planning
- ▶ Neighborhood Change

Neighborhood Problems Index

- ▶ Index of Neighborhood Problems

Neighborhood Regeneration

- ▶ Neighborhood Change

Neighborhood Safety

► Neighborhood Characteristics and Children's Safety

Neighborhood Segregation

► Infant Well-Being, Segregation, and Race

Neighborhood Unit

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Synonyms

NUC

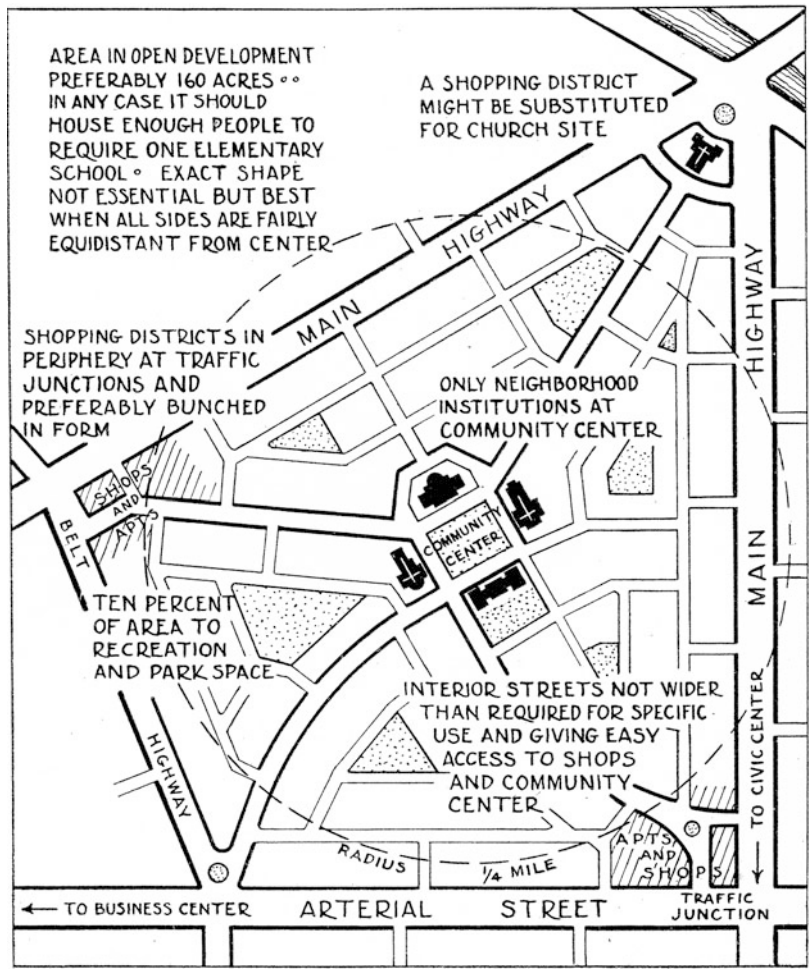
Definition

The neighborhood unit, or neighborhood unit concept (NUC), is a residential design model, credited to Clarence A. Perry, for a neighborhood population of about 5,000–9,000 residents, with school, places of worship, and recreational areas at its center. Commercial uses were relegated to the perimeter of the neighborhood along arterial streets which defined the boundaries of the neighborhood. Pedestrians were able to move freely along interior curvilinear streets without interference from high-speed vehicular traffic. The model, utilizing curvilinear streets, accentuated a break with the traditional neighborhood grid-pattern street system of the early 1900s. Through his model, Perry hoped to encourage ► social interaction and cohesion among residents living in the defined neighborhood.

Description

The neighborhood unit, introduced in the early 1920s, represented the ideal residential neighborhood as a physically defined unit, with school, places of worship, and recreational areas at its center. The architect of the neighborhood unit, Clarence Arthur Perry (Fig. 1), proposed that the 160-acre neighborhood be developed at 10 units per acre, producing sufficient population to support an elementary school. Moreover, the design allowed residents to walk no more than a quarter mile to reach these features and nearby commercial areas – all without having to cross an arterial street. Additionally, interior curvilinear streets accentuated the neighborhood unit's break with the traditional urban grid system, while arterial streets were relegated to the perimeter. An early application of the model is found at Radburn, NJ, developed in 1929 by the Regional Planning Association of America.

Neighborhood Unit, Fig. 1 Clarence Arthur Perry (Blackstone Studios) (Source: Courtesy of the Rockefeller Archive Center, Sleepy Hollow, NY, February 2011)



Neighborhood Unit, Fig. 2 Clarence Perry's neighborhood unit [Source: Perry (1929). Used with permission of the Regional Plan Association, New York, November 2010]

Accordingly, the neighborhood unit has widely served as the primary design concept for new residential neighborhoods since the 1920s (Fulton, 1996). It was defined and promoted through a monograph written by Perry, entitled "The Neighborhood Unit, a Scheme of Arrangement for the Family-Life Community," published in the 1929 *Regional Plan of New York and Its Environs* (Perry, 1929). Evidence suggests that the concept was introduced as early as 1923 at a joint meeting of the National Community Center Association and the American Sociological Society in Washington, D.C., and formally published in 1929 (American Sociological Society, 1923; Dahir, 1947, pp. 23–24). The model has "for more than fifty years. . .been virtually the sole basis for formally organizing residential space" (Banerjee & Baer, 1984, p. 2), and "planning theorists. . .picked up the idea of the neighborhood as the basic building block of a city" (Lynch, 1994, p. 246). The concept was promoted at President Hoover's 1931 National Conference on Home Building and Home Ownership, featured in the American Public Health Association 1948 handbook, *Planning the Neighborhood*, and incorporated into the guidelines for new Federal Housing Administration-approved developments.

Yet, Perry's concept for the family-life community, while enjoying widespread application, has been criticized as a device of social engineering. One vociferous critic regaled the concept as an instrument, ". . .for ▶ segregation

of ethnic and economic groups - those whom the FHA once termed *inharmonious*. . .groups" (Isaacs, 1948, p. 19). Another author suggests that the neighborhood unit clearly determined social outcomes and was "applied exclusion," building on the beliefs of the time that homogenous neighborhoods were in the best interest of neighborhood residents (Silver, 1985). However, the model may be appropriately described as ". . .a physical design model that afforded residents the opportunity for ▶ social interaction, for the development of friendships, and for the collaboration necessary for social and/or political activism" (Lawhon, 2009, p. 129).

Although Perry is widely known for the concept of the neighborhood unit, some suggest he may not have been the originator of the idea (Johnson, 2002, p. 235; Tetlow, 1959, p. 113). Perry (1929) organized the neighborhood unit around several physically oriented ideas (see Fig. 2):

- Center the school in the neighborhood so that a child's walk to school was only about one-quarter of a mile and could be achieved without crossing a major arterial street.
- Size the neighborhood to support a school sufficiently, between 5,000 and 9,000 residents, approximately 160 acres at a density of 10 units per acre.
- Implement a wider use of the school facilities for neighborhood activities, constructing a large play area around the building for use by the entire community.
- Place arterial streets along the perimeter so that they define and distinguish the "place" of the neighborhood.
- Design internal streets using a hierarchy that easily distinguishes local streets from arterial streets, using curvilinear street design for both safety and aesthetic purposes and to discourage unwanted through traffic.
- Restrict local shopping areas to the perimeter or perhaps to the main entrance of the neighborhood, thus discouraging nonlocal vehicular traffic into the neighborhood.
- Dedicate at least 10 % of the neighborhood land area to parks, creating places for play and community interaction.

Cross-References

▶ Community Planning
▶ Segregation
▶ Social Interaction

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Neighborhood Well-Being

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Synonyms

Community well-being

Definition

Neighborhood well-being is a term attributed to the ▶ satisfaction as well as the ▶ good life of a network of people sharing some common place. Satisfaction, good life, and well-being are terms that are used interchangeably in the literature of ▶ quality of life (QOL). People's perceptions, thoughts, feelings, and actions have an impact on their well-being which is often defined by the absence of pathology.

Neighborhood well-being is not just a term of popular interest. There has been a tradition of research and theoretical writing investigating this concept. Quality of life researchers have been studying this term for many decades. Much of this research has been focused on measuring satisfaction with life using subjective (people's perceptions of the good life) and objective measures (material living conditions) of quality of life. There is still no universally accepted definition for quality of life (QOL) and well-being.

Description

Following Aristotle in the fourth century BC, a good life is a function of the actual conditions of that life and what an individual or community makes of those conditions. The basic components of a good life from the time of Aristotle to today, across all cultures, are familiar to most people. They included goods of the body (e.g., good physical health, strength, vitality, bodily pleasures), goods of the mind (e.g., wisdom, moral virtue, and mental pleasures), and external goods (e.g., wealth, security, good friends, loved ones, beautiful built, and natural environments and good communities). According to one of the pioneers in the field, Michalos (2008), people whose lives are characterized by such features have generally been regarded as happy or living well and doing well in Aristotle's phrase or briefly in contemporary terms, enjoying well-being.

It has been argued by Manderson (2005) that well-being is socially contingent and prone to change and redefinition over time. This implies that there are likely to be differences in the ways people define well-being, based on the factors related to place, time, and generation.

In the continuing debate within QOL studies, there are two schools of thought advocating different approaches to investigate well-being: some researchers see QOL as a term which relates to individuals and their preferences (personal and self-related concepts), while a second school places more significance on the place and the environment in which people live. QOL is stimulated by and can be measured in relation to the attributes of place where people spend their lives, in other words their residential area. According to H. Sprout and M. Sprout (1965), the influence of residential area upon people who occupy it has been referred to as "neighborhood effect." Neighborhoods have a spatial or territorial context, a common territory or place that often reinforces the interactions, provides a psychological association, and enhances the neighborhood's character. Neighborhood is also related to the term ▶ community for which it is sometimes used as a synonym. However, usually neighborhood is much more restricted in spatial dimensions. It relates to the area around a residence within which people engage in "neighboring," which is usually viewed as a set of informal, face-to-face interactions based on the residential proximity.

Williams (1976) suggests that the term neighborhood generally has positive connotations. Rouner's (1991) collection of philosophical essays on the concept underlines the beneficial value of the neighborhood in combating the isolation and self-centeredness of modern life. It conjures up positive feelings of belonging, caring, sharing, safety, loyalty, rootedness, and solidarity. According to Agnew and Duncan (1989), as cities are perceived to be more dangerous places, many feel that neighborhood has an enhanced value as a haven and increasingly been seen as the immediate social context of people's lives which are imbued with values, meanings, and experiences, thereby creating a distinctive ▶ sense of place.

Ideas linking cities or urbanization to well-being are not new but can be traced back to the work of classical ecologists, such as Simmel's argument (Wolff 1950) that urban stimuli affect

the personality, and the self, as well as Park (1925); Wirth's (1938) linkage of population density to psychological disorders. The concept of well-being has been explored in the social psychology and social indicators literature. Townshend (2001) claims that it is generally agreed that well-being encompasses both objective conditions, as well as subjective conditions such as assessments of one's life or domains of one's life.

Recent years have brought new and growing attention to the field of monitoring and measuring well-being. This interest in well-being indicators has been partly due to a movement toward accountability-based public policy that requires increasing amounts of data to provide more accurate measures of the conditions of neighborhoods. According to Tiliouine et al. (2006), the International Well-Being Index (IWI) has been developed as a complementary measure to the well-known economic measures. It comprises two subscales: the personal well-being (PW) and the national well-being (NW). Personal well-being (PW) measures the subjective well-being, which deals with people's satisfaction with their own lives. In western nations this is predicted to lie within a narrow range of 70–80 % SM (scale maximum). National well-being (NW), which measures satisfaction with living conditions in the whole country, is normally lower than personal well-being (PW). This is likely because it concerns more general issues that are not of direct personal concern. It has normally been found to fall within the range of 55–65 % in the western countries.

The concept of measuring the well-being of a neighborhood has evolved into a draft of Neighborhood Well-Being Index (NWI) in Canada. As being revised by the city researchers of the city of Toronto, two overcharging data clusters have been used as measures of neighborhood well-being, allowing a more in-depth examination of Toronto neighborhoods (http:buildingstrongcommunities.wordpress.com (Accessed 05 January 2011)).

These are:

- Population characteristics, such as age, gender, language, ethnicity, family structure, income
- Human service infrastructures, from about community centers, libraries, parks, police stations, schools, etc.

The NWI draft used for Canada neighborhoods explores the following areas:

- Arts, culture, and heritage
- Civic engagement and social inclusion
- Economic security
- Education
- Environment
- Housing
- Recreation and leisure
- Safety
- Transportation
- Personal and community health

As long as people's lives are embedded within a given social context, Keyes (1998) claims that the extent to which how they feel and think about living in such a context is an important factor in determining well-being as a whole. Therefore, investigating the social aspects, along with neighborhood aspects of well-being, appears to be vital in understanding the overall picture of a well-lived life.

Cross-References

- ▶ Neighborhood Perceptions
- ▶ Subjective Well-Being
- ▶ Well-Being

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Neighborhoods

▶ Cities, Characteristics of

Neighborhoods and Life Satisfaction in Germany

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Description

In the social sciences, the "neighborhood approach" posits that the neighborhood as a whole, or specific institutions or persons in it, fundamentally affects the social conditions and living situations of its residents. Out of the seminal ecological studies of the Chicago School of Urban Sociology (see the studies by Park, Burgess, and Thrasher) from the 1920s and 1930s, there has emerged a long series of theoretical and empirical studies based on the idea that social problems can be explained by urban and neighborhood conditions. More recent quantitative research has examined neighborhood effects on delinquency (Oberwittler, 2007), morbidity and mortality (Lochner et al., 2003), ▶ poverty (Vartanian, 1997), high ▶ school dropout (Crane, 1991), and social control (Warner, 2007). As an important indicator of the strength of local community, some studies have also focused on neighborhood relationships (Völker & Flap, 2007). A few studies have found a declining importance of neighborhood ties in social relationships for some subgroups (Guest & Wierzbicki, 1999).

For more than three decades, ▶ life satisfaction has been one of the key indicators of well-being used to assess the ▶ welfare of societies (Zapf, 1984). The concept of life satisfaction is more cognitively than emotionally driven: it involves the assessment of past and present living situations and future perspectives, as well as processes of social comparison (Argyle, 1987; Veenhoven, 1991). The choice of reference group depends on a variety of factors, including the object of evaluation and its context. Popular comparison groups analyzed in the "▶ happiness" literature are the society as a whole and individuals from the same profession or peer group (Michalos, 1985). When the basic dimensions of such social comparisons are with people in the individual's immediate social environment, it appears logical that the neighborhood should be considered as a point of reference. Until now, however, the neighborhood has seldom been analyzed as a point of comparison by which people assess their living situations. The few studies that do exist include those by Fernandez and Kulik (1981), Luttmer (2005), Knies, Burgess, and Propper (2007), Knight, Song, and Gunatilaka (2007) and Clark, Diener, Georgellis, and Lucas (2008a), and Dittmann and Goebel (2010).

Most of the studies addressing the relationship between aspects of the social environment and ▶ subjective well-being focus on how socioeconomic conditions – such as the quality of local public safety or neighborly support

networks – affect individual well-being. Some authors have employed an "environmental" approach, explaining subjective well-being by the perceived quality of the environment in which they live, taking into account such factors as noise pollution, air pollution, and lack of green spaces (Luechinger, 2009; MacKerron & Mourato, 2009; Rehdanz & Maddison, 2005, 2008). Here, the context has often been defined much more broadly than the immediate neighborhood. One exception in quality of life research on Germany is the study by Dittmann and Goebel (2010) measuring context effects at the block and building level.

From a ▶ quality of life approach, neighborhood can be understood as one important locus for the fulfillment of the ▶ basic needs that fundamentally determine the level of life satisfaction. Referring to the quality of life model proposed by Finnish sociologist Erik Allardt (1973), three kinds of basic needs can be differentiated, having, loving, and being:

- "Having" addresses security aspects of wealth. This dimension of needs includes the individual's economic resources, living standards, ▶ health and ▶ education, and the conditions of the living environment.
- The category "▶ love" refers to the need for affiliation and social contacts (family, friends, neighborhood, work contacts, etc.). It also includes activities and relationships in sports clubs and other associations.
- The need for "being" stands for participation and ▶ self-realization, including political and ▶ social participation, and includes options for creative and meaningful work and leisure.

If these three needs are not met, or are only partially met, life satisfaction will be low or declining. The situation of the neighborhood can affect life satisfaction in a variety of ways. Because bad living conditions in the local neighborhood reduce one's sense of security, those who are surrounded by deteriorating buildings, social problems like high ▶ unemployment and ▶ crime, and environmental hazards like noise and pollution are generally less satisfied with their lives. A lack of local infrastructure can also lead to lower life satisfaction: in areas without enough doctors, schools, shopping centers, or public transport, people are less able to meet their needs and achieve their goals. Another channel by which the neighborhood affects life satisfaction is through an increase in life satisfaction corresponding to the level of ▶ social integration in one's neighborhood. People who cultivate social contacts and experience social care are more able to generate social capital, and this leads to a higher level of belonging. Likewise, social relations and ties with neighbors increase opportunities for participation and self-realization in local culture, community work, and local politics.

Contextual effects of the neighborhood can be assumed to be mainly indirect, i.e., mediated by the meso-level. For example, the physical (upkeep of homes, street lighting, crowding and noise level, etc.), economic, and social composition of the neighborhood influences personal satisfaction with housing and neighborhood, and this in turn affects general life satisfaction (Sirgy & Cornwell, 2002).

Another important connection between neighborhood and life satisfaction results from processes of social comparison. Psychologists have long argued that individual self-image and self-assessments depend on a variety of comparisons: with others, with personal ▶ norms and goals, and with the actual and target state (Argyle & Furnham, 1983; Dermer, Cohen, Jacobsen, & Anderson, 1979; Festinger, 1954; Strack, Schwarz, & Gschneidinger, 1985). One crucial question here is the choice of reference group. To estimate aspects of "having," "being," and "loving," one cannot process all relevant information in everyday life; therefore, we normally evaluate these needs in comparison with others (Clark et al. 2008) and reduce existing complexity.

From the perspective of social comparison, life satisfaction increases when the comparison with individuals in the neighborhood leads to a positive result and decreases when leading to a negative result for the person making the comparison (Layard, Mayraz, & Nickell, 2010). The social comparison effect sometimes underpins the absolute effect of neighborhood: people living in worse neighborhoods are often

found to be happier overall than those in better neighborhoods because the latter are worse off socioeconomically in comparison with their neighbors, whereas the former are likely to be better off.

The various studies considering the neighborhood context as a relevant variable in predicting life satisfaction fail to achieve consensus: some find a positive effect and others do not. A central problem in evaluating the findings lies in the use of very different concepts of neighborhood, making the studies difficult to compare. Different aspects of neighborhood such as social, economic, and cultural capital have been examined, and different neighborhood sizes have been used. Neighborhood is sometimes defined empirically at the level of counties – in other cases by zip code areas or sampling points. Most of the studies using quantitative data define neighborhood based on administrative boundaries such as counties, zip codes, census tracts, or city blocks, mainly due to the constraints of the data available in the particular country in question. New research and the production of georeferenced data and geographic information systems (GIS) are expected to improve this situation in the future. Initial ideas for a definition of neighborhood that does not rely on administrative boundaries have already been proposed (Foster & Hipp, 2011; Grannis 1998, 2005). Thus far, the empirical evidence suggests that the larger the neighborhood units and the more space and inhabitants these units cover, the higher the risk of underestimating context effects (Nonnenmacher, 2007).

There is research suggesting that people are happier with their lives if they live in areas with access to green space and recreational facilities (Knies, Burgess, & Propper, 2007) or in areas where there is less crime (Mccrea, Shyy, Western, & Stimson, 2005) and more neighborliness (Evans & Kelly, 2002). Other studies do not find neighborhood effects on life satisfaction. For Australia, Shields and Wooden (2003) found that the average income, rate of unemployment, and demographic structure of the neighborhood do not influence the level of life satisfaction.

For Germany, Knies et al. (2007) tested the influence of neighborhood income on personal life satisfaction using data from the German Socio-Economic Panel (SOEP). Their analyses show that individual life satisfaction increases with the spending power in the neighborhood. The economic situation did not significantly affect well-being when controlling for East and West Germany. A lower income relative to the neighborhood did not decrease individual well-being.

Also for Germany using some of the same data as Knies et al. (2007), Dittmann and Goebel (2010) did find significant effects. The main difference lies in the broader definition of neighborhood units used by Knies et al., covering 9,000 inhabitants on average. In contrast, Dittmann and Goebel (2010) applied a very local scale to measure neighborhood, using data on street sections or building levels. The SOEP data was enriched with data from the Micromarketing-Systeme and Consult GmbH (microm) for the years 2000–2006. Controlling for several covariates at the household and individual level, they found that life satisfaction increases when a person lives in a neighborhood with a higher socioeconomic status. For the social comparison dimension, they found out that the individual gap between a person's economic status and the status of the neighborhood also affects individual well-being. However, when comparing other neighborhood aspects, social networks have the strongest effects on individual life satisfaction. In line with this, Mayraz et al. (2009) found that comparisons with neighbors are less important than those with other comparison groups (coworkers, friends, individuals of the same age).

As individualization and residential mobility increase, it will be interesting to monitor whether the impact of neighborhood on personal well-being declines or increases.

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Neighborhoods' Quality

▶ Urban Life, Quality of

Neighbourhood and Neighbours

▶ Housing and Aging

NEO PI-R

▶ Five Factor Model of Personality

Neoclassical Economic Growth

▶ Economic Growth

Neo-democracy

▶ Conceptualizing Democracy and Nondemocracy

Neo-liberal Development in Mexico and Chile

▶ Democracy and Development in Mexico and Chile

Neoplasm

▶ Colorectal Cancer

Neo-traditional Community Design

▶ New Urbanism

Nervous Indigestion

▶ Irritable Bowel Syndrome

Nervousness

▶ Anxiety

Nested Data

▶ Units of Analysis

Net Economic Welfare

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Definition

Net economic welfare (NEW) is a concept of a broader measure of economic welfare than

► gross national product (GNP) as it adjusts GNP by subtracting from it "bads" such as pollution and by adding the value of beneficial nonmarket activities such as ► leisure time.

Description

Nordhaus and Tobin (1972) question the usefulness of ► GNP data in evaluating the growth of economic welfare. They state that the main reason is that GNP is an index of production and not consumption. However, the goal of economic activity is consumption. Therefore, they develop a measure of economic welfare (MEW) to better understand the relationship between ► economic growth and welfare. They modify ► GNP in three ways: (a) by subtracting from ► GNP certain costs or "bads" such as pollution from the total national income; (b) by excluding some services such as police services since it is possible that increased police budgets to combat rising crime do not indicate an increase in welfare; and (c) by adding to ► GNP some activities, such as household activities (housework, home repairs, etc.) and ► leisure, which are not included in the total ► GNP.

In particular, Nordhaus and Tobin (1972) reclassify some of the ► GNP expenditures as capital investments and intermediates. Part of the output included in the ► GNP will be used to repair and replace the existing stock of capital goods. This kind of output is termed as capital investment allowance and is subtracted from ► GNP. Nordhaus and Tobin classify goods and services whose contributions to present or future consumer welfare are completely counted in the values of other goods and services. ► Leisure nonmarket activities and household production and consumption such as meals, home, and cleaning repairs are added to the ► GNP. An estimate for the disamenities of urbanization is subtracted from ► GNP. These include social costs that are not included in the costs of producing consumption goods and services. These costs are, for example, pollution, litter, congestion, noise, and criminality. Nordhaus and Tobin calculated the MEW for the period 1929–1965 in the USA. In this period, per capita MEW grew slightly slower than per capita net national product (NNP); 1.1 % for MEW against 1.7 % for NNP.

Samuelson (1980) has introduced the concept of net economic welfare (NEW), which is based on the concept of MEW described in Nordhaus and Tobin (1972). According to Samuelson (1980), "Net Economic Welfare (NEW) is an adjusted measure of total national output that includes only consumption and investment items that contribute directly to economic welfare." Samuelson elaborates why ► leisure and nonmarket activities should be added to ► GNP. As we become rich, generally, we prefer leisure to income. When we allocate more time for leisure, ► GNP may come down. But welfare goes up. So when we estimate ► GNP, we must include satisfaction, derived from leisure by giving it a value in net economic welfare. Women do a lot of work at home and it is not taken into account while calculating ► GNP. Therefore, we must include that when estimating ► GNP. Also, we need to add some underground activities. Those who earn huge incomes (e.g., lawyers, accountants, actors) may not report actual income for tax purposes. This unaccounted money (black money) must somehow be included in ► GNP estimates. Otherwise, we will get a lower figure for ► GNP. Finally, we need to deduct from ► GNP any "social bads" that exist in any society, such as illegal activities (e.g., drug trade) and environmental pollution.

While NEW was a step in the right direction toward a better measurement of development and welfare, it fell short of what was desired. NEW did not even succeed in replacing gross domestic product (GDP) or ► GNP, which remain the two main economic indicators of a country. The main reason is strongly associated with the measurement of NEW. In particular, NEW still excludes a number of activities that contribute to general welfare. Women's work at home is not included in NEW due to measurement problems. In addition to this, the inclusion

of market and nonmarket activities creates a bias on the NEW. Taking into consideration market and nonmarket activities, when calculating NEW, relies on the basic assumption that the price of a good is proportional to its marginal utility. However, different intensities of preferences of consumers at different income levels, the occurrence of consumer surplus, market imperfections, and external effects of consumption represent major factors of disturbance to the basic assumption of price-utility proportionality. Also, the way in which the environmental damage is calculated remains problematic. The cost of pollution is difficult to be estimated as it can go beyond the physical damage it causes. For example, if air pollution causes health problems, the increased doctors' bills are not the only negative consequence. Being healthy is not equal to being ill plus visiting a doctor. Finally, NEW is incapable of measuring plenty of "social bads" such as poverty, drug abuse, suicide, divorce, and violent crimes.

Discussion

What is beyond NEW? Based on Holub (1983), any measure of NEW is difficult to be designed as it is difficult to incorporate a growing number of capital stocks into one-dimensional national accounting system. National accounts can be determined in two ways either the income approach or the expenditure approach. Using the income approach, GDP is determined by aggregating the various income shares of the factors of production, while under the expenditure approach the current value of production is determined by totaling all expenditures for final goods and services in the economy; see, Stewart (1974). A number of attempts were made by social scientists during the past 40 years to devise more welfare-sensitive measurements or indices. According to Bartelmus (1987) while GDP is the most widely used indicator of economic performance, it cannot capture environmental impacts and various social services that are strongly related to human welfare. Daly and Cobb (1989) develop the ▶ Index of Sustainable Economic Welfare (ISEW). ISEW includes personal consumption (weighted), distributional inequality, household labor, consumer durables, highways and streets, ▶ health and ▶ education expenditures, defensive private expenditures, several costs of environmental damage, natural capital depletion, and costs of the ozone depletion.

The ISEW grew between 1950 and 1990 in the USA from USD 2,496.9 to USD 3,253.1 with a maximum of USD 3,545.5 in 1976. Between this total maximum and the final figure is a local minimum in 1984 with USD 2,933.9. The ▶ GNP grew in the same time from USD 3,512.2 to USD 7,755.9 with a slightly higher maximum in 1989 (all figures in per capita). ISEW is not equal with ▶ GNP growth, not even close. In 1984, the ▶ GNP grew by almost 6 % whereas the ISEW showed a 6 % decline. However, ISEW is also subject to measurement problems, such as the evaluation of environmental conditions and nonmarket labor.

Cobb, Halstead, and Rowe (1995) develop the genuine progress index (GPI). GPI attempts to measure the real increase in economic welfare. It measures the improvement in economic welfare minus the costs associated with the growth. In particular, it includes the value of voluntary work and unpaid work, value of ▶ leisure time, distribution of income, impact of environment, environmental standards, and cost of crime. One of the main disadvantages of ▶ GPI is that it includes many noneconomic variables (e.g., leisure time, environment), for which is difficult to assign an economic value. Also, ▶ GPI cannot evaluate the state of a business cycle.

Cross-References

▶ Crime
▶ Economic Growth
▶ Education
▶ Genuine Progress Index
▶ Gross National Product (GNP)
▶ Health
▶ Leisure
▶ Leisure Time

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Net Positive Development

▶ Well-Being and Progress Measurement

Net Reproduction Rate

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Definition

The average number of daughters a hypothetical cohort of women would have at the end of their reproductive period if they were subject during their whole lives to the fertility rates and the mortality rates of a given period. It is expressed as number of daughters per woman (United Nations, 2012a).

Description

The net reproduction rate belongs to the kind of indicators defined as "classic measures" of population renewal. It represents the average number of daughters a hypothetical cohort of women would have at the end of their reproductive period if they were subject during their whole lives to the fertility rates and the mortality rates of a given period. It is expressed as number of daughters per woman.

These measures demonstrate the implications of keeping age-specific rates of fertility and/or mortality fixed at some observed level and setting age-specific migration rates at zero (leading to the concept of stable population model). Such measures include also the gross reproduction rate, the total fertility rate, the life expectancy at birth, and the "intrinsic" rates of growth, birth, and death (i.e., rates that would eventually emerge if current age-specific fertility and mortality rates were indefinitely maintained with zero migration).

The net reproduction rate, denoted by R_0, is one of most important indices in mathematical demography. Under the regime of classical (single-state or uni-regional) stable population theory, R_0 is calculated as

$$R_0 = \int_{15}^{49} \beta(a)/(a)\mathrm{da}$$

where $\beta(a)$ is the maternity function (the age-specific rate of having a female birth), $l(a)$ is the female's survival rate at age "a," and the product $\varphi(a) = \beta(a)l(a)$ is called the *net maternity function*, which normalized distribution $\varphi_0(a) = \varphi(a)/R_0$ gives the probability density of age at childbearing.

Another crucial index is the asymptotic growth rate, denoted by $\lambda 0$, of the number of newborns of a closed population with time-independent vital rates, called the *intrinsic rate of natural increase*. According to the classical stable population theory, $\lambda 0$ is a unique real root of the *Lotka's characteristic equation*:

$$\int_0^{\infty} e^{-\lambda a} \quad \varphi(a)\mathrm{da} = 1$$

It is proved that $\lambda_0 > 0$ if $R_0 > 1$, $\lambda_0 = 0$ if $R_0 = 1$, and $\lambda_0 < 0$ if $R_0 < 1$.

Therefore, the net reproduction rate $R0$ formulates the threshold condition for the population growth based on parameters capturing the average behavior of individuals, i.e., it connects individual life cycle parameters to the growth character of the whole population.

We see that the values of NRR for developed countries go from a little more than 0.6 of Japan and Italy, 0.7–0.98 of USA, while for developing countries China presents a value a little more than 0.7, India 1.17 up to values near to 2.0 for sub-Saharan countries (United Nations, 2012b). High fertility and high mortality contribute to these values, of net reproduction rate. In this measure, obviously migration does not have any influence.

The net reproduction rate in the presence of migration, call it NRR*, indicates how many daughters would be born, on average, to a cohort of female babies who pass through life and are subject at each age to observed rates of fertility, mortality, and migration (Preston and Wang, 2007; Hisashi, 2009). The cohort giving birth can be diminished by mortality and either diminished or augmented by migration. When the unit of analysis is a particular country, NRR* refers to the number of daughters who would be born in that country under the assumed set of rates, including migration rates.

Cross-References

- ▶ Fertility Rate
- ▶ Population Growth

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Netherlands Living Conditions Index

- ▶ SCP Life Situation Index

Netherlands Social and Cultural Report

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Synonyms

SCR

Definition

The Netherlands Social and Cultural Report is a social monitor in the Netherlands which has been published since 1974.

Description

The Netherlands Social and Cultural Report

The Netherlands Institute for Social Research (SCP) has a long-standing tradition on social monitoring in the Netherlands. The foundation of the SCP in 1973, during the heyday of the social indicators movement, ensured that attention to social (and cultural) aspects of society became a permanent fixture in policy preparation in the Netherlands (Boelhouwer, 2010). One of the SCP's official tasks is "to carry out research designed to produce a coherent picture of the state of social and cultural well-being in the

Netherlands and likely developments in this area." Though a government-funded organization, SCP was free to publish any report about any subject under the broad area of social and cultural situation. The one report SCP was obliged to publish was a biannual "Social and Cultural Report." This report has been published every 2 years since 1974.

The first Social and Cultural Report included the SCP's definition of "social and cultural well-being": "the preponderance of social and cultural well-being increases as the quality of life in a society improves and the relationships between different groups is a satisfactory one. Quality of life is defined as the degree to which highly rated values are realised, in terms of health, education, housing, etc." (SCP, 1974, p. 13).

Social Monitoring

The "social and cultural well-being" can be described in several ways, for instance, by highlighting a specific aspect and making it the theme of a publication. The SCP reports thematically on, for instance, mobility, voluntary work, leisure, and poverty. These reports usually also pay attention to target groups of policy, such as old people or immigrant communities. Another approach actually takes these social groups as the starting points. The SCP reports on old people and people with disabilities, for instance, and in these reports, it examines different themes, such as housing, health, and leisure. In both the target group reports and the thematic reports, the "coherent picture" (asked for in SCP's task) manifests itself above all in the conclusions, where different aspects of well-being and quality of life are related to each other.

In the Social and Cultural Report, the SCP seeks to fulfill the "coherent picture" requirement by devoting separate chapters to major policy areas (such as health, housing, social security, and education). By describing the most important aspects of quality of life in the same report, a picture of social well-being in the Netherlands is given. However, in 1976, in a special section appended to the Social and Cultural Report, the first attempt was made to integrate several domains into a single measuring instrument (SCP, 1976). Using data from 1974 onward, at that time the SCP also decided to construct a composite measuring instrument for giving the coherent picture of social well-being in the Netherlands: the life situation index. The life situation index includes indicators which can be influenced by the government and which together reveal something about well-being.

Social and Cultural Report Until 2000: A Broad Social Monitor

Over a period of almost 30 years, the Social and Cultural Report provided an overview of developments about the social domain and the quality of life of the Dutch population (SCP, 1974; 1998). Besides, the report also thoroughly analyzes social policies and gave insight in the reactions to these policies in society and among the population (SCP, 2006). In the SCR separate chapters are devoted to important aspects of quality of life, in fact reflecting the departmental structure of Dutch government.

Usually these chapters were covered:

- Education
- Health and health care
- Economy and the welfare state
- Social security
- Values and norms in society
- Housing
- Social safety
- Minority (and integration)
- Employment
- Leisure time and culture
- Crime and justice
- Social participation (voluntary work, political involvement)
- Public administration

Thematic Social and Cultural Reports Since 2000

However, gradually the broad description of the social domain in Dutch society got replaced with a mere thematic focus. Starting with the 1998 edition (SCP, 1998), which focused on 25 years of social change, the SCR became a thematic report, with attention to:

- European comparison (SCP, 2000)
- The quality of the quaternary sector performance (SCP, 2002)

- The future of Dutch society and the Dutch population (SCP, 2004)
- Investing in capabilities (on positive developments rather than on the usual negative ones – SCP, 2006)
- Relative involvement (about social cohesion – Schnabel, Bijl, & de Hart, 2008)
- Generations (2010)

More and more, the Social and Cultural Report was acquiring a slightly different character, with less attention to a general overview and more attention to special and exceptional developments (SCP, 2006, pp. 6–7). The ambition of the SCR was no longer to give a complete overview of relevant developments in social policy areas.

Together with this shift of focus of the SCR, SCP decided to replace the broad description of developments of the social domain to another major report: the *Social and Cultural Outlook*. This report, until then, had a rather limited scope. But from 2001 onward the scope was broadened to give a general overview of the life situation in the Netherlands and the name changed to The Social State of the Netherlands.

With this development of both reports, there was a gap in attention for policy and evaluation of policies. This gap, however, was already filled with lots of other reports of the SCP, for example, on ethnic minorities, women, the elderly, and handicapped, and with reports on poverty, leisure time, education, housing, health care, and all other aspects that can be attributed to social and cultural well-being (SCP, 2006).

Data

Various data sources were used to describe the broad picture of Dutch quality of life. Some of the data were SCP's own data, like "Cultural changes in the Netherlands", the Amenities and Services Utilization Survey (in which since 1979 data are gathered on people's use of hospitals, retirement homes, educational services, legal aid, home care, nurseries, museums, pop music and sport) and the Time Use Survey (which has been carried out since 1975, and tracks the way people in the Netherlands spend their time).

But SCP also uses surveys from others, with Statistics Netherlands (CBS) being the main supplier, though another key data provider is DANS (Data Archiving and Networked Services).

Cross-References

▶ Social State of the Netherlands

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Network Analysis

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Synonyms

Structural analysis

Definition

Social Network Analysis (SNA) is a multidisciplinary set of methods for the study of relational data. Network Analysis (NA) contributes to quality of life studies in the evaluation of individual well-being and community-level quality of life outcomes, as well as researching community coalitions and health and social services implementation dynamics, among other processes.

Description

Both the structure and functions of social networks are related to the quality of life of individuals and communities. Epidemiological studies and psychological research have shown the relationship between social networks/social support and morbidity/mortality, stress outcomes, satisfaction with life, and individual well-being. Recently, social contagion processes of happiness in social networks have also been described.

In this entry, we will focus in community-level quality of life outcomes and processes. First, a brief description of basic concepts is provided. Consecutively, we review the applications of network analysis to the study of community readiness, community coalitions, and community dynamics related to the implementation of health and social services.

A network is a set of links of the same nature among pairs of actors. The nodes or actors can be persons, organizations, books, routers, and other entities. The links between nodes can be social relations, communications, actions, and other activities and forms of interaction. Network analysis is a tool for systematic observation, which allows recognizing patterns of interaction, and permits quantification and theorization of different forms of social structure, though also can be applied to biological and technical systems.

Four types of analysis may be distinguished in NA: (1) generic indicators of the network, (2) centrality measures of individual actors, (3) detection of subgroups and partitions, and (4) structural equivalence analysis. Some generic indicators of the network are density and centralization. Density refers to the proportion of existing relations from all the potential links among actors. Centralization allows examining the level in which the structure and relations are focused in a few members of the network. Basic centrality measures at the individual level are degree, closeness, and betweenness. Degree is the number of actors to which an individual is connected; closeness assesses the distance of a node toward the rest of nodes of a network, whereas betweenness is an indicator of the geodesic paths between pairs of actors. Cliques, clusters, and community detection algorithms are some of the approaches for revealing subgroups. NA is very productive in new methods and strategies for analyzing social structures (for a detailed account of network indicators and strategies of analysis, see Carrington, Scott & Wasserman, 2005; Knoke & Yang, 2008; Scott, 2000; Wasserman & Faust, 1994).

Networks and Community Structures

From the point of view of network analysis, community structures are a group of nodes densely connected (by comparison with other nodes in the network). So the recognition of clusters or aggregates is based on patterns of interaction between individuals, organizations, or other entities. For instance, a community coalition is a sort of network between organizations. In the same

sense, a local community may be understood as an emerging pattern of interactions among neighbors.

Three distinctive network approaches for the study of communities can be mentioned. First, there are different strategies to identifying communities in whole networks, as clustering, segmenting, or partitioning. Probably one of the most used detection algorithms is the Girvan-Newman approach, which consists of removing the edges with higher betweenness (those acting as a bridge) in the network to identify communities (Girvan & Newman, 2002).

At a second level, we can focus in a particular community and the structure of that community. The model of core-periphery structure is consolidated as a reference in this area (Borgatti & Everett, 1999). Very often networks are compound by a cohesive core and a sparse periphery. This model could be used for community development initiatives. Preparing a community for change usually means to promote social awareness of a problem, deploying pro-social attitudes, connecting and organizing key members, and finally fostering a dense core sustaining social change.

Also personal network visualizations have been used to detect communities. For the respondents it is very difficult to list the communities where they participate, as it is an abstract concept and sometimes an unconscious experience. For individuals it is easier to mention groups – where they have a direct experience of participation – than communities. Looking for groups and then communities in personal network visualizations generates three times more communities than merely asking people to list communities (Cachia & Maya-Jariego, 2010).

Social Networks and Community Readiness for Change

Social cohesion, well-being at the individual and community level, community capacity, and sense of community are processes directly related to the quality, intensiveness, and breadth of social ties between members of a community. Community social networks foster collective capacity for change (Foster-Fishman, Cantillon, Pierce & Van Egeren, 2007), whereas leaders and activists have a strong sense of connection to their communities. In the same vein, interorganizational networks promote community cohesion, facilitate the resolution of conflicts among community members, provide opportunities to link diverse community sectors, facilitate social capital and sense of trust and caring, and as a result, foster the community capacity for change (Goodman et al., 1998).

The capacity for change is the relative level of acceptance of a program, action, or other forms of locally based decision-making processes. Generally speaking, community readiness refers to the level of acceptance of the change proposed by the intervention in the community (Donnermeyer, Plested, Edwards, Oetting & Littlethunder, 1997). Community readiness is in part associated to the topology and dynamics of social networks. For instance, it has been shown that closeness and betweenness of individual actors, as well as whole network centralization of community coalitions are associated to readiness for change (Feinberg, Riggs & Greenberg, 2005). Specifically, dense community networks – higher closeness and lower betweenness centrality at the individual level – informed of readiness for change. Conversely, the concentration of ties in a small group of actors (centralization) foretells an inadequate reaction to the intervention.

Social Networks have also been used as indicators in the areas of mental health, well-being, and quality of life (Achat et al., 1998). Most of the studies refer to formal characteristics (e.g., size, number of members, or components of the network), rather than structural dimensions. For example, larger networks may reduce the impact of stressful situations, whereas the size and range of networks are related to self-efficacy and self-esteem (Achat et al., 1998). However, weak ties provide connections to different social spaces, putting individuals in contact with resources that are not available in the groups and communities where they immediately belong (Acock & Hurlbert, 1993; Burt, 1987).

Interorganizational Networks and Community Coalitions

Structural analysis of interorganizational networks helps to understand the factors and internal

characteristics that modulate the coalition functioning. Focusing on the study of whole networks we can infer how a network evolves, how it is governed, and what are the main outcomes (Provan, Fish & Sydow, 2007). This turns SNA into a valuable strategy to evaluate interorganizational networks. Building partnerships and community coalitions has shown to be effective strategies to cope with numerous complex social issues. Community coalitions are a kind of formal multisectoral collaboration that involves representatives of diverse community institutions working within an organizational structure to improve community conditions (Chavis, 2001, p. 309). Coalitions can be understood and analyzed as a network of organizations, where structural properties are connected to their impact in practice.

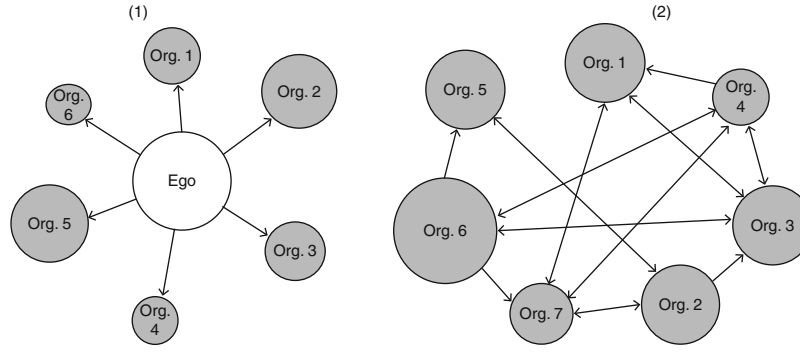
Coalitions are effectively promoting pro-social norms (Butterfoss, 2007), increasing structural cohesion in the community. They are often compounding individuals and organizations with different levels of power, trajectories, and histories of previous collaboration. This heterogeneity can generate conflicts and eventually affect their results. Nevertheless, an adequate management of those conflicts may increase the relationship between community agencies and the community capacity to address the problems that prompted its creation.

Coalitions are also an effective vehicle to promote empowerment at the community level (Butterfoss & Kegler, 2009). Coalitions may have an impact contributing to the detection of best practices in service delivery, increasing the capacity to manage resources, reducing asymmetric power relationships between the coalition's organizations, and promoting volunteering in the community setting. Coalitions enhance the collective capacity to solve social problems such as substance abuse, crime, and inadequacy of social and health services, implementing actions of long-standing effects (Chavis, 2001; Feinberg, Riggs & Greenberg, 2003). Some researches have studied the network structural properties that influence coalition development. Structural measures that have shown to be associated with coalition dynamics include, but are not limited to, *Centralization*, *Multiplexity*, *Transitivity*, and *Coreness* (Borgatti & Everett, 1999; Feinberg et al., 2003). *Centralization* is a measure that indicated the extent to which network ties are concentrated in a few actors. A high degree of centralization may hamper the coalition success. *Multiplexity* (multiplicity) refers to the diversity of kinds of relationships that links actors in a social network. It is assumed that multiplexity is required for consolidating stable relationships. *Transitivity* reflects the fluency of exchanges among actors. This property is positively related to effective coalitions. Finally, *Coreness* examines the ratio of actors who are in the network core (Borgatti & Everett, 1999). A high concentration of actors in the core is associated with better functioning and coordination. Listed below are the benefits of coalition building.

The benefits of community coalitions include the contribution to obtaining financial resources, strengthening local economic development, mobilizing citizens, and enhancing intergroup relations. In fact, they address needs that are unmet by conventional services while simultaneously mobilizing the skills of the members and minimize duplication of resources. This makes possible to coordinate and identify groups of individuals and organizations highly committed with the well-being of the community and that also are aware of the common problems that affect the community and the resources available to address them. From a relational perspective, they develop ties with other sectors and public networks with similar goals. The institutionalization of these links allows information and resources exchange and improves the learning of methods and strategies that make it possible to improve the quality of services. In summary, community coalitions are effective intervention strategies that enable the coordination of agencies that operate in the community to address a wide range of social issues.

Interorganizational Networks and Health and Social Services

Recently, there has been an increase in the scope of organizations that provide health and social services. Very often they take the form of interorganizational networks between the public sector and civic society organizations.



Network Analysis, Fig. 1 Egocentric (1) and whole (2) network approaches (Adapted from Provan & Lemaire, 2012)

The provision of services is a complex and costly task to be assumed by a single organization (Butterfoss, 2007; Feinberg et al., 2003; Provan & Lemaire, 2012). Thus, the analysis of interorganizational networks in the field of public health assumes that agencies establish relationships with others to improve the effectiveness of service delivery. Participation in these social structures allows organizations to obtain specific benefits and social capital. Individual actors can leverage resources, knowledge, skills, and experience from the contacts established within the network.

There are two analytical approaches for studying interorganizational networks that are usually called "egocentric networks" and "whole networks." Egocentric network analysis focuses on examining the relationships established by a single organization with other public or private entities with which they interact to reach a particular purpose. Typically the relationships between the organizations connected to ego (that is to say, the entity under study) are not taken into account. On the other hand, whole network analysis undertakes the study of all the potential relationships among a defined set of organizations. The second approach is most common to evaluate coalitions and alliances among service providers as far as it generally provides the whole picture of the relational context. Figure 1 illustrates the differences between the approaches described above.

Different factors explain the formation of meso-structures. Commonly, they include the reduction of transaction costs, the acquisition of competitive advantages, and the transfer of innovations. For the case of public health networks, research has shown the relevance of the need for flexibility, the opportunities for learning, the systematization of practice, and the sensitivity to the needs of potential users (Provan & Lemaire, 2012, p. 641). Additionally, homophily and geographical proximity, shared previous experience, and the need for autonomy are factors contributing to shaping interorganizational networks.

Networks between organizations are sometimes based in traditional management models, such as bureaucracy, hierarchy, and norms. However, they are very often an organizational context receptive to adaptive management models, able to combine different governance strategies depending of the concrete demands and the operational context.

As we have shown, there are individual and collective benefits derived from participating in interorganizational networks. However, there are also a number of challenges for a coalition in order to obtain its programmatic goals. Members usually display different levels of commitment with the network objectives, whereas cultural shocks, the lost of autonomy, the difficulty to manage the budget, and the costs of coordination may affect the outcomes and effectiveness of the initiative.

Research has identified five factors that are relevant for the effectiveness of community networks:

- *Involvement at multiple levels*. Coalitions are more effective when managers maintain frequent interaction with the staff and participants that implement the actions.
- *Network design*. Selective network integration is associated with better outcomes and a higher fulfillment of the objectives.

There is no ideal shape of the network for getting to outcomes. However, the level of integration of the network needs to be amended to the particular demands of the context.

- *Governance model*. Two competing strategies, trust and formalization, need to be combined according to the properties of the context.
- *Legitimacy*. The reputation of the network is essential to getting positive outcomes and reaching the objectives.
- *Stability*. Organizational networks need to have a flexible structure that allows adapting it to their targets. In any case, the core of the coalition tends to be comparatively stable, while organizations that occupy the periphery usually vary during the network life.

In summary, interorganizational networks are systems capable of providing effective solutions to a wide variety of social problems. Nonetheless, in order to be effective its structure and composition must be flexible and able to adapt to the demands of the internal and external agents and to the environment.

Cross-References

- ▶ Empowerment
- ▶ Family Support
- ▶ Marital Status Influence on Satisfaction/Happiness
- ▶ Sociability
- ▶ Social Network Analysis
- ▶ Social Structure and Happiness
- ▶ Social Support
- ▶ Volunteering

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Networks, Social and Street

▶ Connectivity (Street Patterns and Social Networks)

Neurodegenerative Disease

▶ Parkinson's Disease, Neuroticism, and Extroversion

Neurofeedback

▶ Neurotherapy

Neuropsychological Function

▶ Cognitive Function

Neuroscience

▶ Applied Psychophysiology

Neurotherapy

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Synonyms

Brainwave biofeedback; EEG training; Neurofeedback

Definition

Neurofeedback (NF) is an advanced biofeedback method which accomplishes *self-regulation training of brainwaves* (EEG, electroencephalogram). It is also called EEG biofeedback. *Neurofeedback* is a scientific methodology to reach a state of freedom, creativity, flexibility, effectiveness, and a calmer, centered way to live. However, in the field of medicine, *neurotherapy* (NF used to treat diagnosed conditions) is applied to epilepsy, depression, anxiety, head injuries, attention deficit/hyperactivity disorder, etc (Lubar, 1997; Lubar & Lubar, 1984).

Description

Neurofeedback and Neurotherapy

EEG in brainwave self-regulation. Neurofeedback (NF) is a form of biofeedback that allows the training and self-regulation of brainwaves (EEG, electroencephalogram) and is also known as EEG ▶ biofeedback (Siniatchkin et al., 2000). Sensors on the head record brain waves which are interpreted by computer software that provides highly specific training feedback to the individual. NF *monitors and mirrors brainwave* signals from neurons near these sensors to gain *self-regulation of the nervous system*. It is not stimulation of the brain. *Neurofeedback training is a doorway* to personal progress, to reach higher levels of consciousness, abilities, and mind function (Boynton, 2001). Such *performance technology* is currently used by such people and groups as follows: universities, Institute for Performance Improvement, US Olympic Training Center, US Military Center for Enhance Performance, large companies, professional athletes in NFL and PGA, US Army Marksmanship Team, corporate executives, and individuals who want to strengthen their brain power to accomplish their goals (Egner & Gruzelier, 2003).

Neurofeedback vs. Neurotherapy. Neurofeedback (NF) is a biofeedback technique where the trainee may reach a state of freedom, creativity, flexibility, effectiveness, and a calmer, centered way to live. Neurotherapy (NT is NF used to treat diagnosed medical conditions) is

used to treat epilepsy, depression, anxiety, brain injuries, attention deficit/hyperactivity disorder, and other conditions (Moss & Lynda, 2004).

Neurotherapy is proven to achieve sustainable results, often eliminating and/or reducing the need for medication in many cases.

Neurofeedback training for personal progress requires advanced equipment and a knowledgeable practitioner in the field, plus a commitment from the trainee to learn and practice skills so that he or she engages a new level of functioning – a new *psychophysiology*. Neurofeedback modifies the electrical signals among neurons (brainwaves) by training mind-body interactions through cortical-limbic-hypothalamic pathways to restore, reframe, and self-regulate a healthy and dynamic homeostasis among the mind-body-immune response as well as subtle energies of the body. Brainwaves can be enhanced or inhibited in amplitude. Protocols are customized to the diagnosis or goals of the individual person. The average number of training sessions to learn self-regulation of the nervous system can be 20 or more hours. Results are normally sustainable and become an inherent skill, with no dependence on external control, thereby changing the quality of life forever (Clinical, 2000).

Brain Physiology. Neurons are the "landlines" of the brain that transmit electrical messages along long axons, opening or closing neuronal receptors in cell membranes. Neurotransmitters, neuronal modulators, serotonin, and dopamine all cross the synapses – the space between neurons – and are electrochemically controlled. The information exchange is limited by the quality of the chemistry as reflected in genetics and also cultural and educational experience. Feelings and emotions are predominately chemically controlled by different chemical cocktails sent throughout the body, often controlling the physiology, and triggered most often by unconscious programming created during one's early years by family, education, pressures of society, and imposed cultural values. Psychotropic medications and other pharmaceuticals intervene or change these chemical cocktails of human physiology. However, when the amplitude of specific brain waves are modified in a direction to enhance the goals of NF training, then brain chemistry becomes more flexible and volitionally controlled by the trainee, rather than by his or her unconscious, and *old inflexible behaviors are self-modulated* in a direction toward improved personal well-being.

An important recent change in the EEG field is the abandonment, in most cases, of the older concept of dividing brain wave designations into frequency bands (delta 1–4 Hz, theta 4–8 Hz, alpha 8–12 Hz, beta 12–16 Hz, gamma 16+Hz, etc.). New computerized technology demonstrates that every frequency of brain waves has *meaning*, can be trained, and influences daily life and actions. It has also been shown that each person has a "*dominant brainwave frequency*" representing a unique EEG frequency distribution for that individual, as unique as tone of voice, fingerprint, and DNA (see www.InnerKeys.info) (Mattulich & Paperny, 2008). Using brainwave mapping, neurofeedback can be tailored with customized mathematical sequences, which train the highest human potential in a relatively short time.

Such self-regulation of the brain and nervous system by NF offers an efficient way to accomplish inner empowerment and create a higher quality of life. The future of NF is its application to two other aspects of the nervous system, the *glia cells of the brain*, called slow cortical potentials, and the *circulation of blood in frontal areas of the brain*, called hemo-encephalic feedback (Kotchoubey, 1997). Glia are not hard wired like neurons, so they are the "cellphones" of the brain, transmitting more like radio messages to distant fields, and independent of the neurotransmitters and electrochemistry of neurons.

Advanced technologies are now used to train *slow cortical potentials* (direct electric currents originating from the glia cells in the brain) as well as blood oxygenation to the frontal areas. These two new modalities are opening a vast range of possibilities for neuroscience and human evolution.

Neuro*therapy* has proven useful in coma states, where patients are known to produce meaningful EEG signals in response to the verbal questions from a clinician, thus proving their awareness in that physical vegetative state.

Mind-computer interfaces (using EEG) can potentially facilitate communication for those with serious disabilities, including paraplegia. Slow cortical potentials can be applied to a full range of disease states. Neuro*feedback* is also useful for healthy people intent on exceptional performance, enhanced perceptions, and mindfulness in the presence of daily challenges.

Hemo-encephalic feedback trains enhanced blood circulation and oxygenation to the *frontal brain areas*, where the brain generates the abilities of *self discernment*, *abstract thoughts*, and *intuition*, among other qualities. It is a relatively easy feedback method which opens many new possibilities to *transcend and grasp paradoxical thoughts*, be more *creative*, and *remove many of the limits* on personal potential. When frontal brain areas are nourished and empowered by training, then self-regulation of psychophysiology may create *self-integration states which transform* for daily life. Life and well-being may be transmuted to a new level of increased inner joy and exceptional performance, with few boundaries.

It is evident that oriental medicine practices, with millennia of empirical experience and results, can offer useful adjunct techniques to neurofeedback. Meridian points (located at acupuncture sites) in the physical body are subtle energetic doors of access to the direct current of the nervous system. The most effective practitioners of NF work in teams utilizing both Western technology and Eastern energy system approaches for the most successful outcomes. When a training program team includes a NF professional with an acupuncture specialist, the results are faster, more integrated, and highly sustainable over time (*see* www.innerKey.org). Such *mind expansion technologies*, when augmented by subtle energy techniques, in a precise, targeted training process, enhance personal well-being and a better quality of life.

Cross-References

► Applied Psychophysiology
► Biofeedback

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New Holland

► Australia, Quality of Life

New Towns Movement

► Garden City Movement

New Urbanism

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Synonyms

Neo-traditional community design; Traditional neighborhood design

Definition

New Urbanism is a community-designed movement that grew quickly in the 1990s. It advocates pedestrian-friendly streetscapes, well-designed and connected street systems, and urban forms that facilitate urban living.

Description

New Urbanism, an urban reform movement that gained prominence in the 1990s, seeks to promote urban qualities that reformers have been seeking for over a century: vital, beautiful, just, environmentally benign human settlements (Talen, 2005). The significance of New Urbanism is that it combines these past efforts: the culmination of a long, multifaceted attempt to define what urbanism in America should be. This history reveals multiple viewpoints: romanticist and rationalist approaches and different ideas about control and freedom, about order and chaos, and about optimal levels of urban intensity. There are debates about the relationship between town and country, between two-dimensional plans and three-dimensional contexts, between empirical and theoretical insights, and between the role of expert and the place of public participation.

New Urbanism is a movement of like-minded individuals and has its own organization and annual congress and a charter that explains in detail its 27 core principles (Congress for the New Urbanism, 2000). In content, its charter is not unlike the manifestos written by previous generations of planners, designers, and architects (see, e.g., the manifesto of Jacobs and Appleyard, 1987). But New Urbanism is also equated with "projects" – highly visible, photogenic developments that vary widely in their adherence to the movement's core principles. Because of this variance, it is not always easy to determine what is or is not "New Urbanist" development. There is no universally accepted list of "New Urbanist projects," in part because there is no official certification process. Still, several lists of New Urbanist projects are maintained by organizations connected with the Congress for the New Urbanism and estimate something in the range of 500 projects. The editors of *New Urban News*, a professional newsletter for planners, architects, and others involved in "the creation of human-scale communities" (http://www.newurbannews.com/), include a list in the *Directory of the New Urbanism: People, Places, Products* (Steuteville and Langdon, 2008).

New Urbanist principles have now been widely incorporated into urban policy, particularly at the federal level. For example, the US government is backing a "place-conscious" urban policy that puts "► sustainability" front and center, relating housing, land-use, and ► transportation policy to "wasteful energy usage, traffic congestion, greenhouse gases, and climate change" (Turner, 2009). Several programs advocate these linkages. The US Department of Housing and Urban Development now has an Office of Sustainable Housing and Communities that promotes housing in the context of "environmentally sustainable and socially inclusive development patterns," while the Choice Neighborhoods initiative, like the HOPE VI program before it, is dedicated to creating "functioning, sustainable mixed-income neighborhoods by linking housing improvements with appropriate services, schools, public assets, transportation and access to jobs" (US Department of Housing and Urban Development, 2009). These ideas are defining the agendas of various

organizations and institutions, from the Environmental Protection Agency to the Urban Land Institute.

The "main tenets" can be summarized as follows. In principle, New Urbanism endorses compact urban form that encourages pedestrian activity and minimizes environmental degradation; encourages social, economic, and land-use diversity as opposed to homogeneity; connects uses and functions; has a quality public realm that provides opportunities for interaction and exchange; offers equitable access to goods, services, and facilities; and protects environmental and human ▶ health. New Urbanists contend that urbanism is not primarily an aesthetic concern, but they do maintain a set of normative principles. Aesthetics in urbanism can connect to the proper functioning of urban places in terms of human need and behavior. With these principles, New Urbanists readily define what they are against: sprawl, which is disconnected, automobile dependent, land consumptive, environmentally degrading, single use, homogenous, inequitable, and inaccessible, with a low-quality, poorly designed public realm.

Each principle of New Urbanism tends to suggest other principles. For example, diversity implies the need for ▶ integration, and ▶ equity implies the requirement for ▶ accessibility. Integration means that urban elements are interrelated socially, economically, and physically. Accessibility and integration imply the need for fine grain and permeability and for things like small, dispersed facilities. They imply the need to consider pedestrian orientation in addition to other transportation modes. They engender considerations of three-dimensional form as factors in the quality of place and experience. They imply the need for citizen input and the importance of the communal and public realms. They necessitate civic space and collective movement in the form of public transit.

Most New Urbanists would say that good urbanism depends on a certain denseness of social and economic relations. But density does not tell the whole story. Urbanism is the complex interplay between form and process, between structure and function, and between social and economic systems and the supporting infrastructure these require. This requires diversity: the separation of urbanism into components, like land-use categories, or miles of highways, or square footage of office space, or park acreage per capita, undermines urbanism – key points made by both Jane Jacobs (1961) and Lewis Mumford (1968) before the New Urbanists. The real task of urbanism is to maximize interaction, promote interchange at all levels, stimulate both social and economic contacts, and look for ways to promote diversity wherever feasible. That is the essence of what New Urbanists are trying to achieve.

Despite these laudable goals, New Urbanism has been the subject of much critique. New Urbanism's attempt to combine best practices from multiple traditions – a love for both the planned community and the existing, dense urban core, for example – often exposes internal contradictions: the quest for urban diversity within a system of order, a control that does not impinge freedom, an appreciation of smallness and fine-grained complexity that can coexist with civic prominence, and a comprehensive perspective that does not ignore detail. These incongruities are both a source of productive debate within New Urbanism and a fodder for its many critics.

A common critique is that "New Urbanism is simply new suburbanism." There is a history to this critique. Mumford and his regional planning colleagues in the 1920s were horrified at the metropolitan "drift" (outward expansion) being proposed for New York City, but their alternative – the decentralization of population into self-sufficient garden cities – was often mistaken for suburban land subdivisions and landscape gardening. Mumford was always at great pains to make the distinction – exactly as New Urbanists are today.

New Urbanists often work in infill and inner-city locations, but they are best known for creating walkable new towns outside of cities, and this

has inspired much critique. Suburbs account for an enormous amount of what is considered to be "urbanized area" in the USA; thus, New Urbanists consider suburbs to be an important part of the evolution of American urbanism, essentially an inchoate form of urbanism. Some suburbs were composed of the essential elements of urbanity from the start – diversity, connectedness, and a public realm – and New Urbanists have attempted to develop a definitional language of urbanism that fits the suburban context and that may help suburbs evolve in a way that is more sustainable and which leads to improved quality of life.

New Urbanism has tried to formulate a definition of urbanism that is multidimensional, sensitive to different contexts and scales. The experience of the New Urbanist movement with trying to make this work over the past two decades has revealed two interesting things. First, the multidimensional approach to American urbanism is exceedingly difficult to pull off. It meets resistance because, by attempting to merge ideas accustomed to opposing each other, it faces a reaction that labels the attempt inauthentic and watered down. Second, in the resistance to multidimensional approaches, there is a tendency to single out one particular strain as superior in all contexts. One aspect will be, in a sense, forced into predominance.

One of the most enduring examples of this is the seemingly intractable division between the existing city and its peripheral extension. Is it possible to embrace both the planned community, positioned externally, and the existing city, with its concomitant urban problems, simultaneously? Proponents of the peripheral planned community – like Lewis Mumford and Ebenezer Howard – believed that congested cities like London and New York would fail. Contrarily, proponents of the existing city – Jane Jacobs and William Whyte – believed that the planned community was antiurban. This is an essential contrast that has plagued New Urbanism.

Many question the ability of New Urbanism to deliver on its goals. One of the most intractable challenges has been social diversity. Two decades of New Urbanist development in the USA have left the impression that the building of walkable, mixed use neighborhoods in the USA is only for the affluent. In New Urbanism, the lack of inclusiveness is a particularly significant problem because the movement seeks legitimacy through its emphasis on economic diversity – that is, by its call for deconcentrating ▶ poverty and insisting that neighborhoods be mixed in income. The Congress for the New Urbanism's (2000, p. 89) Charter states: "Within neighborhoods, a broad range of housing types and price levels can bring people of diverse ages, races and incomes into daily interaction, strengthening the personal and civic bonds essential to an authentic community." Not unlike urban reformers since the nineteenth century, New Urbanism is seeking to address the problem of income-based ▶ segregation by trying to affect the way housing developments are designed. New Urbanists contend that the concentration of poverty in the inner city and the spread of affluent, homogenous suburbs – sprawl – at the periphery are two sides of the same coin.

Cross-References

- ▶ Community Planning
- ▶ Sharing Space in the Contemporary City
- ▶ Smart Growth
- ▶ Sustainable Urban Design
- ▶ Urban Design

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New Zealand

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Definition

Introduction

The focus of *Measuring New Zealand's Progress Using a Sustainable Development Approach: 2008* is to answer the question "How is New Zealand progressing towards or away from sustainable development?" Answers to this question provide a broader and more useful picture than the question "Is New Zealand sustainable?"

There is no definitive answer to the question of New Zealand's progress towards or away from sustainable development, as citizens have different values and place differing levels of importance on the different aspects of sustainable development. However, one can measure whether changes in different aspects are positive or negative in relation to sustainable development.

Description

The definition of sustainable development used in *Measuring New Zealand's Progress Using a Sustainable Development Approach:* 2008 is based on that adopted by the World Commission on Environment and Development in 1987, commonly referred to as the Brundtland definition.

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Central ideas associated with the concept of sustainable development that arise from the Brundtland definition are:

- Meeting needs and maintaining options – the concept of well-being is used, as it is a term that is familiar in the New Zealand context.
- Principle of fairness between present and future generations.
- Limits of the environment.

Based on these concepts, the definition used is:

- Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
- Sustainable development means ensuring that well-being is at least maintained over time. The principle of fairness within and between present and future generations should be taken into account in the use of environmental, economic, and social resources.
- Putting these needs into practice requires living within the limits of the natural environment.

Putting the Definition into Practice

To measure whether everyone's needs are being met fairly and are within the limits of the environment, one first has to ask what to measure and how to measure it.

If one were to measure only the concept of sustainability, one would focus on whether resources are maintained over time. However, by including the concept of development, one also needs to measure how resources are used to meet needs, how resources are distributed, and how efficiently resources are used. Statistics NZ therefore developed a framework (Statistics New Zealand, 2009) that takes into consideration these issues and allowed them to:

- Ask which content is relevant and answer the question "what to measure" (to do this, they identified target dimensions, defining principles, and topics)

- Focus on processes and causal connections and answer the question "how to measure" (for this, they used indicators)

What to Measure

Target Dimensions

To determine what to measure, they applied three target dimensions to the definition of sustainable development. The role of the target dimensions is to describe what a sustainable development path for New Zealand could look like. The dimensions represent a complex system, and they reflect the interdependencies between the environment, economy, and society.

The target dimensions are:

- Environmental responsibility, which acknowledges the importance of living within the limits of Earth's resources. This includes both critical levels of natural capital and preserving biodiversity to ensure the maintenance of options for current and future generations.
- Economic efficiency, which relates to achieving the same output with fewer inputs. If protecting the environment requires limits to be placed on the resources used, then to increase, or even maintain, our standard of living will require resources to be used more efficiently or productively.
- Social cohesion, which refers to how well people can meet their needs within society and maintain levels of unity and harmony. Social cohesion is about how a society holds together rather than falls apart. Levels of unity and harmony within society will be influenced by the perceptions of fairness, and this has implications for the ability of a society to work together to achieve long-term goals. Culture, which is often described as a fourth dimension of sustainable development, is included as an element of social cohesion.

Each of the target dimensions has equal importance, reflecting that in the long run, no dimension can be achieved at the expense of the others. For example, economic development can only be sustainable if it is accompanied by healthy ecosystems and well-trained people. The target dimensions reflect the balancing act that needs to take place in order to ensure a development path is sustainable.

Defining Principles

To determine in more detail what sustainable development means in practice, Statistics NZ defined target dimensions in more concrete terms, called defining principles. The assumption is that if the defining principles are followed, New Zealand will be further on its path to sustainable development. The principles are enduring, and the intention is that they remain valid over the long term.

They identified 38 specific principles for New Zealand (see www.stats.govt.nz/browse_for_stats/environment/sustainable_development/sustainable-development/defining-principles.aspx for more detail).

Topics

The final step in deciding what to measure was to identify topics or themes that are important for sustainable development and that relate to one or more of the target dimensions.

The 15 topics used for this report are:

- Population
- Biodiversity
- Air and atmosphere
- Water
- Land use
- Energy
- Transport
- Waste
- Work, knowledge, and skills
- Economic resilience
- Living conditions
- Health
- Social connection and governance
- Culture and identity

The population topic provides an overall context for human impact on sustainable development.

How to Measure

Indicators

Within each topic, they selected a small number of indicators. The defining principles provide

a reference point for the indicators, and each indicator can be related to more than one principle. The principles also provide a basis for assessing whether there has been a positive or negative change in relation to sustainable development.

Four different types of indicators are included, and together they provide a more complete picture of the situation. Each indicator is classified as either:

- Stock
- Flow
- Level
- Structural

Stock and flow indicators derive from the capital approach to measuring sustainable development. They answer the question "What are we leaving behind for our children?" Level indicators have been included as they capture the benchmark and the degree to which the needs of individuals and society are met. They answer the question "How well do we live?"

Structural indicators answer the questions "How efficiently are we using our resources?" and "How well are resources distributed?" They capture the two aspects of sustainable development that are not captured by capital stock and flow indicators: efficiency and disparity. Structural criteria are derived from their definition of sustainable development, where efficiency relates to the efficient use of resources and disparity in access relates to the notion of fairness.

In total, 85 indicators were selected across the 15 topics. Each indicator is identified by a unique number, which starts with the topic number it relates to. For the indicator analysis, they aimed to have up to eight indicators for any one topic. This was not always possible, as in some cases the indicators did not align with the defining principles, or there was a lack of consistent long-term time series, or the overriding need for statistical soundness reduced the number below eight.

The indicators selected, and the way the indicators are grouped, have changed since Statistics NZ's 2002 report, *Monitoring Progress Towards a Sustainable New Zealand*. Although they aimed to be consistent, changes have occurred because of the availability of new data sources and as a result of further work on defining the underlying measurement framework.

Measuring New Zealand's Progress Using a Sustainable Development Approach: 2008 measures progress towards sustainable development at a national level. Although New Zealand is part of a global system, the report did not look at connections that are relevant to sustainable development at a global level. Also, the report does not focus on the regional or local level.

Results for each indicator span the most recent 20-year period, although in many cases the period analyzed is shorter. In some cases the time period is longer than 20 years. This is because either longer underlying data cycles have been identified or longer time series are required to understand long-term changes. Examples are the indicator in topic 3 relating to ozone levels (3.5) and that in topic 10 concerning labor productivity (10.4).

Bringing It All Together

In summary, to answer "what to measure" and "how to measure," they adopted a framework based on a capital approach to measuring sustainable development. To answer the question "What progress has been made towards or away from sustainable development in New Zealand?" they selected 85 indicators to measure environmental, economic, and social dimensions of sustainable development (based on *Statistics New Zealand's Framework for Measuring Sustainable Development*, 2009). They identified a target trend for each indicator, to show the desired direction of change according to our principles of sustainable development.

Data came from a variety of sources to provide results for each indicator. By comparing changes in the data from 1988 (or over the time period available), they identified a trend for each indicator.

Cross-References

- ▶ Sustainable Development
- ▶ Sustainable Development Indicators

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Newlywed Relationship Quality

- ▶ Marital Satisfaction Change over Newlywed Years

News

- ▶ Reading Newspaper Articles

NGO

- ▶ Fraser Basin Council Sustainability Reporting

NHIS

- ▶ National Health Interview Survey (NHIS)

NHP

- ▶ Nottingham Health Profile (NHP)

Nineteenth-Century Ireland and Quality of Life

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Description

In the summer of 1845, the well-known reformer and advocate of total abstinence from alcohol, Father Theobald Mathew, travelled from Cork to Dublin; he passed through fields green with the brightness of the maturing potato crop. The prospect was a fine harvest which would end the annual weeks of stress when the previous year's crop had been eaten. On his return, 1 week later, Father Mathew rode back to Cork through fields whose greenery was now rotten. Initially, the local reaction was anguish but not surprise; the potato was known to fail in one place or another across Ireland. Phytophthora infestans Mont. Had attacked the potato plant in the United States, in Holland, and elsewhere in previous years, and the outbreak of 1845 was not unexpected.

The potato in its several varieties, the common Lumper and, its more disease-resistant cousin, the English Red, was the prime source of nutrition for a population which, in 1841, had reached a little over eight million. The population was largely rural, and they found growing potatoes in lazy beds on rented land a fairly straightforward procedure. Turnips would have been equally easy to grow, but convenience outweighed prudence amidst the competition to rent a plot of land.

In the following year, 1846, the situation deteriorated. By June, with several weeks before the crop matured, and under blackened vegetation were only rotten potatoes. The result was a threat to the rural majority of Ireland's exploding population. They lived in poverty with a quality of life lower than that of other countries in Western Europe, for the most part.

They lived in shacks paying rent to landlords' agents and were perceived as an impediment to efficient use of land for grazing. The owners were frequently absent, living in Limerick, Dublin, or abroad and accepting rents remitted to them. Their interests as a propertied class were distinct and were shared by government in London which exercised authority through a lord lieutenant at Dublin Castle and a series of generally efficient undersecretaries. In London, responsibility for assisting Ireland was assigned by Lord John Russell to Charles Trevelyan; he approached the disaster using the consensus of the times that all problems were local and were to be met by local figures drawing on local funds and charity. An Irish resource was the Poor Law (Ireland) of 1838, an innovation too closely resembling the 1834 Poor Law for England and Wales which relied on a cadre of middle-class leaders and managers.

In relation to the condition of Ireland in the decade before the famine, the ▶ quality of life was deteriorating. The First Report from Her Majesty's Commissioners for Inquiring Into the Condition of the Poorer Classes in Ireland (1835) revealed that conditions had been deteriorating since at least 1815 (Mokyr & O'Grada, 1988). By 1845, Ireland's besieged poor were young, and nearly one half were under age 19 years and so at a nutritionally sensitive stage in the civil life cycle. Their diet was largely milk, potatoes, and oatmeal (Crawford, 1984), and their economy was largely barter. Money was used to pay the rent, and raising a pig ("the gentleman that paid the rent") helped. In the Irish famine, as in others, famine does not automatically mean that food is unavailable to those who have money, but in a cash-free rural economy money was scarce.

Across Ireland there were beggars, and to their number were added the starving. At the best of times, as one observer put it, his town was full of people who did not know where their next meal would come from. Life itself was at risk, and infections spread quickly as hunger led to lowered resistance. The complex of ▶ poverty, ▶ hunger, and disease was symbolized and represented by the town of Skibbereen, near Cork. Across Ireland population had risen from the census report of 8,175,124 souls in 1841 to a higher but unknown figure. The decline in population across the decade of 1,622,739 persons (19.85 %) understates the loss. Prior to the famine, there had been a flow of emigrants, a process accelerated by landowners' search for ways to reduce their tax burden and make more efficient use of their land.

Nineteenth-Century Ireland and Quality of Life, Table 1 Elements of quality of life, 1841 and 1851

Variable	1841	1851
Education		
1. Persons 5 years and older who "neither read nor write" as a percentage of the population	51.85	46.5
2. Persons 5–15 years at school as percentage of the population	20.62	23.81
Demography		
3. "A tolerable approximation of the birthdate" adjusted via Mokyr (1985)	36.07	28.00[a]
4. "Civic and rural persons per square mile"	282.12	232.56
5. Percentage of persons born in another county	5.14	8.08
Housing		
6. Houses of the first (a), second (b), third (c), and fourth class (first class = best quality)		
(a)	1.14	2.82
(b)	2.82	24.72
(c)	40.96	50.54
(d)	40.46	21.90

[a]Based on the estimate of Mokyr and O'Grada (1988)

Table 1 shows that post-famine Ireland was more literate, a consequence of a growing trend to support national schools and those conducted under religious auspices. At the same time, the proportion of school-age young people rose by 3 %. There is no reliable information on the post-famine birthrate, but Mokyr and O'Grada (1988) estimated a decline of one quarter. A consequence of the shrinkage of population and clearance of the land was a reduction of ▶ population density by about one sixth. The increase in mobility between counties occurred, some of which was the sad procession of the rural poor straggling into towns in search of food and shelter. Poor nutrition reduced resistance to

infections, and mortality in fever hospitals peaked at 11.04 % in May, 1849 (Jordan, 2006).

Housing merits attention for several reasons. There was the innovation of Captain Thomas A. Larcom (1843) who devised a four-class system used in 1841 to describe the quality of housing. To a degree a fifth class was implicit in the fragmentary dwellings too primitive to fall within Larcom's fourth class, an expression of the quality of life endured by the most impoverished. Across the decade, fourth-class housing declined sharply, but that observation is tempered by the fact that destruction of fourth-class housing did not mean that it was replaced. The poorest were left to dwell under bridges as in the case of Judy O'Donnell and in holes in the side of hills. More salutary was the increase of class three and class two housing (Jordan, 1997).

The effect of the famine of 1846–1849 was radical; the quality of life for all segments of the population from bankrupted landowners to the rural poor deteriorated. Reforms over the ensuing decades improved living conditions, but the damage to the social structure was far reaching.

The outcome was an increase in ▶ emigration; long before the famine Ulster's Presbyterians had begun leaving for the New World, and farmers in Connacht moved annually to bring in the harvest in England and so pay the rent on their cottages. Also, landowners had sought to reduce their tax bills by moving people off their properties; in some instances they paid for the passage to England, Scotland, and the New World offering the prospect of a higher quality of life. The Lansdowne estate in Kerry, for example, removed 4,600 people between 1850 and 1868.

Ireland in the 1840s was a country of young people; many of the emigrants were young, single people living in the process of chain migration in which one immigrant funds the passage of one or more emigrants in the Irish diaspora. The scattering of the Irish took them beyond England, Scotland, and the United States. Many went to ▶ Australia, and those who settled in Texas – the *San Patricios* – fought on both sides in the Mexican-American wars. There was an Irish battalion in the Papal army of 1860 (Berkeley, 1929). Others went still further south settling in Argentina, for example. For many, however, the goal was the nearest place which was not Ireland. The cautious settled in Liverpool, Manchester, and Glasgow, for example. They were destinations which could be reached for a few pennies, and from which return to Ireland was easy and cheap.

Post-famine Ireland was a shattered land. Visitors described desolate scenes marked by neglect of fields and the absence of people and animals. Grass and its by-products, milk, cheese, and hides, supplemented the potato as a major agricultural complex, although that unreliable tuber continued to be cultivated extensively. The dearth of country folk was obvious; the census of 1841 counted 8,175,124 souls, a number which has been estimated at 8,500,000 by the middle of the decade. However, the 1851 census recorded a population of 6,552,385. The decline was on the order of two million people.

For the young in those years, there was the promise of educational opportunity through the national schools and those sponsored by religious groups and philanthropy. However, it is likely that the prolonged deficiency in nutrition may have left many young survivors with ▶ health and intellectual problems handicapping their progress in school (Jordan, 1998a).

Post-famine Ireland participated in the emergence of modernism and the correlated improvement in quality of life. Progress in the era included improvement of postal services which had expanded under the care of the future novelist, Anthony Trollope. Railways expanded and, for example, reached Mallow, with much ceremony, in 1849. Apart from Belfast, Irish industry declined; Dublin and Cork (Bielenberg, 1991) saw their industries shrivel as English factories mass-produced items for export. The Irish language had been in decline in many areas, although its resurgence would come with an awakened nationalism. The legacy of Daniel O'Connell and Young Ireland would reach a temporary zenith under the leadership of Charles Stewart Parnell.

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NNIP

► National Neighborhood Indicator Partnership

No Differential Item Functioning

► Measurement Invariance

No Strings Attached Sex

► Casual Sex and the Quality of Life

Nociception

► Pain and Genetic Connections

Noise

► Airport Noise
► Disturbance Terms

Noise Abatement

► Airport Noise
► Traffic Noise Abatement

Nominal Response

► Response Format

Nominal Scales

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Synonyms

Categorical data; Labels; Names

Definition

Stevens (1946) describes measurement as a "rule to assign numbers to attributes". A nominal scale is a scale in which the rule of assigning numbers informs one of which category the data value belongs. Customary examples include eye color, names, or labels.

Description

Stevens (1946, 1951) introduced the now widely known terms nominal, ordinal, interval, and ratio to refer to the families of scales, for which the basic

empirical operations (rules for assigning numbers) were the determination of equality or labeling, the determination of order, the determination of equality of intervals, and the equality of ratios, respectively. The nominal scale was the least controversial of Stevens' scale types because in the course of measurement they do not even require the assignment of numerical values, but only of unique identifiers (e.g., letters or numerals). In terms of Stevens' focus on transformations, nominal scales are invariant under any transformation that preserves the relationship between individual data points and their identifiers. Therefore, it is permissible to perform almost any transformation or operation on the data values as long as one does not combine or confuse data values. For example, if the nominal data were assigned numbers, then the class of permission transformations that maintain invariance includes any one-to-one function from the original set of numbers into a new set. However, if the nominal data were assigned nonnumeric values such as letters, the permissible operations include rearranging the data values.

Cross-References

▶ Guttman Scale
▶ Interval Scale

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Non-completer

▶ School Dropout

Non-consequentialism

▶ Deontology

Nonfamily Stress

▶ Duke Social Support and Stress Scale (DUSOCS)

Nonfamily Support

▶ Duke Social Support and Stress Scale (DUSOCS)

Nonfinancial Employment Commitment

▶ Employment Commitment

Non-governmental Organizations (NGOs) in Indonesia

▶ Civil Society Capacity Building in Indonesia

Nonheterosexual Orientation and Behavior in England

▶ Same-Sex Behavior and Orientation in England

Nonlinear Effect

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Synonyms

Curvilinear effect

Definition

The properties of nonlinear phenomena are defined in opposition to linear ones, and, according to Munné (1993), they are the following: (1) lack of direct proportionality between cause and effect, (2) presence of undetermination, (3) unpredictability of the phenomenon to be explained, and (4) discontinuity in the processes of change.

That means that within nonlinear systems, which are the rule rather than the exception in both the natural and the social world, an apparently trivial cause can lead to a consequence of enormous proportions (sensitivity to initial conditions). That is to say, in a nonlinear system, the input is not proportional to the output.

Statistically speaking, an effect between a predictor and a dependent variable is called *nonlinear* if it changes in size or sign depending on the predictor's own values or depending on the values of other predictors.

Description

While according to the classical paradigm, a small cause is generally associated with a small effect and a large cause with a large effect, in complex systems, small changes in the initial conditions can, as a consequence, produce major changes in the "final" state of the system (Coveney & Highfield, 1992; Hayles, 1998).

The nonlinearity property is one of the most remarkable features of complexity theories as they are, without exception, nonlinear conceptualizations. Behind nonlinear thought is the idea that although, hypothetically, it is possible to describe all variables that contribute to explain the functioning of a nonlinear system, the future of the system could never be totally described (Perna & Masterpasqua, 1997). This is what Perna & Masterpasqua (1997) call a dynamical comprehension: a type of comprehension that considers unpredictability and disorder as unavoidable aspects of systems that are in dynamical evolution: that is, the majority of systems. At the same time, as opposed to what happens in linear systems, processes of change in nonlinear systems are not necessarily continuous because there are potential critical points where those changes stop being gradual and continuous and become sudden and abrupt.

The approach to the two phenomena differs considerably. Thus, the nonlinear scientist tries to discover critical points of the system and to understand its homeostasis rather than designing his/her model to provide an accurate prevision of future events or to control the process he/she studies (Briggs & Peat, 2001). In trying to apply these principles to the area of quality of life, there are some examples in the literature which show that studying personal well-being through nonlinear techniques has a lot of potentialities and helps to overcome some of the limitations that its study has nowadays (see, for instance, González, Coenders, & Casas, 2008). Concretely, it allows considering the interaction effects among different variables constituting and also closely related to personal well-being. Other examples aimed to study the relationships between satisfaction with life as a whole and satisfaction with different life domains can be found in the work by Rojas (2006) and González, Coenders, Saez, and Casas (2010).

There is not a unique procedure to capture the potential nonlinear nature of the relationship between different variables. In what follows, an accurate description of the statistical foundations of different nonlinear models, with a special emphasis on the parameters that should be taken into account, is provided. The description begins with linear models and goes beyond to include nonlinear models of different nature.

A linear model constrains effects of the explanatory variables on the dependent variable to be constant. For simplicity we omit the error term and consider a multiple regression model with only two explanatory variables:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2$$

where β_0 is the *intercept* term and β_1 and β_2 are the regression *slopes*.

The *spline model* makes it possible to account for a shift in the strength of the effect after a known critical point:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 (x_1 - k_1) D_1 + \beta_4 (x_2 - k_2) D_2$$

with $D_1 = 1$ if $x_1 > k_1$, $D_1 = 0$ otherwise; $D_2 = 1$ if $x_2 > k_2$, $D_2 = 0$ otherwise. Thus, the effect of x_1 on y is $\beta_1 + \beta_3$ if $x_1 > k_1$, β_1 otherwise. The drawbacks of the approach are that only sudden effect changes can be modeled and that the critical points must be known in advance. Some recent nonparametric and semi-parametric generalizations, like *cubic smoothing splines*, have eliminated these drawbacks and make it possible to fit smooth curves (Baccini, Biggeri, Lagazio, Lertxundi, & Saez, 2007; Ruppert, Wand, & Carroll, 2003).

A simple and yet flexible relationship can be accounted for by a *model including all quadratic and product terms*:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 (x_1)^2 + \beta_4 (x_2)^2 + \beta_5 x_1 x_2$$

With this model, variations in the effect, given the values of the same variable, are governed by the parameters β_3 and β_4 associated to the *squared variables*. Some sort of synergy can also emerge between pairs of explanatory variables, associated to the *interaction terms* or *product terms* of two variables. These imply changes in the effect of one variable depending on the value of another. A positive β_5 parameter implies positive synergy. The quadratic and interaction term model thus implies that effects of variables may change depending on their own values and the values of all other variables. For instance, the effect of x_1 on y is:

$$\beta_1 + 2\beta_3 x_1 + \beta_5 x_2$$

and only equals β_1 if x_1 and x_2 are both equal to zero or if β_3 and β_5 are both equal to zero. Variables x_1 and x_2 should best be mean centered prior to computing the squared and product terms with a twofold aim: firstly to reduce collinearity and secondly to make the interpretation of β_1 refer to a meaningful and realistic situation, as zero becomes equal to the mean value (Irwin & McClelland, 2001). This is a flexible equation which can approximately accommodate more complex nonlinear patterns. It may be used when the theory is too weak to suggest a particular pattern of nonlinearity (see González et al., 2010).

In some other cases, nonlinear models are theory driven, as is the case for the *Cobb-Douglas function*:

$$\ln(y) = \beta_0 + \beta_1 \ln(x_1) + \beta_2 \ln(x_2)$$

This model can be transformed into the Cobb-Douglas production function which shows a meaningful way of combining inputs of the production process into the production output:

$$y = e^{\beta 0} (x_1)^{\beta 1} (x_2)^{\beta 2}$$

In this function β_1 and β_2 are *elasticities*, in other words, percent changes in y as a response to percent changes in x_1 and x_2. Some parameter combinations are also theoretically meaningful, such as $\beta_1 + \beta_2 = 1$ implying constant returns to scale, in other words, that twice as great an amount of all inputs leads to twice as great an output. Similarly, $\beta_1 + \beta_2 > 1$ imply increasing returns to scale and $\beta_1 + \beta_2 < 1$ imply decreasing returns.

All the previous models have in common the fact that they fit into the classical linear regression model framework. If the model assumptions are fulfilled, they can be estimated by ordinary *least squares* once variables are transformed and multiplied as needed.

Some nonlinear models cannot be made linear by transforming the variables and need specific

estimation methods such as *maximum likelihood* or nonlinear least squares. An example in the quality of life field is the *constant elasticity of substitution* model recommended by Rojas (2006):

$$y = [\beta_1(x_1)^{\gamma} + \beta_2(x_2)^{\gamma}]^{\delta/\gamma}$$

Parameter γ governs returns to scale and δ governs synergy between the set of explanatory variables.

Yet another family of nonlinear models arises from the limited measurement of the dependent variable. The commonest example is the *logistic regression model* for binary-dependent variables, which is written as the following nonlinear function of $\pi = \text{Prob}\,(y = 1)$:

$$\ln[\pi/(1-\pi)] = \beta_0 + \beta_1 x_1 + \beta_2 x_2$$

Since nonlinearity arises here from methodological issues, one would hardly consider the effects of variables to be nonlinear in the above equation. A genuine nonlinear formulation can indeed be added. For instance one can write:

$$\ln[\pi/(1-\pi)] = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3(x_1 - k_1)D_1 + \beta_4(x_2 - k_2)D_2$$

Up to now we have assumed that the x variables are measured without error and all models fit within the classical econometrics framework (Greene, 2007). When the explanatory variables are latent variables ξ measured with multiple indicators containing measurement error, the statistical treatment belongs to the *structural equation model* framework. The best known situation is the presence of product interaction terms (Coenders, Batista-Foguet, & Saris, 2008; González et al., 2008):

$$y = \beta_0 + \beta_1\xi_1 + \beta_2\xi_2 + \beta_3\xi_1\xi_2$$

Cross-References

- ▶ Complexity Theories
- ▶ Intercept, Slope in Regression
- ▶ Least Squares Regression Line
- ▶ Linear Regression Model
- ▶ Logistic Regression
- ▶ Multiple Regression
- ▶ Regression Coefficients

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Nonliterate

▶ Illiteracy, an Overview

Nonmarket Housing

▶ Social Housing

Nonmarketable Goods, Regression Models

▶ Hedonic Price Model

Nonmetric MDS

▶ Faceted Smallest Space Analysis (Faceted SSA; FSSA)

Nonnaturalistic Objectivist Value Theories

▶ Value Theories

Nonnaturalistic Subjectivist Value Theories

▶ Value Theories

Nonparametric Analysis

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Definition

Nonparametric analysis refers to a class of statistical analyses that do not rely on an evaluation of population parameters (e.g., mean or standard deviation) for testing the fit of a model. Instead, nonparametric statistics rely on rankings, odds ratios, marginal probabilities, etc. for evaluating whether some set of observations are random or not (Hurlburt, 2003).

Description

Nonparametric statistics are used with nominal or ordinal level data or when interval and ratio level data are non-normally distributed. Such analyses are more robust than their comparable parametric equivalent because fewer assumptions are required about the data. However, nonparametric statistics are less powerful than comparable parametric analyses. Nonparametric statistics include chi square, sign test, Kruskal-Wallis one-way analysis of variance, median test, Kaplan-Meier, phi, and Mann-Whitney U test, among others (Aron & Aron, 2003).

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Nonparametric Statistics

▶ Robust Statistical Tests

Nonpermanent Employment

- ▶ Casual Employment
- ▶ Temporary Employment

Non-probability Sampling

- ▶ Purposive Sampling

Nonprofit Cooperative Housing

- ▶ Social Housing

Nonprofit Housing

- ▶ Social Housing

Nonprofit Sector in Indonesia

- ▶ Civil Society Capacity Building in Indonesia

Non-regular Employment

- ▶ Casual Employment

Nonresponse Bias

- ▶ Bias, Statistical

Nonstandard Employment

- ▶ Casual Employment

Nontraditional Employment

- ▶ Temporary Employment

Nonurban Seniors

- ▶ Rural Seniors

Non-Western Foundations of Human Rights

- ▶ Vitality, Community, and Human Dignity in Africa

Norm Values

- ▶ Normative Data

Normal Aging

- ▶ Elderly Activity and Engagement with Life

Normal Censored Data, Regression Model

- ▶ Tobit Models

Normal Distribution

- ▶ Univariate Normal Distribution

Normal Scores

- ▶ Standard Scores

Normalization

► Z-Scores

Normalization Effect of Pornography

► Pornography, Sexual Socialization, and Satisfaction

Normative Data

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Synonyms

Norm values; Norms; Population norms; Population reference data; Reference guidelines; Reference values

Definition

According to O'Connor (1990), normative data are (observational, empirical, statistical) data that summarize what is usual or typical in a defined population, culture, institution, or ► health care system at a specific point or period of time, and describe observed phenomena or characteristics.

Normative data are used to compare characteristics or specific conditions of a group of people or an individual person with data for the average person of a reference group (The EuroQol Group's International Task Force on Self-Reported Health, 2004). Such data therefore permit the identification of variations in the measured characteristics in comparison with the distribution of these characteristics in the reference population. Thereby, the reference population indicates what is "normal", and normative data help to identify deviations from these norms (Ware & Keller, 1996).

Specification Normative Sample, Reference Population, Analytic Sample, and Norms

The *normative sample* is the sample from which norms are obtained and consists only of a part of individuals from a reference population. The *reference population* refers to a larger group of people, to whom the analytic sample is being compared. The *analytic sample* consists of the questionnaire respondents or test takers, to whom the questionnaire is administered, and that is going to be compared with the reference population, assuming similar characteristics. Their test scores are then compared to the scores (norms) of the normative sample, in order to interpret the results in relation to the reference population. *Norms* are specific for a population, because of assuming similar characteristics between the analytic sample and the reference population. For this purpose, a minimum sample size, a ► representative sample, as well as a detailed description of the normative sample are important considerations in order to provide adequate norms (e.g. age, gender, sociodemographic characteristics, and health conditions).

Description

History

What is considered to be normal is relative and differs between groups with different phenotypes, preferences, cultural backgrounds, or simply changes over time. This makes it difficult to interpret test results, as scores usually do not have a clear interpretation, except from floor and ceiling effects, but the scores between these two extremes have arbitrary units. Therefore, norms have become a popular strategy to facilitate the interpretation of test scores in different areas, especially in complex and multidimensional concepts, like in psychology, medicine, or ► quality of life.

In psychology, norms were first applied to the aptitude tests. In 1905, Simon and Binet published one of the first intelligence tests. The relevance of this scale was shown when in 1916 it was adapted to the North American population, called the Stanford-Binet Test (Anastasi, 1973).

In medicine, norms have historically been used in pediatrics to interpret height and weight in the assessment of infantile growth. It also has become a popular method of interpreting several clinical or biological parameters, like spirometric values, serum creatinine, or cognitive state.

In the assessment of health status or health-related quality of life (HRQL), the ▶ Sickness Impact Profile was among the first questionnaires using comprehensive norms to interpret the scale scores (Bergner, Bobbitt, Pollard, Martin, & Gilson, 1976). Today, the use of normative data is a common strategy to interpret generic, specific, and preference-based HRQL measures (Crum, Anthony, Bassett, & Folstein, 1993; Ferrer et al., 2002; Forsberg & Bjorvell, 1993; Fryback et al., 2007; Klee, Groenvold, & Machin, 1997).

In summary, norm-based comparison has become a well accepted and widely used interpretation strategy as no gold standard is available to interpret complex and multidimensional health outcomes.

Use of Normative Data

Normative data can be used in several ways. Norms are a valuable source of information to determine the impact of diseases (Stewart et al., 1989) or the effectiveness of a treatment (O'Brien, Buxton, & Ferguson, 1995). Furthermore, they can be used to discriminate between "sick" and "healthy" populations in order to identify and support vulnerable subgroups. Another application is the use of normative data for ▶ decision making purposes and for the justification of recourse allocation; at clinical, political, social, or economical level (McHorney, 1999).

To assure a meaningful interpretation using normative data, it is important to clearly indicate the population for which norms have been collected. The interpretation is only meaningful to individuals or groups that belong to the reference population, assuming that the distribution of the studied characteristics is similar.

How to Obtain Normative Data

Normative data are collected by administering a test or questionnaire to the normative sample. Cross-sectional studies, especially population surveys, are the most common study design to obtain norms and to picture a certain situation at one point of time. Longitudinal studies, like panel studies, provide another suitable data source that additionally consider time and cohort effects but are money- and time-consuming.

Two considerations: First, if data from national or local government surveys are used (as primary or secondary data), this kind of projects usually achieve a good level of representativeness of the general population. General population norms have the widest range of application and serve for many interpretation purposes as they include a diversity of people and because of its representative character. Norms can be representative at different levels (national, regional, or local level) or even can be representative for a special purpose (occupational, disease condition) or institution (primary, secondary ▶ health care, rehabilitation) (American Psychological Association, 1985). If norms have been calculated for a special purpose, like disease-specific norms, it is important to notice that their area of application is limited but still adequate and relevant for the reference population they have been calculated for (people with this disease).

Second, the composition of the normative sample may differ regarding the purpose for which norms will be used. In some circumstances, selecting a healthy normative sample is crucial for the interpretation of some characteristics, mainly biological parameters (like levels of cholesterol) to assure that the comparison is made with the mean of healthy individuals. In contrast, using data from general populations assume that this population is not free of disease (such as physical and mental disorders, and some with multi-morbidity). Nevertheless, for some complex and multidimensional concepts, like HRQL or intelligence, general population norms are the most appropriate source of comparative

information, presenting what is prevalent and can be expected for a certain age or gender group under "real life" conditions. In this context it would be almost impossible to only select healthy individuals, because of the measure of the prevalent physical and mental conditions in the general population; it is yet to picture reality.

Examples: Probably the most famous HRQL questionnaire for which normative data have been obtained is the ▶ SF-36. From 1990 onwards, general population norms have been computed in several countries, and in 1993 the International Quality of Life Assessment Group (IQOLA) developed a standard protocol for how to collect and calculate SF-36 normative data in general population studies to maintain comparability between norms and populations (Gandek & Ware, 1998). More recent examples are the KIDSCREEN instrument and the preference-based measure EQ5D, which both have been developed and normed simultaneously in several European countries, respectively (Ravens-Sieberer et al., 2008; The EuroQol Group's International Task Force on Self-Reported Health, 2004).

How to Report Normative Data

The descriptive information is summarized in so-called norm tables that are used to visualize the distribution of the assessed characteristics in the reference population, including information regarding the size of the study sample in each group. In these norm tables, norms are shown for the total sample, as well as separately per age groups and gender. The stratification of norms into age groups has shown to be indispensable, as health worsens during life. Physical health tends to worsen remarkably with increasing age, whereas mental health tends to be more stable over time. The consideration of gender is an important issue, as women tend to score worse than men, consistently for physical and mental health dimensions (Hopman et al., 2000; Ware, Kosinski, & Dewey, 2000). The year the normative sample was taken should be indicated, as well as the mode of administration of the test (self-administered, by telephone or interviewer, or computer assisted) to clearly state similarities and differences between the reference population and the analytic sample (American Psychological Association, 1985).

When normative data are reported, several descriptive statistics should be provided in order to facilitate interpretation (Anastasi, 1973; Cronbach, 1972):

Median and Other Summaries of Distribution

Deciles and percentiles help to quantify the amount of HRQL impairment of an individual or of groups when comparing scores of the analytic sample with the distribution of scores provided by the reference population. Percentiles are easy to use and interpret and do not need an assumption of normal distribution. The percentile distribution indicates if a respondents' score is at the median (50 % with better scores and 50 % with worse scores), if it is below the fifth percentile (95 % with better scores) or if the score is within the interquartile range (between 25 % and 75 %). Percentiles also allow quantifying the score difference for an individual over time or between two different individuals or groups. The percentile technique is a common and simple technique to visualize score distribution and facilitates the interpretation of scores.

Indicators of Central Tendency and Dispersion

Means (M) and standard deviations (SD) help to determine whether a group or individual scores above or below the average of the reference population. Floor (the proportion of respondents with highest possible score) and ceiling (the proportion of respondents with lowest possible score) effects also help to visualize the distribution of scores.

Standard Scores

The importance of reference norms as an interpretation strategy is shown in the use of ▶ standard scores. Norms can be used to develop norm-based standardized scores in order to indicate how many standard deviations a respondent scores above or below the mean score of the reference population. It is calculated by subtracting the population mean from an

individual or group raw score and then dividing the difference by the population standard deviation. This conversion process is called standardizing or normalizing. The most common standard scores used in this context are the Z-score (M = 0, SD = 1) and the T-score (M = 50, SD = 10).

Example: When calculating the scores of the second version of the ▶ SF-36 or ▶ SF-12, norm-based-scoring method is used to score all eight domains and the two summary scales equally, which allows direct interpretation between the scales (Ware et al., 2000). Scores are transformed to T-scores with a mean of 50 and a standard deviation of 10 in the general US reference population. Even without consulting norm tables, with this standardization method it becomes clear that for all scales scores above or below 50 indicate better or worse HRQL in comparison with the US 1998 general reference population, and that a five-point difference or change is a five-tenth of a SD unit or has an effect size of 0.10.

Conclusion

Normative data are well-known and commonly used interpretation strategies for complex and multidimensional concepts, like HRQL data. The use of norm tables and standard scores is common, as they are easy to calculate to realize and to apply. To promote a reasonable use and in order to avoid misinterpretation and overgeneralization of the data, some previous considerations have to be taken into account, and rigorous methods need to be applied.

Cross-References

- ▶ Ceiling Effect
- ▶ Decile Range
- ▶ Decision Making
- ▶ EuroQoL 5-Dimension Measures in Malaysia
- ▶ Floor Effect
- ▶ Health Care
- ▶ Health-Related Quality of Life Measures
- ▶ Quality of Life
- ▶ Representative Sample
- ▶ SF-36 Health Survey
- ▶ Short Form 12 Health Survey (SF-12)
- ▶ Sickness Impact Profile (SIP)
- ▶ Standard Deviation(s)
- ▶ Standard Scores
- ▶ Survey Research

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Normative Ethics

► Moral Theories

Norms

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Definition

Norms represent the score distribution of a test in a representative sample, providing us the standard frame with which to compare individual scores.

Description

Norms help test users interpret test scores. Before the interpretation, raw scores themselves are meaningless. In order to compare, explain, and make proper decisions, test users may transform the raw scores in some meaningful ways: in other words, derived scores. Test users then apply the derived scores to evaluate an individual's performance (Kline, 2005).

Several common representations of norms are percentile ranks (PR)/percentiles (PC), normalized standard scores, and standard scores. PR simply expresses the percentage of persons in the standardized sample who scored below or equal to that specific raw score; on the other hand, PC refers to the score below which a certain percentage of persons in the standardization sample scored. Although PR and PC are practical and easily understood, they are usually based on nonlinear transformations and are not necessarily coming from the normal distribution. In this situation, we use the PR for each raw score to determine the corresponding ► standard scores. The resulting distribution of standard scores will be normally distributed (Gregory, 2007). These converted scores are called normalized standard scores and are commonly used (e.g., Graduate Record Examinations, GRE scores). On the other hand, the z-score, the most common standard score, is a linear transformation that assigns each raw score a new position in a form relative to the mean in standard deviation units. Under the normal distribution, equal z-scores imply the same position; test scores are therefore comparable. By additional linear transformation, we can transform z-scores into other derived standard scores to avoid negative values and decimals (e.g., t-scores).

There are four essential factors in the application of norms. These are (1) representativeness, (Torres et al. 2004) (2) size of samples, National Health Interview Survey, Taiwan (2001). (3) time of measurement, (Hawthorne et al. 2007) and (4) appropriateness. (Klee & Machin, 1997) Above all, researchers must confirm that data for a norm was collected from a target population for whom the test is intended.

(In general, this group of people is also labeled a "normative sample" or "standardization sample.") Secondly, a ▶ representative sample itself must include enough people on behalf of the population (McIntire & Miller, 2005). Moreover, test users must notice if the tests had been widespread over the years, as it is necessary to consider the applicable interpretation of the norm to date. Finally, test users also probably wish to evaluate the scores from a narrow sample of specific geographic locations; in this case, local norms are chosen in this situation to be consistent with participants' characteristics (Urbina, 2004).

Cross-References

- ▶ Normative Data
- ▶ Representative Sample
- ▶ Standard Scores

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Northwest Territories

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Synonyms

NWT

Definition

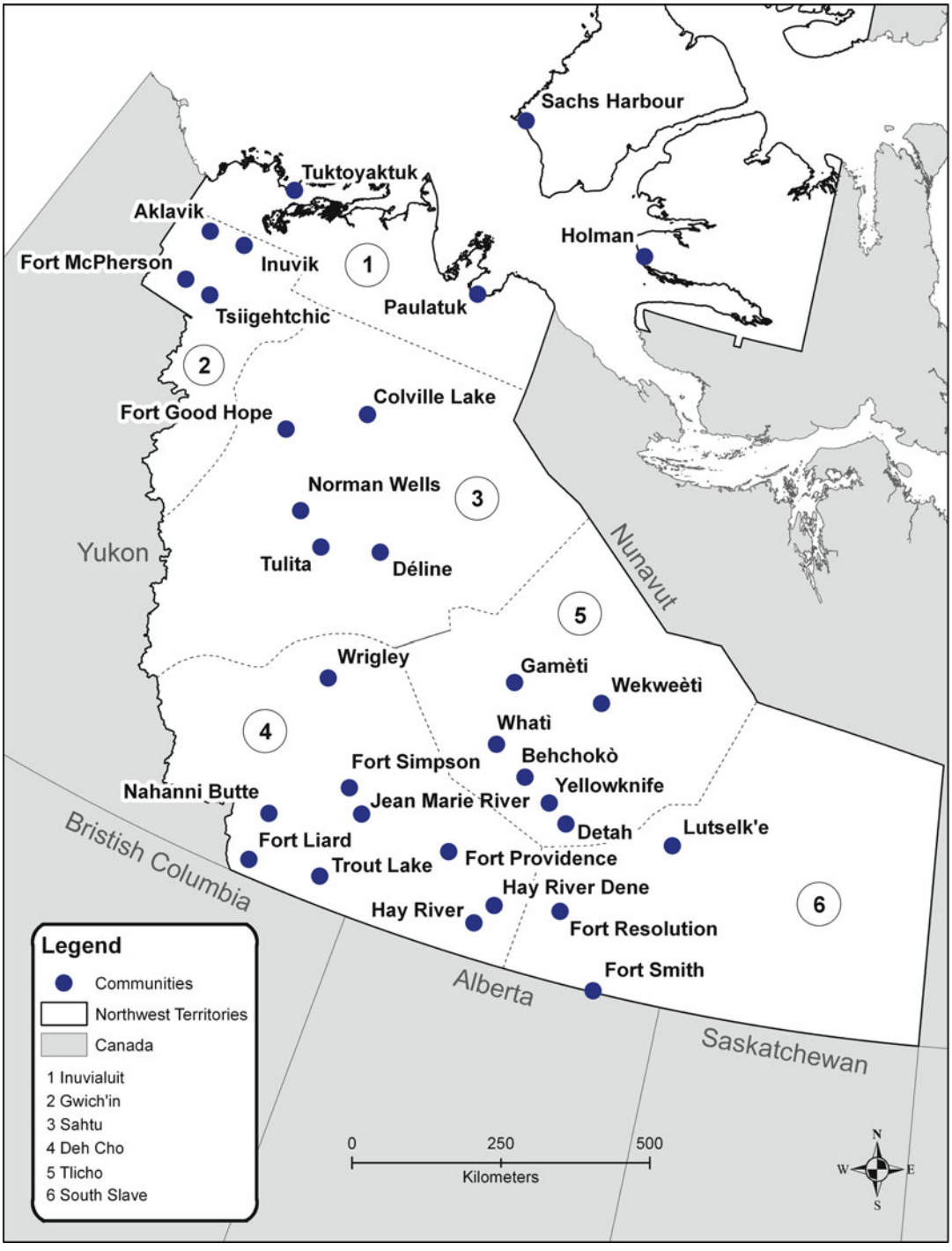
Northwest Territories (NWT) is one of three Canadian northern territories (see Fig. 1). The NWT has a land area of approximately 1,140,835 km^2 and a population of 41,462 (2011). Population of the territory rapidly grew until the late 1990s when it experienced a decline. Since then, population has increased again. Yellowknife (population 19,234) is the capital. Other 33 communities range from Hay River with 3,648 to Kakisa with 45 people. There are ten major ethnic groups. Aboriginal population forms a slight majority and includes North American Indians and Inuit. Resource sector forms NWT's economic base. Diamonds and gold have traditionally been preeminent mineral commodities, but there are deposits of oil and natural gas.

NWT consists of six major regions associated with land claim, tribal and historical areas. These regions include settled comprehensive land claim agreements (CLCA): Inuvialuit, Gwich'in, Sahtu, and Tlicho, and two regions with unsettled land claims: Deh Cho and South Slave. (see Fig. 1).

Description

Data and Quality of Life Indicators

Data necessary to assess quality of life in the NWT are available primarily from the NWT



Northwest Territories, Fig. 1 The Northwest Territories, Canada

Bureau of Statistics and Statistics Canada (Census of population, Aboriginal Peoples Survey, Labour Survey, etc.; see References and Sources) (Statistics Canada, 2003, 2008a, b, 2009). The NWT Bureau of Statistics not only publishes data and community profiles (NWT Bureau of Statistics, 2012), but provides analytical notes and reports, such as an annual Socio-Economic Scan. These reports utilize conventional indicators of well-being, including economic prosperity (limited to wage economy), educational attainment, health, demographic and housing characteristics, and employment. In addition, Aboriginal Affairs and Northern Development Canada computes the ► Community Well-Being Index (CWI) based on similar components. The principal limitation of these analyses is the overreliance on generalized characteristics at the expense of measures tailored to more appropriately reflect quality of life in northern communities, especially Aboriginal. The Arctic Human Development Report (AHDR, 2004) and the ► Arctic Social Indicators project (ASI, 2010) proposed to measure six domains of human well-being in the Arctic by adding to the conventional list (health & population, economic well-being, and education), three new domains: cultural vitality, closeness to nature, and fate control. The ASI also developed a number of key indicators for each domain. The article below follows this methodology.

Health and Population

The NWT has relatively young, male-dominated population that makes it very distinct from southern Canada. The Crude Birth Rate in the NWT is substantially higher compared to Canada (16.8 and 11.3 per 1,000 population, respectively, in 2009), while the Crude Death Rate is lower. The infant mortality rate in the territory is substantially higher than in the nation (6.2 versus 5.1per 1,000 births (2007)). The life expectancy of NWT residents is about 4 years less than nationwide. The percent of lone parent families is 150 % of the Canadian benchmark. The demographic and health components of human well-being can be assessed using several core variables, such as infant mortality, teenage birth rate (TBR), and suicide rate. A high TBR indicates possible negative proceeds in a given community associated with health, health education, healthcare system, and social cohesion. The NWT has a high TBR (35.7 per 1,000 females aged 15–19, 2007), more than a double of the Canadian national figure. Within the territory, 65 % of all communities had TBR above territorial average. Most of them are remote, isolated settlements facing both social problems and healthcare challenges.

Five-year average suicide rate is used as an additional indicator of community health. Higher suicide rates generally follow the pattern of other health indicators demonstrating a poorer state of mental well-being in smaller Aboriginal communities. In Tuktoyaktuk, 16 % of all deaths between 2001 and 2005 were attributable to suicide. This, however, was not a pattern in other Aboriginal communities, such as Inuvik and Behchoko. In Yellowknife, the proportion of suicides in the overall number of deaths was 5.5 %.

► Material Well-being

Per capita household income in the NWT ranged between C$13,009 in Gamètì to C$43,642 in Norman Wells (2006). The highest ranking communities also included Yellowknife, Inuvik, Hay River, Fort Smith, and Fort Simpson, i.e., settlements with the most developed wage sector and considerably sized labor markets. According to this measure, the economic well-being in smaller, predominantly Aboriginal communities is lower, even though the indicator incorporates transfer payments. However, the value of subsistence harvesting is not included in this measure.

A similar pattern emerges when analyzing other economic parameters. The ► unemployment rate in most of the smaller communities is extremely high (almost 30 %) as opposed to Yellowknife (5.8 %). Jobs scarcity results in limited earned income received by residents of remote, small, largely aboriginal communities. As a result, population in these communities tends to depend on government transfer payments, and therefore exhibit high vulnerability to outside political and economic forces in maintaining their living standards. A public

transfer economy is a reality in many places, in some of which government payments constitute over 20 % of residents' gross income. At the same time, communities with developed subsistence economy may be more resilient to external "shocks."

Housing is traditionally a problematic matter in the North. The NWT has a high number of persons per dwelling (2.9 on average, (2006)) with 19 % of households being in a "core housing need" and 17.6 % of dwellings needing repair. Both figures are much higher in remote communities: 44.4 % and 37.6 %, respectively (2009).

Material well-being indicators show that the territory is firmly divided into a small group of "haves" (Yellowknife, Inuvik, and Hay River) and a large group of "have-nots." Out of the latter group, some communities are very isolated from the wage economy: essentially depend on transfer payments, seasonal earnings, and subsistence activities.

Cultural Well-being

Cultural well-being is a complex phenomenon and is difficult to measure. It is worth noting that by design, these indicators describe cultural well-being of Aboriginal people that account for approximately 50 % of the NWT population. Cultural well-being considers both an ability of population to maintain cultural identity and further develop its unique culture. The two indicators are available from existing statistics (NWT Bureau of Statistics, 2009; Statistics Canada, 2012): language vitality (language retention) and "belonging" (to community, region, and nature).

Language retention is highest in communities, where Aboriginal people dominate. For example, Behchoko, Wekweètì, and Wrigley are all communities with the language retention exceeding 70 % and the percent of residents who are Aboriginal exceeding 90 %. Strongest assimilation pressures are observed in Yellowknife, Hay River, and Inuvik, where less than 25 % of Aboriginal residents are able to speak their mother tongue.

Belonging is measured by the degree of engagement in subsistence and traditional activities. We used the percent of Aboriginal people over the age of 15 who hunted or fished in 2008. Engagement in these activities varied between 34.4 % in Yellowknife and 58.7 % in Fort McPherson. The correlation between the likelihood of Aboriginal residents to hunt and fish and language retention suggests that cartulary well-off communities exhibit both higher language vitality and higher participation in the traditional activities.

Contact with Nature

Contact with nature is considered an indicator of connectedness to a traditional lifestyle that is related to livelihood activities on the land and water. This is an important component of human well-being as connectedness to local environments may be a source of community's vitality and resilience. Loss of closeness to nature results in a loss of roots and alienation from the natural world (AHRD, 2004). One of the most important activities is an acquisition (hunting, trapping, fishing, and gathering) and consumption of traditional foods.

The percent of households that had more than a half of consumed meat and fish obtained through hunting or fishing follows the general pattern of Aboriginal population distribution and community size and location. Larger towns with few Aboriginal households exhibited very low levels of closeness to nature. Only in 10.7 % of Yellowknife households, most of meat and fish came from residents' hunting and fishing activities. In contrast, in more remote, Aboriginal-dominated communities, the majority of households were consuming meat and fish obtained through fishing and hunting.

Education

To assess education attainment level in NWT communities, we used two main indicators: the percent of population 15 years and older who completed high school and who holds a bachelor degree or higher. Only 64.1 % of NWT residents completed high school compared to 79.1 % of all Canadians (2009). Most notably only 38.7 % of Aboriginal population holds a high-school diploma or higher education

certificate. This is a sharp contrast not only with the national benchmark, but also with educational attainment of territory's non-Aboriginal population (86.2 % completed high school or higher). High-school attainment in NWT communities varies between 11.8 % and 80.9 %. The highest attainment rates are observed in Yellowknife, Norman Wells, Fort Smith, and other predominantly non-Aboriginal communities. Small and remote settlements with few educational options form the groups of places with less than 25 % of high-school attainment rate. University degree attainment has a similar pattern. Merely 18.5 % of all northerners and only 3.4 % of Aboriginal residents hold bachelors degree or higher level of schooling.

Fate Control

Fate control is a complex category to measure (ASI, 2010). The first component of fate control is measured using the percent of Aboriginal people in managerial and administrative occupations. It characterizes the ability of northerners, and specifically Aboriginal residents, to exercise political and administrative power over their affairs. The local control is noticeably lower Yellowknife, where the majority of managers and administrators are not native and Aboriginal residents, but outsiders. Given that Aboriginal people constitute about a half of NWT population, from the positions of fate control, it is concerning that the vast majority (83 %) of the leadership in the territorial capital does not report Aboriginal identity. Aboriginal people are underrepresented in managerial and administrative occupations even in predominantly Aboriginal communities. This pattern reflects education and leadership gaps between Aboriginal and non-Aboriginal residents that result in considerable power inequality.

Economic control is another important measure of an ability of communities to determine their own destiny. A community with less dependency on transfers has higher degree of freedom in determining its social and economic policies. Indicator used is the share of self-generated income community residents' total incomes, i.e., personal or household income minus government transfer payments. Only three communities demonstrate high levels of economic control: Yellowknife, Inuvik, and Hay River. Here the economic base is less vulnerable to economic and political decisions made outside the community, although still prone to external economic cycles and shocks. On the other hand, Aboriginal communities in the Mackenzie River Delta have comparatively low levels of economic self-reliance outside subsistence economy with about 25 % of residents' incomes coming from government transfers.

Language retention is an indicator of the control over knowledge construction. In essence, it characterizes the fulfillments of human rights to maintain a unique culture. The same indicator has already been used to measure cultural vitality; therefore, it is an integrative measure that pertains to both cultural and fate control domains.

Control over land is measured by analyzing texts of the existing comprehensive land claim agreements (CLCA). The NWT has four settled CLCAs that stipulate control and use of land. The percent of the land area covered by the CLCA that is under direct control of an Aboriginal authority can be used as a proxy to assess the degree of the control over land exercised by Aboriginal people. Based on this measure, Gwich'in and Inuvialuit regions have higher control over land.

Fate control index (FCI) is computed based on four aforementioned parameters. Tlicho communities of Whati and Behchoko have the highest FCI followed by Déline, Fort McPherson, and Aklavik.

NWT Regions

If we consider the six NWT regions (excluding the Yellowknife area), the analysis reveals a complex regional pattern of well-being. South Slave, Inuvialuit, and Sahtu territories tend to have higher per capita incomes and lower unemployment, which are both associated with larger resource sector in these areas (diamonds, oil, etc.). Alongside with Tlicho and Gwich'in these are also regions with highest levels of education. Territories with settled land claims have higher fate control indicators, with Tlicho and Sahtu leading the FCI ranking. Gwich'in and Inuvialuit show the

strongest control over land. Settled CLCA regions also demonstrate highest rates of participation in traditional activities and closest contact with nature. For example, 73.7 % of Tlicho and 60.9 % of Sahtu households consume mostly country food. Almost half of Inuvialuit (48.4 %), Deh Cho (46.7 %), and Sahtu (44.7 %) residents hunt and fish. Except for the Inuvialuit, these regions also have high Aboriginal language retention rates (90.4 % in Tlicho, 58.2 % in Deh Cho, and 53.3 % in Sahtu). The Inuvialuit and Gwich'in regions are exceptions with only 23 % and 17 % of adult Aboriginal people speaking the mother tongue, respectively.

Cross-References

- ▶ Aboriginal Peoples Survey, Canada (APS)
- ▶ Alaska, Living Conditions of the Inupiat
- ▶ Arctic, Quality of Life
- ▶ Arctic Human Development Report (AHDR)
- ▶ Arctic Social Indicators (ASI)
- ▶ Circumpolar Indigenous Peoples
- ▶ Nunavik
- ▶ SLiCA, Survey of Living Conditions in the Arctic

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Norway, Quality of Life

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Definition

The Kingdom of Norway is a parliamentary democracy belonging to the group of Nordic welfare states. It is also a constitutional monarchy, but the Royal House mainly has ceremonial and symbolic functions. The population of Norway exceeded five million for the first time in 2012. The population inhabits a relatively large land area (305,000 km^2), so population density is low: 16 persons per square kilometer.

Description

Comparisons with Other Countries

UNs ▶ Human Development Index (HDI) has many times placed Norway on the top of the list of the world's most developed countries. It is in particular the economic and educational dimensions of HDI that puts Norway on top. Its score on the health dimension (life expectancy) is somewhat lower. The population of 10 countries (including Hong Kong) had a higher life expectancy at birth than Norway in 2011.

However, the shortcomings of HDI are well-known. It gives an incomplete picture of a country's quality of life compared to other countries. Indicators on subjective quality of life are not included. According to the worldwide Gallup surveys analyzed in the *World Happiness Report* (Helliwell et al., 2012), Norway scores very high on life satisfaction. Only the population of Costa Rica is significantly more satisfied than the Norwegians. Measuring quality of life by affective measures gives Norway a somewhat lower standing, but also in this case, the Norwegians seem happier than most. Taking confidence intervals into account, approximately 5 countries, out of 155 surveyed, had a better affect balance

on a chosen day, according to the Gallup surveys. For unknown reasons, the exception from the general rule is the simple yes/no question on happiness yesterday in the Gallup surveys. In this case, approximately 50 countries have higher scores (Helliwell et al.).

Time Trends

The wealth of the average Norwegian has increased substantially during the last 30–40 years. Net income per inhabitant (in fixed prices) roughly doubled from 1976 to 2008. From the first half of the 1970s to 2011, life expectancy for men increased 7.6 years and for women 5.8 years (Statistics Norway, 2012a). Other improvements in quality of life include more leisure time and the expansion of opportunities for education.

Have these developments also resulted in a more contented and happy population? At first glance, the answer seems to be no. Ottar Hellevik, professor of political science at the University of Oslo, has in several articles traced the Norwegian happiness trends (Hellevik, 2003, 2011). The data are from the Norwegian Monitor, a series of large, nationally representative surveys carried out biennially by a private market research institute. In all surveys, a standard happiness question has been posed: "Would you on the whole describe yourself as very happy, quite happy, not particularly happy or not at all happy?" (Hellevik, 2003). In the period from 1985, when the question was first posed, up to 2009, the levels of happiness have been remarkably stable. For example, both in 1985 and 2009, 23 % of the population described themselves as "very happy." Hellevik concludes that although the happiness level of the population was slightly higher in the period 2005–2009 than in the preceding periods, there is a sharp contrast between these small changes and the tremendous increases in net income and assets. The Norwegian experience seems to fit the description given of the ▶ Easterlin paradox.

Hellevik sets out to explain why material growth seemingly has not made people happier. Due to the familiar mechanisms of adaptation and social comparison, the rapid increase in income and wealth has not led to a similar increase in subjective well-being. Still, Hellevik finds that income growth probably has contributed to more happiness and satisfaction by improving different aspects of how people experience their economic situation. Societal changes, other than economic growth, seem to have counteracted these positive influences. Value orientations might be a candidate for a "happiness stealer." The negative effects of ▶ materialism on subjective quality of life are well-known. During the 1990s, a materialistic value orientation became more widespread in the Norwegian population. After 2003, Norwegians have become less materialistic in their outlook on life. Other trends that could have influenced the happiness level in a negative way include firstly an increasing dislike of economic inequality and secondly changing family relations, indicated by a higher percentage of the population not living with a partner (Hellevik, 2011). Changing rates of family dissolution is also highly correlated with changes in the suicide rate in the postwar period (for more details, see the entry ▶ Social Integration and Suicide in Norway).

Inequality

Some research has shown that important aspects of quality of life have become more unevenly distributed than before in the Norwegian population. Inequalities in mortality by educational level have widened considerably during the last decades, particularly for men. The main drivers are smoking-related causes of death like lung cancer, as well as cardiovascular diseases (Strand et al., 2010).

Economic inequality in Norway increased from 1986 to 2005 but declined considerably in the following year. The level of inequality was still somewhat higher in 2010 than in 1986. The share of total household income received by the top decile was 18.1 % in 1986, 29.4 % in 2005, and 20.6 % in 2010 (Statistics Norway, 2012b).

Good living conditions constitute resources that can be used to satisfy needs and improve subjective quality of life. The Level of Living Survey 2008, conducted by Statistics Norway, and analyzed by Barstad (2011), shows that life satisfaction correlates strongly with health.

Persons married and cohabiting are more satisfied than singles, and the unemployed are much less satisfied than the full-time employed. Persons not born in Norway are also less satisfied than others, even controlling for health, marital status, income, and labor market position. High income correlates with high life satisfaction. However, experiencing economic problems is a much better predictor of life satisfaction than household income per se (Barstad, 2011).

Concluding Remarks

The high quality of life found in Norway reflects its long-standing status as a rich, peaceful, and democratic nation state with a comprehensive welfare system. It probably also reflects Norway's large stock of social capital. Both horizontal and vertical ▶ trust is relatively high in Norway, and many participate in voluntary work. Some forms of social capital even seem to increase in volume. The percentage of the population agreeing that most people can be trusted increased from 61 % in 1981 to 75 % in 2008 (Wollebæk & Segaard, 2011).

Still, there are obvious tensions. We have mentioned rising inequalities in some areas. Another tension is related to the oil revenues. The revenues from the oil extraction have given Norway an enviable economic position. At the same time, these revenues create expectations. In public debate, it is often argued that "in the richest country in the world," this and that problem should not have existed. Perhaps this is one of the reasons why the case of Norway seems to corroborate the Easterlin paradox.

A third tension is due to immigration. The immigrant population of Norway increased from 2 % of the population in 1980 to 13 % in 2012, and the share of immigrants is projected to increase also in the coming years. This has been met with widespread skepticism in Norwegian society, although attitudes have become somewhat more positive during the last decade. Negative attitudes to immigrants are correlated with less happiness (Hellevik, 2008). On July 22, 2011, a right-wing terrorist killed 77 people in a car bomb attack and a shooting spree incident. He justified his actions with reference to the ills of "multiculturalism." The terrorist attack was a great shock to the Norwegian population. However, the reaction, at least in the short run, was exactly the opposite of what the terrorist hoped for. There was an increase of interpersonal trust and little fear of similar attacks in the future (Wollebæk et al., 2012).

Cross-References

- ▶ Easterlin Paradox
- ▶ Human Development Index
- ▶ Materialism
- ▶ Social Integration and Suicide in Norway
- ▶ Trust

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Not-for-Profit Organization for Sustainability Reporting

► Fraser Basin Council Sustainability Reporting

Nottingham Health Profile (NHP)

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Synonyms

NHP; Quality of Life Assessment

Definition

The NHP is a generic self-administered questionnaire designed to measure perceived health-related problems (Part I) and the extent to which such problems affect daily activities (Part II).

Description

Copyrighted by the Galen Research (http://www.galen-research.com), the NHP was developed in the UK during the 1970s for use in the evaluation of medical or social interventions (Hunt, McEwen & Mckenna, 1985). The NHP provides a brief and simple indication of perceived physical, social, and emotional health. It is designed to measure social and personal effects of illness and has been developed for a variety of uses: as an outcome measure for interventions, as a measure of the prevalence of self-perceived problems and unmet needs, and as a monitor of changes of general quality of life (QOL) over time (Ebrahim, Barer & Nouri, 1986). The items are based upon the World Health Organization classification of disability and indicate subjects' perceived levels of distress and have been recommended for the assessment of participation (Faria, Micaela, Corrêa, Laurentino & Teixeira-Salmela, 2011).

The NHP has been used in a variety of medical and non-medical settings. It is suitable for use with a wide range of people (Teixeira-Salmela et al., 2004), including stroke survivors (Britto et al., 2011), Parkinsonians (Rodrigues-de-Paula, Teixeira-Salmela, Faria, Brito & Cardoso, 2006), and community-dwelling elderly (Teixeira-Salmela et al., 2005). The strengths of the profile include its simplicity, sensitivity, and broad coverage (McDowell & Newell, 1996). It has high levels of validity and reliability, and it has been shown to be sensitive to changes. As a limitation of this profile, it is important to remember that the items on Part I represent rather severe experiences and, therefore, healthy populations or those with milder distresses will have low scores. The profile also covers only negative aspects of health.

The NHP is the only measure of perceived health which has been extensively tested and developed for use in Europe. It has been translated into Basque, Catalan, Czech, Danish, Dutch, English for the USA, Finnish, French for Canada, German, Greek, Hungarian, Italian, Norwegian, Polish, Romanian, Portuguese, Spanish, Swedish, and Turkish. These foreign language versions of the NHP do not exactly mirror the English version, as their languages have been embedded in cultural and usages. It is the only instrument which has achieved conceptual rather than linguistic equivalences in these languages.

The NHP is a self-administered questionnaire designed to measure perceived health problems (Part I) and the extent to which such problems affect daily activities (Part II), but it is best to regard it as a measure of distress in the physical, emotional, and social domains (McDowell & Newell, 1996). Unlike other generic measures of health status, the items used in the NHP were generated from hundreds of interviews with lay people. The questionnaire has two parts, with Part II being optional, i.e., it can be omitted without affecting the overall validity and reliability of the instrument. It is also a relatively short profile with just 45 yes/no answers required from the respondents. It covers the following dimensions:

physical mobility, pain, sleep, energy, social isolation, emotional reactions and employment, social life, household work, home life, sex life, interests and hobbies, and holidays. It does not attempt to be a comprehensive measure of health-related QOL and is too short to assess the impact of a condition on QOL (Hunt et al., 1985).

The first part contains 38 items in a yes/no answer format, which covers six dimensions of health: eight items on physical mobility, three items on energy levels, eight items regarding pain, nine items on emotional reactions, five items on sleeplessness, and five items on social isolation. Respondents answer "yes" or "no", according to whether or not they feel the item applies to them, in general. Positive responses are weighted and summed to give six domain scores between 0 and 100, where 100 denotes maximum limitations. The statements are weighted within each section and scores are given for each section for a total score of 100. The higher the scores on any section, the greater the number and severity of perceived problems in that area (McDowell & Newell, 1996).

The second part of the NHP is less widely used and provides a brief indicator of handicap. The seven items in this part also consist of yes/no statements regarding seven areas of life which are most affected by the health status (Hunt et al., 1985): employment, household activities, social life, home life, sex life, hobbies and interests, and holidays. For each statement, the respondents indicate if a health condition affected each area of their lives.

Strengths

The profile is short and easy to administer with patients or the general population and is useful for the assessment of severe health problems (Bowling, 1997). Many studies have provided evidence for this instrument's validity and reliability (Hunt et al., 1985; McDowell & Newell, 1996; Teixeira-Salmela et al., 2004). The NHP was derived from definitions of health resulting from lay people in the community and designed with easily interpretable language, which meets minimal reading requirements (Bowling, 1997). Its use in research has been reported, including clinical trials, and has been shown to be sensitive to detect changes with the elderly (Teixeira-Salmela et al., 2005).

Limitations

The NHP was not designed to measure health-related QOL life and does not provide relative weights across dimensions available for comparisons of dimensions directly with each other (Bowling, 1997). Hunt et al., (1985) pointed out that this instrument was not sensitive to detect health conditions or mild symptom severity, nor diagnostic data would be needed to explain what kinds of health problems were experienced. Furthermore, this instrument may not detect minor health improvements (Bowling, 1997). The NHP focuses mainly upon negative experiences, while excluding the positive experiences of a condition or disease. In addition, some of the statements in the second part of the questionnaire may not be relevant for some populations (Bowling, 1997).

Reliability

Adequate reliability indices were found for the NHP, as an indicator of subjective physical, emotional, and social health status (McEwan, 1993). Appropriate test-retest reliability ($r = 0.75–0.88$) was reported in populations with disabilities and chronic illnesses. Test-retest correlation coefficients at four weeks ranged from 0.75 to 0.88 for the six sections of the first part and from 0.44 to 0.86 for the seven items of the second part. Spearman correlations between the domain scores ranged from 0.32 (sleep and social isolation) to 0.70 (pain and physical mobility). The intra-class correlation coefficients were found to be 0.95, with an effect size of 0.52 (McDowell & Newell, 1996).

Validity

The NHP has both face and biological validities, since it is sensitive to differences between groups and to changes over time, can be administered easily and quickly (between 5 and 10 min), and can be used with a number of different populations, including community-dwelling elderly (Teixeira-Salmela et al., 2005), stroke

survivors (Britto et al., 2011), and Parkinsonians (Rodrigues-de-Paula et al., 2006). During its initial development, content validity was established through semi-structured cognitive debriefing interviews. The NHP has well-established content and discriminant validities and has been shown to be sensitive in comparing healthy subjects and patients with fatigue. It also highly correlates with the McGill Pain Questionnaire ($r = 0.50–0.78$) (Hunt et al., 1985). Factor analyses have revealed significant loadings on pain, mobility, body movement, sleep, anxiety, getting out of the house, loneliness, and depression. Reference scores for various populations are available. All six sections of the NHP showed significant differences ($p < 0.001$) between four groups of elderly people with distinct health statuses (McDowell & Newell, 1996). Internal consistency of this profile has been reported at 0.90–0.94. As previously reported, the instrument was also shown to be clinically valid, since it was able to distinguish between patients with different levels of disability and sensitive to detect clinically important changes in the patients' health status over time (McEwan, 1993).

Discussion

The Nottingham Health Profile (NHP) is a widely used six-dimensional non-disease-specific questionnaire and has undergone extensive evaluation, and both strengths and weaknesses have been demonstrated (Hunt et al., 1985). A commonly observed limitation of the NHP has been its skewed score distributions with large ceiling and, particularly, floor effects. This complicates interpretation of extreme scores and impairs the ability to detect changes and differences. Furthermore, some of the NHP domains have relatively few (3–5) dichotomous items. This limits the precision of scores (Fayers & Machin, 2007).

The strengths of NHP include its simplicity, sensitivity, and broad coverage. Furthermore, the statements are easy to score, compute, and analyze, which support its clinical applicability. Although the NHP can provide an indicator of a person's QOL, it does have disadvantages. Some of the statements represent rather severe problems, but some milder forms of distress may not show up on the profile. For instance, it does not consider some areas which are of great concern (e.g., bladder functions, stigma, memory, intellectual ability, and financial difficulties) and, thus, cannot be used as a single, comprehensive assessment. As well, the NHP assesses perceived health by the presence of symptoms, but zero scores do not necessarily indicate a sense of complete well-being. Members of "normal" populations or those with very minor ailments may affirm very few statements; this makes it difficult to compare their scores or to evaluate changes in their QOL. Furthermore, the NHP has not been validated against more objective measures "gold standards" of disability nor mood, for being able to accurately classify individuals. All items are statements that refer to departures from normal functioning and relate to feelings and emotional state rather than change in behavior.

Cross-References

- Health-Related Quality of Life Measures
- PROs, Patient-Reported Outcomes
- QOL
- Subjective Well-Being

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Nourishing Life in China

► Chinese Medicine and Yang Sheng

Novels/Literature

► Arts in British Columbia, Canada

NPM

► Service Quality in New Public Management

NUC

► Neighborhood Unit

Nuclear Waste

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Synonyms

Radioactive waste

Definition

Nuclear waste is radioactive material no longer considered valuable enough to reuse or recycle. It consists of gas, liquid, or solid radioisotopes, which decay through time to stable isotopes but in the process emit ionizing radiation (alpha, beta, and gamma) that can harm biological material. The radioisotopes may occur naturally such as in uranium ore with ^{238}U, ^{235}U, and ^{226}Ra (where the latter decays to ^{222}Rn gas by emitting an alpha particle) or formed through fission of fissile radioisotopes (e.g., ^{235}U) as in a nuclear reactor. The fissioning of fissile radioisotopes creates (1) fission products (such as ^{90}Sr, ^{99}Tc, ^{137}Cs, ^{129}I), some of which have short half-lives and, thus, produce much heat and ionizing radiation; (2) actinides produced by transmutation in the reactor (such as ^{237}Np, ^{239}Pu), many of which have medium to long half-lives; and (3) small amounts of activation products produced from absorption of neutrons by material in and around the reactor (such as ^{60}Co).

Description

The use of nuclear material has been a major technological advance that has contributed to the ► quality of life of humans in the past century. Nuclear material has been used (Murray, 2003) (1) to aid scientific understanding when used as radioisotope tracers to study complicated physical, chemical, and biological processes; (2) in nuclear medicine when radioisotopes are

used to help image body organs (e.g., ^{85}Sr, ^{99m}Tc, ^{131}I) and kill cancerous tumors (e.g., ^{90}Y, ^{89}Sr, ^{60}Co); (3) in precise measurement devices when neutrons or radiation is used to monitor water in materials and characteristics of manufactured items; (4) for carbon dating (^{14}C) of archeological objects and general isotopic dating of mineral deposits by evaluating radioactive isotopes of compounds (e.g., Sr-isotopes, U-isotopes); (5) for radiation sterilization of food, medical and pharmaceutical products; (6) for sterilization of male insect pests that compete for mating; (7) for small radioactive power sources for remote locations on earth, satellites and space craft from thermal energy produced by radioisotope decay; (8) for large-scale nuclear power generation via fissioning of fissile radioisotopes; (9) nuclear ship propulsion through mobile power reactors; and (10) as a deterrent to world wars between superpowers through nuclear weapons.

Although each of these beneficial activities has the potential to cause harmful effects, these activities generally continue because society perceives the risk of harmful effects to be acceptable in relation to the benefits produced. For example, in the case of civilian nuclear energy, the public in the United States perceives the balance between benefits (reliable production of base energy, reduction in greenhouse gas emission, reduction in reliance of energy import) and perceived risks (such as release of radiation from plant accidents, transportation accidents, terrorist attacks, and nuclear waste hazards) to be generally positive and generally support expansion of its use (Jenkins-Smith, Silva, Herron, & Rechard, 2011). Yet, the intuitive calculus that a society does to compare the benefits and the risks will change as new understanding emerges (such as the potential for global climate change from green house gases produced when burning of fossil fuels) or events occur (such as the nuclear reaction accidents at Three Mile Island, Chernobyl, and Fukushima).

For the beneficial uses of nuclear material to be realized, the nuclear waste by-product must be managed, and these management schemes vary according to the category of waste. In the international community, nuclear waste is often divided into three general categories (IAEA, 2009): high-level waste (HLW) (whose definition includes spent nuclear fuel or SNF), intermediate-level waste (ILW), and low-level waste (LLW). Mining and milling of uranium for use in reactors produces a fourth category: uranium mill tailings. Nuclear waste that contains both radioisotopes and hazardous nonradioactive waste (i.e., mixed wastes) poses added institutional challenges to assess the hazards of the mixture and develop regulations and a management scheme (Rechard, 1999). The definition of these categories depends upon their origin (e.g., defense or commercial) and the radioisotopes present, which, in turn, determines their persistence (half-life), level of radioactivity, and thermal energy produced. Generally, the length of time required to isolate nuclear waste from the biosphere is greatest and the volume lowest for HLW. Conversely, the length of time required to isolate the nuclear waste from biosphere is lowest and volume greatest for LLW. Generally, both ILW and HLW require long isolation times in geologic formations, but HLW produces thermal heat that must be considered during disposal, while ILW typically does not. Most of the beneficial activities listed above produce varying volumes of LLW. The nuclear reactors necessary to produce medical isotopes, electric power, ship propulsion, and radioactive material for nuclear weapons (and the reactor parts when decommissioned) produce large quantities of LLW and some ILW and HLW.

In describing nuclear waste, however, it is important to note that nuclear waste categories differ in each country, even though the general concepts for nuclear waste management as put forth by the International Atomic Energy Agency (IAEA) are followed. The reason stems from the fact that definitions for nuclear waste types are used to categorize activities for managing the waste, not for precisely describing characteristics of the waste. The sources of nuclear waste vary widely between countries, and the schemes for managing the waste vary because of the volumes of waste produced. The definitions are tied to the

regulations that define the management activities. A country producing small volumes of nuclear waste usually does not develop an extensive set of waste categories and corresponding waste management schemes. In contrast, a large country such as the United States develops several categories and many subcategories with correspondingly different management schemes for its nuclear waste. For example, the United States defines three classes of LLW for shallow land burial disposal based on the concentrations of specific short-lived and long-lived radioisotopes of concern for human health and the environment. Management of LLW is the responsibility of the individual states. The three LLW classes are A (not hazardous to a human intruder after 100 year), B (not hazardous to a human intruder after 100 year and requiring 300-year waste stability for disposal), and C (not dangerous to a human intruder after 500 year and requiring 300-year waste stability and greater placement depth or 500-year intruder barrier for disposal). Also, the United States does not define a ILW category but instead defines two categories that have characteristics similar to ILW that require a geologic repository for permanent storage or disposal: (1) a greater-than-class C (GTCC) LLW category (dangerous to a human intruder beyond 500 year) and a defense transuranic (TRU) waste category (consisting of laboratory material such as rags and gloves contaminated with transuranic radioisotopes such as ^{239}Pu). In the United States, management of GTCC and TRU waste is primarily the responsibility of the federal government.

Management of nuclear waste consists of up to six general tasks (which are not necessarily performed in the order enumerated and may be repeated) (Saling & Fentiman, 2001): (1) collection and handling, (2) processing, (3) packaging, (4) temporary storage, (5) transportation, and (6) permanent storage or disposal. Each of these tasks requires different technological skills. Furthermore, laws and regulations will be developed that will differ for each category of nuclear waste. These regulations may dictate standard procedures that are to be followed (such as for LLW) or dictate an evaluation of risks with extensive regulatory review (such as for the permanent storage of TRU waste at the Waste Isolation Pilot Plant or WIPP in the United States (Helton & Marietta, 2000). Generally, LLW is collected, possibly incinerated or compacted to reduce volumes, packaged, transported in conventional trucks, and disposed at shallow land burial sites; however, storage may be sufficient for rapidly decaying LLW until radioisotope concentrations are low. Each of these LLW management activities occur separately from conventional industrial or residential refuse. Almost all countries plan to use deep geologic repositories to permanently store or directly dispose SNF assemblies from nuclear reactors or HLW from reprocessing the SNF assemblies that have been immobilized in phosphate glass (Russia) or borosilicate glass (United States) (National Academies of Science [NAS], 2001). Because of availability, countries most often consider crystalline rock formations for geologic disposal of HLW (e.g., the advanced programs in Sweden and ▶ Finland and the exploratory programs in Argentine, Canada, ▶ China, Czech Republic, ▶ Japan, Korea), but clay/shale is also considered (Belgium, France, ▶ Germany, ▶ Switzerland). Other media considered are domal and bedded salt (for HLW in Germany and TRU waste in the United States, respectively), volcanic tuff (for HLW in the United States at Yucca Mountain), and limestone (for ILW in Canada).

In contrast to generally positive perceptions of the uses of nuclear material, the public in the United States and elsewhere tends to disassociate the societal benefits from the waste: Rather, the various parts of the public perceive only undesirable risks from nuclear waste to collective health with few offsetting benefits (Jenkins-Smith et al., 2011). Hence, the last task of isolating the nuclear waste permanently at storage or disposal facilities is the most difficult to formulate policy, define regulations, and implement. Regional government bodies and their citizens typically do not wish to host long-term storage or disposal facilities for nuclear waste, even though a local community may wish to do so because of direct economic benefits. Furthermore

from a practical perspective, it can be just as difficult to develop and implement a management scheme for LLW as for HLW, although philosophical differences arise related to the length of time necessary to isolate HLW (Rechard, 1999). The United States spent 30 years (between 1978 and 2008) developing a license application for constructing a repository for HLW at Yucca Mountain near the Nevada Test Site, to show acceptable risks over 10^6 year. The United States spent 25 years (between 1973 and 1998) developing and implementing a disposal scheme at WIPP for TRU waste produced during production of nuclear weapons (Rechard, 2000). In these two examples, much of the time was spent discerning the societal notion of what constituted acceptable risks. In addition, the United States has spent from 1982 until recently trying to site new facilities for LLW disposal. The social-political aspects of developing and implementing LLW and HLW management schemes in the federal system in the United States have often eclipsed the technical issues (Carter, 1987). Thus, social science research provides important lessons concerning how the public understands and responds to management schemes for nuclear waste (Jenkins-Smith et al., 2011; Slovic, 1993).

An enormous amount of literature exists on specific aspects of nuclear waste because of the international importance of the topic, yet, seminal texts, reports, or articles on nuclear waste are not generally available because the topic is too broad. Nuclear waste and its management require multiple disciplines to meet specific requirements set by regulations unique to each country. However, a good introduction on most technical aspects of nuclear waste has been presented (Murray, 2003), and general information is available in online encyclopedias. Also, many aspects of nuclear waste management have been presented in a survey textbook, but it is specific to the United States and parts are dated (Saling & Fentiman, 2001). The IAEA and Nuclear Energy Agency of the Organisation of Economic Co-operation and Development (NEA/OECD) actively collect information and present best practices related to nuclear waste management. These organizations also develop model laws and guidelines for consideration by other countries and, thus, are a starting point for general legal and inclusive governance concepts. For example, the long-term limits adopted for a HLW repository at Yucca Mountain in the United States referenced IAEA guidance (IAEA, 2006). General issues related to nuclear waste are discussed by the various committees of the National Research Council of the National Academies of Science (e.g., NAS, 2001). Technical information is presented in conference proceedings, with much of it understandable by those with scientific training. Three prominent conferences are (1) the Waste Management Conference held annually in Phionex, Arizona (including in 2013 a description of the Canadian experience in siting ILW and HLW repositories); (2) the Scientific Basis for Nuclear Waste Management Symposium sponsored bi-annually by the Materials Research Society; and (3) the International High-Level Radioactive Waste Management Conference sponsored by the American Nuclear Society. As regards the latter conference, much of the technical aspects of the license application for construction of the HLW repository at Yucca Mountain was summarized in articles in the 12th conference held in 2008 (e.g., Swift et al., 2008), and much of the technical aspects of the completed license application for construction of the HLW repository in Sweden was summarized in articles in the 13th conference held in 2011 (e.g., Thegerström & Olsson, 2011).

Most nuclear waste programs of a country have a website with general information specific to the management scheme adopted (e.g., Belgium: sckcen.be; Canada: mwmo.ca; Finland: posiva.fi; France: andra.fr; Germany: bfs.de; Japan: numo.or.jp; Korea: kaeri.re.kr; Spain: enresa.es; Sweden; skb.se; United Kingdom: mrws.decc.gov.uk; US: energy.gov). As regards social-political aspects of radioactive waste management, NEA has sponsored a Forum on Stakeholder Confidence (FSC at www.oecd-nea.org/fsc) to share experience. Furthermore, the European commission has sponsored research on long-term radioactive waste issues and governance (e.g., International Social-Technical Challenges of Long-Term

Radioactive Waste management or INSOTEC at www.insotec.eu and community waste management or COWAM at www.cowam.com). As relates to the practical application, Spain applied COWAM concepts in siting an interim storage site for HLW.

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Null Hypothesis

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Definition

The null hypothesis is the basic hypothesis that is tested in null hypothesis significance testing (NHST).

Description

The null hypothesis essentially states that no effect will be observed, and the pattern of observations will be random. Based on the null hypothesis (H_o), critical values are established that will determine whether the observed pattern is or is not consistent with this statement of no effect. In NHST, the null hypothesis is the *only* hypothesis that is being tested. It is either accepted or rejected as being false. When the null hypothesis is rejected, it is concluded that a *statistically significant* effect was found (Hurlburt, 2003). One criticism of NHST is that the traditional null hypothesis of no effect is not always seen as most appropriate for many tests; assuming that any difference will equal exactly "0" may not accurately represent the random condition. Complementing the null hypothesis in NHST is the *alternate hypothesis* (H_1), which is the statement regarding what the nonrandom condition would be. Alternate hypotheses can either be directional (specifying a positive *or*

negative effect) or nondirectional (specifying an effect without saying whether it will be positive or negative). Rejecting the null does not *prove* the alternate correct, only shows that the data are merely consistent with it (Aron & Aron, 2003).

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Numeracy

▶ International Literacy Assessments
▶ Mathematics Achievement

Nunavik

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Definition

Nunavik (Fig. 1) is the northernmost part of Québec (Canada). Its territory lies north of 55th parallel and reaches Quebec's border in the east, the north, and the west. This is a vast area of more than 500,000 km^2, one-third of the province area.

Description

Demography

The population of Nunavik bears little resemblance to that of Quebec. By comparison, it represents 0.14 % of the overall province population: 11,000 people living in 14 communities. Unlike the rest of Quebec, it is largely inhabited by Inuit and has a slightly higher percentage of men than women – a fact that correlates with other circumpolar regions.

With a higher proportion of children under age 15 and a lower proportion of seniors, the average age is significantly lower in Nunavik than in Quebec. As well, population growth is faster, and the number of people per household is higher there. This means that, generally speaking, working-age people are responsible for more nonworkers than are other Quebeckers.

Economy

Nunavik's economy leans on the presence of government jobs. In fact, government activities are the region's most important industry. Government jobs in the health and education sectors represent over 40 % of all employment. Adding in the other government services, this figure would easily surpass 50 %. A higher proportion of the working-age population in Nunavik participates in the workforce than in Quebec; however, overall, fewer people are employed, and the rate of unemployment is nearly twice that of the province.

Monetary income is lower in Nunavik: Nunavik's inhabitants aged 15 and over earn 90 % of their counterparts in Quebec and slightly under 80 % on a per capita basis.

Living Conditions

Moreover, Inuit income is lower than that of non-Inuit Nunavik residents. This data highlights the occupational and financial asymmetry between Inuit in the region and non-Inuit – the latter having the better-paying jobs. The asymmetry can be partly explained by the generally lower level of education, which obliges employers – Inuit and non-Inuit alike – to fill jobs externally. As a matter of fact, the level of education has been lower in Nunavik than in Quebec, but this is now on the rise along with the number of high-school graduations among the younger generations. As a result, non-Inuit people still account for nearly 50 % of total revenue, even though they only represent 10 % of the population (Duhaime & Robichaud, 2010).

Nunavik, Fig. 1 Nunavik

The asymmetry is exacerbated by an even higher level of unemployment and further amplified by the greater number of people per household in this region than in Quebec.

The Nunavimmiut are home renters – most of these homes being state owned, low-income housing in need of major repairs, and supplying drinking water of dubious quality. Over 25 % of these homes are overcrowded, by Canadian national standards. Residents of Nunavik struggle with unique needs on top of their socioeconomic burden. The rundown housing infrastructure and the somehow dubious quality of the water supply both call for a major influx of funding. The particularly high levels of overcrowding in homes prevalent in Nunavik run counter to improving health and education, as shown by a tuberculosis outbreak in 2012 (Nunavik Board of Health and Social Services, 2012; Inuit Taperiit Kanatami, 2004, p. 13). Transportation costs – vital for individual mobility, employment, and the importation of goods – are extremely high. The high cost of fuel and spare parts and the initial cost of major equipment such as snowmobiles, canoes, and outboard motors all contribute to the unaffordability of hunting and fishing trips, even though the population still depends largely on a traditional diet (Duhaime & Bernard, 2008; Tait, 2007). This particularly holds true for the most destitute people, among whom most are seniors.

These households have less money to feed, house, and clothe more people in a region where consumer goods are more expensive: they have less purchasing power. Within that context, it is not surprising that the number of households living under the poverty line is higher (Duhaime & Édouard, 2012).

The economic structure of the region presents limitations. The reliance on government jobs leaves it vulnerable to the budget cuts prevalent in today's political climate. In truth, this type of belt tightening causes the economy to shrink proportionately tighter in Nunavik than in Quebec (Duhaime & Robichaud, 2010).

The large-scale mining of minerals has a potential to somewhat improve the outlook for

residents through benefit-sharing agreements. Some of them are already in place, while others are under discussion, in the present-day booming cycle. However, that may deepen economic asymmetry between those who benefit and those who do not; moreover, the resource rush may further unbalance the male/female ratio (which already shows a higher proportion of men) by creating a need to import large numbers of masculine workforce (Duhaime & Caron, 2009; Hamilton & Otterstad, 1998, p. 10).

In the midst of some harsh living conditions, the level of satisfaction with community life is quite high, as demonstrated by findings from the survey of living conditions in the Arctic. It has been suggested that this could primarily be explained by the strength of social ties, among other subjective factors (Edouard & Duhaime, 2012; Poppel, Kruse, Duhaime, & Abryutina, 2007).

Political Conditions

The progress being made on the education front continues to improve the capacity of individuals, households, and, collectively, the region to be independent. Progress may seem slow in the short term. But education is a long-term affair, and viewed as such, the progress has been remarkable, especially considering that the education system itself in Nunavik is in its infancy.

In Nunavik, 52 % of the 25–34-year-old adults have their high-school diploma. This result may seem modest as compared with the rest of the province of Quebec, but this is a huge change as compared with only one or two decades ago. That is one building block for the future. Education plays a key role in opening new doors – in allowing individuals to choose their own path – and is especially important in this region, which has a high population of young people (Michalowski & Loh, 2005, p. 91).

The increased political autonomy in this region is a major resource in terms of the collective ability for the indigenous people and other residents of the region to shape their future. The Kativik Regional Government was established in 1978. This is a public government led by an elected assembly. It detains jurisdictions on several matters, mainly oriented toward local and regional issues. Nonetheless, the higher levels of governments' extensive oversight of the region limit self-government. In spite of agreements, these governments retain responsibility for the basic funding of current activities and the imposition of national and provincial standards in applying programs. These governments also control personal and corporate income tax and revenue from licenses on the exploitation of natural resources. Furthermore, the governments are subject to the neoliberal forces stemming from these policies (Woodford, 2005). These structural factors represent important barriers to the region's capacity for shaping the present and changing the future.

Cross-References

- ▶ Aboriginal Peoples Survey, Canada (APS)
- ▶ Arctic Human Development Report (AHDR)
- ▶ Arctic Social Indicators (ASI)
- ▶ Arctic, Quality of Life
- ▶ Circumpolar Indigenous Peoples
- ▶ SLiCA, Survey of Living Conditions in the Arctic

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Nursing and Quality of Life

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Definition

Nursing is the study and application of human health and illness processes. The practice of nursing entails facilitating, supporting, and assisting individuals, families, communities, and/or societies to (a) prevent illness; (b) enhance, maintain, and recover health; and (c) reduce, modify, and ameliorate the effects of disease. Nursing's science and practice are directed toward explicit health outcomes relevant to the quality of life of individuals, families, and communities within the immediate and larger physical and social environmental contexts (adapted from Thorne et al., 1998).

Description

"The central paradox of nursing is that it is a professional practice discipline at once so mundane that some of its technical aspects can be performed by almost anyone yet so cognitively sophisticated and mysterious that its excellent application requires advanced education, extensive reflective clinical practice, and an ongoing commitment to inquiry" (Thorne, 2011, p. 86). Nursing's complexity lies in its broad orientation and mandate to consider the relationships among health or illness and various life domains relevant to the quality of life of individuals, families, and communities. As the formalization of a specialized role function found within all human societies, the modern profession of nursing is profoundly shaped by both the altruism implied in its historical origins and also the scientific advancement that characterizes the health systems it helped to create. Florence Nightingale, among the more prominent founders of modern nursing, is widely credited with the argument that epidemiological patterns of sickness and disease point to the need for public as well as individual health principles, thus transforming the primary location of care delivery from the home and into the hospital (Casteldine, 2007). However, a convincing operational definition of nursing, in the sense of clearly delineating its scope and boundaries, has posed a conundrum for theorists for several decades as the profession evolves yet maintains its unique and distinctive features across time and context (Chinn & Kramer, 2011).

Nursing is most often recognized as the primary partner to professionalized medicine, with which its history has been entwined throughout the western world. Classically understood to invoke the feminized "caring" complementary to masculinized "curing" that medicine contributes to a health-care system (Watson, 1979), it has evolved in its essence from a subservient function to an autonomous (albeit interdependent) form of health-care practice. In keeping with its roots in the military and in religious orders (Libster, 2008), the modern incarnation of professionalized nursing bears the remnants of civic responsibility and moral agency (Nelson, 2001). It constitutes an applied practice informed by both art and science (Johnson, 1991).

Nursing meets the target of its applied service across the full spectrum of settings within which

health and illness are experienced and managed. The practice of nursing spans health promotion and primary prevention, care during acute illness, chronic and rehabilitative care, and support during life's vulnerable transitional moments. Nurses are deployed in a wide range of settings, including hospitals, clinics, home care settings, and communities. While the "registered nurse" is the mainstay of the profession, the spectrum of nursing also typically includes various nursing assistant roles as well as an increasing array of specialized and advanced practice categories. Thus nursing's engagement with society is highly diversified and deeply embedded.

Despite this diversity of practice roles and contexts, it is widely understood among nurses that all manifestations of the discipline are characterized by a distinct and shared philosophical and theoretical foundation (Beckstrand, 1978; Henderson, 1966). Although nurse scholars have been preoccupied with various (sometimes hotly contested) attempts to articulate and refine this theoretical core for several decades, no unifying theoretical framework has yet emerged (Flaming, 2004). The difficulty associated with conceptualizing the essence of the profession is increasingly being recognized as a hallmark of nursing's complexity and of its affinity for the inherent complexity within the human health and illness phenomena it seeks to serve (Meleis, 2007).

Nursing takes a universally holistic approach to understanding the human individual that is its target of action. Although much of the practice centers around the individual as patient, nursing in various settings targets families, groups, and communities. Despite the focus of activity, the capacity to understand an individual in a holistic sense within the context of relationships and environments is considered a core feature of nursing's angle of vision on any health-related phenomenon. Thus, whether intervening at the level of individual, group, or community, a nurse is always mindful of the impact of action on the complexities of the individual's experiences in various aspects of life. From this orientation to complex individual impact, a nursing perspective on health matters can be recognized as distinct from the orientation to any other profession or discipline.

A central concern of nursing is to consider how health and illness relate to various other aspects of an individual's life. This includes physical, social, psychological, ethical, cultural, religious, and spiritual considerations, all of which may influence how a person experiences and defines health and illness. Although there are other professionals who specialize in particular aspects of health and health-care delivery, nursing must consider a wide range of domains of human experience as part of the assessments that are performed to inform nursing care and health-care delivery. Assessment questions about an individual's physical abilities, psychological experiences, social roles involvements, financial status, their living environment, and even spiritual experiences have been included in comprehensive health assessment frameworks as the basis for targeting appropriate supportive nursing interventions and determining their effectiveness and efficacy. Nurses must base their practice on an in-depth understanding of how an individual's life is affected by illness, nursing care, and other health-care interventions and services. It is therefore not surprising that nurses have played an important role in the development of assessment tools and instruments for the measurement of various aspects of life that are relevant to the quality of life of patients and family members (Ferrans, 2005; Ferrans & Powers, 1985; Frank-Stromborg & Olsen, 2004; King & Hinds, 2011). Within some contexts, this broad consideration of various aspects of life has been referred to as reflective of a holistic orientation characteristic of the nursing profession.

In the increasingly diversified arena of health professions and roles, many occupational groups now lay claim to "holism" and centrality in health care. However, nursing implies a number of distinctive features that render the discipline uniquely positioned to that centrality claim. Regardless of position or client emphasis, all nurses begin with a foundation in the applied, life, and social sciences, and the privilege of holding title "nurse" is contingent on demonstration of competencies that span not only

knowledge but also defined skills and attitudes. Those who have met that standard will have been exposed to a level of human intimacy with their patients that shapes a profoundly different understanding of the interactions between the parts of the whole human being than is the case with medicine or the allied health professions. Nursing pays heed to both the mundane and the exotic within human health experience, reflecting a physical and psychosocial engagement during times of the highest intensity human distress, in a manner that shapes the consciousness of its members toward a particular understanding of what constitutes human experience.

This distinctive angle of perspective similarly shapes the scientific basis of the professional practice. Nursing comfortably borrows and applies knowledge from a full range of disciplines across the sciences and humanities and also requires a familiarity with the medical and applied health sciences underlying the professions with whom it intersects in creating optimal health and healing experiences for patients. The nurse is traditionally expected not only to fill the roles of other members of the interprofessional health-care team during their absence but also to coordinate and broker their services toward the benefit of the patient. The historical "24/7" essence of traditional hospital practice, the direct physical proximity of the nurse to the ill person, the intimacy and immediacy of engagement, and the tradition of eternal vigilance and protection against harm have all evolved into an ethos that exemplifies the discipline's practice regardless of the setting and context of practice.

Because nursing orients its core around the individual as the foundational unit of analysis and that individual is inevitably and always understood within its unique particularities, nursing has had a complicated relationship to research advancement (Kikuchi, 1992). Nursing knowledge, whether empirical or theoretical, inherently pertains to the general, while nursing practice directs attention to the uniqueness of the individual case in all of its complexity. While certain elements of general nursing knowledge development may be enhanced through population-based measurement, standardized approaches are rarely taken up with widespread enthusiasm unless they account for individual variation. Thus, in order to complement that which conventional science renders invisible or misrepresents about the human experience, nurse scholars have been leaders within the health professional disciplines in the development of applied qualitative methodologies. Such approaches as mixed methods studies and research integration involving synthesis of both qualitative and quantitative findings are natural developments in the generation of nursing knowledge that must account for the commonalities of the general but be applicable to variations within the particular.

Discussion

The nursing profession is fundamentally concerned with the relationship between health and quality of life. Its practice is directed toward protecting, supporting, and improving quality of life across a full spectrum of life-cycle events and circumstances. Its theoretical emphasis on the intersection between mind, body, and spirit of the individual within the context of social group and community orients the emphasis of nursing toward the quality of life implications of every action and decision within the health arena. Nursing understands itself as a primary patient advocate within an increasingly challenging health-care and social service system. Through its fundamental orientation to the uniqueness and particularity of the individual in context and by the intimacy of its relational engagement with that individual, singly or in groups, it guides and champions health-seeking behaviors, coordinates and navigates resources and services, and positions individuals and communities to optimal advantage for the best conceivable quality of life within their given circumstances.

Cross-References

- ▶ Community
- ▶ Health
- ▶ Health Care
- ▶ Health Outcomes
- ▶ Health Systems
- ▶ Quality of Life

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Nursing Care

► Care, Residential

Nursing Home Patients

► Nursing Home Residents

Nursing Home Residents

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Synonyms

Frail elderly; Institutionalized elderly; Nursing home patients

Definition

Nursing home residents are persons in need of long-term care due to severe health problems, functional deficits, and/or disability. Their care needs require access to formal caregivers 24 h a day and are too extensive or complex to be adequately addressed through home care services.

Description

Most nursing home residents are elderly, but younger persons with severe disability are also part of the nursing home population. Multimorbidity is frequent. Alzheimer's disease and other dementias are predominant (Seitz, Purandare & Conn, 2010), as are stroke, cardiovascular disease, and neurological disease

(Luppa et al. 2010). Depression and anxiety are common (Seitz et al., 2010). The nursing home population is diverse and has complex care needs. Many nursing homes have differentiated units to serve patients with specific needs in addition to traditional long-term care units, e.g., rehabilitation units, dementia care units, respite care units, and palliative care units.

Quality of life is an essential issue among nursing home residents. The combination of poor health, functional dependence, extensive care needs, and relocation may threaten the quality of life of nursing home residents in different ways (Ettema et al., 2005; Kane, 2001; Moyle, 2010). Research on quality of life among nursing home residents has increased steadily during the last two decades, but is still limited compared to quality of life research in other settings and many questions remain (Ettema et al., 2005; Kane, 2001; Moyle, 2010). This may be explained by the methodological challenges involved in studying quality of life in this population. Frequently, nursing home residents are unable to respond to quality of life questionnaires or participate in interviews. Therefore, proxy ratings of the quality of life of nursing home residents are common (Ettema et al., 2005). Both family members and formal caregivers have been used as proxies. However, this is not without problems, as comparative studies have found that relatives and formal caregivers tend to rate the quality of life of nursing home residents to be lower than the residents themselves do (Addington-Hall & Kalra, 2001).

An early, influential conceptual model of quality of life applied to nursing home residents is that of M. Powell Lawton (1983). Lawton (1991) defined quality of life as "the multidimensional evaluation, by both intrapersonal and social-normative criteria, of the person-environment system of an individual in time past, current, and anticipated" (p. 6). He proposed four sectors of "the good life" (p. 8), including behavioral competence, perceived quality of life, objective environment, and psychological well-being. Each of the four sectors may be differentiated into many dimensions. Behavioral competence was conceptualized as a hierarchical phenomenon, encompassing health, functional health, cognition, time use, and social behavior. Each of these dimensions is composed of a hierarchy of subdimensions. According to Lawton (1991), perceived quality of life "has an internal structure that parallels directly the sector of behavioral competence. Whereas competence should be measured by performance or observation, perceived quality of life is by definition subjective" (pp. 9–10). The sector of environment is assumed to impact on behavioral competence by allowing some forms of behavioral competence and not others. Consequently, it represents a subset of conditions of perceived quality of life. Psychological well-being is the "ultimate outcome in a causal model of the open type" (p. 11) and defined as "the weighted evaluated level of a person's competence and perceived quality in all domains of contemporary life" (p. 11).

Lawton's quality of life model has been used extensively in research among old, frail individuals (Birren, Lubben, Rowe, & Deutchman, 1991, Ettema et al., 2005). However, it has also been critiqued for not providing sufficient explanation of how the different sectors and hierarchical dimensions relate and explain quality of life among nursing home residents (Gerritsen, Steverink, Ooms, & Ribbe, 2004).

Whereas Lawton's quality of life model is generic and proposes sectors that are relevant to all persons, other authors have proposed specific quality of life models for residents in long-term care (Kane, 2001). Kane (2001) identified 11 quality of life domains of particular significance in long-term care: security, physical comfort, enjoyment, meaningful activity, relationships, functional competence, dignity, autonomy, privacy, individuality, and spiritual well-being. Of these, she hypothesized that dignity, autonomy, privacy, and individuality are possibly mostly relevant for persons without severe cognitive impairment. She argued that the 11 domains are associated with two separate and complementary types of human needs: those fulfilled through

individualistic means and those fulfilled through community-centered means. Although the two general and 11 more particular facets are all assumed to be essential in order to perceive high quality of life, the weighting of them varies among people. All facets are likely to be compromised in long-term care facilities (Kane, 2001).

Gerritsen et al. (2004) reviewed existing conceptual models for enhancing quality of life of nursing home residents, based on three predetermined criteria: Comprehensiveness (identifying all relevant domains of QoL for people in general), interrelatedness (model's ability to explain how the different domains contribute to QoL), and inclusion of individual preferences (explaining how interindividual differences may be represented). Reviewing six different QoL models used in long-term care, they concluded that only one (the theory of social production functions (SPF theory) (Gerritsen et al.) met all their criteria. The SPF theory of QoL proposes that every person's behavior, including nursing home residents, is aimed toward subjective well-being (i.e., QoL or psychological well-being). Subjective well-being is realized through reaching particular universal and more specific goals, within the constraints that each person faces (Gerritsen et al.). Universal goals are physical well-being and social well-being. Physical well-being includes stimulation or activation (optimal level of arousal) and comfort (absence of physiological needs, pleasant, and safe environment). Social well-being includes status (control over scarce resources), behavioral confirmation (approval for doing "the right" things), and affection (positive input from caring others) (Gerritsen et al.). The universal goals are reached through more specific first-order instrumental goals and activities and depend on the resources available for the individual. With increasing age, persons are confronted with several losses that may hinder them from maintaining all first-order instrumental goals. Goals that are costly and depend on many resources may be discarded and substituted by more realistic goals given current limitations.

Several studies have explored the impact of selected factors on quality of life among nursing home residents. Factors impacting negatively on quality of life include, but are not limited to, depression (Barca, Engedal, Laks, & Selbaek, 2011; Jongenelis et al., 2004), pain (Zanocchi et al., 2008), lack of personal control and autonomy (Kane 2001), loneliness (Jongenelis et al., 2004, Scocco, Rapattoni, & Fantoni, 2006), and inadequate care (Moyle, 2010). Less research has focused on effective means of improving quality of life. However, being treated by respect and dignity in relations and interactions with caregivers (Moyle, 2011), physical activity and exercise (Weening-Dijksterhuis, de Greef, Scherder, Slaets, & van der Schans, 2011), and positive social relations and family support have been found to contribute to quality of life (Bergland & Kirkevold, 2008).

Conceptualizing and measuring quality of life among residents with Alzheimer's disease and other cognitive impairments is a particular challenge when conducting quality of life research among nursing home residents (Ettema et al., 2005; Moyle, 2011). However, research intensity is increasing both in terms of developing instruments that may be used to collect data about quality of life among persons with cognitive decline and develop new methodological approaches for exploring quality of life in this population and identifying ways to improve quality of life among cognitively impaired residents in nursing homes (Ettema et al., 2005; Moyle, 2011). Ettema et al. (2005) propose that facilitating adaptation (maintaining balance) in the face the changes brought about by the chronic illness of dementia is essential in order to maintain quality of life. So far, this perspective has received scant attention.

Cross-References

► Quality of Life

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Nursing Homes

▶ Care, Long-Term

Nutrition Assessment, Counseling, and Support

▶ People with HIV: Positive Nutrition and Quality of Life

Nutrition Intervention

▶ People with HIV: Positive Nutrition and Quality of Life

NWT

▶ Northwest Territories