

Description of the National Index of Violence and Harm

2000 Index Released on July 29, 2002

1. Introduction

The *National Index of Violence and Harm* is constructed to measure the levels of violence and harm to individuals in the United States in a given year compared to levels observed in 1995. The Index indicates changes from year to year; it does not attempt to determine an absolute level of violence in any given year. Two different indices are included: personal and societal. The value for each index is relative to the baseline year 1995, which is indexed at 100%. The personal index includes measures of both interpersonal and intrapersonal violence and harm (see below). The societal index includes both institutional and structural violence and harm (see below). The personal scale consists of seven individual variables, and the societal scale consists of twelve, for a total of 19 individual variables. Some of these variables are made up of several indicators; for example, deaths from substance abuse includes measures related to smoking, alcohol, and other drugs.

2. Conceptual Background

We are using a concept of violence as defined by some academics which encompasses various types and components such as interpersonal, structural, institutional, physical, and psychological. However, we did limit the definition to harm inflicted upon humans; for example, we did not include violence against the environment except as it might affect humans (such as air pollution). Using the definition by Iadacola and Shupe (1998), violence is an action or structural arrangement that results in physical or non-physical harm to one or more persons. Such actions or hierarchies need to be purposely done, perpetuated, or condoned (e.g., accidents causing harm are excluded). However, violence occurs whether harm is intended or not, whether the action is justified or not, can be psychological, and needs not be recognized by the perpetrator or the receiver of the harm.

We have divided violence into two scales, personal and societal, with each of these having two parts. Personal violence includes both interpersonal (Variables 1–5: homicide, sexual offenses, battery, robbery, and reckless behavior) and intrapersonal (Variables 6 & 7: suicide/self-injury and deaths from substance abuse). Iadacola and Shupe (1998) define personal violence as “violence that occurs between people acting *outside* the role of agent or representative of a social institution.”

Societal violence includes both institutional violence and structural violence. “Institutional violence is violence that occurs by the action of societal institutions and their agents. Institutional violence is violence by individuals whose actions are governed by the roles that they are playing in an institutional context,” according to Iadacola and Shupe (1998). Variables 8 & 9

(criminal justice concerns, and civil rights complaints against the government) represent violence by the institution of the government. Variables 10 & 11 (including air pollution, injuries from products, and occupational injuries and fatalities) are measures of violence by corporations.

Variables

12 & 13 (domestic violence and child abuse/neglect) are acts of violence that occur within the institution of the family.

The second part of societal violence is structural violence, measured by Variables 14–19, all of which represent violence that comes about because of the structure or hierarchies of United States society. Iadacola and Shupe's (1998) definition of structural violence is "violence that occurs in the context of establishing, maintaining, extending, reducing or as a consequence of the hierarchical ordering of categories of people in a society." Social negligence represents basic human needs which are left unaddressed by society at large. We have defined "basic" needs to include food, housing, health care and education, and have incorporated related measures of unmet need. Infant mortality and life expectancy, while not direct indicators of structural violence, provide general indicators of the quality of life and health care that is provided through the overall organization of society. Hate crimes occur due to prejudice and enmity between various social and ethnic groups. Employment discrimination is a measure of active bias on the part of those with economic/decision-making power against groups with lesser power. Poverty disparity measures imbalances in the poverty levels between different sub-populations such as racial, age, and gender groups. Gang membership is used as a marker for those who are deprived of basic family and community resources (or otherwise disenfranchised from the mainstream culture) and are thus less likely to benefit from societal improvements in education, employment, health care, economics, etc.

3. Index Development

Principally using references by Iadacola and Shupe (1998 *Violence: Inequality and Human Freedom*) and by Chasin (1997 *Inequality and Violence in the United States*), we worked toward conceptualizing overall categories and possible individual variables to include within each. A large list of potential variables and indicators (suicide, domestic violence, etc.) was constructed, within the categories of interpersonal, intrapersonal, institutional, and structural violence.

Various professionals, mainly in the social sciences and some with a particular interest in or expertise in violence, were solicited for feedback, principally by use of relevant list-servs. They were asked to rate each variable on whether it should be included in the scale. Suggestions for additional variables/indicators were also solicited and a search was then conducted for valid, yearly, and national measures for those variables which were highly rated or otherwise seemed interesting to pursue (e.g., a good measure was sought to show harmful/insufficient aspects of our health system; lack of health insurance was chosen). Input was also obtained from experts in specific areas during this process of selecting measures (for example, health professionals or those involved with corporate accountability projects). From this, the process moved to another round of discussions among our group, obtaining additional feedback, and more refining.

4. Methodology

Some variables are a combination of several indicators (e.g., deaths from substance abuse includes figures relevant to deaths due to alcohol, tobacco, and drug abuse). There are also occasional double countings of some figures in the overall scale (e.g., sexual violence is counted in the personal violence scale, but some sexual violence occurs as domestic violence, which is also counted as institutional family violence). This happens when the action can be considered in two different ways.

Additionally, we are concerned more with changes from year to year, rather than establishing an absolute level of violence for a particular year. Therefore, even if an occasional variable or indicator might be considered by some to be undermeasured because of lack of full reporting, this is not a concern as long as that under-reporting occurs yearly and consistently, which is our assumption. We chose 1995 to be our baseline year as that was the year in which many of our statistical measures first became available.

We have made corrections for population growth. (This is to ensure that, for example, the measure for homicides does not increase one year merely because there are more people who might kill or be killed.) However, we correct for overall population, rather than population changes in specific age groups that might be more prone to particular types of violence.

Finally, as noted, we sought measures that are valid, annual, and national, trying to use direct measures of harm, when available. When this was not possible for conceptual variables we thought important, we used measures that represented markers of particular types of harm if they met the above criteria (yearly, etc.) as long as empirically they were linked to harm in that area of concern. For example, we used the variable of air pollution because of evidence linking it to ill effects on health, and we used civil rights complaints against the government as a marker of the negative impact of government toward citizens. We excluded some conceptual variables we would have liked to use for want of measures which fit our criteria. We gained feedback from various sources, but, in the end, it was our research group's own call, and we recognize differences of opinion on various aspects of the index. There can be no perfect, scientific index in an area such as "violence" with different definitional, political/value, and methodological perspectives. For example, we realize that some people will feel that legal abortion should be included in the index and its calculations. Those wishing annual figures for abortion can go to <http://www.cdc.gov/mmwr>, a web page provided by the Centers for Disease Control. Detailed discussion of the variable definitions is provided in *National Index of Violence and Harm: Definitions and Sources* (see attachment or the Index web site).

5. Index Calculations

The Personal and Societal Indices were calculated in an *Excel* spreadsheet. Separate sheets provide detailed calculations for each year, 1995 through 2000 (see attached sheets or the Index web site). The Personal Index is computed as the mean of the indices for Variables 1 through 7, giving each variable equal weight. Each variable index is computed as a percentage of the variable's 1995 baseline value. (Note that all indices for year 1995 are thus 100.0.) As mentioned earlier, some variables are comprised of several indicators (e.g., Variable 7 - Deaths from Substance Abuse). In this case the variable index is the mean of the indices for the individual indicators. From these procedures the relative weighting of variables and indicators can be inferred. For example, in constructing the Personal Index, Variables 1–6 each contribute to one seventh of the index while Indicators 7a–c each contribute one twenty-first (i.e., one third of the remaining seventh).

The Societal Index is calculated in similar fashion, as the mean of the indices for Variables 8–19, with numerous variables comprised of several indicators. Index values have also been computed for the various categories (e.g., Interpersonal, Government); however, these category indices are not used in the actual calculations of the two overall indices.

The column “Unadjusted” contains the raw data for each variable. Those data that need to be adjusted per the U.S. population (see *National Index of Violence and Harm: Definitions and Sources*) are divided by the population figure (in 100,000s) indicated, with the result appearing in the “Adjusted Data” column. The indexed value (relative to 1995) is computed under “Indicator Index” and subsequently these values are averaged in the columns “Variable Index” and “Overall Index.”

In addition to the annual detail sheets, the *National Index of Violence and Harm: 1995–2000 Summary* provides variable and overall indices for each year.

6. Changes from the 1999 Index

To provide more accurate measures, several changes to variable definitions or calculations were made in the 2000 Index and, for consistency's sake, have been carried back into the 1995-99 Index. (These changes do not affect any of the findings reported in the 1999 Index release.)

U.S. Population - Between decennial censuses the Census Bureau publishes monthly U.S. population estimates. Several measures requiring population adjustment are based on the July 1 estimate for each year. The estimated growth from the April 1, 1990 census to April 1, 2000 was 10.3%. However using the 2000 census data, the U.S. population actually grew 13.1% during this time period. Thus using the 2000 census figure in conjunction with the previous yearly estimates would create an artificial increase of an additional 2.8% from 1999 to 2000. To compensate, we have adjusted the 1995-99 population figures so that this additional 2.8% is

spread out over the years 1990 through 2000, in a manner proportionate to the Census Bureau's estimated yearly increase. Since the population was growing faster than previously assumed, this adjustment has the effect of reducing the size of observed changes (either up or down) for all indices that are based on the entire U.S. population base.

FBI Crime Data (Variables 1, 2, 3, 4) - The 1999 values for homicide, forcible rape, aggravated assault and robbery have been adjusted to reflect the revised figures in the FBI's *2000 Uniform Crime Report*. Each year, the previous year's numbers are adjusted to account for late-reporting states, whose incidence rates were previously only estimated by the FBI. To remain consistent with historical FBI data, these adjustments (which are generally less than one-half of one percent) are incorporated into each year's Index.

CDC Health Statistics (Variables 6, 7, 8c, 15) - Beginning in 2000 we use the preliminary data provided by the National Center for Health Statistics. These values are generally within 1 to 3 percent of the final values released one year later. A "preliminary-to-final" conversion factor is applied based on the relative differences observed from 1996 to 1999. Since we are now using a "rank correlation" to detect index trends (see *Findings* section) using somewhat imprecise values is less problematic. We will continue to use final numbers for the prior years' data. This change has no effect on the 1995-99 values since they were based on each year's final health data.

Variable 10a: People Experiencing Pollution - In 2000, the EPA began using a new 8-hour standard for harmful ozone exposure (versus the previous 1-hour standard). This increased significantly the number of people living in areas that exceeded the NAAQS. The 1997-99 values were revised using actual data obtained with the 8-hour standard, while the 1995-96 data was adjusted using a factor of 2.112, approximating the relative difference observed between the two measurements from 1997 through 1999.

Variable 14a: Lack of Health Insurance - In 1999, the Census Bureau began using follow-up questions to obtain a more precise estimate of those without health insurance. Using this method in 1999 and 2000 reduced by 8.12% the rate of people who responded they had no health insurance. To make prior years comparable to the 1999 and 2000 data, this reduction was applied to the 1995-98 data. Since these years' data were all reduced by the same factor there is no change in their indexed values.

7. 2000 Findings

Indices at all levels (overall, category, variable and indicator) were analyzed for consistent trends over the six-year study period. The column "Corr." in the *1995-2000 Summary* provides Spearman's rank correlation for a given index versus time (year). The "Sig." column indicates whether the trend over time (as represented by the correlation) is considered statistically

significant at the .05 (*) and .01 (**) levels. (Statistical significance was determined using two-tailed probability values, as provided by *SPSS, Version 11.0.*) In prior releases the standard “coefficient of correlation” (Pearson’s) had been used. However, since strictly speaking these indices do not represent data sampled from a given population, use of the rank correlation, while somewhat less powerful, is more theoretically sound. In this context statistical significance indicates that the index values are ordered over time (either in an increasing or decreasing fashion) to a degree that is unlikely to occur just by chance (i.e., in the presence of only random fluctuations in the data). As observed in the 1999 release, many variables/indicators show statistically significant trends. We emphasize that a “significant trend” observed during the study period does not necessarily imply a significant *difference* between the 1995 and 2000 values. For example, while smoking deaths (Variable 7a) only increased 2.2% from 1995 to 2000, as this increase was fairly consistent over time the trend is considered significant. On the other hand, deaths by police intervention (Variable 8c) decreased 16.8% during the study period but, due to its erratic movements, the variable does not display a statistically significant trend.

A number of interesting observations are made from this analysis. The Personal Index, which experienced a 16.3% decline from 1995 to 2000, shows a consistent downward trend (with Spearman’s rank correlation of $r_s = -1.000$), as do six of its seven constituent variables (all except deaths from substance abuse). We also note that individually the interpersonal and intrapersonal categories each have downward trends deemed significant (with rank correlations of -1.000 and -0.899 , respectively).

Despite decreases in personal violence, which have been widely reported, societal indicators reveal two patterns. Corporate, family, and structural indicators (excluding social negligence) have generally decreased, while the government and social negligence indicators generally increased. With three of the four government indicators increasing over the study period, the overall government category shows a consistent upward trend ($r_s = 0.943$) as does the social negligence variable ($r_s = 1.000$). In the remaining categories (corporate, family and other structural) the vast majority of indicators (15 out of 17) have decreased, with ten showing consistent downward trends. In combination, the overall Societal Index showed only a minuscule decrease (0.3%) from 1995 to 2000, with no significant trend. We note that as future years of data are collected some variables which now appear to fluctuate randomly may exhibit trends that would be considered significant based on a larger data set.

Comparing the 2000 results to the 1999 Index we note that seven categories, variables, or indicators that were not previously deemed significant now exhibit significant trends. These are listed below, along with the direction of the observed trend.

- Reckless Behavior (-)
- Intrapersonal (-)
- Capital Punishment (+)
- Corporate (-)
- Family (-)

- Poverty Disparity, Class (+)
- Poverty Disparity, Age (-)

There were four indices which, in 2000, moved in the opposite direction of the previous trend, though over the entire period 1995-2000 the observed trend is still considered statistically significant. These are:

- Government
- Criminal Justice
- Capital Punishment
- Child Abuse/Neglect

8. The Index Graphic

We created a graphical image to represent the levels of violence and harm in the United States as measured by the Personal and Societal Indices. The image of a ruler suggests a measurement with inches representing multiples of ten percentage points. The height of the bars effectively displays whether violence is increasing or decreasing from year to year. The graphic comparing years 1995 through 2000 (see attached sheet or the Index web site) demonstrates the consistent decrease in the Personal Index and the relative stability of the Societal Index.

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10. Acknowledgments

The authors would like to thank many people for their assistance in the preparation of the index. These people include students and faculty at Manchester College, experts in the field of violence, and experts in the various fields which are included in the Index (for example, those studying air

pollution). Additionally, we would like to thank the Peace Studies Institute at Manchester College for its sponsorship and financial support, and Gib Foster (Office of Printing Services, Manchester College) who designed and executed the Index graphic.

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The *National Index of Violence and Harm* web page is located at:
www.manchester.edu/links/ViolenceIndex

12. References

- Chasin, Barbara H. 1997. *Inequality and Violence in the United States*. Atlantic Highlands, NJ: Humanities Press.
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