COMMUNITY BASED BEHAVIORAL RISK FACTOR SURVEYS-A CASE STUDY

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ABSTRACT

To assemble community health profiles and establish baseline prevalence data for health risk factors within the local population, a Behavioral Risk Factor Survey (BRFS) of El Paso County residents was commissioned by the Paso del Norte Health Foundation (PdNHF) and conducted by a local polling organization during the Fall of 1996. Based on the Centers for Disease Control and Prevention core questionnaire, our BRFS survey instrument included a variety of behavioral items (e.g. health care use and access, hypertension and cholesterol awareness, cancer screening, tobacco and alcohol use, nutrition, sedentary lifestyle, safety belt use) with some local modifications and additions. Typical BRFS data collection efforts are conducted only at the state level (in Texas by the Texas Department of Health) with reduced regional sample sizes insufficient to develop reliable local profiles. With the goal of informed local public health policy aimed at needs assessment and necessary prophylactic intervention measures, we obtained a large data set specific to El Paso County that quantifies our similarities and peculiarities regarding behavior and other health care issues. To suggest guidelines for other community-based research efforts, we discuss our experiences in the BRFS planning, design, data collection and analysis, dissemination, and implementation.

1. BACKGROUND

With approximately 680,000 residents, over 70% of whom are Hispanic, El Paso County is one of the five poorest metropolitan areas in the nation. Over 30% of the population lives below the poverty level and approximately 70,000 people live in areas without sewage treatment and safe drinking water. One in four residents receives food stamps and reported rates of unemployment always exceed 10%. One-third of the residents lack any health care coverage, whether private or governmental. Directly across the Rio Grande River is Ciudad Juarez, Chihuahua, Mexico, with a population estimated between one and two million. The economic, cultural and familial ties between the two cities combine to create what is in essence a single metropolitan area. Ciudad Juarez, despite its size, has no sewage treatment plant, and raw sewage is discharged through a canal that runs outside the city. The health challenges for the region are enormous. Traditional public health concerns such as tuberculosis and rabies control and water and air quality remain high priorities, while the chronic diseases like diabetes disproportionately impact the mostly Hispanic population.

2. INTRODUCTION

In September 1995, the Paso del Norte Health Foundation was formed from the sale of a large not-for-profit hospital. The proceeds from the sale were used to establish a philanthropic organization to benefit the health of the El Paso region, including Ciudad Juarez, Mexico, Dona Ana and Otero Counties, New Mexico, and Hudspeth County, Texas. One of the first mandates to the staff from the board of directors was to develop a strategic plan to provide direction and focus for all the activities of the Foundation, but especially in establishing its grants programs.

Staff went through a series of steps in conducting a community health needs assessment. The first was the

development of a strategic planning tool which stated the goals and objectives for the Foundation, how these would be achieved, and how this process would be evaluated. The second was the development of a community profile using secondary data such as hospital costs reports, census information, vital statistics records, information available from other state health department registries and programs, and growth patterns for the region. The third component was an analysis of community health programs and identification of under-served populations. Finally, staff arrived at the last step, the need to conduct a survey of health behaviors and risk factors.

In going through the first steps, the Foundation had found that there were many documents that provided useful data, but there had never been a comprehensive survey which could provide reliable information about the health status, risk factors for disease, and health practices that were of importance to the El Paso region. For example, adequate data were not available in such key areas as tobacco use, prevalence of chronic diseases, or even access to health care and health coverage. In consultation with the Texas Department of Health (TDH) and the Centers for Disease Control and Prevention (CDC), a decision was made to use the Behavioral Risk Factor Survey (BRFS), now conducted by almost all states. This was to provide baseline data for evaluating the effectiveness of future strategies for funding, as well as to serve as a tool for health promotion and awareness with the community.

After careful review of the research tools available for assessing community needs and consultation with other foundations, PdNHF selected the BRFS to meet its data-gathering needs. The survey instrument was designed by the CDC with additional questions contributed by state health departments nationwide. Until recently this tool had been used exclusively to conduct statewide surveys. Even though this telephone survey had been conducted in Texas for about 10 years, the number of surveys completed in El Paso County had been very small each year. The Foundation believed the available state data would not provide an adequate base. Moreover, given the composition of the county's population, the decision to conduct the BRFS in El Paso created the opportunity as well to obtain one of the most significant assessments of the health status, risk factors and health behaviors of Mexican-Americans in the border region ever undertaken.

3. USE AND DISSEMINATION

After an analysis of the data, the results were successfully used to identify priorities for the Foundation's grants programs and provide feedback to the community regarding its own health and to begin the Foundation's efforts to promote health in the region. This use of the results for health promotion efforts is on-going. In addition, the data are being used in establishing baselines for the future evaluation of prevention programs. It is expected that the survey results will continue to guide decision-making and that the survey will be repeated at appropriate intervals.

A partnership was formed with The El Paso Times, the leading regional newspaper, and the local ABC television affiliate KVIA to present the results in a week-long series of print and media spots designed to both inform the public and promote health. The newspaper devoted a front-page article and approximately two full pages of additional articles on daily topics such as obesity and sedentariness, tobacco use, drinking, preventive health screenings and diabetes and other chronic diseases. Six o'clock and ten o'clock news programs ran different features on related topics. A press conference for other news media to announce results received coverage from all other news sources for El Paso. Other local news coverage included Spanish language television and Juarez, Mexico newspaper stories. The newspaper stories were sent out on the wire service and were subsequently reported in other Texas

major newspapers including the Houston Chronicle and the Dallas Morning News. A tongue-in cheek article "Where the fatties live" reporting the El Paso BRFS obesity rates also appeared in the National Examiner tabloid publication.

Public interest and reaction was intense. During the period of media coverage, the Foundation co-sponsored a public forum at the Chamizal National Park Theater to discuss the results and encourage public input in creating solutions to the challenges identified. Over 300 individuals attended an interactive session with a panel of experts from public and private sectors of the health care community. El Paso's state senator presided at the panel and the local federal congressman participated electronically. The session was filmed and broadcast at a later date by the television partners KVIA. Input from the community provided valuable feedback in funding decisions.

Interest in the results of the survey continues to be high, with local media continuing to use the survey data in regular health articles and spots and with state and national media reporting on the results. The Paso del Norte Health Foundation is moving forward in developing its programs to improve the health of the people of the greater El Paso region. In addition, PdNHF and K ASSOCIATES representatives presented the details and scope of the research project in a panel session at The Fourteenth Annual BRFSS Conference in Tampa, Florida.

4. METHODOLOGY

QUESTIONNAIRE DESIGN

For its research instrument, the Foundation selected items developed previously from several BRFSS (Behavioral Risk Factor Surveillance System) questionnaires used by the CDC to provide baseline data about the prevalence of health risk factors at the state level within the United States. The CDC core BRFS questionnaire and selected modules were augmented with a few questions relating specifically to the predominantly Hispanic population of the region. The instrument addressed various topics including health care coverage and access to care, diagnosed chronic diseases (e.g. diabetes, cardiovascular disease, high blood pressure or cholesterol), tobacco and alcohol use, weight control, nutrition, exercise, and selected preventive health screenings. For female respondents, there was a section tailored to women's health issues.

An extensive pilot test using preliminary instruments with over 100 randomly selected respondents indicated that the survey topics were perceived as salient and that interest level could be maintained throughout the interview without respondent fatigue. Subjected to close scrutiny during and following the pilot test, the questionnaire was revised several times before final approval. The final version of the questionnaire had approximately 100 questions and took from 15 to 25 minutes to administer, depending on the nature and extent of the respondent's health conditions. Equivalent Spanish survey instruments were developed through careful translation and nearly 40% of the interviews conducted by bilingual interviewers were administered in Spanish.

SAMPLE SELECTION OF RESPONDENTS

The data collection protocol for the El Paso BRFS adhered closely to that of the statewide BRFSS conducted by TDH. During the initial planning stages the Foundation solicited advice from CDC and TDH personnel in conducting the BRFS at the community level. Both agencies were extremely helpful and provided valuable input regarding the questionnaire design, sample selection, survey methodology, and data interpretation.

A fundamental research objective was to obtain a representative sample of El Paso County residents to permit population generalization of the survey results. The sample size was targeted at 1,000 completed

telephone interviews for El Paso County to produce approximate margin of error for overall categorical responses at ± 3% (with confidence level 95%) and to permit meaningful post-stratification comparisons between subgroups defined by standard demographic classifications.

The sampling frame consisted of El Paso County adults (18 years and older) residing in households with telephones. K ASSOCIATES purchased a truncated, list assisted sample (Random A) from Survey Sampling Incorporated to provide randomly generated telephone numbers. The random digit dial sample design allowed access to all working numbers including those listed, unlisted and newly installed. To ensure random selection from within each residence, a household informant selection procedure (KISH chart) was used to identify a single adult respondent. This randomization technique guarantees equal probability of selection for all adults within the same household.

The completed questionnaires obtained from the 1008 residents surveyed should then adhere closely to the statistical response patterns which would have been obtained from a considerably more expensive and practically impossible simple random sampling survey design.

SURVEY ADMINISTRATION

Interviewer candidates were recruited by K ASSOCIATES primarily from various educational departments at the University of Texas at El Paso (e.g. Social Work, Sociology, Political Science, Nursing and Public Health). Fifteen bilingual interviewers were used throughout the six weeks of interview data collection. The data collection process was preceded by a three-day (nine hours) training program in which interviewers were trained on both the English version and the Spanish translation of the questionnaire. The training sessions included detailed instruction and practice to master questionnaire skip and branch patterns as well as correct pronunciation of medical terms. Interviewers were also trained to utilize the KISH chart to randomize respondent selection from within each household. All interviewers were advised of the confidential nature of the survey and signed forms guaranteeing respondent confidentiality.

Callback procedures entailed at least twenty calls to reach the selected respondent before final disposition. Callbacks were scheduled whenever informants identified a respondent who was not available at the time of the first household contact. Household informants or selected respondents who initially refused to participate were contacted three additional times by different interviewers in order to exhaust any possibility of participation. Reflecting commonly acknowledged difficulties with surveying minority and low income populations, slightly over 33% of the selected households persisted in their refusal to participate.

All interviews were conducted in a controlled setting under the supervision of K ASSOCIATES staff. Calls were distributed across a combination of daytime hours during the week, weekday evenings and weekends. Supervisors were available to assist immediately with any problems or questions that interviewers might encounter during the course of an interview. Supervisors also checked and edited the questionnaires prior to release for data entry. Quality control was emphasized repeatedly throughout the study and there were continual reviews of interviewing procedures and submitted work.

DATA ENTRY AND TABULATION

Data entry in Microsoft EXCEL spreadsheet format was accomplished by K ASSOCIATES personnel. The data were double-entered in separate spreadsheets by two different staff members for comparison and confirmation of accuracy. For data validation, recoding, variable creation and analysis, the file was then exported to SUDAAN, a statistical computing program designed for

analyzing data from multistage sample surveys. Incorporating appropriate design modifications of statistical formulas for calculation of point estimates and standard errors, SUDAAN standard output provides weighted overall response percentages with optional user requested cross tabulations.

RESPONSE WEIGHTING

The first step in the weighting process was to adjust for the probability of selection at the household level (reciprocal of the number of phone lines) and for the intra-household selection probability (reciprocal of the number of adults in the household). The second step was the the use of a post-stratification weighting factor based on ethnic and age group within gender. As standard BRFSS procedure, this weighting scheme adjusts to the most recent intercensal estimates by age, gender, and race, but not by education or income.

Based on TDH official gender, ethnic, and age-group demographic estimates, weighted responses were calculated for projection to the population of El Paso County. In most cases, the adjusted estimates were within two percentage points of the unweighted relative frequencies. For comparison with known population characteristics and response adjustment, both unweighted and weighted sample demographic tabulations are attached. For the most part there is strong agreement between unweighted values and available population estimates, except for a strong gender difference and milder disparities among younger and older age groups. Males were under-represented in the unweighted data by approximately 13 percentage points in comparison with the census estimate (36% vs. 49%). Differential refusal rates (considerably higher among Hispanic males) were a major contributor to this difference in gender distribution.

LIMITATIONS

One of the limitations of telephone surveys is the lack of coverage for people who live in households without telephones so, technically, the El Paso Health Report can be generalized only to the nearly 90% of El Paso County households with telephones. The magnitude of the bias from under-coverage is dependent on both the magnitude of under-coverage as well as the differences in health characteristics between those covered and not covered by the sampling frame. The literature indicates that differences exist between those who live in households with and without telephones and the strongest demographic correlate of telephone subscription is family income. Therefore, the potential for under-coverage bias is probably greatest among factors that are associated with household income status. This under-coverage bias would tend to produce an overestimation of those risks that increase with income and an underestimation of those risks associated with lower income.

Notwithstanding, most of the El Paso BRFS results should provide reasonably accurate estimates of adult behavior from households without telephones as well. Caution should be exercised, however, in extrapolation for items with response patterns strongly associated with income or education.

Another potential source of bias results from the self-reported nature of these data. It would be expected that respondents may underreport some health risk behaviors, especially those that are illegal or socially unacceptable. As illustrations, significant positive biases have been documented in the self-reporting of seat belt usage; biases have also been documented for self-reported height and weight, the magnitude and direction of which appear to vary with gender, age, and relative weight status.

Responses obtained from this survey are based entirely on self-disclosure so some over reporting of healthy behavior is virtually certain. Many studies have established the usefulness of self-reported information for estimating behavioral incidence and prevalence, but the validity of these data ultimately depends on the

truthfulness, recall and comprehension of the respondents.

EL PASO BRFS SAMPLE DEMOGRAPHICS

Respondent characteristics from participants in the El Paso BRFS are presented below. The weighted percentages used for statistical response adjustment to the El Paso County population of 460,907 adults are given also. For comparison, selected El Paso County demographic figures appear in parentheses.

	UNWEIGHTED	WEIGHTED	EST
GENDER (n = 1008)			
Female	64%	52%	[1](51%)
Male	36%	48%	(49%)
ETHNICITY (n = 1008)			
Hispanic	73%	70%	[1](72%)
Anglo	23%	27%	(23%)
Black	3%	3%	(3%)
Other	1%	0+%	(1%)
AGE (n = 1008)			
18-24	13%	18%	[2](19%)
25-34	20%	24%	(23%)
35-44	23%	22%	(21%)
45-54	14%	14%	(15%)
55-64	12%	10%	(10%)
≥ 65	18%	13%	(13%)
EDUCATION (n = 1002)			
Less Than 9th Grade	22%	17%	[3](24%)
Grades 9-11	12%	13%	(13%)
High School Graduate	24%	26%	(23%)
Some College	24%	26%	(25%)
College Graduate	18%	18%	(15%)
COMBINED HOUSEHOLD INCOME (n = 884)			
< $10,000	24%	20%	[2](18%)
$10,000-$15,000	16%	17%	(11%)
$15,000-$35,000	33%	35%	(35%)
$35,000-$50,000	14%	14%	(16%)
$50,000-$75,000	7%	8%	(12%)
> $75,000	6%	6%	(8%)
MARITAL STATUS (n = 1008)			
Married	52%	57%	
Divorced	13%	10%	
Widowed	10%	6%	
Separated	5%	4%	
Never Married	17%	21%	
Unmarried Couple	3%	3%	
EMPLOYMENT STATUS (n = 1005)			
Employed for Wages	50%	54%	
Self-Employed	6%	6%	
Out of Work	4%	5%	
Homemaker	19%	15%	
Student	4%	6%	
Retired	14%	11%	
Unable to Work	3%	3%	

Sources:

[1] City of El Paso, Department of Planning, Research, and Development Demographics Section (1990 U.S. Census data)

[2] Survey Sampling, Inc. El Paso County Aggregate Demographics Report (estimates projected forward from 1990 U.S. Census data)

[3] Texas-Mexico Border County Demographics and Health Statistics: 1994, p. 27 (persons 25 years and over obtained from 1990 U.S. Census data)

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