Access to Health Care in a Rural Area of the Philippines

This study reports the results of a household survey requested by the mayor and community health officials in an under-served and understudied rural town in the Philippines. The study examines the extent and determinants of access to care. Results showed that 15% had a check-up in the previous year, despite 63% reporting a family history of chronic diseases. Multivariate regression analyses showed that having a usual source of care (*P*=.006) and education (*P*=.04) were predictors of having had a checkup the previous year. This study, which represents the first household survey assessing access to care in this rural Filipino population, provides empiric evidence supporting the need for health programs that will improve access to care and routine monitoring of chronic illness in this under-served, rural population. (*Ethn Dis.* 2004;15:104–109)

Cielito C. Reyes-Gibby, DrPH; Lu Ann Aday, PhD

University of Texas School of Public Health, Houston Health Science Center (CCR-G, LAA); Department of Symptom Research, University of Texas M.D. Anderson Cancer Center (CCR-G); Houston, Texas.

Address correspondence and reprint requests to Cielito C. Reyes-Gibby, DrPH; Department of Symptom Research; University of Texas M.D. Anderson Cancer Center; 1515 Holcombe Blvd. Box-221; Houston, TX 77030; 713-745-3591; 713-745-3475 (fax); creyes@mdanderson.org

INTRODUCTION

Differential access to health care is one of the correlates of poor health outcomes, especially among socially and economically disadvantaged populations. Populations lacking access to health services are at a greater risk for the adverse health consequences of untreated chronic and acute diseases.

In developing countries such as the Philippines, lack of access to health care is a major public health problem. Rural areas in particular are disproportionately affected. To improve health services through increased community participation and governance, the Philippine government initiated a decentralized system of governance by enacting Republic Act No. 7160, also known as the Local Government Code of 1991.[1]

The enactment transferred the responsibilities for planning, organizing, delivering, and financing public health services from the Philippine Department of Health (DOH) to local government units. These units created local health boards that would serve as the main mechanism for community participation and involvement in community development. The boards included the mayor as chairman, the municipal health officer as vice-chairman, local councilor for health, a representative of the Department of Health, and a member of a nongovernmental health organization who represents the community. The local health boards' functions included proposing annual budgetary allocations for health services and serving as advisory committees to the legislative council.

This study reports the results of a household survey conducted in May 1998. The study was requested by the town mayor and community health officials to serve as a basis for developing health programs and services in the rural town of San Antonio, Nueva Ecija, Philippines. Little empiric data exist with which to base healthcare programs and allocate healthcare resources, especially in light of the enactment of the Code. The study aims to determine the extent of, and factors associated with, access to health care and to assess the likely magnitude of unmet needs in an under-served and understudied rural area of the Philippines.

Conceptual Framework

Empiric indicators of the access concept were developed by Aday and Andersen[2] to evaluate the progress of health policy toward achieving equity of access. Access was classified as potential access (the probability that services will be obtained) and realized access (actual utilization). Potential access indicators include predisposing, enabling, and need characteristics.[3] Predisposing characteristics are composed of demographic factors (age, gender), social structure (education, occupation), and health beliefs (attitudes, values, knowledge). Enabling resources are comprised of personal/family (social relationships, income) and community resources (availability of health personnel and facilities, health insurance, a regular source of care) that are the means that individuals have for using health services. Need for care is based on how people view their own health and functional state; how individuals perceive symptoms of illness, pain, and worries about their health; and provider-diagnosed conditions. These characteristics were differentiated as mutable or immutable, ie, can be modified or cannot be modified, respectively, by public policy. In this study, immutable characteristics included sociodemographic characteristics (age, gender, level of education, marital status, and monthly family income) and family history of chronic illnesses (hy-

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pertension, diabetes, cardiovascular diseases), whereas mutable characteristics included having a regular source of care and having had a checkup.

The utility of this model, aside from grouping and assessing the relationships between the different predictors, is in classifying which of the predictors are mutable and amenable to change. Classifying which factors are mutable provides essential information that will help guide the design of health programs (ie, health education and health promotion programs, improving access by increasing availability of nurses and physicians, creating satellite clinics, etc) whereas information on immutable factors will help define specific target groups (ie, demographic/biological and socioeconomic variables) in this rural population.

METHODS

The target population of this study was ≥30-year-old residents of San Antonio, Nueva Ecija, Philippines who had lived in the community for more than six months at the time of survey. San Antonio is in the Northern island of Luzon, approximately 100 miles north of Manila, the capital, with a total 2003 population estimated at 61,796. The town is composed of 16 geopolitical units, "barangays." Each barangay has a political leader, barangay captain, voted into office

by popular vote of the barangay residents. To facilitate cooperation and completion of the study, the primary author attended meetings of the barangay officials to make them aware of the study objectives and activities. The primary author also attended town festivities to increase visibility and gain wider acceptance from the local residents.

A cluster sampling technique was used to select the sample. Based on a modification of the "30 x 7" cluster sampling technique of the World Health Organization Expanded Program on Immunization, 60 clusters were drawn from areas comprising the town by using probability proportionate to size sampling techniques.[4] Seven adjacent households were visited per cluster, and one respondent was randomly chosen for interview in each household. Each household was visited up to three times to complete the survey. Eighty-four percent of eligible respondents participated.

Data Collection

Data were collected through personal interview. An interviewer-administered questionnaire was developed with some items taken from the National Health Interview Survey[5] as well as the Access to Care questionnaire developed by Aday and colleagues.[2] Items taken from these questionnaires were translated to the Filipino language and back-translated to the English language by a panel (five community members) of bilingual town residents. The questionnaire was pilot-tested among volunteers from the community. Items reported to be vague or ambiguous were reworded until deemed acceptable through subsequent pilot testing in the community.

Interviewers recruited from the community were trained to administer the questionnaire. Four registered nurses and one physical therapist residing in the community were trained as interviewers. Community residents were chosen as interviewers since studies have shown that interviewers whose ethnic and social background are similar to the

population of interest are generally more effective in eliciting participation from the respondents.[6]

Based on Aday and Andersen's Potential Access/Process Measures,[2] respondents were asked about predisposing, enabling, and need characteristics. Predisposing factors included age, gender, education, and marital status. Enabling factors included family income. Data on health insurance status were not obtained since focus group discussions with the municipal health personnel and the town residents revealed that health insurance is rarely available in the workplace. Further, private health insurance is expensive and rarely available, especially in this community. Need for care factors included a history of selected diseases (hypertension, stroke, myocardial infarction, and diabetes). Since focus group discussions with the community revealed that hypertension is the most feared and prevalent disease, we also conducted indirect measurements of blood pressure by using a calibrated aneroid sphygmomanometer. The World Health Oganization[7] recommendation and the protocol for blood pressure measurements from multisite studies in the United States were used. Hypertension was defined as systolic pressure ≥140 mm Hg and diastolic ≥90 mm Hg.[8] Access to care, the dependent variable to be examined, was operationalized as to whether respondents have a usual source of care (potential access) and have had a checkup in the previous year (realized access).

Statistical analyses were conducted using STATA 6.0[9]; STATA's survey command was used to adjust for the sampling design. Since women were overrepresented in the sample (63% in the study sample vs 54% in the target population), we used post-stratification weighting to reflect the gender distribution of the target population.

Logistic regression was conducted to assess the factors associated with access to health care. Variables with a *P* value of <.25 at the univariate level of anal-

ysis were included for multivariate modeling. A *P* value of .25 was used as cutoff since using a more traditional level (*P*<.05) often failed to identify variables known to be important.[10] For the final model only variables with a *P*<.05 were included.

RESULTS

Analyses reported here are based on 336 adults who responded to the survey, which represents 84% of the eligible respondents. Table 1 summarizes the study population by selected characteristics. Table 2 shows the extent of mutable characteristics, ie, having a usual source of care (potential access) and having had a checkup the previous year (realized access) for selected factors. The odds or likelihood of having had a checkup the previous year, by using logistic regression analyses, for the whole sample is shown in Table 3.

Predisposing Characteristics

As shown in Table 1, the study population included 63% females and 37% males, aged 31–97 years with a mean age of 50.5 years. Eighty percent were married and living with the spouse. In terms of educational attainment, overall, only 30% had greater than 6th grade education; 2% never attended school; 15% had less than 3rd grade; 53% between 4th and 6th grade education; 11% reached high school; 7% were high school graduates; 5% reached college; 7% graduated from college.

Enabling Characteristics

Table 1 also shows most have low family income. Since the main source of livelihood was farming and with the "El Nino" phenomenon (drought) affecting the area, most respondents reported very low monthly family income: 37% reported less than 1,500 Philippine peso ($37); 14% had income between 1501–2500 ($37-$62); 18% reported between 2,501–4,500 ($63-$112); 12% reported

between 4501–7,500 ($113-$188); and only 19% reported an income greater than 7,500 ($188).

Need Characteristics

In terms of chronic diseases, 28% reported a family history of myocardial infarction (MI), 25% reported a family history of stroke, and 14% reported a family history of diabetes. Fifty-five percent of the respondents reported having a family history of hypertension. Twenty-three percent of respondents were found to be hypertensive. Overall, 63% of the population reported having a family history of chronic illness.

Potential and Realized Access

For health services, 79% of the respondents reported having potential access, ie, having a particular person or place they usually go to when sick or needing health advice. Fifteen percent reported going to public health clinics; 77% go to physicians; and 8% go to hospitals. Interestingly, 7% of the study population also reported going to folk healers. Only 15% had realized access, ie, have had a general check-up in the previous year.

Univariate analyses showed family history of stroke (*P*<.05) as the only factor significantly associated with having a regular source of care (Table 2). This finding is not surprising since focus group discussions revealed that stroke is an illness that is feared in this population. The physical consequences (eg, slurred speech, paralysis) of stroke are apparent compared to those of other diseases (eg, diabetes), and stroke was thus perceived to be prevalent. Having a checkup the previous year was significantly associated with higher levels of education (*P*<.05) and with a regular source of care (*P*<.05).

Table 3 shows the significant predictors of realized access and indicates that having a regular source of care was the strongest predictor of having had a checkup in the previous year. In this population, persons who reported hav-

ing a usual person or place they usually go to when sick or needing health advice were five times more likely to have had a check-up in the previous year. A higher level of education (6th grade or higher) was also a predictor for realized access in this population.

DISCUSSION

This study shows limited healthcare utilization in this population. Only 15% reported having had access to care (general check up the previous year), despite 63% reporting a family history of chronic diseases (eg, hypertension, diabetes, stroke, myocardial infarction, or a combination thereof). This percentage is low compared to estimates provided by the WHO South East Regional Office (SEARO).[11] The WHO-SEARO reported that in developing countries, approximately 60% have no access to basic health care. In contrast, developed countries report approximately 80% of the population as having had a visit to a physician or other healthcare professional in the previous year.[12] While these data are not directly comparable because of differences in study methods, our findings indicate low healthcare utilization in this population.

Twenty-three percent of respondents were found to be hypertensive. This finding is consistent with that of other developing countries.[7] Historically, most national health initiatives (in the Philippines) have focused on persistent pre-transitional problems like tuberculosis, malnutrition, and infectious diseases since the benefits to these programs are immediate.

Among the factors found to be highly associated with utilization are having a usual person or place to go to when sick or needing health advice and higher level of education. The finding that educational level is a determinant of healthcare utilization is consistent with findings from other studies conducted in the Philippines. For example, Becker

Table 1. Profile of study population: predisposing, enabling, and need characteristics and access to care (N=336)

Characteristics		N (%)
Predisposing characteristics		
Age	<50 years	175 (52)
	≥50 years	161 (48)
Mean age	50.5	
Age range	31–97	
Sex	Male	124 (37)
	Female	212 (63)
Education	Never attended school	7 (2)
	<3rd grade	50 (15)
	4th–6th grade	177 (53)
	Some high school	37 (11)
	High school graduate	24 (7)
	Some college	17 (5)
	College graduate	24 (7)
Marital status	Married	270 (80)
	Single	66 (20)
Enabling characteristics		
Monthly family income	<$37	24 (37)
(USD)	$37–$62	47 (14)
	$63–$112	60 (18)
	$113–$188	40 (12)
	>$188	64 (19)
Need characteristics		
Hypertension prevalence		78 (23)
Family history of hypertension	Yes	184 (55)
	No	142 (42)
	Don't know	10 (3)
Family history of myocardial infarction	Yes	95 (28)
	No	227 (67)
	Don't know	14 (5)
Family history of stroke	Yes	85 (25)
	No	241 (72)
	Don't know	10 (3)
Family history of diabetes	Yes	47 (14)
	No	280 (83)
	Don't know	9 (3)
Family history of ≥1 chronic disease	Yes	212 (63)
	No	124 (37)
Potential and realized access		
Potential access		
Having a particular place to go to when needing health advice		265 (79)
Types of providers mentioned:		
Public health clinics		50 (15)*
Physicians		259 (77)*
Hospitals		27 (8)*
Folk healers		24 (7)*
Realized access		
Have had a checkup the previous year		50 (15)
* Not mutually exclusive.		

and colleagues[13] assessed determinants of the use of family planning, prenatal care, childhood immunizations, and oral rehydration salts (ORS) by using survey data from 8,000 women in Metro Cebu, the Philippines. The level of maternal education was the most consistent and important determinant of use of these four health services in both urban and rural areas. Specifically, estimated odds of using modern contraception increased by 6% and 11% for each additional year of schooling in urban and rural strata, respectively.

Since educational level was also as-

Table 2. Extent of potential and realized access by selected variables (*N*=336)

Selected Variables		Potential Access (Adults >30 years old reporting a regular source of care) *N* (%)	Realized Access (Adults >30 years old reporting having had a regular checkup the previous year) *N* (%)
Overall		265 (79)	50 (15)
Predisposing characeristics			
Age	<50 years	142 (81)	24 (14)
	≥50 years	124 (77)	27 (17)
Sex	Male	99 (80)	16 (13)
	Female	161 (76)	36 (17)
Education	>6th grade	81 (81)	21 (21)†
	≤6th grade	175 (74)	31 (13)
Marital status	Married	210 (78)	43 (16)
	Single	52 (80)	9 (13)
Enabling characteristics			
Monthly family income	<$63	137 (80)	29 (17)
(USD)	≥$63	127 (77)	21 (13)
Need characteristics			
Hypertension	Yes	149 (81)	28 (15)
	No	107 (76)	23 (16)
Family history of	Yes	78 (82)	13 (14)
myocardial infarction	No	175 (77)	36 (16)
Family history of stroke	Yes	77 (91)*	12 (14)
	No	181 (75)	36 (15)
Family history of	Yes	35 (74)	10 (19)
diabetes	No	221 (79)	42 (15)

* *P*<.10; † *P*<.05.

sociated with realized access, outreach programs that are tailored for the less educated are needed in the community. Upon informing town officials of this finding, a consensus was reached to increase public awareness of the importance of having a routine checkup and on the availability of selected health services through word-of-mouth. Using visual aids in health education programs and using community health volunteers to inform residents of available health services in the community health centers were also suggested.

Income was not significantly associated with access to care in this popula-

tion. This finding is similar to those of Wong et al.[14] Wong found that Filipino women's utilization of prenatal health care (traditional, public, or private) and frequency of visits had little sensitivity to economic factors (eg, price/cost changes). However, income was not associated with healthcare utilization because overall, respondents reported low income. The skewed distribution of family income may have obscured its relationship with healthcare utilization. Another possible reason is low overall rates of healthcare utilization.

Twelve percent reported using public clinics (municipal health clinics) as a

source of health care, although free health services are offered at these clinics and satellite clinics are scattered throughout the town. Several explanations for this finding exist. First, public awareness on the availability of health services is limited, which points to the need for health programs that raise public awareness on the availability of free health services. Second, the number of services is limited (because of lack of supplies for glucose testing, pregnancy tests, etc) in public health clinics. In fact, some respondents commented that when they go to public health clinics, the clinic personnel refer them to private clinics because of lack of clinic supplies. Third, there is a lack of available health personnel. Only eight publicly funded physicians are in the public health clinics for the entire town. However, since more than 100 community health volunteers are available, these volunteers could be trained as lay health workers. For example, Ron[15] reported a

Table 3. Major predictors of having had a checkup in previous year among adults age 30 years and older, San Antonio, Nueva Ecija, Philippines

Variables	Odds Ratio	*P*>|*t*|	95% Confidence Interval
With a regular source of care	5.214	.006	(1.615, 16.827)
>6th grade education	1.949	.047	(1.009, 3.765)

successful community health project that included training local women to provide basic health and nutrition services in the rural province of La Union, Philippines.

A number of residents sought health advice from folk healers. This finding suggests the need to raise awareness in folk healers and health personnel of the need to ascertain interactions and contraindications of prescribed potions and medications, respectively, since certain folk remedies have the same active ingredient as prescribed medications.

Among the implications of this study is the need to maintain or increase resources allocated for public health programs, such as increasing clinic supplies for basic services. The enactment of the Philippine Local Government Code of 1991 transferred the responsibilities for planning, organizing, delivering, and financing public health services from the Philippine department of health to local governmental units. In addition, in 1995 the Philippine government legislated to create an income-rated and predominantly employment-based universal health insurance program over a 15-year period. The program was intended to provide more and better health care than was available by combining existing insurance plans that covered less than half of the population, and the program partially subsidized services provided by government facilities and funded from general taxation. However, interviews with town residents revealed the lack of insurance programs in this community. A review by Hindle and colleagues[16] of this program showed that access is still inadequate and co-payments are high in parts of the country. Among the barriers they noted are low average and widely dispersed incomes.

Among the limitations of this study was the cluster sampling design. Sampling adjacent households for each cluster led to somewhat higher variance as a result of design effects. However, the probability proportionate to size sampling design employed in this study has

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This study . . . provides empiric evidence supporting the need for health programs to improve access to health care in this [Filipino] population

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been used extensively in WHO community surveys.[17] In addition, STATA's survey command was used to adjust for effect of sampling design.

This study assessed factors and determinants of access to care in a rural Filipino population and provides empiric evidence supporting the need for health programs to improve access to health care in this population. Given the finding that 63% of the population has a family history of chronic disease, this research also demonstrated that population-based surveys are important to assess the need for services and provide information that is essential to tailor health programs specific to this population. Future assessment of public perception of the quality of health services offered, as well as likely barriers for using the municipal health clinic, should be undertaken as a follow-up to this study.

AUTHOR CONTRIBUTIONS

Design and concept of study: Reyes-Gibby, Aday
Acquisition of data: Reyes-Gibby
Data analysis and interpretation: Reyes-Gibby, Aday
Manuscript draft: Reyes-Gibby, Aday
Statistical expertise: Reyes-Gibby, Aday
Acquisition of funding: Reyes-Gibby
Administrative, technical, or material assistance: Reyes-Gibby
Supervision: Reyes-Gibby, Aday

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