

Administrator Self-Ratings of Organization Capacity and Performance of Healthy Community Development Projects in Taiwan

Ching-Min Chen, Mei-Chu Hong, and Yu-Hsien Hsu

ABSTRACT *Objective:* To examine the relationship between the capacities of various community organizations and their performance scores for healthy community development. *Design:* This cross-sectional study was conducted by examining all community organizations involved in the Taiwan national healthy community development project. *Sample:* Of 213 administrators contacted, 195 (a return rate of 91.6%) completed a self-administered questionnaire between October and November 2003. The research instrument was self-developed and based on the Donabedian model. It examined the capacity of the community organizations and their performance in developing a healthy community. *Results:* The average overall healthy community development performance score was 5.0 on a 7-point semantic differential scale, with the structure variable rated as the lowest among the 3 subscales. Community organization capacities in the areas of funding, resources committed, citizen participation, and certain aspects of organizational leadership were found to be significantly related to healthy community development performance. Each of the regression models showed a different set of capacities for the community organization domains and explained between 25% and 33% of the variance in performance. *Conclusions:* The study validates the theoretical relationships among the concepts identified in the Donabedian model. Nursing interventions tailored to enhance resident citizen participation in order to promote community coalitions are strongly supported.

Key words: administrators, community organization capacity, healthy community development, performance measurement, volunteers.

For many years, it had been thought that public health measures relating to sanitation, vaccination, clean air, and water supply have done more to improve the health of nations than any other medical break-

through. However, in 1998, the Institute of Medicine of the United States reported that public health was in disarray. Thus, it was realized that more effective ways were needed to improve the health of the population, as measured by increasing the length of people's lives and the number of years people spend free from illness. This involved improving the health of those worst off in society by narrowing the health disparities gap. Since the 1980s, considerable efforts have been made to improve health by focusing on changing the behavior of individuals so that they practice healthy lifestyles. Unfortunately, lifestyle changes are not possible for all people; the poor or near-poor lack the resources to make the recommended personal changes. Numerous authors have therefore suggested that health promotion should move beyond lifestyle changes to the creation of supportive envi-

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ronments within which healthy living can take place (Flynn, Rider, & Ray, 1991; Norris & Pittman, 2000). Community development and broader environmental approaches to health promotion have therefore emerged.

The healthy cities/communities movement, inspired by Leonard Duhal and Trevor Hancock, was first implemented in 1986 through the healthy cities project spearheaded by the World Health Organization (WHO) Regional Office for Europe. This initiative applied strategies from the Ottawa Charter on Health Promotion to improve the quality of life in European cities (Hancock, 1993; Norris & Pittman, 2000). The Ottawa Charter (promulgated in 1986) had defined health promotion as the process of enabling people to increase control over the determinants of health and thereby improve their health. It had identified major challenges for making progress in these areas as: formulating a healthy public policy, creating supportive environments, strengthening community action, developing personal skills, and reorienting health services. To meet these challenges, it would be necessary to apply appropriate strategies at local, regional, and national levels (WHO, 1986).

The European healthy cities project started with 11 cities in 1986. Within 5 years, 35 cities were officially registered in the project, and an additional 400 European cities and towns were less closely affiliated (Hancock, 1993). The healthy cities/healthy communities movement received additional publicity at international health promotion conferences in Adelaide (Conference on Healthy Public Policy) in 1988, Sundsvall (Conference on Supportive Environments for Health) in 1991, and Jakarta (Leading Health Promotion into the 21st century) in 1997 (Hancock, 1993; WHO, 1998). By 2000, the movement was represented in every WHO region, and had spread to more than 3,000 communities in more than 50 countries (Norris & Pittman, 2000). In the United States, the Healthy Communities Initiative was launched in 1989 by the Department of Health and Human Services and the National Civic League (Dennis & Liberman, 2004; Norris & Pittman, 2000). Many health care organizations, human services and public health agencies, and community-based organizations in the United States have since adopted the healthy communities approach to community development (Dennis & Liberman, 2004). Through healthy community development projects, community-based organizations are empowered to carry out health

promotion activities by promoting healthy choices and environments that support shared responsibility. Therefore, through the healthy communities movement, community organizations use a cross-section of human endeavors to achieve improved health status and community quality of life (Norris & Pittman, 2000).

Among the various professionals engaged in community health work, public health nurses are considered to be a major health resource for the practice of health promotion. As stated within the scope of practice, public health nursing combines the knowledge and skills of nursing with those of public health science to maintain, protect, and promote the health of populations or aggregates (Allender & Spradley, 2001). Through developing relationships with and among individual community members and community organizations with the goal of facilitating the empowerment of individuals and the community as a whole, public health nurses have opportunities to detect health problems in communities and to build supportive environments for health promotion. Studies have shown that the involvement of public health nurses has a great impact during healthy community projects (Flynn, 1997; Murashima, Hatono, Whyte, & Asahara, 1999; Reinhard et al., 1996). Public health nurses naturally work with community-living people from different walks of life and are respected health professionals in the community; therefore, they are well suited to promote healthy community projects (Flynn & Ivanov, 2004).

Despite the widespread international development of the healthy city movement, Taiwan did not begin any healthy community development projects until 1999 (Department of Health, the Executive Yuan, 1999). The Taiwanese Department of Health announced the political commitment to build a healthy nation through the healthy cities project, one of the first steps toward the development of healthy cities (WHO, 1992). Community organizations were called upon by this nationwide proposal to establish community centers for health promotion. The assumption is that community organizations represent local organizations in which individuals, through active participation with others, can gain power and resources. Community coalitions, defined by Wolff (2001) as multisectorial groups joined together to address community needs and develop solutions to community problems, can be formed. Therefore, community members can be assisted in identifying their common problems

and goals, mobilizing resources, and developing/implementing healthy activities.

The Department of Health also identified six essential health topics for communities to refer to in their deliberations: healthy lifestyles in terms of nutrition and physical fitness, oral health, prevention of tobacco and betel nut use, and medication safety. It is believed that concentrating on these topics will enable community organizations that are not health care based to focus on health promotion, health protection, and illness prevention. The Department of Health, the Executive Yuan (2001) set out to establish a healthy community center in each township by 2001 in order to secure an infrastructure for partnership in health promotion. However, until now, this objective has not yet been fully achieved, and the impact of healthy community development as operated by various community organizations has not been evaluated so far.

There has been substantial discourse concerning the promotion of "healthy communities" (Norris & Pittman, 2000). The WHO Healthy Cities Project has demonstrated benefits derived from linking social environment policies with promotion of healthy lifestyles through empowering human social organizations. However, the successful experiences of the healthy communities movement in other countries cannot necessarily be directly applied to Taiwan. Thus, evaluation of the effectiveness of Taiwanese community organizations in developing healthy communities needs further exploration. Concern for quality of service has been well documented among health care professionals and policy makers for decades. Increasing attention has been focused on various relationships among organizational structure, actual practices, and consumer outcomes (van Driel, De Sutter, Christiaens, & De Maeseneer, 2005).

The purpose of this study was to examine the relationship between the capacity characteristics of community organizations and their performance scores in terms of developing a healthy community. The capacity of a community organization lies in its abilities to carry out health-promotion activities in a community, including the physical and human resources available to the organization and the characteristics of the community within which it functions. Healthy community development performance is measured by the community organization administrator's perception of the community health center's accomplishments as evaluated using the Donabedian quality assurance model.

Theoretical Background

The framework used in this study was based on the classic work of Donabedian (1980), who identified the trilogy of structure, process, and outcomes as essential components of quality assurance and assessment. Structure refers to the tools and resources that individuals and organizations have at their disposal to accomplish their work and the organizational settings in which they work and practice. Structure encompasses the number, distribution, and qualifications of personnel as well as the size, equipment, and geographic disposition of facilities used to provide services. Structure goes beyond elements of production to include the manner in which program service delivery is organized, both formally and informally. Process refers to the technical and interpersonal aspects of activities within, among, and between service providers and their clients. Technical components refer to the application of science and technology in a way that maximizes benefits to health without increasing risks. The interpersonal domain refers to social and psychological interactions between service providers and clients. Outcomes represent the consequences of the process on health and welfare of recipients, particularly changes in client health status that can be attributed to the antecedent service. Donabedian conceptualized outcomes to include physical as well as social and psychological functions; outcomes may include client attitudes such as satisfaction, health-related knowledge, and health-related behavioral changes (Van Doren, Bowman, Landstrom, & Graves, 2004; van Driel et al., 2005).

Handler, Issel, and Turnock (2001) developed a conceptual framework based on the work of Donabedian to measure the performance of public health systems across the United States. In their framework, the structural capacity of the public health system comprises the cumulative resources and relationships necessary to carry out the important processes of public health, which include information, organizational, physical, human, and fiscal resources. The processes of public health are those that identify and address health problems, as well as programs and services consistent with government mandates and community priorities that require public health interventions, policies, and regulations. Implementation of the system's planning and policy development processes generates interventions intended to improve health status. Finally, the immediate and long-term changes

in health status and/or behaviors experienced by individuals, families, communities, and populations are the public health system's outcomes.

In addition to the above three components, Handler et al. (2001) added two other components, macro context and mission, to interrelate with the performance variables. The macro context represents external factors that can affect the performance of public health systems through their impact on structure, process, and outcomes. The mission of the public health system includes its goals and how these goals are operationalized. The mission of a public health system that is "population based" or focused on "personal health services" will also influence its performance in terms of structure, process, and outcome measures.

Donabedian's model has been widely used in hospital settings (Best & Neuhauser, 2004; Van Doren et al., 2004), nursing homes (Boumans, Berkhout, & Landeweerd, 2005), and rehabilitation centers (Hoenig, Horner, Duncan, Clipp, & Hamilton, 1999) and also in Taiwan (Chen, Su, Hsieh, & Wang, 2003; Liu & Wu, 1997), but seldom in the public health arena. Past research has primarily focused on the performance of public health practices, rather than on relationships between practice performance and other components, such as the macro context or mission statement. In this study, the model of Handler et al. (2001) was adapted to identify community organization capacities that are related to healthy community performance. Scutchfield, Knight, Kelly, Bhandari, and Vasilescu (2004) found that the capacities of public health agencies in the areas of funding, organizational leadership, and certain nonprovider partnerships significantly predicted public health performance. Mays et al. (2004) reported that public health performance varied across local public health jurisdiction communities. Based on these findings, this study aimed to identify community organization capacity characteristics that are related to their performance in healthy community development (Fig. 1). The mission component was omitted, because all community organizations that were allowed to start a healthy community development project had already been reviewed to guarantee that they had the same mission for health promotion. The overall goal of this study was to explore the capacity of community organizations and its relationship with their performance in healthy community development. All administrators were surveyed on their perceptions about their

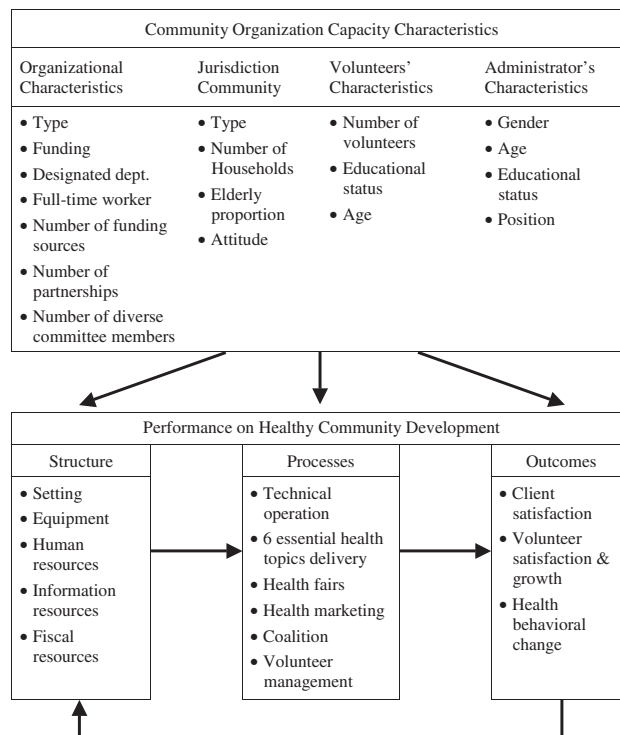


Figure 1. Conceptual framework for the relationship between the characteristics of the community organization's capacity and its performance in terms of healthy community development

centers' performance in healthy community development.

Methods

Design and sample

This cross-sectional, descriptive correlation study assessed the relationship between the capacities of community organizations and their performance in terms of healthy community development, and used both bivariate and multivariate methodologies. Excluding 51 community centers that had been pilot tested, this study involved a survey of administrators of 213 community centers located within every city and county of Taiwan that participated in the healthy community-building project between 2000 and 2003. Data were collected between October and November 2003. For each center, the administrator directly responsible for healthy community development tasks was identified using a list obtained from the Bureau of Health Promotion, Department of Health, Taiwan. Every administrator on the list was invited by telephone to complete a self-administered written

questionnaire. The questionnaire took 20–30 min to fill out. A self-addressed stamped envelope was provided so that the respondent could mail back the completed questionnaires. A gift voucher worth U.S.\$10 was offered as an incentive to participate. In total, 195 administrators provided written consent and completed the questionnaire, yielding a response rate of 91.6%.

Measures

The self-administered questionnaire consisted of two parts: dependent variables (performance scores for healthy community development including the total score and subscores for structure, process, and outcomes) and independent variables (the capacities of community organizations participating in the project, including characteristics of the organization, volunteers, administrators, and the jurisdiction community). In the development of this research instrument, focus group discussions were used to generate items, as recommended by Hickey, Owen, and Froman (1992). The index of content validity (CVI) was established using a panel of nine experts in nursing, health education, health care management, and public health. The instrument was pilot-tested with 30 public health workers and administrators from various community organizations in Taiwan to determine face validity and to identify items with low reliability and validity for deletion. These persons were excluded from the final study.

The measure of healthy community development performance had acceptable reliability ($\alpha = .70-.90$) and content validity ($CVI \geq 0.86$). The instrument contained 42 items generated from the three domains of structure, process, and outcomes. Each item was scored on a 7-point scale and used a bipolar adjective semantic differential type of response. The total performance score was calculated by summing all item scores. Subscores for structure, process, and outcomes were calculated by summing all item scores within each domain. Higher scores indicated better perceived performance.

The capacities of community organizations were assessed using four types of variables. (1) *Organizational characteristics* included agency type, public versus private funding, and whether there was a designated department and/or a full-time worker for healthy community development. Respondents indicated the existence of different types of funding source linkages, partnerships, and committee mem-

bers with yes/no responses for each type. The total scores for linkages to funding sources, partnerships, and diversity of committee members (broadness of representational base) were calculated as the number of “yes” responses within each category. (2) *Jurisdictional community* variables included community type, number of households in the community, percentage of population ≥ 65 years old, and residents’ attitudes toward participation in healthy communities activities. (3) *Volunteers’ characteristics* included the number, educational level, and age distribution of volunteers. (4) *Administrators’ characteristics* included the gender, age, educational level, and position of the survey respondents.

Ethical considerations

The study protocol was approved by the Bureau of Health Promotion, Department of Health, Taiwan, both in terms of ethics and methodology. Written information, which included an outline of the study, method of data collection, and explicit information about involvement being voluntary, was included in the mail package and sent to those who had orally consented to participate via telephone invitation.

Analytical strategy

The dataset was analyzed using the SPSS PC (version 10.0, Chicago) statistical software package. Descriptive statistics (frequency distribution, mean [M], and standard deviation [SD]) were calculated for community organization characteristics. Bivariate analyses of relationships between 18 community organization variables versus the healthy community development performance subscale scores and total scores were conducted using Pearson’s correlation, independent simple t test, and one-way analysis of variance, with Tukey’s honest significant difference post-hoc analysis as appropriate.

Multiple linear regression was used to assess the independent effects of community organization characteristics on healthy community development performance scores. Four multiple regression models were computed: one model each for structure, process, and outcomes subscore, and one for total performance score. For each model, only those variables significantly related to performance in bivariate analysis were entered stepwise into the model. Significance was set at .05 for all statistical tests.

Results

The average overall healthy community development performance score was 5.00 ($SD = 1.08$, range = 2.94–6.99) on a 1–7 scale, indicating that administrators of community organizations perceived an achievement level in terms of their impact on developing a healthy community of about 70%. The average scores for the performance subscales were 4.67 for structure ($SD = 1.04$, range = 1.92–7.0), 5.11 for process ($SD = 0.91$, range = 2.71–6.96), and 5.23 for outcomes ($SD = 0.95$, range = 2.61–7.0). There were three items with means < 4.0, indicating that administrators perceived difficulties in the delivery of those activities in order to operate a healthy community. These included “adequate number of personnel” ($M = 3.84$, $SD = 1.82$), “sufficient fiscal resources” ($M = 3.99$, $SD = 1.65$), and “capability to link funding resources” ($M = 3.61$, $SD = 1.64$). It was noteworthy that all items in the outcomes domain had perceived performance scores above 5.00, indicating that administrators believed that their organizations performed better in this domain compared with the structure or process domains.

Table 1 displays descriptive data for the community organization capacities. More than 70% of the community organizations are health care facilities (33.3% are hospitals and 36.9% are public health agencies) and these were evenly distributed between publicly and privately funded institutions. Over 70% of the organizations had designated a department that was directly responsible for healthy community development, but about 70% of those admitted that they did not have full-time equivalent staff to carry out the related tasks. Community organizations had an average of six different types of partners. Among the 12 listed types of partnerships, the most frequently cited were public health stations (88.7%), government agencies (81.5%), community leaders (77.9%), and schools (75.4%). The average diversity of committee members was 5.64 ($SD = 2.55$), including partners from the organization (83.9%), town chiefs (79.3%), and community representatives (69.4%). Almost half of the organizations claimed that they had to use their own budget to cover the costs of healthy community development; however, 47.4% had also linked to other funding sources. On average, these community organizations had only linked to 1.6 types of funding sources.

In terms of the organizations’ jurisdiction community characteristics, the mean number of

households was 10,790, with a range from 10 to 107,457, and the mean percentage of elderly population was 13.5% (range = 3–70%). The majority of respondents rated their communities as being rural. More than 70% of the administrators perceived that their community residents only passively accepted the health promotional activities they sponsored. On average, community organizations had 33 volunteers ($SD = 26$) to work with. Most volunteers were either junior high (41.1%) or high school (41.6%) graduates; 87.1% of volunteers were aged 40–64 years. The majority of administrators were female (74.6%), with a mean age of 39.7 years ($SD = 8.65$). Their positions in community organizations were quite diverse. Most administrators had either a college or a university degree (Table 1).

The results from bivariate analysis of community organizations’ capacities versus total performance are presented in Table 2. Bivariate analysis was also conducted for the 18 capacity variables versus scores for each of the three performance subscales. Because similar trends were identified, only the significant findings are reported here. Except for agency type, all other variables for organizational characteristics were significantly related across performance. Administrators of private organizations ($M = 5.24$, $SD = 0.83$) indicated better performance than those of public organizations ($M = 4.74$, $SD = 0.87$). Similar results were found for the analyses of structure ($t = -4.89$, $p < .001$), process ($t = -3.48$, $p < .001$), and outcomes ($t = -2.66$, $p < .001$). Organizations with a designated department ($M = 5.14$, $SD = 0.86$) and at least one full-time worker ($M = 5.14$, $SD = 0.86$) also scored better than those without a designated department ($M = 4.67$, $SD = 0.85$) or without a full-time worker ($M = 4.69$, $SD = 0.86$) in total performance score, structure ($t = -3.36$, $p < .001$; $t = -3.31$, $p < .001$), process ($t = -3.30$, $p < .001$; $t = -3.11$, $p < .01$), and outcomes ($t = -2.83$, $p < .01$; $t = -2.75$, $p < .01$), respectively. Organizations with better ability to link funding sources and with partnerships had better scores for total performance, structure ($r = .19$, $p < .01$; $r = .27$, $p < .01$), process ($r = .28$, $p < .01$; $r = .30$, $p < .01$), and outcomes ($r = .22$, $p < .01$; $r = .27$, $p < .01$), respectively. Organizations with more diverse committee members had better scores for total performance, structure ($r = .26$, $p < .01$), process ($r = .30$, $p < .01$), and outcomes ($r = .27$, $p < .01$).

Only one characteristic in the jurisdiction community was significantly related to performance in

TABLE 1. *Descriptive Analysis of the Community Organizations' Characteristics*

Variables	N (%)	Mean	SD	Range
Organizational characteristics				
Agency type				
Hospital	65 (33.3)			
Public health station	72 (36.9)			
Community development center	3 (1.5)			
School	12 (6.2)			
Social group	22 (11.3)			
Foundation	15 (7.7)			
District office	6 (3.1)			
Funding type (n = 193)				
Public	92 (47.7)			
Private	101 (52.3)			
Funding linkage		1.58	1.08	0–5
Designated department (n = 194)				
Yes	136 (70.1)			
No	58 (29.9)			
Full-time worker				
Yes	135 (30.8)			
No	60 (69.2)			
Partnership score		6.22	2.49	1–12
Diverse committee representation		5.64	2.55	1–13
Jurisdiction community				
Number of households in the community		10,790	11,452	10–107,457
Elderly population as % of total		13.5	13.0	3–70
Community type				
Metropolitan city	14 (7.2)			
Urban	35 (17.9)			
Rural	93 (47.7)			
Remote	31 (15.9)			
921 earthquake catastrophe area ^a	22 (11.3)			
Attitude toward participation (n = 188)				
Passive acceptance	137 (70.3)			
Active participation	18 (9.2)			
Devoted participation	33 (16.9)			
Volunteers' characteristics				
Total number of volunteers		32.9	26.0	0–160
Educational level (n = 190)				
Primary and below	24 (13.7)			
Junior high school	78 (41.1)			
High school	79 (41.6)			
Diploma and higher	9 (4.8)			
Age (n = 194)				
20 years and under	3 (1.5)			
21–39 years	22 (11.3)			
40–64 years	169 (87.1)			
Administrator's characteristics				
Gender (n = 183)				
Male	49 (25.4)			
Female	144 (74.6)			
Age		39.7	8.65	24–63
Educational level (n = 193)				
High school and below	32 (16.5)			
College and university	128 (66.4)			
Graduate school	33 (17.1)			

TABLE 1. Continued.

Variables	N (%)	Mean	SD	Range
Position of Administrator (<i>n</i> = 189)				
Director, CEO	58 (30.7)			
Secretary general	50 (26.5)			
Head nurse	14 (7.4)			
Administrative staff or Assistant	67 (35.5)			

Note. ^aSpecial communities were formed after a catastrophic earthquake destroyed old communities on September 21, 1999 in central Taiwan.

healthy community development. Administrators who rated their community residents as devotedly participating ($M = 5.65$, $SD = 0.71$) reported better total performance scores than those who rated their residents as passively participating ($M = 4.82$, $SD = 0.85$). Similar results were found for structure ($F = 8.80$; $p < .001$), process ($F = 12.83$; $p < .001$), and outcomes ($F = 14.23$; $p < .001$). The only characteristic of volunteers significantly related to performance across all dimensions was the number of volunteers. The more volunteers who worked for an

organization, the better the administrator's perceived total performance, as well as structure ($r = .19$, $p < .01$), process ($r = .30$, $p < .01$), and outcomes ($r = .27$, $p < .01$). Volunteers' educational levels were significantly related to the total performance score and to the structure subscore ($F = 5.66$, $p < .01$). Organizations in which most volunteers were high school graduates performed worse than those whose volunteers' educational levels were primary school or lower. Finally, in administrator's characteristics variables, organization directors or CEOs rated better scores in structure ($F = 4.60$; $p < .01$), process ($F = 3.66$; $p < .05$), and total performance than did administrative staff or assistants. Administrators with an educational level of high school or lower perceived better performance for the structure ($F = 4.28$; $p < .05$) and process scores ($F = 3.28$; $p < .05$) than those with college or university degrees. Administrators' age was positively related across the dependent variables for structure ($r = .25$, $p < .01$), process ($r = .19$, $p < .01$), outcomes ($r = .17$, $p < .05$), and total performance scores.

Table 3 displays the results of each of the four multiple linear regression models describing the relationship of community organization capacities with healthy community development performance. The results of these analyses indicated that only communities with devoted participation were significantly associated with better healthy community development performance scores across the board. Private agencies with a designated department and broad-based committee members, for which the majority of volunteers had a high school degree and whose administrators were older, without a college or university degree and not titled as administrator or assistant were positively associated with performance in the structure domain. Having full-time personnel and more volunteers to work on healthy community development, a better ability to link partnerships, better community willingness to participate, and administrators who had

TABLE 2. Bivariate Analyses Between the Characteristics of the Community Organizations and Total Performance Score in Terms of Healthy Community Development

Variables	Analysis result	p-value
Organizational characteristics		
Agency type	$F = 1.97$	.07
Funding type	$t = -4.08$	<.01
Designated department	$t = -3.49$	<.01
Full-time worker	$t = -3.37$	<.01
Funding linkage	$r = 0.25$	<.01
Partnership score	$r = 0.31$	<.01
Multiple committee	$r = 0.30$	<.01
Jurisdiction community		
Community type	$F = 1.16$	.33
Attitude toward participation	$F = 4.35$	<.01
Number of households in the community	$r = 0.00$	.99
Elderly population as % of total	$r = 0.05$	.47
Volunteers' characteristics		
Total number of volunteers	$r = 0.27$	<.01
Educational level	$F = 3.48$	.02
Age	$F = 1.47$	.23
Administrator's characteristics		
Gender	$t = 0.48$	.64
Educational level	$F = 2.75$	.07
Position	$F = 3.50$	.02
Age	$r = 0.23$	<.01

Note. F = computed value for ANOVA; r = Pearson product-moment correlation; t = computed value of t test.

TABLE 3. *Relationships Between the Characteristics of the Community Organization and Their Healthy Community Development Performance (Multiple Regression)*

Variables entered into regression model	Standardized β coefficients ^a			
	Structure	Process	Outcomes	Total
Organizational characteristics				
Funding (private)	.16*	.11	.06	.18*
Designated department	.15*	.09	.08	.10
Full-time worker	.10	.19*	.17*	.16*
Funding linkage	-.02	.11	.09	.05
Partnership score	.08	.19*	.15*	.11
Diverse committee	.18*	.14	.09	.17*
Jurisdiction community				
Attitude of participation				
Passive acceptance ^b	-.04	.10	-.10	-.09
Active participation ^b	.10	.14*	.12	.12
Devoted participation ^b	.18*	.30*	.33*	.30*
Volunteers' characteristics				
Educational level				
Primary and below ^b	.01			-.03
Junior high ^b	-.02			-.08
High school ^b	.18*			.11
Diploma and higher ^b	.03			.02
Total number of volunteers	.07	.24*	.22*	.18*
Administrator's characteristics				
Educational level				
High school and below ^b	-.01	.19*		
College and university ^b	-.15*	-.03		
Graduate school ^b	.01	.03		
Position				
Director, CEO ^b	.01	.09	.04	.01
Secretary general ^b	.01	.05	.02	.07
Head nurse ^b	.01	-.11	-.04	-.01
Administrator, Assistant ^b	-.13*	-.01	-.03	-.06
Age	.15*	.10	.10	.14*
R^2	.33	.32	.25	.32
Standard error	.87	.76	.83	.74

Note. ^aNo presence of a β coefficient indicates that variable was not entered in the regression model.

^bDummy variables.

*Two-tailed significance level of t -value for β coefficient is $p < .05$.

only a high school or lower educational background were positive predictors for the process performance score. The same predictors were found to be associated with outcome performance variables, except for administrators' educational background. Finally, significant variables positively predicting total performance included being a private agency, having full-time personnel, having a broad-based committee membership, having highly committed participating community residents, having more volunteers, and employing older administrators. Each of the four regression models for each healthy community development performance score included those organizational, jurisdiction com-

munity, volunteer, and administrator characteristics that had significant bivariate relationships with performance. Therefore, each of the models had a different set of capacities for the community organization domains and explained between 25% and 33% of the variance in performance.

Discussion

This study describes the relationship between a community organization's capacities and its performance in developing a healthy community using Donabedian's structure, process, and outcomes trilogy. The

overall total performance as self-rated by administrators was fairly high. One potential limitation suggested by this finding is the problem of social desirability bias (Knowles & Nathan, 1997). Because this study was funded and reviewed by the Bureau of Health Promotion, Department of Health in Taiwan, which also grants funding to the participating community organizations for their healthy community development projects, respondents might have been tempted to provide socially desirable responses rather than to accurately describe what they truly thought, believed, or did. Higher self-evaluated performance scores might have been due to the strong need by administrators for approval from their supervising agency or due to the need for future funding.

The multivariate analysis revealed that 32% of the total performance variance could be explained by agency funding type, the presence of full-time personnel, the number of volunteers, a broad spectrum of committee members, devoted participation in the community setting, and the administrator's age. Consistent with Donabedian's model prediction (1980), a community organization's capacities in the areas of structure, process, and outcomes were found to be significantly related to the performance in developing a healthy community. This research framework defined the structural capacities in terms of funding sources and personnel resources, the process capacities in terms of broad-based membership of the committee, and the outcomes in terms of increased community participation. Most importantly, citizens' participation was the only variable significantly predicting all performance scores. The results of this study validated the importance of citizen empowerment for success when developing a healthy community (Flynn & Ivanov, 2004).

Among the three dimensions of performance rated, the lowest was the structure variable. Handler et al. (2001) defined structure in the public health system as the accumulated resources and relationships necessary to carry out the important processes of public health. Respondents revealed that there was a lack of resources and relationships to carry out healthy community development tasks, and fundamental drawbacks for healthy community development were noted. The U.S. Institute of Medicine (1988) emphasized that a healthy community is a place where a social infrastructure and essential resources are available. Governments, therefore, must enhance the basic structural resources available for healthy com-

munity development to achieve optimal results. In this study, being a private agency with a designated department to work on healthy community development and having capable volunteers, broad-based committee membership, and an experienced administrator in the decision-making position were found to significantly contribute to the explanation of variance in the structure subscores. Kenny (2003) and Scutchfield et al. (2004) also identified staffing and organizational leadership as important factors predicting performance for public health services.

In this study, process performance was defined by the development of healthy community committee leadership, carrying out the six essential health topics as mandated by the Bureau of Health Promotion and the utilization of a community's own resources, such as partnership linkages, funding sources, and volunteer development. The results indicated that administrators perceived high achievement (73%) for the process of developing a healthy community. Consistent with the facilitating factors listed by Flynn and Ivanov (2004) for developing a healthy community process, Taiwan's healthy community project has had a good start. In the regression model, having at least one full-time worker, greater partnership linkages, active and devoted participation by community members, and more volunteers were all significant facilitators for the healthy community development process. However, a lower educational level for the administrator was associated with a higher process performance. One might hypothesize that administrators who know the community well, are good friends with many volunteers, and have links with many partners can benefit the most from committee leadership training and, therefore, this might not require a high educational background.

Consistent with Donabedian's model prediction (1980), the outcomes of performance were influenced by the structure and process factors. Equipped with full-time personnel and many volunteers to carry out healthy community development tasks, having a better organizational setting in a devotedly participating community, and expending greater effort to link partners all positively predicted the outcome performance as measured by the satisfaction of a community's residents and volunteers and by behavioral changes. It was interesting to learn that none of the administrators' characteristics were related to the outcome variables. Finally, the findings of this research showed that only 25% of the variance of the outcomes variable

was explained by these predictor variables. Further investigation of other impacting factors is needed. Thus, qualitative investigations and a longitudinal analysis that explore the outcomes of and impacts on healthy community development are needed.

Limitations

Our sample represents almost all community organizations participating in the healthy community development project in Taiwan over the period 2001–2003 (a 91.6% response rate). The measures relied on self-reporting and because of the problem of a social desirability bias as indicated earlier, the findings might not accurately reflect true performance.

Conclusion

The study validates theoretical relationships among concepts in public health performance adapted from Handler's et al. (2001) model based on Donabedian's theory and the macro context for predicting the performance of developing a healthy community. The multivariate regression analyses demonstrated the relationship among the four aspects of a community organization's capacities and its healthy community development performance. The results indicated that performance was related to various capacities within different groups, suggesting that improving performance for healthy community development will involve a complex set of interrelated activities. Further study is needed to determine other factors that might be related to performance using different predictors. A longitudinal study would also enable monitoring to determine whether improved healthy community development performance truly does result in an improved health status within the community.

Resident participation influences overall healthy community development performance and this suggests that nursing intervention messages should be tailored to enhancing resident participation in order to promote community coalitions. Participation can help local residents alter their circumstances and change themselves from being objects of policy into becoming citizens who consider issues, make decisions, and act responsibly. It is possible to use community assessment to identify health problems and issues. Public and community health nurses need to be encouraged to organize public forums to discuss problems, issues, health promotion, and healthy community development. Partnerships to produce a

healthy community can then be built and used to develop community-wide planning and, resulting from this, action for health.

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