Social Indicators Research (2005) 71: 291–334
DOI 10.1007/s11205-004-8021-3

JACKY CHAU KIU CHEUNG, ALEX YUI HUEN KWAN, SOPHIA SIU CHEE CHAN, RAYMOND MAN HUNG NGAN, SIK HUNG NG, EDWARD MAN FUK LEUNG and ANNA LAU

QUALITY OF LIFE IN OLDER ADULTS: BENEFITS FROM CARING SERVICES IN HONG KONG*

(Accepted 25 February 2004)

ABSTRACT. Many older adults are in need of care. Therefore, older people would generally benefit from the use of caring services, notably including home care, residential care, nursing, and medical services. The contributory factors underlying caring services tend to be a caring perspective that aspires to sustain older people's social relationships and real-life involvement. To gauge the benefits from various social and health services, the present study relies on a large-scale survey of 3000 older adults in Hong Kong, using quality of life as a criterion. Results showed that an older adult who had used (ordinary or enhanced) home care services for a longer time turned out to have appreciably more improvement in quality of life. Besides, those who joined an interest group more frequently were higher in quality of life, including the health domain. On the other hand, frequent use of medical and meal-to-home services were signals that reflected problems detrimental to the older user's quality of life. Despite this, the quality of clinics or hospitals, as perceived by the older adult, was the most beneficial. As such, caring services that foster older adults' interests, cater to their health care needs, and embody quality can have principal contribution to their users' quality of life.

INTRODUCTION

Nursing services contribute an active part in sustaining and promoting older adults' quality of life via various health and social services. The nursing home, day care center, multiservice center, home care (especially enhanced home care), and other

*An earlier version of the paper appeared at the *International Conference on Quality of Life in a Global World*, 14-15 November, 2003, Chinese University of Hong Kong, Faculty of Social Science, Sha Tin, Hong Kong

services for elderly people rely on the regular input of nursing services to maintain their integral operation. Different kinds of social services also embody elements of health and social care compatible with nursing care. In all, the concept of care is crucial in bolstering older adults' quality of life. Most importantly, it meets older people's needs when their physical functioning and mental functioning are no longer as adequate as the state when they were young (Sugisawa et al., 1994; Schieman and Campbell, 2001). The emergence of chronic illnesses among older adults clearly indicates their need for care. Not surprisingly, older people's need and use of formal health and social services escalate with the increase in age (Thomas and Payne, 1998; Spitze and Ward, 2000).

To maximize the benefits of health and social care components in services for elderly people, knowledge about the contribution of the use and quality of the services, coupled with knowledge about the impact of care needs is essential. Attaining the knowledge is an objective of the present study, which examines the impacts of chronic illnesses, use, and quality of various health and social services on the older adult's quality of life. These impacts are of concern because of the (1) proliferation of various services for elderly people, and (2) paramount importance of taking care of older people's quality of life as an essential outcome for the services. Pertinent knowledge relating various services and their outcomes in quality of life is lacking because research rarely examines older people using different services, which form a unique mix in Hong Kong. Although evidence about the popularity of the services among older people and their families is abundant (Piercy and Blieszner, 1999), that about the absolute and relative effectiveness among the services is inadequate (Rose, 2002). Nevertheless, the perspective of caring suggests that the import of care as a guideline for the quality and effectiveness of the services to promote elders' quality of life. This proposition is a central theme for the present study. As such, services that are more concerned with nursing care would contribute more to the older user's quality of life.

Framework for the Study

A core proposition underlying the study assumes that caring services, equipped with a caring approach, promote the elder's quality of life. The nursing service and approach permeate various health and social services for elderly people, including that providing an outreach service to take care of older users at their homes and community (Ozawa and Tseng, 1999). Its perspective essentially upholds a relational stance in maintaining and promoting the elder's quality of life (Robinson, 1996). In this connection, the service professional would serve as a curious listener, compassionate stranger, nonjudgmental collaborator, and a mirror for the service user. Sustaining the user's sense of control is also an essential premise in the caring perspective (Forbes and Hoffart, 1998). Empowering the older user is therefore a philosophy of nursing (Lee et al., 1998). Another direction in the caring perspective is real-world theory, which posits that facilitating the older patient's relationships with their families, friends, and community is an essential means to promote his or her quality of life (Draper, 1997).

Quality of life

Quality of life is a concern having been attracting theoretical discourses for thousands of years. Essentially, hedonist, utilitarian, rationalist, formalist, humanist, and naturalist thoughts have described, prescribed, and proscribed the ways of living a quality life (Porter 1988; Ackerman et al., 1997). In research practice, a person's quality of life ultimately relies on his or her recognition and evaluation of experiences in life (Calman, 1987; Kutner et al., 1992; Bengtson et al., 1997). There is hardly a good objective substitute for the person's subjective experience. The subjective experience of quality of life, albeit abstract (Bengtson et al., 1997), necessarily draws on various forms of concrete experiences in various life domains (Lundberg and Thorslund, 1996). Common in the literature are those domains of accommodation, work, cultural activities, finance, friendship, physical health, self, family, and community (Norcross, 1990; Farquhar, 1994).

Besides, life experiences of quality can include being, doing, living, having, enjoying, and feeling of satisfaction or evaluation (Stewart and King, 1994; Ackerman et al., 1997). The combination of various experiences with various life domains creates a comprehensive concept of quality of life that subsumes life satisfaction, satisfaction with various life domain, self-esteem, self-actualization, physical, and mental health, which are common indicators of quality of life (Norcross, 1990; Stewart and King, 1994; George, 1998). Nevertheless, the existing measuring instrument (WHOQOL, Leung et al., 1997) does not build on the comprehensive theoretical framework and concentrates mostly on the hedonist component of quality of life, that is, concerning feelings of comfort and abstinence from pain. It ignores the humanist component of actualizing one's potentialities and the formalist-religious component of behaving in a virtuous, socially desirable way (Kurtz, 1988; Porter, 1988; Cheung, 1997). Empirically, the instrument attempts to demonstrate its validity by showing the convergence of quality of life in various domains. However, the attempt is problematic because quality of life is not a personality trait, but is a collection of protean life experiences (Saris, 2001). In other words, an overall quality of life is the weighted sum of quality in various life experiences. To adhere to the long tradition of theoretical discussion on quality of life, a comprehensive measure of quality of life is necessary for the present study.

Promoting an elder's quality of life is integral to the philosophy of community care (Seed and Kayer, 1994). Moreover, quality of life is an indicator of accountability of social services in general (Gibson, 1998). For monitoring purpose, the accepted wisdom regards on quality of life as an essential outcome indicator (Seed and Kayer, 1994; Gibson, 1998). Quality of life may be particularly relevant to aging people because of the prolongation of life (Ostir et al., 1999; Thompson et al., 2002). Accordingly, surviving in the late life is no longer the primary concern, given the medical advancement; rather, quality of life is more a concern for aging people (Liddle and McKenna, 2000).

The elder's quality of life, as derived from focus groups of the present study, covers the domains of cultural activities, work (including volunteering), accommodation, finance, friendship, health, self, family, and community. The domain of cultural activities taps those domains of leisure, recreation, interest, activities, and organization activities appearing in the West (Schalock et al., 1989; Norcross, 1990; Farquhar, 1994; Lundberg and Thorslund, 1996; Chan et al., 2002). Similarly, the work domain corresponds to the employment domain (Lundberg and Thorslund, 1996). The accommodation corresponds to the housing, residential, security, environment, home, material, and privacy domains (Clark and Bowling, 1989; Norcross, 1990; Pynoos and Regnier, 1991; Hughes, 1993; Farquhar, 1994; Lundberg and Thorslund, 1996; Chan et al., 2002). The finance domain corresponds to the economic resource, and property domains (Arnold, 1991; Lundberg and Thorslund, 1996). The friendship domain corresponds to community relationship, community involvement, support network, social functioning, social contact, and interpersonal relation domains (Schalock et al., 1989; Norcross, 1990; Arnold, 1991; Hughes, 1993; Farquhar, 1994; Stewart and King, 1994; Chan et al., 2002). The health domain corresponds to the health, nutrition, functioning, comfort, pain, energy, independence, symptom, ability, and mobility domains (Clark and Bowling, 1989; Norcross, 1990; Arnold, 1991; Kutner et al., 1992; Hughes, 1993; Farquhar, 1994; Stewart and King, 1994; Lundberg and Thorslund, 1996; Chan et al., 2002). The self-domain corresponds to the self, happiness, mental health, psychological well-being, and emotional functioning domains (Clark and Bowling, 1989; Arnold, 1991; Kutner et al., 1992; Hughes, 1993; Farquhar, 1994; Stewart and King, 1994). The family domain corresponds to the family and family relationship domains (Hughes, 1993; Farquhar, 1994; Lundberg and Thorslund, 1996). The community domain, concerning living in a society/world of peace and free of problems, such as unemployment, replicates that in the recent local study (Chan et al., 2002). This domain reflects older Chinese adults' communitarian orientation (Feldman, 1999) and generativity (Brody,

1999), that is, taking care of the young generation, including its employment status. Nevertheless, this domain reflects the dialectic perspective, which is concerned with profound mutual relationships among people's quality of life (Gerson, 1976). Thus, one's quality of life benefits from and contributes to the quality of life of the whole community. The community concern may be particularly germane to older (Kivnick and Jernstedt, 1996; Vaillant, 2002) and Chinese people (Lee, 1996).

Health and social services

Health and social services for elderly people examined in the present study include the (1) social center, (2) multiservice center, (3) day care center, (4) home help service, (5) home care and enhanced home care service, (6) hostel, (7) nursing home and other homes for elderly people, and (8) welfare service. Within the services, more fine-grained items under investigation include the (1) interest group, (2) meal service, (3) meal-to-home service, (4) traveling, (5) home cleaning service, (6) personal care service, (7) sport facilities, (8) volunteer service (9) medical service, and (10) nursing service (already discussed). These services have demonstrated various forms of effectiveness (not necessarily promoting quality of life) in past research.

The social center for elderly people has served elderly populations for a longer time than most of the other social services. It does not take nursing care as its major service emphasis. Instead, it is keen on providing recreational services, leisure and social activities for its users (Searle et al., 1998; Lawton et al., 2002). It appears to offer benefits in stress relief, social interaction, social integration, learning and empowerment, maintaining independence, upholding the self-concept, and increasing the sense of control among center goers (Searle et al., 1998; Walker et al., 1998). These benefits hinge on the fostering of optimal experience in the elder, in which the elder engages in activities at their own will, pace, and capacity that bring out the most of his or her potential and fulfillment (Walker et al., 1998). As such, satisfaction is likely to arise at the time of center attendance, which can spill over to foster leisure satisfaction and life satisfaction (Ragheb and Griffith, 1982; Russell, 1990).

Satisfaction with social life also likely evolves from social integration facilitated in the social center (Steinkamp and Kelly, 1987).

The multiservice center provides more nursing, personal care, and other services than the social center. Nursing care is more crucial among services offered in the multiservice center. Armed with these significant services, the multiservice center can fulfill its recreational and caring missions.

The day care center takes care of older people with disabilities and living in the community. Nursing care is a notable element in the center, which can offer thorough nursing care within its premises. In line with nursing care, the humaneness experienced in the center is one of its effective practices (Kirwin, 1991). The day care center plays an important role in community care (Griffin, 1993). It provides a protected, planning, and stimulating environment to sustain the social, physical, and mental well-being of center goers (Griffin, 1993). Social interaction and social integration within the center is a remarkable credit accruing to the center (Kirwin, 1991; Williams and Roberts, 1995). They are likely to lead to the consumer's satisfaction (Henry and Capitman, 1995). Besides, the day care center can generate new interests for older center goers (Hall, 1989).

The home help service provides an essential bundle of assistance to older people at their homes. It has proven to be the most effective form of service in the West (Davies et al., 1990; Elkan et al., 2001). As such, it serves to reduce the older user's risk of mortality and institutionalization. Its success tends to rest in the principle of four A's, availability, awareness, acceptance, and accessibility (Chapleski et al., 1997). Effective home help services therefore require a caring approach that is sensitive and responsive to older adults' needs.

The home care service instills a broader range of services to meet elders' needs thoroughly, including housekeeping, escort, personal care, informational, referral, educational, therapeutic, nursing, rehabilitative services (Feldman, 1999; Kane, 1999; Hawranik, 2002). In essence, it provides personal assistance to older people's living in their homes (Kane, 1999). It aspires to

strengthen older people's choice, relationship, and independence (Feldman, 1999; Woodruff and Applebaum, 1996). The home care service has proven to be effective in Western contexts (Wister, 1992; McNeil, 1995). Effective results would manifest in the older user's quality of life (Albert et al., 1997), notably reduction in distress (Riordan and Bennett, 1998). One key of its success tends to be the care recipient's freedom from exploitation, which stems from the nursing concern in the home care service (Kane and Kane, 1994). Besides, the home care service can appear as a partner to the service user, which is another clue to its success (Quinn, 1995). As such, it fulfills the nursing role in sustaining the user's quality of life. Home care and enhanced home care services are newer services growing rapidly (Egan and Kadushin, 1999; Bauld et al., 2000).

Residential services in the hostel and home for elderly people have not received much credit because of variation in the quality of the services (Eckert et al., 1999). Little is clear about the achievement of residential services (Davies et al., 1990). In the positive side, they can implement nursing care that satisfies older residents' care needs (Gibson, 1998). Besides, they can create a home-like environment that takes the best care of older residents (Eckert et al., 1999). These caring approaches can be the crux for the effective maintenance of older residents' quality of life.

The nursing home obviously implements much nursing care immensely. Nursing care is a notable objective in the operation of the nursing home (Gibson, 1998). On the other hand, there has not been much evidence in favor of the effectiveness of the nursing home in promoting older residents' quality of life. Instead, the credit of the nursing home appears to lie in its relief of informal caregivers' stress (Coe and Neufeld, 1999; Kramer, 2000). The nursing and other aged home can promote the older resident's quality of life through its thorough, around-the-clock care, in which nursing care plays a vital part (Kaye, 1992).

The welfare service primarily arranges financial support for older welfare recipients, with little practice of nursing care. Dependency on social welfare appears to have adverse effects on the older recipient, known as the pressure cooker effect

(Krause and Shaw, 2002). Accordingly, welfare recipients encounter heightened pressure stemming from their already poor financial conditions, the negative interaction with the welfare service, and social exclusion partly due to welfare dependency (Somerville, 1998).

Meal services for older people have proven to be effective, for meeting users' nutritional need (Davies et al., 1990). On the other hand, they are vulnerable to negative comments that regard them as too task-oriented, thus failing to be kind in dealing with users' needs (Sidenvall, 1999). The service obviously lacks a component and perspective of caring. This weakness would impair the integrity of the service, which in turn plagues the user's identity and hope. As such, the set menu and limited choices in the meal service would constrain the user's autonomy and decision that may best enhance his or her quality of life.

Volunteer participation is beneficial to the older participant, according to extensive research and theory. As such, it is a highly promoted activity, in accordance with government policy (Nathanson and Eggleton, 1993). Older people can be resources facilitating the quality of life of the older population and society (Dong, 1998; Wheeler et al., 1998). They are contributory to successful aging, rather than being dependent (Midlarsky and Kahana, 1994). The contribution involves enhancement of learning, development in various aspects, creativity, and connection with younger generations (Fischer and Schaffer, 1993). Besides, volunteering is an act of self-validation, demonstrating the worth of the older participant (Wilson and Musick, 1999). The older participant's social role and leisure life also benefit from volunteer participation. As such, volunteering appears to reduce the older participant's risk for mortality (Musick et al., 1999; Wilson, 2000), through enhancement of roles (Musick et al., 1999). The older adult's quality of life improves following volunteer participation (Jivovec and Hyduk, 1998; Wheeler et al., 1998). According to the caring perspective, volunteering would offer the greatest benefit when it meets the older adult's need, preference, and capability (Jivovec and Hyduk, 1998; Musick et al., 1999).

Use of facilities for physical exercise is helpful to the older user, according to abundant theory and research. Physical exercise contributes to the elder's prevention and rehabilitation of illnesses, physical, and mental problems (Strawbridge et al., 1993). Furthermore, it enhances the elder's strength and fitness (Holland et al., 2002), especially with regular and enduring practice (Porter et al., 2002). It is therefore an essential indicator of health behavior (Potts et al., 1992). The elder's quality of life would benefit from his or her active practice of physical exercise (Kim et al., 1999). As such, the elder's health, functional ability, and self-efficacy can improve with engagement in physical exercise (Strawbridge et al., 1993; McAuley and Katula, 1999; Atienza, 2001).

The medical service can be a source of satisfaction for the older user (Beisecker, 1996). Probably due to the effectiveness of the medical service, satisfaction with the service readily arises from the older user. The medical service is indispensable to maintaining the older adult's health and other aspects of quality of life. The risk of mortality is clearly greater for the elder in the absence of medical service use (Leventhal, 2000). An ideal medical service would encourage self-care and health maintenance by the older adult, rather than making him or her dependent on the service (McDonald-Miszczak et al., 2001). Self-care is in turn a vital practice bolstering the elder's quality of life.

Chronic illnesses are important control variables needed for adequate investigation of the use and quality of the services. Elders with different chronic illnesses most likely enjoy differential levels of quality of life. Among chronic illnesses, the stroke, heart attack, pulmonary disease, arthritis, and vision impairment prove to be more traumatic in eroding the older patient's quality of life (Dorfman, 1995). Physical and mental aspects of quality of life are both vulnerable to the adverse effect of chronic illness (de Leon and Rapp, 1994; Sugisawa et al., 1994). The risk of mortality tends to heighten with the presence of chronic illness (Oman et al., 1999).

Research Question

Although there are theoretical and research grounds for the benefits of the use and quality of various services for elderly people, rigorous and fine-grained evidence is lacking in Hong Kong to show how beneficial the services are. Informed by the caring perspective, the home care service, day care center, nursing home, and medical service probably tend to be particularly contributory to the elder's quality of life. That is, services that provide care to older users and sustain their social relationships and their living in the real world are likely to promote the users' quality of life. Nevertheless, because past research has not explicitly evaluated the contribution of various services to older people's quality of life, the present study is necessary to verify if caring services offer the hypothesized benefit.

METHODS

The study surveyed 3,000 older Chinese people in Hong Kong from October 16, 2001 to June 28, 2002. This sample was to represent the population of older Chinese people in Hong Kong who are capable of responding to a survey interview. The survey set quotas for surveying young older people (aged 65–74), old older people (aged 75–84), and very old older people (aged 85+) using or not using services of social centers, community care, and residential care. The quotas ensured that the sample of older Chinese adults showed a fair distribution in age ranges and services in use. To conduct the sampling and survey, it solicited help from 140 service units of the continuum of care randomly selected from the whole lists of elderly service units. The sampling continued until the sample met its quotas. Eventually, 45 social centers, 24 multiservice centers, 12 home help service units, 19 day care centers, 16 hostels, and 24 homes for elderly people offered their support to the study. They were representative of elderly services of different kinds, agencies, and districts within the territory. Interviewers then visited the service units to interview members and nonmembers

summoned there. All of the respondents were capable and willing to participate in the survey (see Table I).

TABLE I
Percentage of background and service characteristics

Characteristics	(%)
Age	
65–74	(36.6)
75–84	(36.8)
85 or above	(26.6)
Chronic illness	
Hypertension	(30.4)
Heart disease	(11.8)
Diabetes	(13.3)
Chronic obstructive pulmonary disease	(1.4)
Asthma	(3.3)
Tuberculosis	(0.2)
Stroke	(7.5)
Parkinson's disease	(1.1)
Dementia	(0.2)
Kidney disease	(0.9)
Cataract	(9.3)
Gastric ulcer	(1.0)
Prostatis	(1.1)
Arthritis	(10.8)
Fracture	(3.4)
Gout	(8.4)
Cancer	(0.8)
Sex	
Male	(28.3)
Female	(71.7)
Current service use	
None	(4.9)
Social center	(27.7)
Multiservice center	(18.7)
Day care center	(10.3)
Home help	(5.8)
Hostel	(21.0)
Nursing home	(11.5)
Home care	(0.0)

The respondents responded to a survey questionnaire that built on results of 16 focus groups and a pretest. The focus groups recruited 157 Hong Kong Chinese older people to participate, between April 10 and June 9, 2001. Each focus group, as planned, comprised older adults of a certain age range (65–74, 75–84, 85+) who lived in a residential area indicative of a certain class (working class in the public housing estate, middle class in the private housing estate) and were using a certain service (social, community care, residential care). The groups focused discussion on the core question, "What is a good life? Why do you think that?". With a process of screening and refinement, responses elicited from focus groups helped construct 61 questions for measuring the quality of life, including aspects of self-happiness, physical health, and the abstract global quality of life. After a pretest with 20 older adults selected from several social centers, the questionnaire eventually adopted the wording that was appropriate to the older population.

Measurement

A weighted measure of quality of life comprised the 61 items measuring various aspects of quality of life, based on weights empirically derived from a constrained linear regression analysis of a single-item measure of global quality life ("How good is your life currently?"). This weighted overall quality of life was therefore the best replica of the global quality of life based on the weighted sum of 61 items (see Table II). The global quality of life, however, was just a seed to identify the weighted overall quality of life useful for analysis and hypothesis testing. To strengthen the analysis, physical health was also a pertinent criterion used in the analysis. The measure of physical health combined six items, having a reliability alpha of 0.709. For the ease of interpretation, all measures of quality of life had scores lying between 0 (lowest) and 100 (highest).

Use of each service involved three units of measurement. One was the current use, another was cumulative months of service use, and a third was the frequency of service use per day,

TABLE II
Weights to identify weighted quality of life

Component	Weight	Standard error	95% lower bound	95% upper bound
Quality of cultural activities				
Analyzing affairs in society	0.008	0.014	−0.018	0.035
Increasing knowledge	0.000	0.015	−0.029	0.029
Realizing new things from learning from old things	0.000	0.015	−0.029	0.029
Studying	0.000	0.017	−0.033	0.033
Being aware of what happens in society	0.002	0.014	−0.025	0.030
Living a substantial life	0.140	0.016	0.109	0.172
Understanding life philosophy	0.012	0.012	−0.010	0.035
Joining interest classes	0.000	0.014	−0.027	0.027
Quality of work				
Repaying society with learning	0.000	0.015	−0.029	0.029
Helping people	0.000	0.014	−0.028	0.028
Doing what one likes	0.000	0.014	−0.028	0.028
Doing volunteer work	0.000	0.013	−0.025	0.025
Being capable of working	0.000	0.013	−0.025	0.025
Taking care of the younger generation	0.000	0.014	−0.028	0.028
Persuading others not to do anything wrong	0.000	0.011	−0.022	0.022
Playing a role model for younger people	0.000	0.013	−0.026	0.026
(Not) having no work to do	0.006	0.011	−0.015	0.027
(Not) being unable to do what one wants	0.036	0.012	0.013	0.059

TABLE II
Continued

Component	Weight	Standard error	95% lower bound	95% upper bound
Quality of accommodation				
Having convenient transportation to and fro from home	0.005	0.015	−0.024	0.034
Living in one's own house	0.000	0.010	−0.020	0.020
Using community facilities conveniently	0.026	0.013	0.000	0.051
Using a well-equipped toilet	0.069	0.016	0.039	0.100
Eating good food	0.093	0.017	0.060	0.125
(Not) leaking or soaking in the house	0.000	0.015	−0.030	0.030
(Not) dwelling in a small place	0.046	0.011	0.024	0.068
Quality of finance				
Having money to sustain oneself	0.003	0.014	−0.023	0.030
Having enough savings	0.000	0.014	−0.027	0.027
Having enough money to pay for living expense	0.068	0.020	0.029	0.107
Enjoying privileges provided for older people in society	0.032	0.011	0.010	0.054
Having money to meet needs for clothing, eating, etc.	0.021	0.020	−0.018	0.060
(Not) striving for a living	0.038	0.017	0.003	0.072
(Not) having nothing to eat	0.012	0.019	−0.026	0.049
Quality of friendship				
Being together with many friends	0.000	0.017	−0.033	0.033
Sharing experiences with a mass	0.008	0.014	−0.020	0.035

TABLE II
Continued

Component	Weight	Standard error	95% lower bound	95% upper bound
Experiencing caring concern by people other than family members	0.061	0.014	0.034	0.089
Chatting with intimate friends	0.004	0.017	−0.030	0.038
Showing care among friends	0.001	0.018	−0.034	0.036
(Not) Being alone at home	0.000	0.010	−0.020	0.020
Quality of health				
Sleeping well	0.023	0.013	−0.003	0.048
Being physically healthy	0.015	0.017	−0.019	0.050
Moving freely	0.000	0.014	−0.027	0.027
Being capable of cleaning the house	0.005	0.011	−0.017	0.027
Caring of oneself	0.017	0.017	−0.016	0.050
(Not) Having illness and pain	0.000	0.014	−0.028	0.028
Quality of life: self				
Seeking happiness	0.026	0.014	−0.001	0.054
Having a calm mind	0.052	0.016	0.022	0.083
Respecting oneself	0.028	0.015	−0.002	0.058
Realizing one's having good experience	0.000	0.014	−0.027	0.027
(Not) experiencing stress	0.004	0.013	−0.023	0.030
(Not) Worrying	0.052	0.013	0.026	0.078
(Not) feeling old	0.000	0.012	−0.023	0.023

TABLE II
Continued

Component	Weight	Standard error	95% lower bound	95% upper bound
Quality of life: community				
Experiencing world peace	0.054	0.013	0.028	0.080
Experiencing everyone's adjustment (to housing and work) in society	0.035	0.014	0.008	0.062
(Not) seeing people having no work to do	0.013	0.014	−0.015	0.041
(Not) experiencing poor economic conditions in society	0.005	0.014	−0.023	0.032
Quality of life: family life				
Offspring being filially pious	0.012	0.017	−0.020	0.045
Whole family's being together harmoniously	0.008	0.017	−0.026	0.042
Whole family's helping one another	0.000	0.015	−0.029	0.029
Family members' showing care to one	0.005	0.018	−0.030	0.040
(Not) Offspring's being disobedient	0.020	0.011	−0.001	0.042
(Not) Family members' being unhappy	0.002	0.013	−0.024	0.028

which could be less than one (i.e., current use, cumulative use, and frequency of use). The original scale for measuring the frequency of service use was about the times of use in a certain number of days. A response such as three times per 2 days indicated a frequency of 1.5 times per day. Consequently, the average cumulative use in terms of months was as follows: social center (5.18), multiservice center (4.69), day care center (2.94), home help service (2.73), home care or enhanced home care (0.78), hostel (4.96), and nursing home (3.57). Clearly, the home care service was a new invention in Hong Kong, having few older people benefiting from it. Besides, each respondent indicated the frequency of service use per day or the number of days per use. The average frequency of service use, in terms of times per day, was as follows: interest group (0.09), meal service (1.33), traveling (0.03), meal-to-home service (0.06), home cleaning (0.02), personal care (0.03), physical exercise facilities use (0.44), volunteer service (0.09), medical service (0.03), and nursing service (0.04).

A measure of acquiescence referred to the average score of all five-point rating items was useful for control purpose in the analysis. This measure tapped the respondent's tendency to rate everything highly, regarding of the favorable or unfavorable content of the item. The analysis thus controlled for the chance that particular users of services were more acquiescent than were others.

Analytic procedure

Analyses proceeded with the comparison of quality of life among older adults using various services. Post hoc tests (with the Student–Newman–Keuls test) were useful for identifying the services with significant difference in the quality. To clarify differences due to various factors adequately, regression analyses took several steps, which included predictors hierarchically. The first step revealed the effects (in terms of metric or unstandardized coefficients) of background characteristics. Each of the effects represented the units of change in quality of life due to a certain unit of change in the predictor. Thus, the changes in quality of life in terms of points on a 0–100 scale

were readily transparent, without any need for conversion as in the case of standardized coefficients. Step two illustrated the effects of chronic illnesses, controlling for background characteristics. The third step estimated the effects of cumulative use of services, controlling for global quality of life in the past year. Step four unfolded the effects of the frequency of service use. The fifth step revealed the effects of current service use. Moreover, Steps 3 to 4 estimated interactive effects involving age, sex, and chronic illness after they had estimated the main effects of service use or quality.

RESULTS

The average current hostel resident had the highest global quality ($M = 72.6$, see Table III) and weighted quality of life ($M = 69.6$), among elders who currently used services of a social center, multiservice center, day care center, home help, nursing, home, hostel, and those who currently not using any of the services. Hostel residents' highest overall quality of life was outstanding, that is, significantly higher (mean differences = 4.89–13.93) than that of others according to the post hoc comparison (by the Student–Newman–Keuls test, $p < 0.05$ adjusted from familywide comparison). On the other hand, the average hostel resident did not manifest the highest quality of health ($M = 62.6$). Instead, the average elder who currently used none of the services exhibited the highest quality of health ($M = 66.9$). The average current user of a multiservice center ($M = 65.7$), social center ($M = 64.5$), or a hostel ($M = 62.6$) also had relatively higher quality of health than users of other services (mean differences = 9.1–19.7). Users of each of these services had outstanding quality in health, according to the post hoc comparison. On the other hand, the current user of a day care center displayed the lowest quality of health ($M = 46.1$). Global and weighted quality of life scores were the lowest among current users of home help services ($M = 58.7$ and 61.1). There were significant differences among users and nonusers of the services. Nevertheless, these

TABLE III
Means and standard deviations of quality of life

Current use	Mean			Standard deviation		
	Global quality of life	Weighted quality of life	Quality of health	Global quality of life	Weighted quality of life	Quality of health
None	64.2	66.1	66.9	21.6	11.8	18.2
Social center	65.2	66.4	64.5	21.7	13.6	19.6
Multiservice center	66.4	67.0	65.7	21.7	13.6	19.1
Day care center	62.1	62.3	46.1	25.0	14.6	22.0
Home help	58.7	61.1	49.3	23.6	13.2	20.7
Hostel	72.6	69.6	62.6	20.2	12.6	19.0
Nursing home	67.7	65.3	53.5	22.8	13.3	20.6
Total	66.5	66.3	60.4	22.3	13.6	20.9
Eta	0.170**	0.176**	0.328**			
Oneway ANOVA *F*	14.7	15.9	60.0			

Notes: The oneway ANOVA was followed by a *post hoc* test with the Student-Newman-Keuls method.
*$p < 0.05$; **$p < 0.01$.

significant findings do not necessarily suggest the merit and weakness of various services because the analysis did not control for background differences among the elders. Thus, the findings only reflect the apparent variation in quality of life among them, without drawing causal inference about the influence of the services.

Effects of background characteristics

A better way to recover the causal mechanism was controlling for all significant background variables (out of age, sex, education, acquiescence, reception of public welfare, and others) in analyzing impacts of service use and quality. Among the background characteristics, income and living with older adults were significant contributors to all global quality of life, weighted quality of life, and quality of health (see Table IV). An elder who was female or faithful to Protestantism, had significantly higher global and weighted quality of life. Thus, sex and religious faith did not make a significant difference in the elder's quality of health. Weighted quality was also significantly higher in an elder who had more children, more generations in the household, or higher education, but did not live with offspring. An elder with higher education also had significantly better quality in health. On the other hand, the quality of health was significantly higher in an elder who lived in private housing, did not depend on financial support from the spouse or public assistance, or was younger. Aging, however, did not significantly erode the elder's overall quality of life.

The verification of certain effects of background characteristics on quality of life indicates the validity of the quality of life measure. An elder who is female, faithful to a religion, having higher income, education, or more children experiences higher quality in life, according to many past studies (George and Landerman, 1984; Holahan and Sears, 1995; Mullins and Elston, 1996; Atchley, 1999; Kim et al., 1999; Ryff et al., 1999; Chou and Chi, 2002; Crosnoe and Elder, 2002). Similarly, past research has shown that health is better in an elder who is younger and higher educated (Mullins and Elston 1996; Mjelde-Mossey and Mor Barak, 1998; Lam et al., 1999;

TABLE IV
Metric effects of background characteristics on quality of life

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
Constant	49.569*	73.595**	89.323**
Faith in Protestantism (vs. no religious faith)	3.414**	1.697*	0.740
Faith in Catholicism (vs. no religious faith)	−0.841	−1.429	−1.732
Faith in Buddhism (vs. no religious faith)	1.196	0.395	−1.003
Faith in Daoism (vs. no religious faith)	−2.282	−0.236	−4.049
Residence in a public-provided rental flat (vs. quarters)	−1.470	−0.635	2.225
Residence in a public-provided owned flat (vs. quarters)	−0.823	1.232	3.735
Residence in a private flat (vs. quarters)	0.520	0.862	3.568*
Residence in a private room (vs. quarters)	−0.642	−0.089	7.456**
Living with offspring	−2.400	−3.724**	−4.029
Living with older adults	5.902**	3.444**	2.415*
Number of generations in the household	2.747	5.369**	3.750
Number of living children	4.475	4.358**	−1.435
Unmarried (vs. cohabited)	2.435	−1.882	0.687
Married (vs. cohabited)	−2.549	−5.720	−4.320
Divorced (vs. cohabited)	4.374	−2.813	−1.593
Widowed (vs. cohabited)	0.536	−3.900	−0.987
Income (lowest to highest)	29.155**	24.599**	16.559*
Income from earnings	7.108	−15.493	−26.749
Income from the spouse	2.732	−17.232	−33.938*

TABLE IV
Continued

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
Income from children	4.506	−10.833	−25.174
Income from other relatives	1.909	−9.980	−20.880
Income from public assistance	5.306	−11.804	−28.657*
Income from pension	5.878	−9.107	−23.183
Education (lowest to highest)	5.068	9.226**	12.428**
Age (lowest to highest)	−0.483	−1.138	−12.376**
Female (vs. male)	3.312**	1.830**	−0.187
R^2	0.036	0.056	0.057

Notes: The range of change in the predictor to yield the estimated effect was shown within parentheses.
Indicators for religious faith, residence, living arrangement, marital status, and income sources were dichotomous variables, with 1 for "yes" and 0 for "no".
*$p < 0.05$; **$p < 0.01$.

Bryant et al., 2000; Luoh and Herzog, 2002). These findings again appear in the present study, thus espousing the predictive validity of the quality of life measures.

Effects of chronic illnesses

Chronic illnesses were important predictors and therefore necessary control variables revealed in the analysis. Most chronic illnesses made a significant difference in global quality of life, weighted quality of life, and quality of health. Chronic obstructive pulmonary disease had a relative strong impairment to the elder's global quality of life ($b = -7.051$). This disease also significantly attenuated the elder's weighted quality of life ($b = -4.130$), indicating that the disease also prevented the elder's normal life in significant areas.

Kidney disease and Parkinson's disease exerted the strongest impairment on the elder's weighted quality of life ($b = -7.913$ and -7.891). These two diseases appeared to be the most dysfunctional to the elder's life in various significant aspects. Moreover, these two diseases significantly impaired the elder's quality of health ($b = -13.376$ and -26.065), which was an integral part comprising weighted quality of life. Next to these two diseases was the stroke and chronic obstructive pulmonary disease, in terms of their impairment of the elder's weighted quality of life ($b = -4.162$ and -4.130). The adverse effect of the stroke on the elder's quality of health was also sizable ($b = -18.323$). Thus, Parkinson's disease, kidney disease, and the stroke were serious impediments to the elder's quality of health. Besides, fracture eroded the elder's quality of health substantially ($b = -10.586$). Heart disease, asthma, and diabetes also weakened the elder's quality of health ($b = -8.503$, -6.844, and -6.063).

Effects of cumulative service use

With the chronic illnesses and other significant background variables kept as a constant for all older people, the regression analysis fairly examined differences associated with the use and quality of different services. The third step was for the analysis to add cumulative service use variables as additional predictors.

Consequently, cumulative use of home care emerged as the strongest predictor of global quality of life ($b = 40.063$, see Table VI). The regression coefficient suggests that an elder who used home care for one more year would be 40.063 points higher in global quality of life. This was a significant finding. The sizable effect appears to stem from the fact that few elders had used the home care service for a long time because it was a relatively new service in Hong Kong. Cumulative home care use also manifested a tremendous effect on the elder's weighted quality of life ($b = 14.130$). The effects of cumulative home care use appear to hold for all older people because of the insignificance of its interactive effects with chronic illness, age, and sex (see Table VI).

Cumulative use of the social center and multiservice center showed positive effects ($b = 0.303$ and 0.515), suggesting that the longer use raised the user's global quality of life to a higher level than did others. The cumulative use of the social center also significantly improved the older user's weighted quality of life ($b = 0.176$), in comparison with others. These effects tend to hold for all older people, in view of the insignificant interactive effects, except the significant variation of the effect of cumulative use of the social center on the weighted quality of life of men and women ($b = -0.320$). The estimate indicated the effect was greater for men than for women.

Cumulative use of the nursing home was the only significant predictor of the elder's quality of health ($b = 0.574$). Each year of use of the nursing home would increase the elder's quality of health by 0.574 point. Nevertheless, the increase was small and it would take a long time for the use to manifest an appreciable effect on the resident's health. The effect can hold for all older people, because of the insignificant interactive effects involving cumulative use of the nursing home.

Cumulative use of a hostel service, however, indicated negative effects on the elder's weighted quality of life ($b = -0.212$) and quality of health ($b = -0.391$). Longer stay in a hostel tended to diminish the resident's quality of life, other things being equal. Whereas the effect on weighted quality of life appears to hold for all older people, the effect on quality of health

significantly varied depending of the number of chronic illnesses ($b = 0.258$). The effect was especially adverse on the quality of health of an elder with no chronic illness. An elder with more chronic illnesses would be immune to the influence of cumulative use of the hostel.

Effects of service use frequency

The fourth step was analysis of the effects of the frequency of service use, given the existing influences of background characteristics and cumulative service use. Consequently, the frequency of participation in interest groups with the services showed significant effects on the elder's weighted quality of life and quality of health ($b = 3.915$ and 4.338, see Table VII). The frequency also showed a minimal and insignificant effect on the elder's global quality of life ($b = 0.345$). In general, an elder with more frequent participation in interest groups would be higher on quality of life. The benefit of interest group participation tends to apply to all older people, because of the insignificance of interactive effects of the participation and chronic illness, age, and sex (see Table VII).

On the other hand, the frequency of use of the meal-to-home service, medical service, and nursing service showed some significant negative effects on some indicators of quality of life. Particularly, the frequency of use of the medical service had a remarkable effect on quality of health ($b = -12.144$). Thus, an elder who use the medical service more frequently turned out to be lower on quality of health. Similarly, the frequency of use of nursing and meal-to-home services displayed particularly greater negative effects on the elder's quality of health. These findings nevertheless reflected some predetermined adverse and acute conditions that both necessitated the elder's use of these three services and eroded the elder's quality of life. As such, frequent use of these services appeared to be a covariate or collateral of lower quality of life, rather than a cause of it. On the other hand, frequent use of these services might not significantly improve the elder's quality of life. These effects generally apply to all older people the effects of the frequency of use of meal service and meal-to-home service, based on findings

about the interactive effects (see Table VII). The effects of use of these meal services were less negative on the quality of health of an elder with more chronic illnesses or older age. Hence, this elder's health would not deteriorate with frequent use of the meal services.

Effects of current service use

The fifth step of analysis introduced current use of service as an additional set of predictors of quality of life, given all the influences of background characteristics, chronic illnesses, cumulative use and frequency of use of services. Results show that current use of the day care center, home help service, and nursing home showed negative effects on the elder's quality of health ($b = -14.434$, -7.869, and -8.336, see Table VIII). In other words, elders who currently used these services were relatively lower on quality of health, a finding consistent with the analysis of crude differences among various services (see Table III). Current users of these services then exhibited a quality of health that was lower than that of elders who currently used none of the services. Their worse health status might be attributable to an existing condition that both required their use of the services and impaired their quality of health. In contrast, elders who currently did not use any of the services were in better health status. The findings together suggest that using the services for a short time would jeopardize the elder's quality of health, probably due to the need for adaptation to the new service environment. Short-term effects of service use thus did not appear to yield favorable results for older people. The effects of current use generally apply to all older people, based on their interactive effects with chronic illness, age, and sex (see Table VIII). However, the effect of current use of nursing home on quality of health significantly varied according to the elder's age ($b = 0.339$). The effect was less negative on an elder who was older.

In sum, the home care service most remarkably improved the elder's quality of life through cumulative use. The social center could improve the elder's quality of life through its cumulative use and quality. Similarly, the multiservice center and nursing

home could improve the elder's quality of life through its cumulative use. The interest group could raise the elder's quality of life to a higher level with more frequent participation in the group. The volunteer service could raise the elder's quality of health to a higher level with more frequent participation in the group.

DISCUSSION

Some notable findings about the contribution of health and social services for elderly people evolve from the study. The home care service shows the greatest benefit in the elder's quality of life with cumulative use. This benefit does not vary significantly due to the elder's chronic illness, age, and sex. Hence, these background conditions are not necessarily responsible for the benefit of the home care service. Besides, the social center, multiservice center, nursing home, clinic, hospital, hostel, interest group, and volunteer services maintain some significant contributions, either through their cumulative or frequent use, or through their quality (see Tables V–VIII). From the perspective of caring, the findings suggest the importance of maintaining long-term relationships in the real world (Robinson, 1996; Draper, 1997). Cumulative use of the home care service tends to embody this caring perspective typically. Accordingly, the home care service provides thorough care to the older care recipient, maintains a close relationship with the elder through care or case management, and enhances the elder's community life. The home care recipient has ample autonomy and control over the service, in making choices of services, thus enjoying the benefit of empowerment and control. These findings and explanations are consistent with the expectation that services with a caring element and perspective contribute more to the elder's quality of life. Similarly, the caring perspective also applies to explaining the contribution of cumulative use of the nursing home, clinic, and hospital. In contrast, the home help service may not provide care that is thorough enough to make its effects on the user's quality of life significant.

TABLE V
Metric effects of chronic illnesses on quality of life

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
Hypertension	−1.654*	−0.155	−1.884*
Heart disease	−1.052	−3.166**	−8.503**
Diabetes	−1.900	−1.353*	−6.063**
Chronic obstructive pulmonary disease	−7.051*	−4.130*	−5.001
Asthma	−2.883	−2.808*	−6.844**
Tuberculosis	0.778	3.995	−1.070
Stroke	−3.073*	−4.162**	−18.323**
Parkinson's disease	−1.360	−7.891**	−26.065**
Kidney disease	−6.926	−7.913**	−13.376**
Cataract	0.047	−1.530*	−3.286**
Gastric ulcer	−1.781	−1.853	−5.028
Prostatis	−3.140	−0.647	−1.134
Arthritis	−0.285	−2.546**	−4.773**
Fracture	−0.669	−1.420	−10.586**
Gout	−2.743*	−1.742*	−4.773**
Cancer	0.369	−1.754	−7.122*
R^2	0.302	0.262	0.259

Notes: The regression analysis controlled for all other significant background factors and quality of life in the past years.
Indicators for chronic illness were dichotomous variables, with 1 for "yes" and 0 for "no".
*$p < 0.05$; **$p < 0.01$.

Table VI
Metric effects of cumulative service use (per year) on quality of life

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
Main effect			
Social center	0.303**	0.176*	0.000
Multiservice center	0.515**	0.455	0.274
Day care center	0.659	0.354	0.442

Table VI
Continued

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
Home help	0.133	−0.004	−0.558
Home care	40.063**	14.130*	18.909
Hostel	−0.287	−0.212**	−0.391*
Nursing home	−0.089	0.423	0.574*
R^2	0.310	0.272	0.264
Separate interactive effect			
Social center × Chronic illness	−0.096	−0.063	−0.022
Multiservice center × Chronic illness	0.074	−0.033	0.254*
Home care × Chronic illness	−15.703	−1.664	−1.351
Hostel × Chronic illness	0.073	0.132	0.258*
Nursing home × Chronic illness	−0.079	−0.110	−0.338
Social center × Age	−0.006	−0.006	0.005
Multiservice center × Age	−0.019	−0.021*	−0.019
Home care × Age	−1.766	−0.562	−1.432
Hostel × Age	0.018	−0.003	0.008
Nursing home × Age	−0.014	−0.011	0.006
Social center × Female	−0.023	−0.320*	−0.553*
Multiservice center × Female	−0.146	−0.169	−0.072
Home care × Female	−45.082	−41.546	−29.935
Hostel × Female	−0.050	0.057	−0.065
Nursing home × Female	−0.212	−0.515	−0.452

Notes. The regression analysis controlled for all other significant background factors and quality of life in the past years.
The predictors listed above were: Cumulative use the social center (1 unit = 1 year); Cumulative use of the multiservice center (1 unit = 1 year); Cumulative use of the day care center (1 unit = 1 year); Cumulative use of the home help service (1 unit = 1 year); Cumulative use of the home care service (1 unit = 1 year); Cumulative use of the hostel (1 unit = 1 year); Cumulative use of the nursing home (1 unit = 1 year); Number of chronic illnesses (1 unit = 1 illness); Age (1 unit = 1 year); Female (vs. male)
*$p < 0.05$; **$p < 0.01$.

Apart from the caring perspective, a perspective of active aging serves to explain the advantage of the social center, interest group, and volunteer service for the older adult's quality of life (Walker, 2002). These benefits also appear to be invariant across older adults with different conditions of chronic illness, age, and sex. The active aging perspective, built on activity theory (Utz et al., 2002) and social integration theory (Schieman and Campbell, 2001), posits that active engagement in social life promotes the older adult's quality of life. Specifically, the older adult's meaningful pursuits, interaction with diverse people, and maintaining intergenerational solidarity can champion the rights and obligations of the older population (Walker, 2002). The engagement in turn insulates the elder from the threat of discrimination. Research on activity theory and social integration theory also indicates the benefit of social involvement to the older adult. The elder's self-esteem is a notable well-being dimension benefiting from activity, especially social activity (Atchley, 1999). The facilitation of the elder's social involvement and integration appears to be an essential task of the social center, through its interest groups and volunteer service.

Cumulative and frequent use of services, notably those of home care, the nursing home, social center, interest group, and volunteer service, are important to engender favorable impacts on the older user's quality of life. Conversely, short-term and recent use of the services does not demonstrate the benefit. In comparison with sustained use, current use of most of the services therefore displays negative effects on the elder's quality of life. Accordingly, given the influence of cumulative use of services, current use of services reflects transition between services. Such transition would be detrimental to the older user's quality of life because of the need for adaptation (Jackson and Longino, 1991; Brenna et al., 1999). According to the theory of readjustment, whenever there is a change, there is a concomitant need for readjustment. During the transitional period of readjustment, the elder will suffer stress and anxiety, which impair the elder's quality of life. Thus, any new adoption of a service will lead to a setback in quality of life.

TABLE VII
Metric effects of service use frequency (each time per day) on quality of life

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
Main effect			
Interest group	0.345	3.915**	4.338**
Meal service	0.637*	0.217	−0.695**
Travel	1.975	0.757	0.689
Meal-to-home service	−3.405**	−1.748**	−5.383**
Home cleaning service	2.413	−0.652	−2.546
Personal care service	−0.558	0.944	−2.910
Sport facilities	−0.199	−0.112	−0.481
Volunteer service	0.313	0.969	2.538*
Medical service	−3.643	−4.518*	−12.144**
Nursing service	−1.960	−1.037	−7.683**
R^2	0.315	0.283	0.293
Separate interactive effect			
Interest group × Chronic illness	−0.730	−0.646	−1.418
Meal service × Chronic illness	−0.044	0.217	0.577**
Meal-to-home service × Chronic illness	0.275	0.843	1.931*
Volunteer service × Chronic illness	−0.872	−0.430	−0.116
Medical service × Chronic illness	2.321	0.712	0.831
Nursing service × Chronic illness	0.421	0.900	0.718

TABLE VII
Continued

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
Interest group × Age	−0.257	−0.086	−0.161
Meal service × Age	0.003	0.038*	0.129**
Meal-to-home service × Age	0.000	−0.018	0.116
Volunteer service × Age	0.029	0.013	−0.018
Medical service × Age	−0.152	−0.284	−0.529
Nursing service × Age	−0.438	−0.273	0.142
Interest group × Female	−1.097	−1.064	−1.105
Meal service × Female	−0.226	0.247	0.444
Meal-to-home service × Female	−2.676	−0.421	1.601
Volunteer service × Female	2.034	−0.016	−0.577
Medical service × Female	8.846	2.759	6.470
Nursing service × Female	1.819	2.026	2.777

Notes: The regression analysis controlled for all other significant background factors and quality of life in the past years. The predictors listed above were: Use of the interest group (1 unit = 1 time per day); Use of the meal service (1 unit = 1 time per day); Participating in traveling activities (1 unit = 1 time per day); Use of the meal-to-home service (1 unit = 1 time per day); Use of the home cleaning service (1 unit = 1 time per day); Use of the personal care service (1 unit = 1 time per day); Use of sport facilities (1 unit = 1 time per day); Use of the volunteer service (1 unit = 1 time per day); Use of the medical service (1 unit = 1 time per day); Use of the nursing service (1 unit = 1 time per day); Number of chronic illnesses (1 unit = 1 illness); Age (1 unit = 1 year); Female (vs. male)
*$p < 0.05$; **$p < 0.01$.

TABLE VIII
Metric effects of current service use on quality of life

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
Social center	−0.106	−0.362	−2.270
Multiservice center	0.347	−0.492	−1.841
Day care center	−1.414	−2.471	−14.434**
Home help	−0.567	−1.405	−7.869**
Hostel	3.440	1.646	−2.856
Nursing home	−0.787	−2.028	−8.336**
R^2	0.318	0.290	0.321
Separate interactive effect			
Day care center × Chronic illness	0.397	0.736	−0.089
Home help × Chronic illness	0.868	0.362	0.582
Nursing home × Chronic illness	−0.575	0.122	0.402
Day care center × Age	0.149	0.075	0.241
Home help × Age	0.116	0.036	−0.004
Nursing home × Age	−0.088	0.097	0.339**
Day care center × Female	0.166	−0.276	3.140
Home help × Female	−3.480	−0.672	0.096
Nursing home × Female	−1.182	0.146	0.412

Notes: The regression analysis controlled for all other significant background factors and quality of life in the past years.
The predictors listed above were: Current use of the social center (yes vs. no); Current use of the multiservice center (yes vs. no); Current use of the day care center (yes vs. no); Current use of the home help service (yes vs. no); Current use of the hostel (yes vs. no); Current use of the nursing home (yes vs. no); Number of chronic illnesses (1 unit = 1 illness); Age (1 unit = 1 year); Female (vs. male).
*$p < 0.05$; **$p < 0.01$.

On the other hand, frequent use of meal-to-home, medical, and nursing services appears to come along with lower quality of life. Their frequent use did not produce significant improvement in the elder's quality of life, in contrast to frequent use of interest groups and volunteer service that showed the benefit. The failure to demonstrate the improvement tends to result from the acuteness and severity of problems that

precipitate frequent use of the services (Krause, 1998; Thomas and Payne, 1998). Such problems would also undermine the elder's quality of life. Apparently, frequent use of the services is a response to the acute and serious problem and cannot yield favorable amelioration of the problem overnight. Salutary effects from the services appear to depend on their cumulative and sustained use. Quality of life does not seem to rise suddenly, with the use of services.

Limitations

The above findings, nevertheless, suffer from a limitation pertaining to the retrospective self-report design of the study. In the study, all those quality of life evaluations and experiences with service use came solely from the elder's retrospective report. The usual technique of regression analysis is no guarantee that the experiences were the causes of the evaluations and not the reverse. The reverse case is possible in that the elder was free to improvise retrospective responses based on current evaluations. Even without the problem of recall, the analysis does not eliminate the possibility of some prior conditions predispose both the ways of service use and quality of life results. With the limitation, findings from the study decidedly require further corroboration, desirably with a prospective design that controls for prior quality of life and any self-selection factors. Further research is also preferable to discern the specific service (e.g., which recreational service?) that affects the older adult's quality of life. Its investigations into the many interactive effects involving service use and personal backgrounds are clearly necessary to verify and understand the contingencies in service benefits.

While most findings were robust against the variation due to personal characteristics, some significant interactive effects were significant. These interactive effects, in addition to showing systematic variation, also register the instability of the main effects. Therefore, those main effects of use of meal and nursing home services are occasionally unstable. On the other hand, measures of quality and life quality, however reliable, have not yet demonstrated their validity against alternative measures.

Validation of these quality measures is evidently necessary in further research.

Practical implications

Practical ways for improving the effectiveness of health and social services to promote the older user's quality of life need to sustain the user's continuing use of the services and avoid change in the services. In case the elder has to change services due to changed needs, special attention is required to minimize stress due to readjustment. Besides, the relational, empowerment, and real-world approaches in the caring perspective can help services to sustain their older users' quality of life. Notably, maintaining relationships in the community is an effective means to elevate older users' quality of life at least to a level comparable to that of nonusers. As such, the home care or enhanced home care service merits development.

Among the services, the nursing home is the only one that can significantly sustain or promote the older adult's quality of health with cumulative use. Despite the alleged shortcomings with the nursing home, such as deprivation of older residents' control and independence (Kaye, 1992), its unique merit is noteworthy. Around-the-clock nursing and medical care in the nursing home tends to be responsible for the merit. Nevertheless, its contribution to the resident's general quality of life is not significant. It verifies the contention that the nursing home puts emphasis on health care, but neglects social care (Kaye, 1992). Hence, enhancing the social service components in the nursing home would achieve its cost-effectiveness for sustaining older residents' quality of life in various aspects.

ACKNOWLEDGMENTS

The paper is a product of the CityU Interdisciplinary Research Project (#9360056), ''Assessment, Validation, and Promotion for the Quality of Life of and Continuum of Care of Elderly People in Hong Kong''. The Project is under the leadership of Alex Yui-huen Kwan.

REFERENCES

Ackerman, F., D. K., N. R. Goodwin, J. M. Harris and K. Gallegher: 1997, Human Well-being and Economic Goals (Island, Washington).

Albert, S. M., J. Marks, V. Barrett and B. Gurland: 1997, 'Home health care and quality of life of patients with Alzheimer's disease', American Journal of Preventive Medicine 13(supplement), pp. 63–68.

Arnold, S. B.: 1991, 'Measurement of quality of life in the frail elderly', in J. E. Birren, J. E. Lubben, J. C. Rowe and D. E. Deutchman (eds.), The Concept and Measurement of Quality of Life in the Frail Elderly (Academic Press, San Diego), pp. 50–73.

Atchley, R. C.: 1999, Continuity and Adaptation in Aging: Creating Positive Experiences (Johns Hopkins University Press, Baltimore).

Atienza, A. A.: 2001, 'Home-based physical activity programs for middle- and older adults: Summary of empirical research,' Journal of Aging and Physical Activity 9(supplement), pp. S38–S58.

Bauld, L., J. Chesterman, B. Davies, K. Judge and R. Mangalore: 2000: Caring for Older People: an Assessment of Community Care in the 1990s (Ashgate, Aldershot).

Bawin-Legros, B.: 2001, 'Families in Europe: A private and political stake: Intimacy and solidarity', Current Sociology 49, pp. 49–65.

Beisecker, A. E.: 1996, 'Older persons' medical encounters and their outcomes,' Research on Aging 18, pp. 9–21.

Bengtson, V. L., E. O. Burgess and T. M. Parrott: 1997, 'Theory explanation and a third generation of theoretical development in social gerontology', Journal of Gerontology: Social Sciences 52B(2), pp. S72–S88.

Brenna, P. L., K. K. Schutte, R. H. Moos: 1999, 'Reciprocal relation between stressors and drinking behavior: A three-wave panel study of late middle-aged and older women and men', Addiction 94, pp. 737–749.

Brody, C. M.: 1999, 'Existential issues of hope and meaning in late life therapy', in M. Duffy (ed.), Handbook of Counseling and Psychotherapy with Older Adults (John Wiley & Sons, New York), pp. 91–106.

Calman, K. C.: 1987, 'Definitions and dimensions of quality of life', in N. K. Aaronson and J. H. Beckmann (eds.), The Quality of Life of Cancer Patients (Raven Press, New York), pp. 1–9.

Castle, N. G. and D. G. Shea, 1998, 'The effects of for-profit and not-for-profit facility status on the quality of care for nursing home residents with mental illnesses,' Research on Aging 20, pp. 246–263.

Chan, A. C. M., S. T. Cheng and D. R. Phillips: 2002, Quality of Life of the Chinese Elderly in Hong Kong: Preliminary Findings from Two Focus Groups Studies (Asia-Pacific Institute of Ageing Studies, Lingnan University, Hong Kong).

Chapleski, E. E., D. E. Gelfand and K. E. Pugh: 1997, 'Great Lakes American Indian elders and service utilization: Does residence matter?', Journal of Applied Gerontology 16, pp. 333–354.

Cheung, C. K.: 1997, 'Toward a theoretically based measurement model of the good life', Journal of Genetic Psychology 158, pp. 200–215.

Clark, P. and A. Bowling: 1989, 'Observational Study of quality of life in NHS nursing homes and a long-stay ward for the elderly', Ageing & Society 9, pp. 123–148.

Coe, M. and A. Neufeld: 1999, 'Male caregivers' use of formal support', Western Journal of Nursing Research 21, pp. 568–588.

Davies, B., A. Bebbington and H. Charnley: 1990, Resources, Needs, and Outcomes in Community-based Care: A Comparative Study of the Production of Welfare for Elderly People in Ten Local Authorities in England and Wales (Avebury, Aldershot).

de Leon, C. F. and S. S. Rapp: 1994, 'Financial strain and symptoms of depression in a community sample of elderly men and women,' Journal of Aging & Health 6, pp. 448–268.

Dickinson, E. J.: 1997, 'The quality movement', in P. P. Mayer, E. J. Dickinson and M. Sandler (eds.), Quality Care for Elderly People (Chapman & Hall, London), pp. 55–75.

Dong, Z.: 1998, Development of Elderly Resources and Modern Civilized Society (Economic Management, Beijing).

Dorfman, L. T.: 1995. 'Health conditions and perceived quality of life in retirement', Health & Social Work 20, pp. 192–199.

Draper, P.: 1997, Nursing Perspectives on Quality of Life (Routledge, London).

Eakin, E.: 2001, 'Promoting physical activity among middle aged and older adults in health care setting', Journal of Aging & Physical Activity 9, pp. S29–S37.

Eckert, J. K., D. Cox and L. A. Cox: 1999, 'The meaning of family-like care among operators of small board and care homes', Journal of Aging Studies 13, pp. 333–347.

Egan, M. and G. Kadushin: 1999, 'The social worker in the emerging field of home care: Professional activities and ethical concerns', Health & Social Work 24, pp. 43–55.

Elkan, R., D. Kendrick, M. Dewey, M. Hewitt, J. Robinson, M. Blair, D. Williams and K. Brummell: 2001, 'Effectiveness of home based support for older people: Systematic review and meta analysis', British Medical Journal 323(7315), pp. 719–727.

Farquhar, M.: 1994, 'Quality of life in older people', Advances in Medical Sociology 5, pp. 139–158.

Feldman, P. H.: 1999, 'Doing More for less: Advancing the conceptual underpinning of home-based care', Journal of Aging & Health 11, pp. 261–276.

Fischer, L. R. and K. B. Schaffer: 1993, Older Volunteers: A Guide to Research and Practice (Sage, Newbury Park).
Forbes, S. and N. Hoffart: 1998, 'Elders' decision-making regarding the use of long-term care services: A precarious balance', Qualitative Health Research 8, pp. 736–750.
George, L. K.: 1998, 'Dignity and quality of life in old age', Journal of Gerontological Social Work 29(2–3), pp. 39–52.
Gerson, E. M.: 1976, 'On quality of life', American Sociological Review 41, pp. 793–806.
Gibson, D.: 1998, Aged Care: Old Policies, New Problems (Cambridge University Press, Cambridge).
Griffin, L. W.: 1993, 'Adult day care centers and adult protective services', Journal of Gerontological Social Work 20(1–2), pp. 115–133.
Hall, B. L.: 1989, 'Adult day care: a viable community option', Community alternatives. International Journal of Family Care 1(2), pp. 65–77.
Hawranik, P. G. and L. A. Strain: 2001, 'Cognitive impairment, disruptive behaviors, and home care utilization', Western Journal of Nursing Research 23, pp. 148–162.
Henry, M. E. and J. A. Capitman: 1995, 'Finding satisfaction in adult day care: Analysis of a national demonstration of dementia case and respite services', Journal of Applied Gerontology 14, pp. 302–320.
Herman, S. E.: 1997, 'Exploring the link between service quality and outcomes: Parents' assessments of family support programs', Evaluation Review 21, pp. 388–404.
Holland, G. J., K. Tanaka, R. Shigematsu and M. Nakagaichi: 2002, 'Flexibility and physical functions of older adults: A review', Journal of Aging & Physical Activity 10, pp. 169–206.
Hughes, B.: 1993, 'A model for the comprehensive assessment of older people and their carers', British Journal of Social Work 23, pp. 345–364.
Jivovec, R. L. and C. A. Hyduk: 1998, 'Type of volunteer experience and health among older adult volunteers', Journal of Gerontological Social Work 30(3/4), pp. 29–42.
Kane, R. A. and R. L. Kane: 1994, 'Perspectives on home care quality', Health Care Financing Review 16, pp. 69–87.
Kane, R. A.: 1991, 'Personal autonomy for residents in long-term care: Concepts and issues of measurement', in J. E. Birren, J. E. Lubben, J. C. Rowe and D. E. Deutchman (eds.), The Concept and Measurement of Quality of Life in the Frail Elderly (Academic Press, San Diego), pp. 315–334.
Kane, R. A.: 1999, 'Goals of home care: Therapeutic compensatory, either, or both?', Journal of Aging & Health 11, 299–321.
Kaye, L. W.: 1992, Home Health Care (Sage, Newbury Park).
Kim, T., D. Kim, M. Kim, Y. Lee and A. Kim: 1999, 'Improving the quality of life for elderly Koreans', in Memorial Symposium: Quality of Life, the

6th Annual Asia/Oceania Regional Congress of Gerontology, Seoul, Korea, pp. 29–49.
Kirwin, P. M.: 1991, Adult Day Care: The Relationship of Formal and Informal Systems of Care (Garland, New York).
Kivnick, H. Q. and H. L. Jernstedt: 1996, 'Mama still sparkles: An elder role model in long-term care', Marriage & Family Review 24(1–2), pp. 123–164.
Kramer, B. J.: 2000, 'Husbands caring for wives with dementia: A longitudinal study of continuity and change', Health & Social Work 25, pp. 97–107.
Krause, N. and B. A. Shaw: 2002, 'Negative interaction and changes in functional disability during late life', Journal of Social and Personal Relationship 19, pp. 339–359.
Krause, N.: 1998, 'Early parental loss, recent life events, and changes in healing among older adults', Journal of Aging and Health 10, pp. 395–421.
Kuhn, D. R.: 1998, 'Is home care always the best care?', Generations 22, pp. 99–101.
Kurtz, Paul. 1988. Forbidden Fruit: The Ethics of Humanism. New York: Prometheus Books.
Kutner, N. G., M. G.. Ory, D. I. Baker, K. B. Schechtman, M. C. Hornbrook and C. D. Mulrow: 1992, 'Measuring the quality of life of the elderly in health promotion intervention clinical trials', Public Health Reports 107, pp. 530–539.
La Grange, A. and B. Y. Lock: 2000, 'Aging in a tiger welfare regime: The single elderly in Hong Kong', in Proceedings of Asian Regional Conference on Social Security (Hong Kong), pp. 265–286.
Lachman, M. E. and A. Jette: 1997, 'A cognitive-behavioral model for promoting regular physical activity in older adults', Psychology, Health & Medicine, 2(3) pp. 251–261.
Lawton, M. P., M. S. Moss, L. Winter and C. Hoffman: 2002, 'Motivation in later life: Personal projects and well-being', Psychology & Aging 17, pp. 539–547.
Lee, G. R., C. W. Peek and R. T. Coward: 1998, 'Race differences in filial responsibility expectations among older parents', Journal of Marriage and the Family 60, pp. 404–412.
Lee, J. J.: 1997, 'Brief history of the development of elderly welfare policies in Hong Kong', in D. T. L. Shek, M. C. Lam and C. F. Au (eds.), Social Work in Hong Kong: Reflection and Challenges (Department of Social Work, Chinese University of Hong Kong, Hong Kong), pp. 71–106.
Lee, S. H.: 1996, 'Liberal rights or/and confucian virtues?', Philosophy East & West 46, pp. 367–379.
Leung, K. F., M. Tay, S. S. W. Cheng and F. Lin: 1997, Hong Kong Chinese Version World Health Organization Quality of Life: Abbreviated Version WHOQOL-BREF (HK) (Hospital Authority, Hong Kong).

Leventhal, E.: 2000, 'Aging women, getting older, getting better?', in S. B. Manack, R. Jennings, B. S. Rabin and A. Baum (eds.), Behavior, Health, and Aging (Lawrence Erlbaum, Mahwah), pp. 27–42.
Liddle, J. and K. McKenna: 2000, 'Quality of life: An overview of issues for use in occupational therapy outcome measurement', Australian Occupational Therapy Journal 47, pp. 77–85.
Lundberg, O. and M. Thorslund: 1996, 'Fieldwork and measurement considerations in surveys of the oldest old', Social Indicators Research 37, pp. 165–187.
McAuley, E., B. Blissmer, J. Katula and T. E. Duncan: 2000, 'Exercise environment, self-efficacy, and affective response to acute exercise in older adults', Psychology & Health 15, pp. 341–355.
McDonald-Miszczak, L., A. V. Wister and G. M. Gutman: 2001, 'Self-care among older adults: An analysis of the objective and subjective illness contexts', Journal of Aging & Health 13, pp. 120–145.
McNeil, J. K.: 1995, 'Effects of nonprofessional home visit programs for subclinically unhappy and unhealthy older adults', Journal of Applied Gerontology 14(3), pp. 333–342.
Mehta, K.: 1997, 'The development of services for the elderly in Singapore: An Asian model', Asian Pacific Journal of Social Work 7(2), pp. 5–14.
Midlarsky, E. and E. Kahana: 1994, Altruism in Late Life (Sage, Thousand Oaks).
Musick, M. A., R. Herzog and J. S. House: 1999, 'Volunteering and mortality among older adults: Findings from a national sample', Journal of Gerontology: Social Science 54B, pp. S173–S180.
Nathanson, I. L. and E. Eggleton: 1993, 'Motivation versus program effect on length of service: A study of four cohorts of ombudservice volunteers', Journal of Gerontological Social Work 19(3–4), pp. 95–114.
Norcross, J. C.: 1990, Quality of Life of Older Adults: A Qualitative Study. Doctoral Dissertation. (University of Georgia, Athens).
Oman, D., C. E. Thoresen and K. McMahon: 1999, 'Volunteerism and mortality among the community-dwelling elderly', Journal of Health Psychology 4, pp. 301–316.
Ostir, G. V., J. E. Carlson, S. A. Black, L. Rudkin, J. S. Goodwin and K. S. Markides: 1999, 'Disability in older adults 1: prevalence, causes, and consequences', Behavioral Medicine 24, pp. 147–156.
Ozawa, M. N. and H. Y. Tseng: 1999, 'Utilization of formal services during the 10 years after retirement', Journal of Gerontological Social Work 31(1/2), pp. 3–20.
Piercy, K. W. and R. Blieszner: 1999, 'Balancing Family life: How adult children link elder-care responsibility to service utilization', Journal of Applied Gerontology 18, pp. 440–459.
Porter, B. F.: 1988, Reasons for Living: A Basic Ethics (Macmillan, New York).

Porter, M. M., M. E. Nelson, M. A. F. Singh, J. E. Layne, C. M. Morganti, I. Trice, C. D. Economos, R. Roubenoff and W. J. Evans: 2002, 'Effects of long-term persistence training and detraining on strength and physical activity in older women', Journal of Aging & Physical Activity 10, pp. 260–270.

Potts, M. K., M. L. Hurwicz, M. S. Goldstein, & E. Berkanovic: 1992, 'Social support, health-promotive beliefs and preventive health behaviors among the elderly', Journal of Applied Gerontology 11, pp. 425–440.

Pynoos, J. and V. Regnier: 1991, 'Improving residential environments for frail elderly: Bridging the gap between theory and application', in J. E. Birren, J. E. Lubben, J. C. Rowe and D. E. Deutchman (eds.), The Concept and Measurement of Quality of Life in the Frail Elderly (Academic Press, San Diego), pp. 91–119.

Quinn, J.: 1995, 'Case management in home and community care', Journal of Gerontological Social Work 24(3–4), pp. 233–248.

Ragheb, M. G. and C. A. Griffith: 1982, 'The contribution of leisure participation and leisure satisfaction to life satisfaction of older persons', Journal of Leisure Research 14, pp. 295–306.

Riordan, J. M. and A. V. Bennett: 1998, 'An evaluation of an augmented domiciliary service to older people with dementia and their carers', Aging & Mental Health 2, pp. 137–143.

Robinson, C. A.: 1996, 'Health care relationships revisited', Journal of Family Nursing 2(2), pp. 152–173.

Rose, D. J.: 2002, 'Promoting functional independence among at risk and physically frail older adults through community-based fall-risk-reduction programs' Journal of Aging & Physical Activity 10, pp. 207–225.

Rowles, G. D., J. A. Concotelli and D. M. High: 1996, 'Community integration of a rural nursing home', Journal of Applied Gerontology 15, pp. 188–201.

Russell, R. V.: 1990, 'Recreation and quality of life in old age: A causal analysis', Journal of Applied Gerontology 9, pp. 77–90.

Salzer, M. S.: 1997, 'Consumer empowerment in mental health organizations: Concept, benefits, and impediments', Administration and Policy in Mental Health 24, pp. 425–434.

Saris, W. E.: 2001, 'The strength of the causal relationship between living conditions and satisfaction', Sociological Methods & Research 30(1), pp. 11–34.

Schalock, R. L., K. D. Keith, K. Hoffman and O. C. Karan: 1989, 'Quality of life: its measurement and use', Mental Retardation 27, pp. 25–31.

Schieman, S. and J. E. Campbell: 2001, 'Age variations in personal agency and self-esteem: The context of physical disability', Journal of Aging & Health 13, pp. 155–185.

Schmid, H., Manjee, K. and T. Shah: 1994, 'On the distinction of suicide ideation versus attempt in elderly psychiatric inpatients', Gerontologist 34(3), pp. 332–339.

Searle, M. S., M. J. Mahon, S. E. Iso-Ahola, H. A. Sdrolias and J. van Dyck: 1998, 'Examining the long-term effects of leisure education a sense of independence and psychological well-being among the elderly', Journal of Leisure Research 30, pp. 331–340.

Seed, P. and G. Kayer: 1994, Handbook for Assessing and Managing Care in the Community (Jessica Kingsley, London).

Sidenvall, B.: 1999, 'Meal procedures in institutions for elderly people: A theoretical interpretation', Journal of Advanced Nursing 30, pp. 319–328.

Somerville, P.: 1998. 'Explanations of social exclusion: Where does housing fit in?' Housing Studies 13, pp. 761–780.

Spitze, G.. and R. Ward: 2000, 'Gender marriage and expectations for personal care', Research on Aging 22, pp. 451–459.

Steinkamp, M. W. and J. R. Kelly: 1987, 'Social integration, leisure activity, and life satisfaction in older adults: Activity theory revisited', International Journal of Aging and Human development 25, pp. 293–307.

Stewart, A. and A. C. King, 1994: 'Conceptualizing and measuring quality of life in older populations', in R. P. Abeles, H. C. Gift and M. G. Ory (eds.), Aging and Quality of Life (Springer, New York), pp. 27–54.

Strawbridge, W. J., T. C. Camacho, R. D. Cohen and G. A. Kaplan: 1993, 'Gender differences in factors associated with change in physical functioning in old age: A 6-year longitudinal study', Gerontologist 33, pp. 603–609.

Sugisawa, H., J. Liang and X. A. Liu: 1994, 'Social networks, social support and mortality among older people in Japan', Journal of Gerontology 49, pp. S3–S13.

Thomas, C. P. and S. M. C. Payne: 1998, 'Home alone: Unmet need for formal support services among home health clients', Home Health Care Services Quarterly 17(2), pp. 1–20.

Thompson, B., V. S. Sierpina and M. Sierpina: 2002, 'What is healthy aging? Family physicians look at conventional and alternative approaches', Generations 26, pp. 49–53.

Utz, R. L., D. Carr, R. Nesse and C. B. Wortman: 2002, 'The effect of widowhood on older adults; social participation: An evaluation of activity, disengagement, and continuity Theories', Gerontologist 42, pp. 522–533.

Vaillant, G. E.: 2002, Aging Well: Surprising Guideposts to a Happier Life from the Landmark Harvard Study of Adult Development (Little, Brown and Company, Boston).

Walker, A.: 2002, 'A strategy for active aging', International Social Security Review 55, pp. 121–139.

Walker, G. R., B. Hall, IV and J. W. Roggenbuck: 1998, 'On-site optimal experiences and their relationship to off-site benefits', Journal of Leisure Research 30, pp. 453–471.
Wheeler, J. A., K. M. Gorey and B. Greenblatt: 1998, 'The beneficial effect of volunteering for older volunteers and the people they serve: A meta-analysis', International Journal of Aging and Human Development 47, pp. 69–79.
Wielink, G. and R. Huijsman: 1997, 'Preferences for core: A study of the elders living independently in the Netherlands', Research on Aging 19, pp. 174–198.
Williams, B. and P. Roberts: 1995, 'Friends in passing: Social interaction at an adult day care center', International Journal of Aging & Human Development 41, pp. 63–78.
Wilson, J. and M. Musick: 1999, 'The effects of volunteering on the volunteer', Law and Contemporary Problems 62(4), pp. 141–168.
Wilson, J.: 2000, 'Volunteering', Annual Review of Sociology 26, pp. 215–240.
Wister, A. V.: 1992, 'Residential attitude and knowledge, use, and future use of home support agencies', Journal of Applied Gerontology 11, pp. 84–100.
Wolf, R. S.: 2000, 'The Nature and scope of elder abuse', Generations 24(2), pp. 6–12.
Woodruff, L. and R. Applebaum: 1996, 'Assuring the quality of in-home supportive services: a consumer perspective', Journal of Aging Studies 10, pp. 157–169.
Zarit, S. H., J. E. Gaugler, J. E. and S. E. Jarrott: 1999, 'Useful services for families: Research findings and directions', International Journal of Geriatric Psychiatry 14, pp. 165–177.

Department of Social Work
The Chinese University of
Hong Kong
Shatin, Hong Kong
P.R.C.
E-mail: ckcheung@cuhk.edu.hk