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Informal Social Support and Older Persons’ Psychological Well-Being in Hong Kong

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Abstract
This paper focuses on the importance and the effectiveness of various types of informal support for older persons’ psychological well-being. It examines the effects of objective measures of informal support (such as size of social networks and frequency of contact) and subjective measures (such as satisfaction with the support received) on psychological well-being of older occupants in different household circumstances (i.e., living alone, with spouse or relatives, in old urban areas or new towns, in private or public housing). Data were collected from face-to-face interviews with a sample of 518 older persons (224 males, 294 females) aged 60 and over, systematically drawn from a GIS-derived framework of housing districts in old urban areas and new towns in Hong Kong. The results show that both objective and subjective measures of informal support were related to older persons’ psychological well-being, but subjective measures of informal support (specifically satisfaction with support received from family members) were found to be more important predictors of psychological well-being. Furthermore, the effects of size of social network on psychological well-being were stronger for older persons who lived alone than for those who lived with a spouse or relatives. The results also show that persons who lived in the old urban areas received more support than did their counterparts in the new towns and older persons who lived in public housing received more objective informal support than those who lived in private housing. The implications of the findings for policy towards older persons in Hong Kong and similar Asia-Pacific societies are discussed.

Keywords
Informal social support, Older persons, Psychological well-being

Introduction

Social support has in recent years received considerable attention in social gerontology as well as other related disciplines, such as psychology, social policy, and social medicine. This is because social support has been seen as an important determinant of psychological well-being among older persons in Western and Chinese societies (Antonucci et al. 1996; Chi and Chou 2001; Consedine et al. 2004; Cummings 2003; Kohn et al. 2003; Siebert et al. 1999; Siu and Phillips 2002; George 2005; Chou and Chi 2005; Minnes and Woodford 2005; Wong et al. 2007). It appears to influence their...
quality of life and service demands, and older adults who are embedded in supportive social networks have been found to enjoy better physical and mental health than older persons who do not maintain meaningful ties with others (Carstensen 1991; Bosworth and Schaie 1997; Bajekal et al. 2004; Smith et al. 2004). Studies on mortality and morbidity provide especially compelling findings in this respect (Bowling and Grundy 1998; House et al. 1982; Krause 2001). From a classic study (Berkman and Syme 1979), it was noted that people who reported more social ties with friends and organizations lived up to 9 years longer than those who had no or fewer ties. Social supports received by older persons include supports from both formal and informal systems. This paper focuses principally on informal social support systems, that is those provided by nonofficial sources, stemming from family, friends, neighbors, and community.

Conceptualization of informal social support

Social support broadly speaking is support that is accessible to people through their social networks (Cavanaugh 1998). Social networks refer to the structural characteristics of an individual’s social relationships, including characteristics of the network, frequency of contact, and individuals’ satisfaction with their social contacts (Antonucci et al. 1996; Fiori et al. 2006). However, there is a lack of general consensus on how social support should be specifically defined (Schroevers et al. 2003). One useful way to conceptualize social support is that it has both qualitative (subjective) and quantitative (objective) aspects, structural and functional aspects, and social network-based and support-based aspects (Antonucci 1990).

The mechanisms explaining how social networks are formed and may change somewhat across the adult life span can be provided by socioemotional selectivity theory (Carstensen 1995). In this, Carstensen argues that social contact is motivated by a variety of goals, including information seeking, self-concept and emotional regulation, although emotional regulation appears to be the primary goal for older adults.

Antonucci (2001) has attempted to clarify the concepts of social networks and social support. Social networks refer to the objective characteristics that describe the people with whom an individual maintains interpersonal relations, whereas social support refers to the actual exchange of support. Antonucci suggests that there are several characteristics of social support exchanges, including the source of support (such as from family, friends, or neighbors) and satisfaction with the support received.

Informal social support in this paper focuses on most of these variables: size of social networks, frequency of contacts, and satisfaction with the support received from different sources of informal social support systems, including immediate family members, other relatives, friends, and neighbors. The terms informal social support(s), informal support, and social support are used interchangeably in this paper. Essentially, the article examines the impact of different types of social support, compares the objective/subjective aspects of social support, and considers different environmental or social circumstances moderating the impact.
Informal social support and psychological well-being among older persons

Research has generally supported the proposition that objective measures/quantity of social support (in terms of size of social network and frequency of contact) are related to health measures and hence to well-being of older persons. It appears that the larger the support network, the more care the older person will receive (Chou and Chi 2001b). Apart from objective measures, subjective measures of quality of social support (in terms of satisfaction of relationships) are also a good predictor of psychopathology (Chi and Chou 2001; DuPertuis et al. 2001). Indeed, subjective measures often account for more variance than actual support received for measures related to depression and psychological well-being (Antonucci et al. 1997; Chi and Chou 2001; Oxam et al. 1992; Smith 2001). Chou and Chi (2001a) examined a full range of measures of social support in a study relating to depression among older Chinese in Hong Kong. Variables included social network size, network composition, social contact frequency, satisfaction with social support, instrumental/emotional support, and helping others. The study found satisfaction with support, a subjective measure, is a more important a predictor of depression than other objective measures of network relationships.

Siu and Phillips (2002) also demonstrated that subjective measures of social support, including family quality and perceived importance of friendship, are important predictors of psychological well-being among older women in Hong Kong.

One area that researchers have tended to ignore is the relationships, or specifically, the interactions between quantitative and qualitative measures and their consequences. Research on negative interaction (Finch et al. 1997) reveals that the quality of the exchange is just as important, if not more important, than the mere presence of the caretakers.

Social support and household circumstances

The living arrangements of older persons also clearly have the potential to impact the quality and quantity of social supports. Adams and Bliezner (1995) suggest that individuals living alone are likely to be dependent on friends and neighbors to create family-like relationships, especially in emergencies (such as widowhood or retirement). Seeman and Berkman (1988) reported those living without their spouse relied on family members as a source of instrumental support and friends as sources of emotional support. In Hong Kong, Ng et al. (2002) found that older persons who lived separately from their children seemed to receive the poorest social support, while older persons living with children seemed to receive the best social support from adult children. Yet, there were 208 reported cases of elder abuse in 2004 (The Emergence of a New Giant in Geriatrics—Elder Abuse).

Type of living environment and housing characteristics may also affect older persons’ quality and quantity of social supports. Social support may work as a coping resource that can perhaps ‘buffer’ the adverse effects of environmental stressors. For instance, individuals with high levels of perceived social support have been found to be more resistant to the adverse psychological effects of environmental stressors than individuals with lower levels of perceived support (Cohen and Wills
1985; Lepore et al. 1992). It has also been found that an older person’s length of residence rather than the homogeneity of the living situation may be strongly related to extensive social ties and informal helping networks, specifically with friends and neighbors (Hooyman and Kiyak 2005).

Siu and Wong (2001) found that older adults in Hong Kong living in private housing scored statistically higher on self-image and self-esteem than persons living in restricted size bed-spaces (sometimes called ‘caged housing’), and those living in ‘caged housing’ received less social support than those living in private housing. These studies imply that housing types and living arrangements interact in their effects on self-esteem, which in turn possibly impacts psychological well-being.

The Present Study

As in many Western world countries, people in much of the Asia-Pacific and in Hong Kong in particular today are living longer than in previous generations (Phillips 2000). Life expectancy at birth of Hong Kong’s citizens has increased since 1981 from 72.3 years for males and 78.5 years for females to 78.9 and 84.5 for males and females, respectively, by 2006 (Census and Statistics Department 2007). Demographic ageing of Hong Kong and many other countries in the region has been particularly affected by low fertility, which in Hong Kong in 2004 reached a record low total fertility rate of 0.9. In terms of geographical concentration of its older population, there is spatial variation of ageing with more older persons living in metropolitan area districts than in other districts. The percentage of older persons in established metropolitan areas was 1.3 percentage points higher than that of the total population, whereas the percentage of older persons in the more rural new town areas in the New Territories was 2.5 percentage points lower compared to the total population (Yeh 1999). The main concern is that the environments in the densely populated older metropolitan areas are worse for older persons, especially the low-income groups, than the newer rural areas. It is likely to be important to look for predictors of psychological well-being among older persons, as this factor is proposed as a major component of successful ageing and engagement. Successful and active ageing are, today, major policy objectives of both the national governments and the WHO (WHO 2002).

It may be expected that the role of social support might be greater in countries outside North America and Europe, especially in the Asia-Pacific, where support from older persons’ social ties (usually their immediate family members or next of kin) are considered to be based on filial obligations and traditional values (notably the concept of filial piety, or reciprocal intergenerational duties). In many Asian countries, informal social support is all that older persons receive, since formal supports organized by official and quasi-official social services are either not in place or are insufficient in quantity or quality (Choi 2000; Ng et al. 2002).

In the past, the traditional value of filial piety secured most Hong Kong’s older persons caretaking needs. Today, the modernization of many Asian countries (including Hong Kong) have eroded filial
piety beliefs (Cheng and Chan 2006). This is coupled with housing pressures brought about partially by rapid population growth and the influx of migrants since the 1960s and, more recently, from family fragmentation resulting from migration and emigration for economic and other reasons. It is therefore not unusual for many older persons to be living by themselves, and the trend is now for multi-generational families to be a rarity rather than the norm. A considerable proportion of older persons in Hong Kong have been displaced to new town areas, sometimes at a distance from their families and relatives, and often away from their established networks of social support. This raises the possibility of some older persons having to rely on new sources of social support that are more readily available or accessible. This might alter the dynamics between older persons and support providers from one that is obligatory (based on traditional values such as filial piety) to one that is based on the exchange of favors (for example, from friends and neighbors) or from formalized official welfare services.

There has been little work linking housing districts, housing types, and living arrangements with social support and psychological well-being in Chinese societies. This paper aims to identify the importance or the effectiveness of various types of social support on older persons’ psychological well-being. Another aim is to report the effects of objective aspects of social support (such as size of social network and frequency of contact) and subjective aspects (satisfaction with the support received) on psychological well-being of older occupants in different household circumstances (old urban/new town districts, private/public housing types, living alone/living with spouse or relatives). This study extends the work of Siu and Phillips (2002), which only drew on a small sample of older women in Hong Kong and used closed questions for objectively measuring sizes of social networks.

Based on a review of the literature, the following hypotheses were proposed:

H1a: Size of social network from different sources (including family members, relatives, friends, and neighbors) will be positively related to the psychological well-being of older persons.

H1b: Frequency of contact with different sources (including family members, relatives, friends, and neighbors) will be positively related to the psychological well-being of older persons.

H1c: Satisfaction with the support received from different sources (including family members, relatives, friends, and neighbors) will be positively related to the psychological well-being of older persons. Subjective appraisals of life situations (such as satisfaction with exchanges with caretakers) provide a powerful remedy for any actual or objective adversities. With this in mind, the authors expected that lack of support (i.e., low frequency of interaction) would be minimized if the quality of the exchange were to be positively appraised.

H2: When “frequency of interaction” (or FREQ) is high, psychological well-being should be unaffected across levels of “satisfaction with interaction” (QUAL). But, when FREQ is low, well-being should
vary such that FREQ moderates the negative effect of QUAL.

The authors expected that the effects of social networks on older persons' psychological well-being would differ for those in different living arrangements. In particular, people living alone (compared to those living with spouse or relatives) would be likely to be in greater need of social support because their coping resources are more limited or could almost be depleted. Therefore, the impact of support on well-being will be more apparent.

H3
The impact of living arrangements affects older persons' psychological well-being.

H4
The impact of social support (including size of network, frequency and quality of support) on older persons' psychological well-being varies across types of living conditions (i.e., living alone, with spouse or relatives).

Based on the findings of Siu and Wong (2001), older persons living in private housing would appear to receive more social support compared to older persons in public housing. Older persons living in public housing would have more chances of social interactions with neighbors and friends in their neighborhood and, therefore, would develop more social ties.

H5
The type of housing (public as oppose to private) affects the impact social support has on older persons' psychological well-being.

H6
There are differences in social support received by older persons living in private housing and public housing.

Methods

Participants and procedures: an areal sampling framework

A total of 518 respondents participated in a face-to-face survey (see Phillips et al. 2004, 2005). Male and female respondents comprised 43 and 57% of the total sample respectively. Over 57% of the respondents were married, living with spouse, and 32% were widowed. Not unexpected in the current older generation in Hong Kong, almost 28% were illiterate. About 33% of the sample had completed elementary education. With regard to living arrangements, 21, 35, and 44%, respectively, lived alone, lived with their spouse, and lived with relatives. The sample was almost evenly divided in housing tenure terms, as 53% lived in public housing and 47% in private housing2.

Participants were initially identified by a four-stage quota areal sampling method (Yeh 1999), which enabled a stratification and typology of urban sub-areas to be devised in the absence of population lists to provide information on age of residents. The study restricted itself principally to the lower income groups who currently comprise the majority of Hong Kong's older population and for whom there is less choice of where and how to live than the better off. Initially, four general areas
(two in old urban areas and two in new towns3) with high concentrations of low-income population, overcrowded households, and high concentrations of older people were identified by using a geographic information system (GIS). In terms of overall distribution of its elderly population, as noted earlier, Hong Kong tends to have more older persons living in metropolitan area districts than in other districts (Phillips and Yeh 1999).

Using the 2001 Hong Kong Population Census4 as the source of socio-economic data, large street blocks of the whole of Hong Kong were classified and mapped with the geographic information system (GIS) software, ArcView, based on three criteria—low-income, over-crowdedness and percentage of older persons. The definitions were based on large street blocks with a high concentration of low-income households5, i.e., those with percentages of monthly domestic household incomes of less than HK$9,999 (US$1,280) that were higher than the Hong Kong average of 24.03%. Overcrowdedness was defined as large street blocks with percentages of domestic households with main tenants, sub-tenants and co-tenants higher than the Hong Kong average of 3.58%. High concentrations of elderly population were defined as those large street blocks with percentages of population aged over 60 years old that were higher than the Hong Kong average of 11.13%. The analysis produced four clusters of such areas, two in the old urban areas (Sham Shui Po and Kwun Tong) and two in the new towns (Tuen Mun and Tai Po), with elderly services nearby (see footnote 1).

A second stage of the areal sampling frame involved identifying four sub-areas within each of the four selected general areas, which would become the small-scale survey sites where the researchers could be fairly confident of finding the types of respondents required. Therefore, within the two principal sites in the old urban areas (Sham Shui Po and Kwun Tong) and the two in the new towns (Tuen Mun and Tai Po), four sub-areas would be selected as areal targets for the survey. They were selected according to housing type and age of building. In this case, housing type refers to public and private housing, a clearly understood local distinction. Public housing is provided at low rental by the government’s housing scheme and is basically for low-income citizens6. Older buildings were those built over 30 years ago and those built from 5 to 10 years ago were classified as “new buildings”7, 8. Overlaying these two selection criteria refined the selection according to sub-areas, with old or new public housing and old or new private housing. This provided a framework for sampling of 16 different research sub-areas in total.

For each of the 16 selected research areas, detailed maps showing the outline of street blocks/housing estates were prepared. Interviewers were recruited and trained to conduct face-to-face interviews with about 30 respondents each. Respondents were selected by a sampling method based on specific buildings within the areas. Once a building was selected, the interviewers would select the residence by choosing the second unit on every fifth floor (5th, 10th, 15th, floors, etc.). If the selected apartment did not have a target respondent (age 60 or above) or no-one responded, the interviewers would proceed next door. To ensure the data reflected an even distribution of residents living within a given region, each building or living block within a region was allocated two successfully completed
respondents. On filling this quota, the interviewers moved to another building within the selected general area. The total of 518 respondents represented an overall response rate of 59%, considered acceptable with this age and income group.

**Measures**

**Social support**

The present study used three measures of social support: self-reported size of support network within which respondents are in regular contact (SIZE), frequency of contact with the support network (FREQ), and satisfaction with the support network (QUAL). These are composite measures. For SIZE, respondents were asked the number of people from family members, relatives, friends, and neighbors with whom they were in regular contact. For FREQ, the respondents declared the regularity of their contact with family members, relatives, friends, and neighbors from (1) never, (2) once a year, (3) once a month, (4) once a week, and (5) everyday. For QUAL, respondent’s satisfaction with support received from each support source (i.e., family members, relatives, friends, and neighbors) was assessed using a 5-point Likert scale that ranged from 1 for “very dissatisfied” to 5 for “very satisfied”.

**Psychological well-being**

The concept of psychological well-being is now increasingly recognised and is sometimes referred to as “subjective well-being” (Diener 1984; George 1981; Phillips et al. 2005). There can be different antecedents for positive and negative psychological well-being (Bradburn 1969; Lawton 1983), which was reflected in this study as we included measures of “positive” and “negative” affective states. A measure of psychological well-being was derived from five items extracted from the WHO brief QOL [World Health Organization Quality of Life (WHOQoL) Group 1998]. Four items measured positive affect, and one item measured negative affect.

A decision was made to use an even shorter version of the WHOQoL based on academic and pragmatic reasons because, as mentioned earlier, illiteracy is a prevalent characteristic of this cohort of older persons in Hong Kong, reflecting their generally low education. The original WHOQoL consisted of 8 domains with 24 facets (WHOQoL Group 1998), in which the psychological domain measured five facets: “positive feelings,” “thinking, learning, memory, and concentration,” “self-esteem,” “bodily image and appearance,” and “negative feelings,” and each facet was operationalized by four measurement items. The shortened version of the WHOQoL, translated and tested in Hong Kong by Leung et al. (1997), was used in the pilot test of the study. One item from each of the facets in the shortened version was extracted, with the final shortened scale mirroring the facets of the original WHOQoL structure noted above. Respondents in the pilot group completed both the version of Leung et al. (1997) and the “shorter version.” A t test revealed no significant differences between the two versions of WHOQoL. Each item was scored from very often (5) to
never (1). Scores on negative affect were recoded, and a summation of scores of the five items measured psychological well-being, abbreviated as PWB. The Cronbach’s alpha of this scale was 0.77. The 5-item proxy for the WHOQoL of Leung et al. (1997) is therefore an attempt to balance detail and the practical aspects of surveying local older people in a reasonably acceptable time to reduce fatigue among respondents.

Following the suggestions of Brown (1997) and Burnette and Mui (1994, 1996), demographic variables were also included so that the measures were not confounded by any demographic influences. These variables included districts (old urban areas versus new towns), housing types (public versus private housing), age, marital status, education, living arrangements and income, life stressors, activities daily living (ADL) and self-reported health status. Living arrangements will later form an independent variable for some of the regression analyses.

### Table 1 Descriptive Statistics and Intercorrelations Between Types of Social Support and Psychological Well-Being

<table>
<thead>
<tr>
<th>Composite measures of social support</th>
<th>N</th>
<th>PWB</th>
<th>SIZE</th>
<th>FREQ</th>
<th>QUAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>pwb</td>
<td>518</td>
<td>3.62 (0.59)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>size</td>
<td>498</td>
<td>0.28***</td>
<td>13.10 (11.84)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>freq</td>
<td>510</td>
<td>0.05</td>
<td>0.10*</td>
<td>2.42 (0.84)</td>
<td></td>
</tr>
<tr>
<td>qual</td>
<td>513</td>
<td>0.12**</td>
<td>−0.20***</td>
<td>−0.42***</td>
<td>4.60 (0.84)</td>
</tr>
</tbody>
</table>

**SIZE**, perceived size of social network; **FREQ**, frequency of contact; **QUAL**, satisfaction of support received; **PWB**, psychological well-being

* *−p<0.05
** **−p<0.01
*** ***−p<0.001

### Results

Tables 1 and 2 show descriptive statistics and correlations among main variables. Psychological well-being (PWB) is correlated to measures of social support—in particular, SIZE and QUAL ($r = 0.28$ and $0.12$, $p < 0.001$ and 0.01 respectively). The frequency of interaction with support network (i.e., family, relatives, friends, or neighbors) was not related to PWB. Among the inter-correlations between the social support measures, satisfaction with interaction (or QUAL) was negatively related to SIZE and FREQ ($r = −0.20$ and $−0.42$, $p < 0.001$). The results were consistent with research on “negative interaction” in that the perceived size of support network and frequency of interaction did not ensure positive appraisal of the quality of interaction.
In computing the correlation coefficients of the relationship between psychological well-being and each type of social support, we found family-related supports (i.e., SIZE-Family/FREQ-Family/QUAL-Family) were significantly related to PWB ($r = 0.11, 0.11, \text{and } 0.22; p < 0.05, 0.05, \text{and } 0.001$, respectively; see Table 2). Network size (or SIZE) for friends and neighbors are also
significantly correlated to PWB.

Hierarchical Regressions

To test the hypotheses, a series of hierarchical regressions were conducted. In the multi-level regression model, demographic variables were dummy coded and entered at the first step. Social support variables that are not assessed were entered at the second stage, along with the interaction terms. The variable to be assessed is entered in the third step. All the variables were centered in accord to suggestions by Aiken and West (1991) and Cohen et al. (2003).

The beta values for each measure of social supports are as follows: SIZE ($\beta = 0.26$, $\Delta F = 29.35$, df = 1, 427, $p < 0.0001$), FREQ ($\beta = 0.12$, $\Delta F = 5.42$, df = 1, 427, $p < 0.05$), and QUAL ($\beta = 0.15$, $\Delta F = 7.07$, df = 1, 427, $p < 0.001$). Based on the results, $H_{1a}$, $H_{1b}$, and $H_{1c}$ are supported (see Tables 3 and 4).

<table>
<thead>
<tr>
<th>Predictors</th>
<th>B</th>
<th>SE (B)</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Demographics</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>2. FREQ</td>
<td>0.59</td>
<td>0.26</td>
</tr>
<tr>
<td></td>
<td>3. QUAL</td>
<td>0.71</td>
<td>0.27</td>
</tr>
<tr>
<td></td>
<td>1×2</td>
<td>0.46</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td>1×3</td>
<td>0.51</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>2×3</td>
<td>−0.61</td>
<td>0.28</td>
</tr>
<tr>
<td>Step 3</td>
<td>1. SIZE</td>
<td>2.92</td>
<td>0.54</td>
</tr>
</tbody>
</table>

| Step 1     | Demographics | n/a    |         |
| Step 2     | 1. SIZE    | 2.92   | 0.54    | 0.26***|
|            | 3. QUAL    | 0.71   | 0.27    | 0.15***|
|            | 1×2        | 0.46   | 0.67    | 0.04   |
|            | 1×3        | 0.51   | 0.7     | 0.04   |
|            | 2×3        | −0.61  | 0.28    | −0.11* |
| Step 3     | 2. FREQ    | 0.59   | 0.26    | 0.12*  |

| Step 1     | Demographics | n/a    |         |
| Step 2     | 1. SIZE    | 2.92   | 0.54    | 0.26   |
|            | 2. FREQ    | 0.59   | 0.26    | 0.12   |
|            | 1×2        | 0.46   | 0.67    | 0.04   |
|            | 1×3        | 0.51   | 0.7     | 0.04   |
|            | 2×3        | −0.61  | 0.28    | −0.11* |
| Step 3     | 3. QUAL    | 0.71   | 0.27    | 0.15** |

Demographic variable it is a composite of gender, education, age and related variables. Beta coefficients is not provided.

SIZE, perceived size of social network; FREQ, frequency of contact; QUAL, satisfaction of support received; PWB, psychological well-being.

* $p<0.05$

** $p<0.01$

*** $p<0.001$
The regression analysis indicated that the interaction between frequency of support and satisfaction with support (i.e., FREQ × QUAL) was significant ($\beta = -0.10$, $\Delta F = 4.39$, $df = 1$, $429$, $p < 0.05$). Graphically, Fig. 1 illustrates that older persons who received high incidence of supports (i.e., FREQ) were relatively unaffected by the satisfaction with supports received. On the other hand, when frequency of supports was rarer, older people’s psychological well-being was strongly tied to satisfaction with supports received. This result supports H$_2$.

**By Living Arrangement**

To test H$_3$, the dummy variable of living arrangement was entered in step 3 of the above regression model. The results show an insignificant effect of living arrangement on the dependent variable ($\Delta R^2 = 0.01$, $\Delta F = 1.20$, $df = 3$, $427$, $p = 0.31$). The beta value for the various living arrangements are as follows: older persons living alone ($\beta = -0.1$, $p = 0.13$); older persons living with spouse ($\beta = -0.02$, $p = 0.72$); older persons living with relatives ($\beta = 0.01$, $p = 0.85$). It follows that H$_3$ is not supported.

To test H$_4$, a regression model placed the interaction term at the final stage of the regression steps—that is, living arrangement and social support. The nominal variable of living arrangement is dummy coded in the analysis. The results showed that there are no significant interactions between the different types of social support and living arrangements. It follows that H$_4$ is not supported.

**MANCOVA**

A multivariate analysis of covariance (MANCOVA) was used to test hypothesis 5 and 6 (H$_5$ and H$_6$). Dependent variables included network size of support, frequency of support and satisfaction with support (i.e., SIZE, FREQ, and QUAL). Covariates included demographic variables such as age, education, gender, income, marital status, and self-rated health condition.

There appears to be no interaction effect between the different measures of social support and
housing type (HT) on older persons’ psychological well-being. The interaction terms entered at the final stage of the regression model revealed that: $R^2 = 0.001, 0.001,$ and $0.0001; \Delta F = 0.05, 1.21,$ and $0.03; p = 0.82, 0.27,$ and $0.86,$ respectively, for $\text{SIZE} \times \text{HT}, \text{FREQ} \times \text{HT}$ and $\text{QUAL} \times \text{HT}.$ The results support $H_5$.

A Box-test for the dependent variables failed to reject the null hypothesis ($\text{Box’s M} = 8.13; F = 1.35, p = 0.23$). This, along with the multivariate test, indicates there is a significant difference between older people in public and private housing despite the covariations that exist among the dependent variables. The multivariate test indicated significant differences between older people living in public and private housing ($\text{Wilks’s Lambda: } \lambda = 3.58; p < 0.05; \text{Pillai’s Trace} = 3.58; p < 0.05$). Levene’s test of heteroscedasticity showed that all the dependent variables met the assumption of the equality of covariance ($F = 0.24, 0.001,$ and $0.18; p = 0.63, 0.99,$ and $0.67$ for $\text{SIZE}, \text{FREQ},$ and $\text{QUAL},$ respectively). Tests of between-subjects effects indicated two significant differences: (a) that older persons in public housing have a significantly larger support network compared to older people in private housing and (b) older persons in private housing have greater satisfaction with support compared to older people in public housing ($F = 5.09$ and $7.11, p < 0.05$ and $0.01,$ respectively; see Tables 5, 6, and 7). The results support $H_6$.

**Table 5** Differences in Social Support Received Between Older Persons Living in Different Districts and Different Housing Types

<table>
<thead>
<tr>
<th>Housing type</th>
<th>Types of social support</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public housing</td>
<td>SIZE</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>FREQ</td>
<td>2.49</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td>QUAL</td>
<td>4.48</td>
<td>0.83</td>
</tr>
<tr>
<td>Private housing</td>
<td>SIZE</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>FREQ</td>
<td>2.35</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td>QUAL</td>
<td>4.74</td>
<td>0.83</td>
</tr>
</tbody>
</table>

**Table 6** Levene’s Test of Equality of Error Variances for Housing Type

<table>
<thead>
<tr>
<th></th>
<th>$F$</th>
<th>$df_1$</th>
<th>$df_2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE</td>
<td>0.23</td>
<td>1</td>
<td>479</td>
<td>0.63</td>
</tr>
<tr>
<td>FREQ</td>
<td>0.00</td>
<td>1</td>
<td>479</td>
<td>1.00</td>
</tr>
<tr>
<td>QUAL</td>
<td>0.18</td>
<td>1</td>
<td>479</td>
<td>0.67</td>
</tr>
</tbody>
</table>
Discussion

One aim of this study was to identify the impact of various types of informal social support on older persons’ well-being. The results suggest that both objective and subjective measures of social support are related to psychological well-being of older persons. These results corroborate previous findings (Chou and Chi 2001b; Chi and Chou 2001). We found that size of supporting network has greater impact than frequency and quality of support. Krause (2001) argued that perceived availability of support, as measured by self-reported size of support network in the present study, may enhance feelings of independence among support recipients and reduce feelings of burden among caregivers. On this basis, older persons should be encouraged to increase and maintain their size of support networks by keeping within arms reach of family members, relatives, friends, and neighbors.

Since the regression analysis did not single out any particular means of support when we regressed psychological well-being, it is not certain how different sources of support (i.e., family, relatives, and friends) affect the outcome measure. These results suggest that psychological well-being of older persons could be enhanced through different sources within their social networks. Although it has been reiterated in the literature that the traditional Asian and Chinese value of filial piety still exists (Ho 1996; Hashimoto and Ikels 2005), older persons in Hong Kong seem most unlikely to rely solely on their kin nowadays. Perhaps, as found in recent studies, filial piety has undergone a re-definition (Ng et al. 2002). Indeed, Cheng and Chan 2006 have found ‘respect’ to be an important predictor of psychological well-being more than other aspects of filial piety.

The results from the correlation in Table 2 show that satisfaction with support provided by family members was singled out as the most important correlate of psychological well-being in our context. It appears that the role of family members contributes far more importantly to well-being compared to other social network members. This is consistent with previous studies (Chou and Chi 2001a; Siu and Phillips 2002).

The results also provide support for Lawton et al.’s (1999) “dual-channel” hypothesis in that both subjective (i.e., SIZE & QUAL) and objective (FREQ) measures capture aspects related to positive

### Table 7 Tests of Between-Subjects Effects for Housing Type

<table>
<thead>
<tr>
<th>Source</th>
<th>Dependent variable</th>
<th>Sum of squares</th>
<th>Adjusted $R^2$</th>
<th>df</th>
<th>Mean square</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested model</td>
<td>SIZE</td>
<td>0.64</td>
<td>0.01</td>
<td>1</td>
<td>0.64</td>
<td>5.09</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>FREQ</td>
<td>2.30</td>
<td>0.01</td>
<td>1</td>
<td>2.30</td>
<td>3.29</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td>QUAL</td>
<td>4.84</td>
<td>0.01</td>
<td>1</td>
<td>4.84</td>
<td>7.11</td>
<td>0.01</td>
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<td>Error</td>
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<td>479</td>
<td>0.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FREQ</td>
<td>335.91</td>
<td>479</td>
<td>0.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>QUAL</td>
<td>326.06</td>
<td>479</td>
<td>0.68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>SIZE</td>
<td>60.79</td>
<td>481</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FREQ</td>
<td>338.23</td>
<td>481</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>QUAL</td>
<td>313.18</td>
<td>481</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The interaction between the frequency of support (FREQ) and satisfaction with support (QUAL)—irrespective of source of support—provided empirical evidence that older persons’ quality of life (i.e., psychological well-being and residential satisfaction) was affected by subjective factors but only under certain objective conditions.

Another objective of the present study was to report the effects of objective measures (size of social network and frequency of contact) and subjective measures (satisfaction with the support received) in different household circumstances (people living alone, with spouse or relatives, or in private/public housing). The results indicate that type of living arrangement is not linked to well-being, nor does it moderate the relationship between social support and well-being. A similar finding reappears for housing types when public and private housing establishments are compared.

The finding for housing type is interesting and speculative. That is, the lower socio-economic cohort in public housing has greater social support network in terms of size. Yet, it is the people from the lower-middle class in private housing that appear to blossom from the social exchange.

The implications of these findings are interesting in social policy terms. They suggest that, to enhance well-being, more people (including family members, relatives, friends, and neighbors) should pay more visits to older persons who live in public housing while at the same time investing in achieving quality exchange during each supportive episode.

To conclude, the present study provides empirical evidence and adds to the research literature showing the positive beneficial roles of social support on psychological well-being of older persons. The results of the current study are potentially useful for policy makers in enhancing social support for older persons in Hong Kong or in other similar Asian-Pacific cultures (Phillips and Chan 2002). Governments can take a proactive role in assisting interventions to strengthen or even build social support networks for the older population. Advice and guidance can be suggested for caregivers and town planners (including private sector developers) in providing the environments to enable objective and subjective social support to older persons. This could include building the resources of the local community to strengthen existing ties. This may in turn enhance the psychological well-being and quality of life of older persons, and the returns to the community will be a healthier and happier older population and their families.

One limitation to the current study lies in the question of generalizability of findings. The target sample was chosen from the poorer strata of Hong Kong society, so the inferences drawn concerning the psychological well-being of the older population will relate principally to people from the lower socio-economic status groups. Therefore, the findings may not be directly generalized to older persons from the middle class or those in better living environments. Future research is therefore needed to replicate the study with a broader population. In addition, research could be directed to the effect of social support in times of illness, relocation, or re-adjustment, but this would require longitudinal perspectives on the consequence of social support. Ultimately, the outcome of such research efforts can point the need to strengthen formal support when informal supports are lacking or unavailable.
Acknowledgement

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References


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Footnotes
1 Hong Kong comprises the New Territories and the main urban areas of Hong Kong Island, Kowloon, and New Kowloon. In the past, most urban development was concentrated in the main urban areas, which are now effectively the old urban areas of the city. New towns were first developed in the former rural areas of the New Territories in the 1950s with another six being developed from the late 1970s. There are at present eight new towns (Phillips and Yeh 1987; Yeh 2003).
2 A detailed breakdown of relevant descriptives are shown in full in Phillips et al. (2005).
3 The two old urban areas are Sham Shui Po and Kwun Tong in New Kowloon, and the two new towns are Tuen Mun and Tai Po in the New Territories.
4 The census data were stored on CD-ROM for analysis at the Centre of Urban Planning and Environmental Management, The University of Hong Kong.
5 According to the Hong Kong Census 2001, the average monthly income from main employment of the working population was just under HKD$10,000 (Census and Statistics Department, Hong Kong 2001).
6 Low income here is not the same as the sampling criteria.
7 New and Old here are different from new town and old urban areas in first stage sampling procedure.
8 Buildings less than 5 years old were not used in the study as it was felt that residents might still be experiencing adjustment issues which could distort the perception of the respondents of the environment. It was felt that a period of five years or more was reasonable for residents to have adjusted to a new environment, even if they were new to the area, such as moving from the old urban areas to the new towns under the various urban renewal programmes of the Hong Kong government.
9 This included: districts, housing type, gender, age, marital status, education, and income
10 For instance, if SIZE was being tested, the variables in the previous step (prior to the demographic variables at the first step) included FREQ, QUAL, SIZE × FREQ, and SIZE × QUAL.