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**Domestic Servants Assisting the Elderly in Singapore:  
Current Situation and Future Research Recommendations**

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This series of research reports deals with the status of the elderly in several Asian countries. It presents research that is being conducted under a broad project sponsored by the U.S. National Institute on Aging, the Comparative Study of the Elderly in Four Asian Countries (Grant No. AG07637). The goal is to measure the social, economic, and health characteristics of the older population (age 60 and above), to predict what changes may occur over the next decades and to suggest implications for public policy. The original countries involved in the study are the Philippines, Singapore, Taiwan, and Thailand. Reports on the elderly in other countries in Asia and on methods developed through the project using data from various countries may also be included in this report series.

Organizations collaborating in this research include: Population Studies and Training Center, Brown University; Population Institute, University of the Philippines; Department of Social Work and Psychology, National University of Singapore; Taiwan Provincial Institute of Family Planning; and Institute of Population Studies, Chulalongkorn University. For additional information about the comparative project, please contact the Principal Investigator: Albert I. Hermalin, Population Studies Center, University of Michigan, PO Box 1248, Ann Arbor MI 48106-1248 USA.

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**Domestic Servants Assisting the Elderly in Singapore:  
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Abstract:

In Singapore, as in several other countries in East and Southeast Asia, family members, especially women, have traditionally provided a good deal of the care and assistance for elderly family members at home. Singapore's rapidly aging population, together with high levels of female labor force participation, are creating a situation in which many families face increasing difficulties in balancing work in the formal labor force with household chores and providing care for both young and elderly dependents. Employing foreign domestic servants is one option available for meeting the care and housekeeping needs of the elderly. Using data from the 1995 National Survey of Senior Citizens in Singapore, this paper explores the use of maids by households in Singapore that have one or more elderly members and the use of maids as principal caregivers for the elderly. It concludes with recommendations for future research.

Dataset used:

National Survey of Senior Citizens: Singapore, 1995

Decreased mortality and fertility rates have led to rapid population aging in Singapore. The elderly persons aged 65 and older comprised 4.7 percent of the country's population in 1980 and 7.0 percent of the population in 1997. By 2030, projections indicate that approximately 18.4 percent of the country's population will be over the age of 65 (Inter-Ministerial Committee 1999). Moreover, an increasing proportion of the elderly will be over the age of 75 (Vasoo, Ngiam, and Cheung 2000).

Central to the concern with population aging is the issue of how best to provide care for the rapidly growing elderly population, especially the infirm or impaired elderly requiring regular assistance and personal care. In Singapore, care for the elderly has long been provided primarily by co-resident and other family members, especially women (including wives, daughters, and daughters-in-law) (Cheung and Vasoo 1992; Kua and Yong 1993; Mehta and Blake 1997; Chan 1997, 38). Data from the 1995 National Survey of Senior Citizens indicate that over 85 percent of elderly persons aged 60 and above co-resided with one or more of their children (Chan 1997, 42).<sup>1</sup> Qualitative evidence likewise indicates a continued strong preference for co-residence with children among elderly persons with one or more children (Mehta, Osman, and Lee 1995). But, as the country's economy has boomed, more and more Singapore women have entered the paid labor force and have remained there after marriage and child bearing, straining the ability of women and their families as they attempt to perform household chores and provide care for elderly and other dependent family members (Cheung and Vasoo 1992; Mason 1992; Vasoo et al. 2000). In the coming decades, as fertility continues to drop, most families will have fewer members to share in the responsibilities of providing care for the elderly. Moreover, decreases in mortality mean that an increasing share of the elderly will reach older old age, when they are more likely to experience frailty or health and functioning difficulties. Alternatives that help elderly persons to remain at home, either on their own or in co-residence with other family members, while receiving the care and assistance necessitated by their health and functioning status, will likely gain in importance as the country's population continues to age.

One potentially significant caregiving option available to Singapore and other countries around the world with rapidly expanding populations of elderly is the use of waged domestic

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<sup>1</sup>In the context of Singapore, cultural differences in family living arrangements among the three main ethnic groups may also be important. The Chinese, the majority group in the country with the highest average socio-economic status, tend to follow a patrilineal/patriarchal system family system (Mason 1992), with elderly more likely to reside with a son and to depend on sons for economic support. In contrast, the Malay and the Indians, most of whom are from Southern India, tend to follow a bilateral family system and may depend more on a fluid network of kin, giving the elderly more choices in terms of persons to rely on for support and assistance (Mason 1992). Data from the 1995 National Survey of Senior Citizens indicate that somewhat higher proportions of Chinese and Malays co-reside with at least one child (90 and 92 percent, respectively), in comparison to 80 percent of Indian Singaporean elderly. Chinese elderly are particularly likely to live with at least one son (72 percent), while only 62 percent of Malays and 59 percent of Indians live with at least one son. Malay elderly are more likely to live with at least one daughter--59 percent or them do so, in comparison to 42 percent of Chinese and 43 percent of Indians (Chan 1997; see also Mehta and Blake 1997).

servants. Domestic servants can provide personal care, house cleaning, and other types of assistance to the elderly, supplementing assistance provided by family members and/or other community-based services.<sup>2</sup> Drawing on data from Singapore's 1995 National Survey of Senior Citizens, this paper assesses (1) the use of domestic servants by households in Singapore that have one or more elderly members and (2) the use of domestic servants as principal caregivers<sup>3</sup> for the elderly. An exploration of the characteristics of the households in Singapore that employ maids and a comparison of households that employ maids as the principal caregiver of the elderly with those that employ other types of principal caregivers for elderly household members will help increase understanding of the future potential for using maids to provide care and other assistance for the elderly. The findings may prove relevant not only to Singapore, but also to other parts of Asia with rapidly aging populations, such as Hong Kong, Japan, and Taiwan.

### **Waged Domestic Service and Foreign Guest Workers in Singapore**

Even before the country's rapid industrialization, waged domestic service was a part of household production and reproduction in Singapore. The majority of middle- and upper-class households have long deemed domestic servants indispensable (Wong 1996). In the 1960s, the transformation of Singapore's economy began in earnest through the adoption of an export-oriented industrialization strategy, which soon drew young women who had formerly entered domestic service into the industrial sector to fill positions in newly opening electronics and textile factories. In 1977 the female labor force participation rate was 37.9 percent but was increasingly rapidly. By 1997, it had reached about 78 percent (Vasoo, Ngiam, and Cheung 2000, 182).

To meet demand for inexpensive domestic servants and to facilitate the entry of middle- and upper-class women into the paid labor force, in 1978 Singapore's government began permitting the recruitment of domestic servants from Thailand, Sri Lanka, and the Philippines (Cheng 1978). Over the past two decades or so, Singapore has relied on foreign workers to help fuel its economic growth. In 1997, the number of foreigners working in Singapore reached approximately 506,000, accounting for about 27 percent of the labor force, the highest proportion among the labor-importing countries in Asia (Hui 1998, 201).<sup>4</sup> The number of foreign maids employed in Singapore has also expanded rapidly, from an estimated 20,000 in 1987 to more

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<sup>2</sup>In the North American context, several researchers have found that formal services supplement rather than substitute for informal caregivers' involvement in providing care for the elderly (see, for example, Stoller [1989], Cantor[1989], Hanley and Wiener [1990], and Chappell and Blandford [1991]).

<sup>3</sup>As defined in the survey used here, the principal caregiver was the main person who looked after the elderly respondent and took care of his or her daily personal needs.

<sup>4</sup>This figure is estimated from the population figures and excludes those below 20 years old and those above 60 years old as well as unauthorized (illegal) workers not registered in the national census.

than 100,000 in 1995 (Yeoh, Huang, and Gonzalez 1999). This means that in 1995 there was one foreign maid for every eight households in the country (Wong 1996, 128).<sup>5</sup>

As more and more foreign workers have entered the country, the government of Singapore has pursued the goal of decreasing reliance on foreign labor by increasing automation and expanding the supply of native-born workers, primarily by improving the skills of the local workers and by attracting native-born women into the paid labor force and encouraging them to retain paid positions after marriage and child-bearing (Yeoh, Huang, and Gonzalez 1999). At the same time, the government has imposed rigorous controls over foreign maids and their employers, including monthly taxes (levies) on employers of foreign maids that nearly tripled from about U.S. \$56<sup>6</sup> per month in 1982 to U.S. \$202 in 1998, as well as a stringent allocation system based on household income and, for second maids, adequate justification in terms of the need for caregivers for children, invalids, or the elderly (Yeoh, Huang, and Gonzalez 1999). Employers of foreign maids are required to deposit a security bond of U.S. \$2,901 with the government, which is forfeited if the maid fails to comply with any of the conditions regulating her work permit, health, marital, or immigration status. Moreover, since March 1, 1997, employers have also been required to purchase a personal accident insurance policy worth at least U.S. \$5,802 for the maid, with benefits payable to the maid or her next-of-kin (Yeoh, Huang, and Gonzalez 1999).

Such policies clearly have increased the costs of employing foreign servants. Nonetheless, the absence of viable local substitutes in the domestic service labor pool, together with the government's goal of maintaining continued high rates of labor force participation by native-born women, mean that many middle- and upper-class Singapore families likely will continue to rely on foreign servants to help perform household chores and to provide care for dependents (Huang and Yeoh 1996). As the country's population continues to age and the need for caregiving assistance for the elderly expands, foreign maids likely will continue to fill many valuable roles in households with one or more elderly members, such as providing personal care or serving as principal caregivers for the elderly, assisting with household chores that some elderly persons may have trouble completing on their own, or relieving other co-resident family members of certain duties so that they, in turn, may provide personal care and assistance to elderly family members.

To date, only a handful of studies have acknowledged the role of foreign maids in caring for the elderly in Asia, and to my knowledge, none have focused specifically on that issue. For instance, Truong (1996) highlights the importance of foreign workers as 'reproductive labor,' which includes care-taking and the social maintenance of labor. She relates the increased involvement of foreign workers in reproductive labor to the gaps created by women's increased

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<sup>5</sup>This figure may overestimate the number of households with a foreign maid because many well-to-do households employ more than one maid. On the other hand, the figure may underestimate the number of households with a foreign maid because it excludes unauthorized (illegal) foreign maids.

<sup>6</sup>If a year is stated, currency conversions are based on the exchange rate for June of the stated year. If no year is stated, currency conversions are based on the exchange rate for January 2001.

participation in the paid labor force, the inflexibility of the sexual division of labor in the home, and the gaps between the needs of families and the ability and willingness of the state to provide adequate services for children and the elderly. In the context of Singapore, Mehta, Suan, and Joshi (1999) have found that maids comprised about nine percent of primary caregivers and 21 percent of secondary caregivers of confused, homebound elderly patients using services provided by the Hua Mei Mobile Clinic; unfortunately, they say little about the experiences of households employing those maids or the specific types of services maids provide for the elderly.

## **Research Approach**

This paper compares households in Singapore with one or more elderly persons in residence that employ maids with those that do not and identifies the central predictors of the use of maid service. In addition, for the sub-sample of households with a principal caregiver for the elderly person, it compares households that employ maids as principal caregivers and those that do not, and some predictors of the tendency to employ maids as principal caregivers. In many ways, the use of domestic workers to provide personal care or other types of assistance for elderly household members is similar to the use of formal (paid) home care, including home health nursing/assistance and homemaker services, by the elderly and disabled, a fairly common practice in some countries in North America and Western Europe. A review of this literature helps identify a set of demographic, socioeconomic, support network, and health factors that influence the use of formal home care for the elderly that may also influence the use of domestic servants in providing care and other assistance to the elderly and other household members.

Aday and Andersen (1974) have advanced a widely used theoretical framework for understanding the use of health services, including formal in-home care, by the elderly. This model contends that health service use is a consequence of factors that influence access to services, the individual's predisposition to use services, and the individual's perceived or diagnosed illness level. An adapted version of this model can be used to explore the use of maids in households with one or more elderly household members and the use of maids as principal caregivers for the elderly.

### *Enabling Characteristic*

Factors that influence access to services (enabling characteristics) are the means individuals have available to them to pay for formal health services. In general, economic factors such as higher income are positively associated with the use of formal home care (Branch et al. 1981; Kemper 1989; Liu, McBride, and Coughlin 1990; Hanley and Wiener 1991; Coughlin et al. 1992) because those with higher income have enhanced ability to pay for formal home care. It is expected that households with higher monthly household income will be more likely to use maid service and more likely to be able to afford to use a maid as a principal caregiver for the elderly household member.

### *Predisposing Characteristics—Individual Level*

Predisposing variables are mutable and immutable characteristics that exist prior to the onset of illness and include both individual and household level characteristics. On the individual level, several studies based in the U.S. have found that advanced age (Rowland 1989;

Soldo, Wolf, and Agree 1990; Hanley and Wiener 1991; Coughlin et al. 1992; Soldo 1993; Miner 1995; Netzer et al. 1997) and being female (Rowland 1989; Hanley and Wiener 1991; Coughlin et al. 1992; Miner 1995) are positively associated with using formal home care. I expect being female and older age to be positively associated with the dependent variables (use of maid service and use of maid as the principal caregiver).

As discussed earlier, employing maids in Singapore is a costly endeavor and thus is associated with higher socioeconomic status. Because of their generally higher socioeconomic status in Singapore, I expect ethnically Chinese respondents to be more likely to use maid service and to use maids as the principal caregiver. Similarly, higher educational attainment, which also reflects socioeconomic status, is expected to be positively associated with the dependent variables (McAuley and Arling 1984).

Finally, elderly respondents who are currently employed can be expected to have better health and functioning than their unemployed counterparts, which might mean that they would be more likely to be able to perform household chores and function independently, without the assistance of a maid.

#### *Predisposing Characteristics—Household Level*

Several household level characteristics can also be expected to predict the use of maid service and the use of a maid as the principal caregiver for the elderly. Households with more members are expected to be more likely to employ maids because of a greater need for household assistance. The direction of the relationship between the employment status of members of the household other than the elderly respondent and maid service is less clear. Households in which larger numbers of persons other than the elderly respondent are employed may be more likely to have maid service both because they are likely to be better able to afford to hire a maid and because they may have greater need of household assistance since more members are working outside of the home. On the other hand, a household may have a large number of household members working outside the home because of economic need, which would make them less likely to be able to afford to employ a maid.

The size and composition of the elderly person's social support network influences the availability of informal support and hence the tendency to use formal services. Living alone (Rowland 1989) increases the use of formal home care and is expected to be positively related to the use of maid service. In the U.S., having daughters reduces the use of formal home care (Hanley and Wiener 1991), as does living with a spouse (Coughlin et al. 1992) because daughters and spouses substitute for paid home care. Thus, it is expected that having co-resident daughter(s) [or daughter(s)-in-law]<sup>7</sup> and a co-resident spouse will be negatively associated with the use of maid service.

Because households with both younger and older aged dependents can be expected to generate greater demands on other household members for care, housework, and other forms of assistance, households with co-resident grandchildren or great-grandchildren are expected to be more likely to use maid service.

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<sup>7</sup>The data do not permit an exploration of whether it was daughter(s) or daughter(s)-in-law who were co-residing with the elderly respondent.

### *Need Characteristics*

Need characteristics of the elderly respondent include the individual's perceived or diagnosed health status and functional disability. The use of formal home care increases when the elderly person has been hospitalized in the previous year (Soldo 1983; Kemper 1989; Hanley and Wiener 1991; Coughlin et al. 1992; Netzer et al. 1997), has limitations with activities of daily living (ADLs) (Branch et al. 1981; Soldo 1983; McAuley and Arling 1984; Rowland 1989; Soldo, Wolf, and Agree 1990; Garber 1989; Hanley and Wiener 1991; Netzer et al. 1997), or has limitations with instrumental activities of daily living (IADLs) (Soldo 1983; Netzer et al. 1997). Cognitive impairment also increases the likelihood of using formal home care (Liu, McBride, and Coughlin 1990; Soldo 1983) and the amount of formal home care used (Hanley and Wiener 1991). It is expected that poor health, hospitalization in the past year, greater difficulty in performing ADLs and IADLs, and cognitive impairment will be positively associated with the use of maid service. Similarly, households employing maids as the principal caregiver for the elderly person are expected to have elderly persons with the worst health and lowest functioning levels, who are in need of more daily assistance and care.

Table 1 (attached) lists the expected direction of the relationship between the enabling, predisposing, and needs characteristics and the dependent variables, use of maid service and use of maid as the principal caregiver.

### **Data and Analytical Approach**

The analysis is based on data from the 1995 National Survey of Senior Citizens collected by the Department of Statistics in Singapore. The survey included only citizens residing in the community at the time of the interview and excluded those residing in institutions. A nationally representative sample of 8,000 households was drawn, including 4,000 households with at least one person between 55 and 74 years old, and 4,000 households with at least one person aged 75 or above. The survey had a 60 percent response rate, yielding a total sample size of 4,750. Seventy percent of the unsuccessful interviews were due to a failure to locate or contact the elderly respondent at the given address, and the remaining 30 percent were due to refusal (Ministry of Health et al. 1996, 6). To address the over-sampling of persons aged 75 and above in the study population, sample weights were constructed to weight the findings back to the actual age distribution in the population of Singapore at the time of the survey. Findings reported here are based on the weighted data.

Face-to-face interviews were conducted in the respondents native language (English, Mandarin, Chinese dialect, Malay, or Tamil). Information was collected on various topics, including social, economic, and demographic background of the elderly persons, their use of government facilities, sources of formal and familial support, and use of a principal caregiver (Ministry of Health et al., 1996). A short series of questions regarding principal caregivers was administered to the principal caregiver or the paymaster of the maid who served as the principal caregiver. If the principal caregiver or paymaster of the maid was not available at the time that the elderly respondent was being interviewed, he/she was interviewed at a later time by telephone. Table 2 shows the summary characteristics of the respondents in the sample.

While the National Survey of Senior Citizens is unique in enabling a preliminary examination of the use of maid service and the use of maids as principal caregivers by

households with one or more elderly members, its usefulness for this study is limited in a number of ways. Of particular concern to this study, the survey included no questions regarding the birthplace of maids employed in these households, thus it is impossible to discern whether or not the maids employed by survey households were foreign guest workers. However, the relatively low wages earned by domestic workers in Singapore, in conjunction with the large number of foreign maids in Singapore, makes it likely that the vast majority of maids employed by households in the survey were foreign-born. Also, survey questions did not adequately address the issue of the use of maids who are not living in the household of the elderly person but still provide care or other assistance for elderly or other household members (see discussion in the next paragraph). Because of the broad definition of the study population (aged 55 and above), a very large proportion of elderly respondents were in the younger age ranges and presumably sufficiently independent so as not to require a principal caregiver, limiting the number of cases available for comparison of households' use of a maids as principal caregivers versus other types of the principal caregivers. Finally, the survey combines categories of care providers (e.g. son/daughter-in-law, married children and their spouses, and so on), making it difficult to discern exactly which household member is co-residing with the elderly or providing a particular type of care or service for the elderly. Nonetheless, the survey provides sufficient data to permit a preliminary exploration of the research questions.

In the first part of the analysis, I compare households with one or more elderly members that used the services of maids (mainly live-in) and those that do not use the services of maids. Households employing a maid may or may not use that maid as the principal caregiver for the elderly person. Generally, it would be expected that maids perform some duties that would be of assistance to elderly household members (e.g. shopping, cooking, cleaning, and so on), even if the maid does not serve as the principal caregiver for the elderly person. In addition, the maid may relieve other household members of certain household and/or child care duties so that the household member can provide personal care and assistance to the elderly household member. For this section, I employ the entire study population ( $n = 4,750$ ). The dependent variable is whether or not a household had maid service. This variable was based primarily on a question on household membership that asked whether or not there was a maid resident in the household; in addition, four other households with maid service were identified through a second series of questions on the use of a principal caregiver that asked if there was a principal caregiver for the elderly respondent, and if so, who that person was (spouse, daughter, son, daughter/son-in law, grandchild, relative, friend, grandchild, maid, or other). These are included among the 267 households in the unweighted sample that reported having maid service.

In the second part of the data analysis, I turn my attention on the households employing a principal caregiver (345 households in the unweighted sample). The main dependent variable in this section is based on the series of questions on the use of a principal caregiver mentioned above, with households reporting using principal caregivers other than maids combined into one category and those using a maid as the principal caregiver combined in the other category.

In general, the coding of independent variables is relatively straightforward and is shown in Table 2. A few composite variables require further explanation. A variable was constructed to represent the elderly respondents' overall status on a series of four chronic health conditions (heart condition, cancer, diabetes, and stroke) based on a survey question that asked if respondents were currently receiving regular treatment from a doctor for a long-standing illness,

and if so, for which illnesses. As a result of the wording of the question, the variable likely under-represents the incidence of chronic illnesses among the elderly population.

Another variable was constructed to represent elderly respondents' status on a total of eight debilitating conditions (high blood pressure, long-standing breathlessness, arthritis, broken bones, other non-chronic illnesses, poor vision, poor hearing, and incontinence). All of the component dummy variables for this variable except for poor vision, poor hearing, and incontinence were based on the same series of questions used to assess chronic health conditions, thus, only debilitating illnesses for which the respondent was currently receiving regular treatment from a doctor were reported. For this reason the variable likely under-represents the incidence of debilitating conditions among the elderly population.

The survey employed the Elderly Cognitive Assessment Questionnaire (ECAQ) to assess cognitive impairment among the elderly.<sup>8</sup> Respondents' were asked, in the following order, to repeat a four-digit number, state their age, birthday or year, the day of the week, the date (day, month, and year), the part of the house where the interview was taking place, to correctly identify the interviewer, and to recall the initial four-digit number. Total cognitive functioning scores range from 0 questions correct (low cognitive functioning) to 10 questions correct (normal cognitive functioning).

Respondents' level of functioning with ADLs was assessed with a series of questions regarding mobility status, feeding ability, toileting, personal grooming and bathing (the latter two items were assessed with the same question). Interviewer observation and questioning the respondents and their family members were used to ascertain whether the respondent could perform the ADLs independently or only with partial or full assistance. Those who required partial or full assistance to perform a given activity were considered to lack independence in that activity. The composite variable used in the analysis summarizes the respondent's lack of independence in all four activities.

Respondents' level of functioning with IADLs was assessed with a series of questions regarding respondents ability to perform several tasks (housecleaning, laundry, meal preparation, taking medications, using the telephone, using public transportation, shopping, and performing minor repairs). The variable employed in the analysis sums the total number of IADLs which the respondent reported being unable to perform.

The dependent variable for Tables 5 and 6 is based on a series of questions asked either of the person who served as the principal caregiver of the elderly person or, if a maid was the principal caregiver of the elderly person, of the person who paid the maid (paymaster). In Table 6, the variable on the percent of respondents reporting a given caregiving function as among the top three provided by the main caregiver to the elderly person is based on a combination of three separate questions asking about the most important caregiving functions provided to the elderly person by the main caregiver. The questions clearly failed to capture the full range of caregiving functions that the principal caregiver was providing to the elderly person. Moreover, because the caregiving functions performed by the maid were assessed by the paymaster, not by the elderly

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<sup>8</sup>The ECAQ is a 10-item scale which is believed to be particularly appropriate in developing countries where large segments of the population are illiterate (see Kua and Ko [1992] for further details).

person or the maids themselves, the variable may be vulnerable to reporting error. Nonetheless, the variables provide some indication of the types of main caregiving functions that maids and other principal caregivers provide to elderly respondents.

## **Analysis**

### *Use of Maid Service*

The first column of Table 3 shows the proportion of households with any maid service, classified by various enabling, disposing, and need variables. The associations were significant and generally in the expected direction. Interestingly, respondents living in households reporting Indian or Other (non-Malay) ethnicity were about as likely as those with Chinese ethnicity to have a maid, while those of Malay ethnicity were much less likely to have a maid.

The household composition characteristics were significantly associated with the use of a maid in the expected direction. Households with more members are more likely to have maid service than those with fewer members, suggesting that maid service is something that is either more necessary to large households and/or more affordable for them. For households of any size, those with higher income levels were more likely to employ maids (not shown in table). Interestingly, those households with two household members other than the elderly respondent currently employed were more likely to have maids than those in which a larger number of members were employed or those in which no members or only one member were employed.

As expected, the variables measuring the elderly respondent's physical and cognitive health status and functioning levels on ADLs and IADLs were positively associated with whether or not the household had maid service.

Table 4 presents the coefficients from binary logistic regression models regarding the use of maid service by households with at least one elderly member. The following discussion focuses primarily on the full model. The enabling variable, monthly gross household income, was significantly related to the use of maid service. Wealthier households were somewhat more likely to employ maids than poorer ones.

Several individual level predisposing characteristics were related to the use of maid service. While female and older age were positively related to the use of maid service, they were not significant in the full model. The remaining individual demographic and socioeconomic variables were significant and in the expected direction. Even when controlling for monthly household income, higher educational attainment and Chinese ethnicity increased the likelihood that the elderly person resides in a household employing a maid. Elderly respondents who were employed either full- or part-time at the time of the survey were less likely to live in a household with maid service than were those who were not working, which I suspect is related to their better health and functioning.

The variables for household level predisposing characteristics behaved as expected. Interestingly, households with either more male or more female offspring of the elderly respondent co-resident were somewhat less likely to employ a maid than those with fewer male or female offspring co-resident, which suggests that both male and female offspring substitute for the assistance or care provided by maids. The effect of co-resident female offspring was slightly higher than that for co-resident male offspring. As expected, having grandchildren or great-grandchildren co-resident in the household increased the chances that the household employed a

maid. This variable had the largest effect of those variables included in the model and is likely related to the additional housework, caregiving, and other chores generated by having both elderly and younger dependents in the household. Net of other factors, households with two members other than the elderly respondent employed were less likely to have maid service than were those with no or only one member other than the elderly respondent employed, and households with three or more members other than the elderly respondent employed were even less likely to have maid service than their counterparts with no or one member other than the elderly respondent employed.

With one exception, the variables related to the elderly respondent's health and functioning status behaved in the predicted direction.<sup>9</sup> Households with an elderly respondent who had high numbers of chronic conditions for which they were receiving treatment by a doctor were slightly more likely to employ a maid, although this variable was significant only in the full model. As noted earlier, the wording of the question likely means that the incidence of chronic conditions was significantly under-reported. Respondents who reported experiencing more debilitating conditions or having had a serious illness in the past year that required hospitalization were more likely to live in households employing a maid than those with fewer debilitating conditions or serious illnesses in the past year. Respondents who were unable to perform larger numbers of ADLs and IADLs independently were more likely to live in households employing the maid than respondents who were able to function more independently. These findings suggest that maids are providing some direct service to the elderly, or, alternatively, that maids help with other household chores, freeing other household members to provide direct care and personal assistance to the elderly household member.

Cognitive functioning was the only variable that performed in an unexpected direction (and in the opposite direction of the cross-tabulations reported earlier). Net of the other variables in the model, respondents with higher cognitive functioning scores were very slightly more likely to live in households employing maids than those with lower cognitive functioning scores. The bivariate findings indicate that in 1995 the elderly population in Singapore did not yet have very serious cognitive problems and so likely would require less assistance. It may be that in Singapore, as in some other countries, dementia is stigmatized, making some households less likely to employ maids or other outside assistance, while other health and functioning conditions carry no such stigma. This issue warrants further investigation.

An analysis of the four models in Table 5 indicates that adding the enabling, predisposing, and need variables increased the explanatory model of the power. The individual and household predisposing variables increased the explanatory power of the model by about the same amount. The addition of the need variables concerning the health and functioning status of the elderly respondent added a somewhat smaller amount of explanatory power to the model.

#### *Use of Maids as the Principal Caregivers for the Elderly*

Survey data indicate that in 1995, only about 4.4 percent of senior citizens aged 55 and above who were living in the community had a principal caregiver (345 households in the

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<sup>9</sup>The variable on the respondent's self-reported health status was dropped because of covariance with other variables included in the model.

unweighted sample) (Ministry of Health et al. 1996, 72). Column 3 of Table 3 shows the characteristics of households with a principal caregiver for the elderly respondent (in contrast to those that did not employ a principal caregiver for the elderly respondent) (See also Ministry of Health et al. 1996, 72-81). These characteristics are provided for reference and will not be discussed in greater detail here. Instead, I turn my attention to the fifth column of Table 3, which shows the proportion of those households that have a principal caregiver for the elderly respondent in which the principal caregiver is a maid. Because the weighted sample includes a relatively small number of households employing a principal caregiver (n=210), many of the cross-tabulations produced empty cells or those with very small cell sizes, invalidating many of the Pearson chi-square tests; these are marked in the table.

A few variables were significantly associated with the use of a maid as the principal caregiver for the elderly household member. Again, as would be expected given the regulations in Singapore that make obtaining and registering a maid a rather expensive endeavor, households with higher gross monthly household incomes were more likely to employ a maid as a principal caregiver than were households with lower gross monthly household incomes.

Those households in which the elderly person had a co-resident spouse were somewhat less likely to employ a maid as a principal caregiver than were those in which the elderly respondent's did not have a co-resident spouse. Households that had both an elderly respondent and grandchildren and/or great-grandchildren were somewhat more likely to employ a maid as a principal caregiver than those that did not have co-resident grandchildren and/or great-grandchildren. As with the maid service variable, larger households were more likely to employ a maid as the principal caregiver than smaller ones; larger households may be better able to afford formal home care or may have greater need for formal home care for elderly family members because caregiving and other household tasks must be performed for more people.

Respondents who rated their health as being very good were more likely to have the maid as their principal caregiver than those who rated their health as good or not to good /very poor. It may be that elderly persons with poorer health status are more likely to depend on a spouse or other family member as their principal caregivers because they are in need of more personal care or assistance.

Table 5 shows a binary logistic regression model estimating whether or not the elderly respondent's household used a maid as the principal caregiver for the elderly person. Because of the small number of cases that had a principal caregiver, a reduced model was tested using selected individual, household, and health variables. Most variables behaved in the expected direction and were significant. Those with higher monthly household incomes were slightly more likely to use a maid as a principal caregiver than those with lower monthly household incomes. An unexpected finding was that net of other factors in the model, households in which the elderly respondent was older were very slightly less likely to employ a maid as a principal caregiver than were households with younger elderly respondents. Ethnic Chinese respondents were much more likely to employ a maid as a principal caregiver than were respondents of other ethnic backgrounds. The larger the number of offspring of the elderly respondent who were co-resident in the household, the less likely the household was to use a maid as the principal caregiver, which suggests that there may be more members in such households who can share the caregiving and housework. Households in which the elderly respondent had been hospitalized one or more times in the preceding years were more likely to have a maid as the principal

caregiver, though this finding was only marginally significant (significance = .12). None of the other health variables tested in the reduced model proved to be statistically significant (results not shown).

Table 6 compares households in which maids serve as principal caregivers with those in which persons other than maids serve as principal caregivers. The vast majority of households (92 percent) reported hiring maids as principal caregivers with the expectation that the maid would perform dual roles, serving as the principal caregiver for the elderly person and then either performing housework or caring for children.

Maids who served as principal caregivers of the elderly respondent and other types of principal caregivers for the elderly generally performed similar main duties for the elderly. However, maids were somewhat more likely to assist the elderly with dressing, bathing, and toileting or to perform housework than were other principal caregivers, while other principal caregivers were somewhat more likely to feed the elderly, to give the elderly medicines or injections, to exercise or walk the elderly person, to shop, and to prepare meals than were maids. Because of the small number of cases and problems with non-response, these findings should be considered suggestive rather than definitive.

## **Summary and Research Recommendations**

This study has shown that in 1995, a small proportion of households in Singapore with one or more elderly persons employed maids. Certain types of households were more likely to employ maids, including those of higher socio-economic status, those with older elderly members, those that also had young children or grandchildren co-resident, and those with elderly members who had poor health and/or functioning status. Households with male and especially female offspring of the elderly respondent co-resident were less likely to have maid service, though having a co-resident spouse had no significant effect on the likelihood of having maid service.

Employing a maid as a principal caregiver was, like maid service, positively associated with socio-economic status and Chinese ethnicity. Households with fewer or no children of the elderly respondent co-resident were more likely to employ a maid as the principal caregiver than were households with more co-resident children. Clearly, for some, primarily well-off households, maids are providing valuable service to the elderly as principal caregivers. Maids working as principal caregivers for the elderly performed many of the same care taking duties and household chores as other principal caregivers and hence may prove to be an effective substitute for other types of principal caregivers. But, it is also clear that maids frequently were hired to serve multiple roles in the household, including caring for an elderly household member, looking after children or grandchildren, and performing housework, marketing, and other chores for the entire household.

Singapore is still at an early stage of its aging transition. The expansion of the elderly population and the aging of the older population will increase in importance in the near future. While informal, family-based care and formal institutional care remain important options for addressing the needs of the growing elderly population in Singapore, this study has identified domestic servants as a third alternative for providing care and household assistance to the elderly. Further studies are needed to fully assess the potential for using maids, particularly foreign

maids, to supplement or substitute for elder care provided by other family members, formal homemaking and visiting nurse services, and public and private institutions.

The findings from this study indicate several specific areas to be addressed by future research efforts. Because the elderly in Singapore oftentimes live within households that are balancing formal employment, household chores, informal care taking of younger and elderly dependents, and leisure time, it would be useful for researchers to assess the complex relationships between the performance of certain household, childcare, or elder care tasks by domestic servants and the time made available to other household members to participate in formal employment, provide additional care for older or younger family members, or spend leisure time with elderly and other family members. Because many households may have more than one elderly or disabled member, basic data should be collected on the health and functioning status of all elderly and disabled persons in the household so that the full extent of the caregiving burden can be understood more completely. To enable a more thorough assessment of the usefulness of domestic servants as replacements or substitutes for members of the household working outside the home, particularly women, who traditionally have been the primary providers of care and assistance for the elderly in Singapore, data should be collected on the age and employment status of each household member, and, if possible, their contribution to household chores and providing care for older and younger dependents.

To more fully understand the role of maids in households with one or more elderly members, maids and/or elderly persons themselves should be interviewed regarding the full range of care and other tasks provided by the maid. It would also be useful to assess the economic and psychic costs and benefits of maid service both for elderly persons and for other caregivers. And finally, insofar as is possible, future studies should assess at least some of the socio-economic and demographic characteristics of the maids themselves, including sex, place of birth, education, training, and experience in caring for the elderly, as well as how long the maid has been in the household.

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Table 1. Expected Relationship Between Selected Individual and Household Characteristics and Use of Maid Service and Use of Maid as the Principal Caregiver

Characteristic of Elderly Person or Household of Elderly Person	Expected Direction of Relationship with Use of Maid Service
Higher socioeconomic status (household income)	+
Female	+
Advanced old age	+
Employed in paid labor force (full- or part-time)	+
Ethnicity is Chinese	+
Higher educational attainment	+
Higher number of household members other than the elderly respondent employed in paid labor force	?
Larger number of household members	+
Living alone	+
Spouse co-resident	-
Daughter(s)/daughter(s)-in-law co-resident <sup>a</sup>	-
Grandchildren or great-grandchildren co-resident	+
Poor health (self-reported)	+
Hospitalization in the past year	+
Cognitive impairment	+
Difficulty performing ADLs	+
Difficulty performing IADLs	+

<sup>a</sup> The data do not permit a break down into daughter(s) and daughter(s)-in-law.

Table 2. Description of Sample

Variable	Percentage	N
Monthly Gross Household Income <sup>a</sup>		
S \$0-999 (U.S. \$0-715)	13.1	622
S \$1,000-1,999 (U.S. \$716-1,431)	29.5	1403
S \$2,000-2,999 (U.S. \$1,432-2,146)	25.0	1187
S \$3,000-4,999 (U.S. \$2,147-3,578)	17.5	831
S \$5000+ (U.S. \$3,579+)	10.8	514
Elderly R's Sex		
Male	47.4	2249
Female	52.6	2501
R's Age, in groups		
55-59	28.8	1369
60-64	23.9	1136
65-69	17.1	813
70-74	13.0	617
75+	17.1	815
R's Ethnic Group		
Chinese	79.5	3778
Malay	11.5	548
Indian	7.7	367
Other	1.2	57
R's Highest Education Level		
None	61.5	2921
Completed Primary	25.7	1222
Completed Secondary	9.2	437
Completed Upper Secondary/Polytechnic	2.3	109
Completed University	1.2	59
R's Employment Status		
Unemployed	72.5	3444
Employed (full- or part-time)	27.4	1301
R has Spouse Living in Same Household		
No	44.9	2131
Yes	55.1	2619
R Has Grandchildren or Great-grandchildren Living in Household		
No	68.9	3271
Yes	31.1	1479
Total Number of R's Male Offspring Living in Same Household		
0	31.1	1479
1	46.0	2187
2	16.1	763
3+	6.8	321

Total Number of R's Female Offspring Living in Same Household		
0	54.6	2592
1	32.0	1520
2	10.2	483
3+	3.3	154
Total Number of R's Male and Female Offspring Living in Same Household		
0	13.9	659
1	41.4	1965
2	23.5	1117
3	13.9	659
4+	7.4	350
Total Number of Household Members		
1-3	35.4	1682
4-6	52.4	2491
7+	12.1	577
Household Has Maid Service		
No	95.4	4533
Yes	4.6	217
Principal Caregiver for Elderly Person		
Maid	1.2	55
Other	3.3	155
No principal caregiver	95.6	4540
Number of Household Members Currently Working, Excluding Elderly Respondent		
0	12.3	584
1	31.5	1496
2	32.1	1524
3+	24.0	1142
Total Number of Chronic Health Conditions (for which R is Receiving Regular Treatment from Doctor)		
0	86.3	4099
1	12.2	579
2-3	1.5	72
Total Number of Debilitating Conditions which R Reported Experiencing		
0	64.2	3049
1-2	33.3	1581
3-5	2.5	120
R's Self-rating of Health		
Very good	18.0	853
Good	67.3	3196
Not too good/Poor	14.8	701

R had Major Illness in Past Year Requiring Hospitalization		
No	93.2	4425
Yes	6.8	325
R's Cognitive Functioning Score (ECAQ scale)		
0-2 correct	0.7	32
3-4 correct	1.2	59
5-6 correct	5.3	250
7-8 correct	18.2	865
9-10 correct	73.5	3489
Total Number of Activities of Daily Living for which R Lacks Independence		
0	95.3	4528
1	2.0	96
2	0.8	37
3-4	1.9	89
Total Number of Instrumental Activities of Daily Living R Is Unable to Perform on His/Her Own		
0	59.6	2833
1-3	32.6	1546
4-6	5.5	263
7-8	2.3	107
<hr/>		
Total Number of Respondents	--	4750

<sup>a</sup>Figures are given in Singapore dollars. In 1995, U.S.\$1 = S\$1.3972.

Table 3. Households with Any Maid Service, with a Principal Caregiver for the Elderly, and with a Maid as the Principal Caregiver for the Elderly, by Selected Demographic, Socio-economic, Household, and Health Characteristics<sup>a</sup>

Characteristic	Household Type					
	With Any Maid Service <sup>b</sup>		With Principal Caregiver <sup>c</sup>		With Principal Caregiver Role filled by Maid <sup>d</sup>	
	%	N	%	N	%	N
Monthly Gross Household Income <sup>e</sup>	***				*	
S \$0-999 (U.S. \$0-715)	1.3	622	4.0	622	12.0	25
S \$1,000-1,999 (U.S. \$716-1,431)	1.6	1403	3.8	1403	16.7	54
S \$2,000-2,999 (U.S. \$1,432-2,146)	4.2	1187	5.1	1186	32.8	61
S \$3,000-4,999 (U.S. \$2,147-3,578)	5.3	831	4.5	831	30.6	36
S \$5000+ (U.S. \$3,579+)	15.1	515	3.9	514	45.0	20
Elderly R's Sex	*		**			
Male	3.8	2249	3.6	2249	23.5	81
Female	5.2	2501	5.2	2501	27.9	129
R's Age, in groups	***		***		f	
55-59	3.1	1369	1.4	1369	27.8	18
60-64	3.6	1136	2.4	1136	25.0	28
65-69	4.9	814	3.3	813	29.6	27
70-74	5.5	616	6.0	617	24.3	37
75+	7.4	814	12.3	815	26.0	100
R's Ethnic Group	***		+		f	
Chinese	5.2	3778	4.2	3778	33.1	160
Malay	0.4	548	6.2	548	0.0	34
Indian	4.1	368	3.3	367	0.0	12
Other	5.4	56	7.0	57	50.0	4
R's Highest Education Level	***		f		f	
None	3.9	2921	5.1	2920	21.5	149
Completed Primary	3.9	1222	3.1	1222	26.3	38
Completed Secondary	6.2	437	3.9	437	64.7	17
Completed Upper Secondary/Polytechnic	11.9	109	1.8	110	100.0	1
Completed University	23.7	59	6.8	59	25.0	4
R's Employment Status	***		***		f	
Unemployed	5.4	3444	5.7	3445	27.9	197
Employed (full- or part-time)	2.5	1302	1.0	1302	0.0	13
R has Spouse Living in Same Household	*		***		+	
No	5.4	2131	5.8	2131	30.6	124
Yes	3.9	2619	3.3	2620	19.8	86
R Has Grandchildren or Great-grandchildren Living in Same Household	***		***		*	
No	2.5	3272	3.4	3271	19.8	111
Yes	9.1	1479	6.7	1479	33.3	99

Total Number of R's Male Offspring Living in Same Household	**				f	
0	3.9	1479	4.6	1479	27.5	69
1	5.7	2187	4.9	2187	29.9	107
2	3.9	763	3.3	763	16.0	25
3+	1.6	321	2.8	321	0.0	9
Total Number of R's Female Offspring Living in Same Household	+				f	
0	5.2	2592	4.4	2592	28.1	114
1	4.1	1520	5.1	1521	24.4	78
2	3.3	484	2.7	483	23.1	13
3+	1.9	154	3.9	155	16.7	6
Total Number of R's Male and Female Offspring Living in Same Household	***		**		f	
0	2.6	659	3.5	659	21.7	23
1	6.7	1965	5.6	1965	31.5	111
2	3.9	1117	4.3	1117	29.2	48
3	2.4	658	3.0	659	0.0	20
4+	2.6	351	2.3	350	12.5	8
Total Number of Household Members	***		+		**	
1-3	1.1	1682	3.5	1682	15.3	9
4-6	4.9	2491	4.9	2491	27.0	33
7+	13.5	577	4.9	577	46.4	13
Number of Household Members Currently Working, Excluding Elderly Respondent	***				*	
0	2.9	584	3.8	584	13.6	22
1	3.6	1496	4.3	1495	22.7	66
2	6.2	1524	5.0	1525	37.7	77
3+	4.5	1141	3.9	1142	20.0	45
Total Number of Chronic Health Conditions for which R is Receiving Regular Treatment from Doctor	***		***		f	
0	4.0	4099	3.4	4099	25.2	139
1	6.9	579	9.5	579	25.5	55
2-3	17.8	73	21.9	73	37.5	16
Total Number of Debilitating Conditions which R Reported Experiencing	***		***	***		
0	3.5	3049	2.2	3049	27.3	66
1-2	5.7	1581	6.8	1581	22.2	108
3-5	16.5	121	29.8	121	34.3	35
R's Self-Rating of Health	***		***		*	
Very good	4.1	853	2.2	852	50.0	20
Good	3.7	3196	1.9	3196	18.3	60
Not too good/Poor	9.0	701	18.5	701	26.2	217

R had Major Illness in Past Year Requiring Hospitalization	***		***			
No	4.0	4425	3.5	4425	23.9	155
Yes	12.6	325	16.9	325	32.7	55
R's Cognitive Functioning Score (ECAQ scale)	**		***		f	
0-2 correct	15.6	32	59.4	32	21.1	19
3-4 correct	10.2	59	22.0	59	15.4	13
5-6 correct	3.6	351	12.4	250	22.6	31
7-8 correct	4.0	865	5.0	865	30.2	43
9-10 correct	4.6	3489	2.6	3489	27.8	90
Total Number of Activities of Daily Living for which R Lacks Independence	***		***		f	
0	4.0	4528	2.3	4528	23.6	106
1	6.3	96	21.9	96	14.3	21
2	16.2	37	37.8	37	26.7	15
3-4	28.1	89	76.4	89	33.8	68
Total Number of Instrumental Activities of Daily Living R Is Unable to Perform on His/Her Own	***		***			
0	3.7	2833	1.3	2833	35.1	37
1-3	3.5	1546	2.7	1546	14.6	41
4-6	14.1	263	30.8	263	24.7	81
7-8	18.7	107	46.7	107	32.0	50
Total Number of Respondents		4750		4750		210

+ Significant at  $p \leq 0.10$  \* Significant at  $p \leq 0.05$  \*\*Significant at  $p \leq 0.01$  \*\*\*Significant at  $p \leq 0.001$

<sup>a</sup>Percentages have been weighted to account for over-sampling of elderly persons over age 75 years.

<sup>b</sup>Comparison category is households without any maid service.

<sup>c</sup>Comparison category is households without any principal caregiver for the elderly household member.

<sup>d</sup>Comparison category is households that have a principal caregivers in which the principal caregiver is not a maid.

<sup>e</sup>Figures are given in Singapore dollars. In 1995, U.S.\$1 = S\$1.3972.

<sup>f</sup>One or more cells less than expected cell count of 5.

Table 4. Binary Logistic Regression Coefficients Estimating Whether or Not R's Household Has Maid Service<sup>a</sup>

	Model 1	Model 2	Model 3	Model 4
Gross Monthly Household Income	.38***	.37***	.50***	.49***
R is Female	--	.41*	.22	.17
R's Age	--	.05***	.02*	.01
R's Highest Education Level Completed	--	.49***	.52***	.51***
R is Chinese	--	.75**	.75**	.79**
R is Currently Employed	--	-.68**	-.75**	-.50*
Total Number of R's Male Offspring in Household	--	--	-.30*	-.30*
Total Number of R's Female Offspring in Household	--	--	-.35**	-.39**
Grandchildren/Great-Grandchildren in Household	--	--	1.11***	1.18***
Spouse of Elderly R in Household	--	--	-.12	-.10
Total Number of Household Members Other than Elderly R Who Are Currently Employed <sup>b</sup>				
2	--	--	-.41*	-.30
3 or more	--	--	-1.04***	-.88**
Total Number of Chronic Conditions for which R is Receiving Health Treatment	--	--	--	.29+
Total Number of Debilitating Conditions R Has	--	--	--	.23*
R Had Major Illness in Past Year Requiring Hospitalization	--	--	--	.49*
Total Number of Correct Answers R Gave on ECAQ Mental Scale	--	--	--	.11+
Total Number of ADLs for which R Lacks Independence	--	--	--	.40**
Total Number of IADLs that R Is Unable to Perform on His/Her Own	--	--	--	.08+
Constant	-5.36***	-9.94***	-8.04***	-8.42***
Chi-square	137.39***	240.45***	344.31***	406.72***
Degrees of Freedom	1	6	12	18

+ Significant at  $p \leq 0.10$  \* Significant at  $p \leq 0.05$  \*\*Significant at  $p \leq 0.01$  \*\*\*Significant at  $p \leq 0.001$

<sup>a</sup>Comparison category is household has no maid service.

<sup>b</sup>Comparison category is 0-1 members of the household other than the elderly respondent are currently employed.

Table 5. Binary Logistic Regression Coefficients Estimating Whether or Not R's Household Uses Maid as the Principal Caregiver<sup>a,b</sup>

Gross Monthly Household Income	.26**
R's Age	-.04+
R is Chinese	2.30**
Total Number of R's Offspring Living in Household	-.55*
R Had Major Illness in Past Year Requiring Hospitalization	.63
Constant	-1.09
Chi-square	38.70***
Degrees of Freedom	5

+ Significant at  $p \leq 0.10$  \* Significant at  $p \leq 0.05$  \*\*Significant at  $p \leq 0.01$  \*\*\*Significant at  $p \leq 0.001$

<sup>a</sup>Comparison category is household used principal caregiver other than maid.

<sup>b</sup>Includes only households with a principal caregiver.

Table 6. Households with Maids and Other Types of Principal Caregivers for the Elderly Respondent, by Various Characteristics

Characteristic	<u>Principal Caregiver is Maid</u>	<u>Principal Caregiver is Not Maid</u>
	%	%
<b>Main Reason for Hiring Maid As Principal Caregiver</b>		
Maid Can Both Do Housework and Look after the Elderly Person	60.8	–
Maid Can Both Look After Children and the Elderly Person	31.4	–
Want to Care for Elderly Person at Home	3.9	–
Prefer to Have Maid Care for Elderly Person	3.9	–
<b>Percent Reporting Given Caregiving Function as Among the Top Three Main Caregiving Functions Provided to Elderly Person</b>		
Feeding	14.5	18.7
Dressing	16.4	9.0
Bathing	32.7	25.8
Toileting	21.8	18.1
Giving Medication/Injection	7.3	12.3
Regular Bed-turning/Passive Physiotherapy	3.6	2.6
Exercise/Walk the Elderly Person	7.3	15.5
Laundry	49.1	53.5
Shopping/Marketing	41.8	54.2
Housecleaning	60.0	52.9
Paying the Nurse for Care	5.5	2.6
Meal Preparation	5.5	10.3
Accompanying to Medical Check-up	–	2.6
No Response/Missing	5.5	11.6
<b>Total Number of Respondents</b>	<b>55</b>	<b>155</b>