The Survey on Informal Caregiving

Summary Report (For MCYS)

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1. Background

1.1. Introduction

The Survey on Informal Caregiving, commissioned by the Ministry of Community Development, Youth and Sports (MCYS), Singapore, is the first national population-based survey from Singapore on informal caregiving for community-dwelling older adults aged 75 and over who require human assistance with at least one Activity of Daily Living (ADL).

Providing care to an older person, especially to those experiencing limitations in their ADLs, is often an arduous activity due to the resources required and the nature of tasks involved in care provision. While some studies have documented the benefits of caregiving for the caregiver (Cohen et al., 2002), most studies are suggestive of the detrimental influence of caregiving on the physical and mental health of the caregiver (Son et al., 2007; Beach et al., 2000; Vitaliano et al., 2003; Pinquart and Sorensen, 2007).

With the rapid ageing of Singapore's population, it is imperative to have information on the characteristics of informal (i.e. unpaid) caregivers providing care to older persons in Singapore, and the care recipients they care for. Such information is important for policymakers so that provisions can be made to better support caregivers. In addition, it is also important to understand the profile of elderly who do not need care currently but may do so in the future and their (future) caregivers. These insights would allow policymakers to prepare for the future needs of these potential caregivers and their care recipients.

1.2. Objective

The objective of the survey was to determine the characteristics of community-dwelling Singaporeans aged 75 and over who require human assistance with at least one ADL (care recipient) and their primary informal (family member or friend) caregiver, as well as of community-dwelling Singaporeans aged 75 and over without any ADL limitation (potential care recipient) and their potential informal caregiver. The following information was collected from each group of survey participants:

a) Caregivers: Demographic, and physical, mental, social and economic health profile; time spent in care provision; extent of informal or formal help received in care provision; perception towards caregiving; impact of caregiving on physical, mental, social and economic health; and unmet needs.
b) Care Recipients: Demographic, and physical, mental, social and economic health profile; and satisfaction with informal or formal care received.
c) Potential Caregivers: Demographic, and physical, mental, social and economic health profile; and attitudes towards caring for an older person.
d) Potential Care Recipients: Demographic, and physical, mental, social and economic health profile.

1.3. Methodology

Sample

The Survey on Informal Caregiving gathered information on 1,190 care recipient-caregiver dyads and 792 potential care recipient-potential caregiver dyads. These dyads were selected for participation utilizing a stratified random sample of 20,000 older Singaporeans aged 75 years old and above, as detailed below.

All 20,000 older adults in the sample were sent an information letter, with an option to opt-out. While 312 (1.6%) of the older adults (or their family) refused participation by call or email, an additional 117 (0.6%) were not contactable due to returned mail. The remaining 19,571 addresses were visited at least once by trained interviewers. However, 863 (4.3%) of the older adults (or their family) refused participation upon visit, 1,840 (9.2%) were not contactable (due to reasons such as 'older adult not alive or in nursing home', 'address unoccupied', 'family moved or overseas', 'unit rented out' etc.), and 11,254 (56.3%) addresses were visited at least 3 times without any response. Thus, 5,613 (28.1%) of the 20,000 older adults were administered an Activity of Daily Living Limitations (ADL) screener.

The ADL screener was administered to the older adult. If he/she was unavailable or unable to respond due to health reasons, the screener was administered to any adult residing in the same household (except for a foreign domestic worker). The screener enquired about older adult's age, citizenship and ADL status. Those who received human assistance for any one of six ADLs (taking a bath/shower, walking inside the house, dressing up, standing up from a bed/chair, using the toilet in the house and eating) were considered as care recipients. They were also asked to name the family member or friend (but not a foreign domestic worker) most involved in providing care or ensuring provision of care to them in order to identify their primary informal caregiver.

Out of the 5,613 older adults who were administered the ADL screener, 6 were ineligible due to age (were younger than 75 years old) or citizenship (were non-Singaporeans) criteria, and of the rest 5,607 older adults, 1,211 met the criteria of being a "care recipient" and identified their "caregiver". However, in 21 of the care recipient-caregiver dyads either one or both members did not give consent for survey administration, resulting in a final sample of 1,190 care recipient-caregiver dyads, who were interviewed face-to-face using structured questionnaires. Of these 1,190 care recipient-caregiver dyads, a total of 655 (55.0%) care recipients were unable to respond due to health reasons and the caregivers were interviewed as a proxy.

Further, based on the response to the ADL screener, older adults who were currently not receiving human assistance for any of the six ADLs and also indicated that they did not want any help even if someone was available were considered to be "potential care recipients". These "potential care recipients" were also asked to identify their "potential caregiver", defined as a family member or relative or friend (but not a foreign domestic worker) who is the one most likely to provide care ore ensure provision of care to them in the ADL activities when required in future. A total of 4,396 older persons did not currently need help with any ADLs. Of them, 4,357 qualified as "potential care recipients" as 39 were ineligible as they indicated that they would want help if somebody were available. The first

792 potential care recipient-potential caregiver dyads that the interviewers came into contact with, and provided consent for participation in the survey, were also interviewed.

Questionnaire

Four separate questionnaires were constructed specifically for the care recipients, caregivers, potential care recipients and potential caregivers. They were designed with reference to various validated surveys conducted in the United States and Canada. The questions adopted were fine-tuned in order to make them relevant to the Singapore context. Four domains were common across the four questionnaires: demographics, health status, health care utilization and health insurance. In addition, the following domains were unique to the care recipient, caregiver and potential caregiver questionnaires:

a) Care recipient questionnaire:

- Utilization and satisfaction with services provided by foreign domestic worker.
- Satisfaction with the help/care provided by caregiver.

b) Caregiver questionnaire:

- Caregiving and health: Self-rated impact of caregiving on physical and mental health.
- Caregiving tasks: Hours spent helping care recipient with ADL and instrumental ADL (IADL) tasks and provision of care to somebody else apart from care recipient.
- Caregiving support: Availability of family members/friends/foreign domestic worker/formal services to help care for care recipient and information source(s) for services to care for care recipient.
- Caregiving and labor force participation: Ever taken time off to care for care recipient and the impact of caregiving on work.
- Care recipient's behavioral problems and caregiver's reaction: Revised Memory and Behavioral Problems Checklist (Teri et al., 1992).
- Perception of caregiving: Caregiver Reaction Assessment (Given and Given, 1992), Caregiver Needs and Positive Aspects of Caregiving (Tarlow et al., 2004).
- Level of social integration: Social support and social engagement.

c) Potential caregiver questionnaire:

- Potential care recipient's behavioral problems and caregiver's reaction: Revised Memory and Behavioral Problems Checklist (Teri et al., 1992).
- Level of social integration: Social support and social engagement
- Caregiver support for potential care recipient's future care needs: Information source for services to help care for potential care recipient's in future
- Attitudes towards care of older persons.

1.4. Data and Data Analysis

The data gathered during the fieldwork was entered into IBM SPSS statistical 19 program and analyzed. For the purpose of this summary report, key results will be highlighted. This report will also present analyses of the predictors of stress and depressive status of the caregivers. We use Pearlin et al. (1990) stress model as the conceptual framework for most of our analysis.

2. Key Characteristics of Care Recipients

In this chapter we highlight the key characteristics of care recipients. Although the focus of the survey was on caregivers, we collected information on the socioeconomic and health status of the care recipients in order to analyze the effects of care recipient characteristics on caregiver stress.

2.1. Demographic Characteristics

Table 1. Care Recipients' demographic characteristics

	(N= 1190)
Care Recipients' Gender (%)	
Male	31.4
Female	68.6
Total	100
Care Recipients' Age (%)	
75 to 79 years old	30.0
80 to 84 years old	32.0
85 years old & above	38.0
Total	100
Care Recipients' Marital Status (%)	
Married	33.0
Widowed/Divorced/Separated/Single (Never Married)	67.0
Total	100
Medishield Coverage (%)	
Yes	16.2
No	68.3
Don't Know	15.5
Total	100

Source: Survey on Informal Caregiving

There is a higher percentage of care recipients who are females (69%) than there are males (31%) in the sample. This is in line with the feminization of aging literature, which documents that females tend to outlive the males in old age.

The majority are widowed (67%) compared to married (33%).

A large proportion of care recipients do not have Medishield insurance (68%).

2.2. Health Status

Table 2. Care recipients' health status

	(N=1190)
Care recipients' Self-Rated Health Status (%)	
Poor	37.6
Fair	44.8
Good	17.4
Very Good	0.1
Excellent	0.1
Total	100
Presence of Chronic Disease (%)	
No Chronic Disease	2.7
1 Chronic Disease	8.5
2 or More Chronic Disease	88.8
Total	100
Care recipients' Mean Number of Chronic Diseases	
Mean number of Chronic Diseases	4.1
Care recipients' Mean Number of ADLs	
Mean number of ADL limitations	5.2
Care recipients' Mean Number of IADLs	
Mean number of IADL limitations	3.1

Source: Survey on Informal Caregiving

Most of the care recipients rated their health as fair or poor (82%). The majority of caregivers have 2 or more chronic diseases (89%). The average number of chronic diseases in this population is 4.

On average, care recipients require assistance for 5 Activities of Daily Living (ADL) and 3 Instrumental Activities of Daily Living (IADL).

3. Key Characteristics of Caregivers

In this section, we describe the characteristics of individuals (caregivers) who are currently taking care of individuals aged 75 years and above who require human assistance with at least one ADL.

3.1. Demographic Characteristics

Table 3. Caregivers' demographic characteristics

	(N= 1,190)
Caregivers' Gender (%)	
Male	39.8
Female	60.2
Total	100
Caregivers' Age (%)	
19 to 44 years old	14.2
45 to 59 years old	55.0
60 to 74 years old	20.4
75 years old & above	10.4
Total	100
Caregivers' Marital Status (%)	
Married	64.9
Widowed	3.8
Separated/Divorced	5.4
Never Married	26.0
Total	100

Source: Survey on Informal Caregiving

Our study found more female caregivers (60%) than male caregivers (40%). Most of the caregivers are middle-aged, aged between 45 and 59 years. The majority of them are currently married (65%). There is a substantial group of single (never married) caregivers (26%).

3.2. Health Status

Table 4. Percentage of caregivers, by self-reported health status

	(N= 1,190)
Caregivers' Self-Rated Health Status (%)	
Poor	3.2
Fair	21.5
Good	57.1
Very Good	14.5
Excellent	3.8
Total	100
Caregivers' Mean No. of Chronic Diseases	
Overall Mean (No. of Chronic Diseases)	1.1

Source: Survey on Informal Caregiving

The caregivers are generally in good health, with most of them rating their health as good or very good (72%) and with only 1 chronic disease on average.

3.3. Caregiving Characteristics

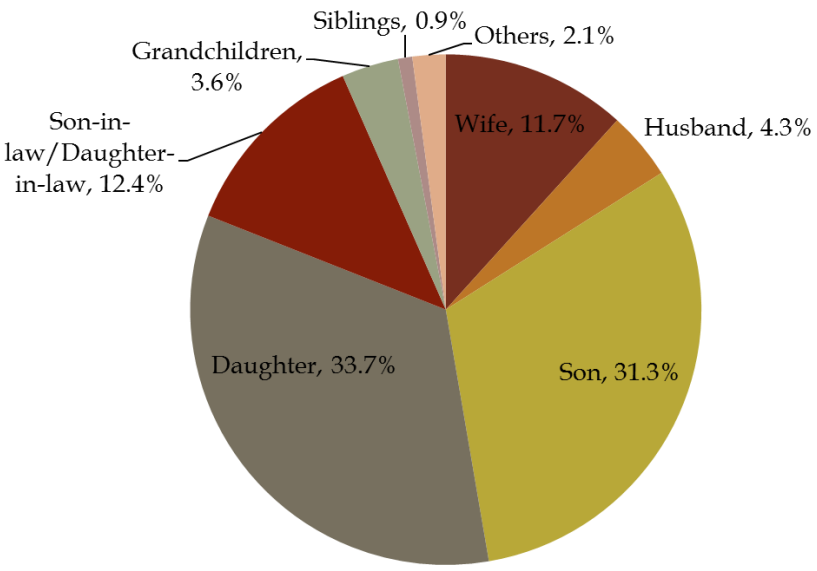

Figure 1. Caregivers' Relationship with the Care Recipients
Source: Survey on Informal Caregiving

Children of the care recipients (daughters (34%), sons (31%) and son/daughter-in-laws (12%)) constitute the majority (77%) of the caregivers. Another 16% are spouses of the care recipients, comprising 12% wives and 4% husbands. The remaining 7% are grandchildren, siblings, niece, nephews, friend or other relatives of the care recipients.

Table 5. Mean hours (per week) spent caring or ensuring care for care recipients, by caregivers' relationship with care recipient

	N	Mean (hrs)
Mean Hours (per week) Spent Caring or Ensuring Care for Care Recipient*		
Spouse	190	52.2
Children	921	35.6
Others^	79	33
Overall	1,190	38.1

*p<0.05 for difference between Relationship types
^Others include grandchildren, siblings, niece, nephews, friend and other relatives of the care recipients
Source: Survey on Informal Caregiving

On average, caregivers spend 38 hours per week caring or ensuring care for care recipients. However, the care hours differ significantly by the relationship of the caregiver with the care recipient. Spouses put in significantly more care hours weekly (52 hours) than children (36 hours) and "other" (33 hours) caregivers.

Table 6. Percentage of caregivers who hired a foreign domestic worker to care for care recipient, by caregivers' relationship with care recipient

	Spouse (N= 190)	Children (N= 921)	Others (N= 79)	Total (N= 1,190)
Hiring of Foreign Domestic Worker to Care for Care Recipient*				
Yes	33.7	51.9	53.2	49.1
No	3.7	4.2	3.8	4.1
No FDW Hired	62.6	43.9	43.0	46.8

*p<0.05 for difference between relationship types
Source: Survey on Informal Caregiving

Almost half of the caregivers (49%) hired a foreign domestic worker specifically to care for the care recipient. The likelihood of hiring a foreign domestic worker to care for care recipient differs by the caregivers' relationship with their care recipients. Children and "other" caregivers are more likely than spousal caregivers to hire a foreign domestic worker to care for the care recipients. This could be one of the explanations for the difference in the number of weekly care hours between spousal, children and "other" caregivers. Since children and "other" caregivers, relative to spousal caregivers, are more likely to have a foreign domestic worker to help care for their care recipients, the number of care hours they provide would then be less than spousal caregivers.

Table 7. Hiring of foreign domestic worker to care for care recipient, by housing types

	1 to 2 room (n= 83) %	3 to 4 room (n=701) %	5 room & above (n= 406) %	Total (n= 1,190) %
Is the Foreign Domestic Worker Hired Primarily to Care for Care Recipient?*				
Yes	7.2	41.9	70	49.1
No	0	3.9	5.4	4.1
No maid was hired	92.8	54.2	24.6	46.8

*p<0.05 for difference between housing types

Source: Survey on Informal Caregiving

The likelihood of hiring a foreign domestic worker to care for the care recipient also differs significantly by housing type. Only 7% of the caregivers residing in 1 to 2 room housing have a foreign domestic worker hired to care for their care recipients. This proportion is significantly higher for caregivers living in 3 to 4 room (42%) and 5 rooms and above (70%) housing.

Table 8. Foreign domestic workers' experience in caring for older person

	N	%
Does Foreign Domestic Worker Have Experience Caring for an Older Person?		
Yes	298	47.2
No	287	45.4
Don't know	47	7.4
Total	632	100

Source: Survey on Informal Caregiving

Only 45% of the foreign domestic workers have experience or formal training in caring for older persons.

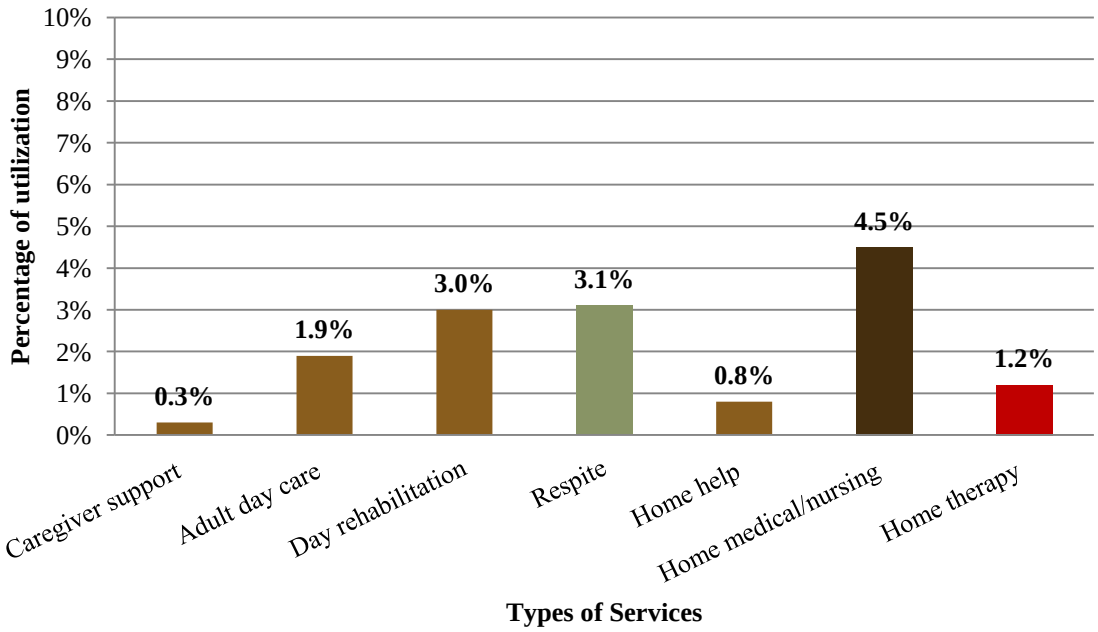

Figure 2: Use of services to help care for care recipient
Source: Survey on Informal Caregiving

The percentage of caregivers who have used the various formal services available to help care for their care recipients is very low.

3.4. Impact of Caregiving

The negative impact of caregiving on the health and work of the caregivers has been well-documented (Son et al., 2007; Gordon et al., 2012). Below are some key findings of the impact of caregiving on the health and work amongst the caregivers in Singapore.

Table 9. Impact of caregiving on caregivers' physical well-being, by caregivers' relationship with care recipient

	Spouse (N= 190)	Children (N= 921)	Others (N= 79)	Total (N= 1190)
Impact of Caregiving on Caregivers' Physical Well-Being*				
Made it worst	21.6	12.2	7.6	13.4
Not affected it	76.8	86.2	91.1	85.0
Made it better	1.6	1.6	1.3	1.6

*$p<0.05$ for difference between relationship types

Source: Survey on Informal Caregiving

The physical well-being of spousal caregivers is more negatively impacted than the children and "other" caregivers.

Table 10. Impact of caregiving on work

	(N= 659)
Impact of caregiving on work (%)	
Leave work for care recipients' doctor appointment	28.8
Came late to work	9.6
Interrupted by phonecalls from or concerning care recipient	8.9
Decreased hours worked	6.2
Felt work performance affected	5.3
Missed work	5.2
Increased hours worked	4.4
Changed shift	3.6
Changed jobs or employers	2.6
Declined job advancement/transfer/promotion	2.3

Source: Survey on Informal Caregiving

Most caregivers are not working (47%). Among those who work, 29% indicated that they had to leave work at least once for care recipient's doctor's appointment in the last six months.

3.5. Perception of Financial Adequacy

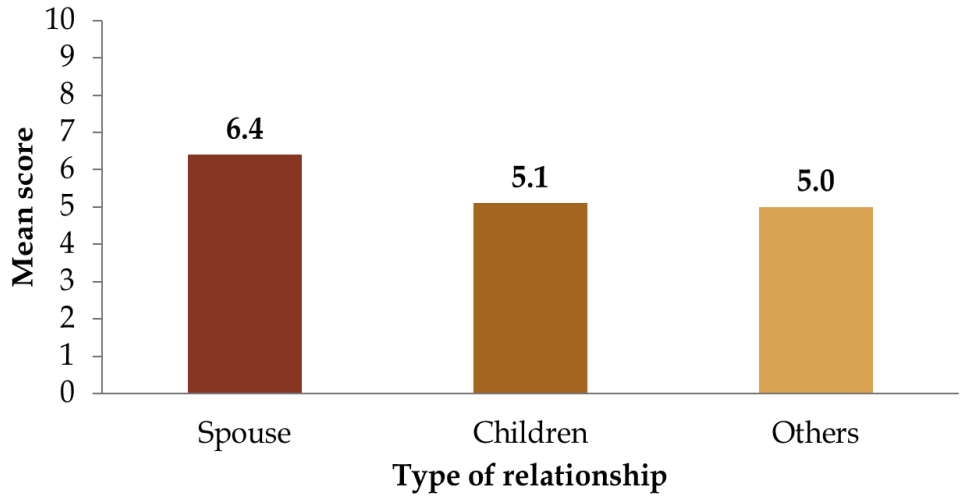

Figure 3. Caregivers' perception of the chances that their medisave savings will be depleted due to care recipients' medical expenses, by caregivers' relationship with care recipient

Note: On a scale of 0 to 10, where 0 is absolutely no chance and 10 is absolutely certain, what do you think are the chances that CR's Medical expenses will use up all your Medisave Account savings in the next 5 years?

**p<0.05 for differences between relationship types*

Source: Survey on Informal Caregiving

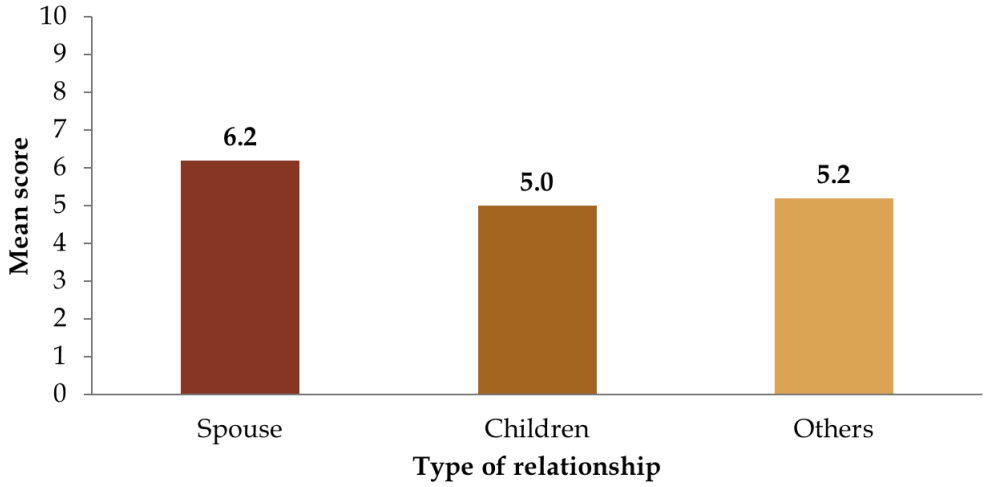

Figure 4. Caregivers' perception of the chances that their non-medisave savings will be depleted due to care recipients' health care expenses, by caregivers' relationship with care recipient

Note: On a scale of 0 to 10, where 0 is absolutely no chance and 10 is absolutely certain, what do you think are the chances that CR's health care expenses will use up all your non-medisave Account savings in the next 5 years?

**p<0.05 for differences between relationship types*

Source: Survey on Informal Caregiving

Spousal caregivers report higher mean score that care recipients' medical/health care expenses will use up their Medisave/Non-Medisave savings within the next 5 years when compared with the children and "other" caregivers.

4. Key Characteristics of Potential Care Recipients

In this section, we describe the characteristics of healthy individuals who are 75 years old and above (potential care recipients) who are currently not in need of assistance with any Activity of Daily Living.

4.1. Demographic Characteristics

Table 11. Potential care recipients' demographic characteristics

	% (N= 792)
Potential Care Recipients' Gender	
Male	44.3
Female	55.7
Total	100
Potential Care Recipients' Age	
75 to 79 years old	49.7
80 to 84 years old	29.3
85 years old & above	21.0
Total	100
Potential Care Recipients' Marital Status	
Married	49.2
Widowed/Divorced/Separated/Single (Never Married)	50.8
Total	100

Source: Survey on Informal Caregiving

Potential care recipients are mostly female (56%) and younger. Half of potential care recipients are between 75 and 79 years old (50%). Close to half of the potential care recipients are married (49%).

4.2. Health status

Table 12. Potential care recipients' health status

	(N= 792)
Potential Care Recipients' Self-Rated Health (%)	
Poor	4.4
Fair	41.3
Good	48.2
Very Good	5.7
Excellent	0.4
Total	100
Potential Care Recipients' Mean Number of Chronic Diseases	
Overall Mean (No. of Chronic Diseases)	2.6

Source: Survey on Informal Caregiving

Potential care recipients rate themselves to be in better health and they have fewer (2.6) chronic diseases on average than the care recipients (4.1).

4.3. Perception of Financial Adequacy

Table 13. Potential care recipients' perception of medisave account adequacy for their own medical expenses, by housing type

	1 to 2 room (n= 58)	3 to 4 room (n= 304)	5 room & above (n= 196)	Total (n= 558)
Chances that Potential Care Recipients' Medical Expenses Will Use Up All of Their Medisave Account Savings in the Next 5 years*				
Mean (Score)	7.0	6.1	6.7	6.4

*p<0.05 for differences between housing types

Source: Survey on Informal Caregiving

On a scale of 1 to 10, where 1 is absolutely no chance and 10 is absolutely certain that their medical expenses would use up their Medisave savings in the next 5 years, potential care recipients report a mean score of 6.4.

Potential caregivers of lower socioeconomic status, that is, those living in 1 to 2 rooms HDB/JTC flats report a higher mean score (7.0) that their medical expenses will use up their own Medisave savings in the next 5 years compared to those living in 3 to 4 rooms HDB/JTC flats (6.1) and 5 rooms HDB/JTC flats above (6.7).

Table 14. Potential care recipients' perception of spouse's/child's Medisave Savings Adequacy For Their Own Medical Expenses, by Housing Type

	1 to 2 room (n= 61)	3 to 4 room (n= 361)	5 room & above (n= 238)	Total (n= 660)
Chances that Potential Care Recipients' Medical Expenses Will Use Up All of Their Spouse/Child's Medisave Account Savings in the Next 5 years*				
Mean (Score)	6.0	5.4	4.5	5.1

*p<0.05 for differences between housing types

Source: Survey on Informal Caregiving

Potential care recipients living in 1 to 2 room HDB/JTC flats (6.0) report a higher mean score that their medical expenses would use up all their spouse's/child's Medisave savings in the next 5 years compared to those living in 5 room HDB/JTC flats and above.

5. Key Characteristics of Potential Caregivers

In this section, we describe the characteristics of individuals who were nominated by the potential care recipient as their potential caregiver should they need assistance with ADL in old age.

5.1. Demographics Characteristics

Table 15. Potential caregivers' demographic characteristics

	(N= 792)
Potential Caregivers' Gender (%)	
Male	36.0
Female	64.0
Total	100
Potential Caregivers' Age (%)	
19 to 44 years old	18.7
45 to 59 years old	43.2
60 to 74 years old	21.3
75 years old & above	16.8
Total	100
Potential Caregivers' Marital Status (%)	
Married	69.4
Widowed	2.3
Separated/Divorced	3.7
Never Married	34.6
Total	100

Source: Survey on Informal Caregiving

Our sample of potential caregivers consists of individuals who are mostly between the ages of 45 and 59 years old (43%). The majority of them are currently married (69%). There is a substantial group of single (never married) potential caregivers (35%).

5.2. Health Status

Table 16. Potential caregivers' health status

	(N= 792)
Potential Caregivers' Self-Rated Health (%)	
Poor	1.6
Fair	17.8
Good	64.1
Very Good	13.4
Excellent	3.0
Total	100
Potential Caregivers' Mean No. of Chronic Diseases	
Overall Mean (No. of Chronic Diseases)	1.1

Source: Survey on Informal Caregiving

Approximately 80% of potential caregivers reported good, very good or excellent self-rated health. On average, potential caregivers have 1 chronic disease condition.

5.3. Potential Caregivers' Characteristics

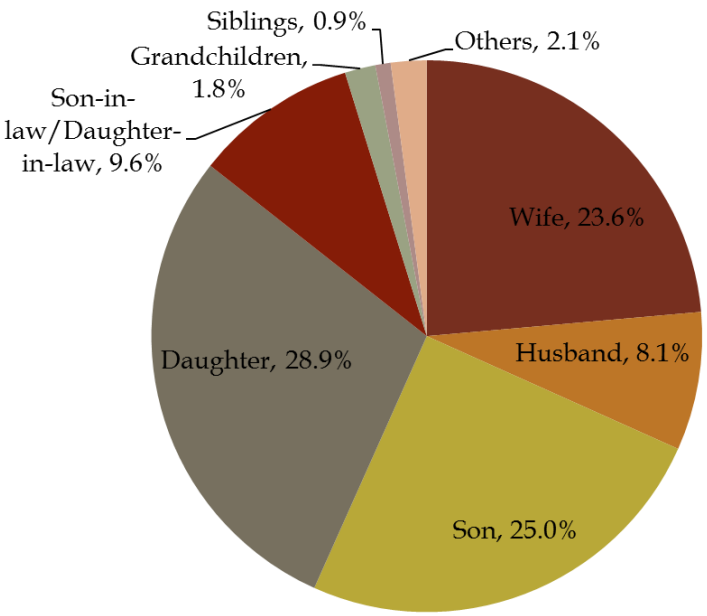

Figure 5. Potential caregivers' relationship with the potential care recipients
Source: Survey on Informal Caregiving

Most nominated potential caregivers are daughters (29%), 25% are sons, 24% are wives, 10% are son/daughter-in-laws and 8% are husbands. The remaining 5% of the potential caregivers have other form of ties with the potential care recipients. They are grandchildren, siblings, nieces, nephews, friends or other relatives of the potential care recipients.

5.4. Potential Caregivers' Perceptions Towards Caregiving

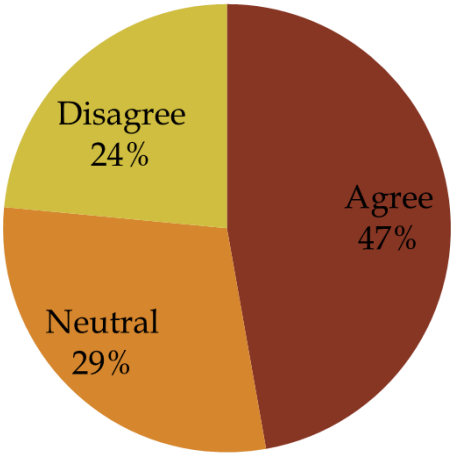

Figure 6. Potential caregivers' response to the statement "government should be primarily responsible for taking care of the elderly"
Source: Survey on Informal Caregiving

The potential caregivers were asked a series of questions on their perception towards caregiving. There are two key findings worth noting. Firstly, 47% of the potential caregivers agreed with the statement "Government should be primarily responsible for taking care of the elderly".

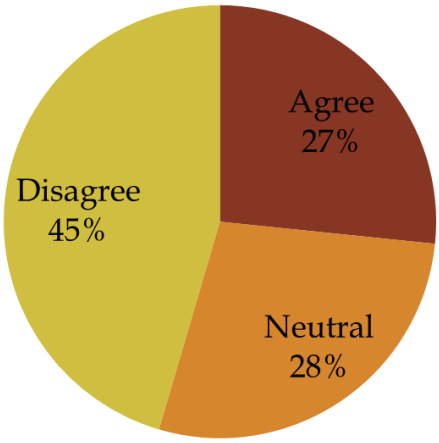

Figure 7. Potential caregivers' response to the statement "Caregiver does not need any help or training to care properly for an elderly person in the household"
Source: Survey on Informal Caregiving

The second key finding is that almost one-third of the potential caregivers (27%) agreed with the statement "Caregiver does not need any help or training to care properly for an elderly person in the household". This may affect the quality of care received by older adults.

6. Stress Among Caregivers of Older Singaporeans

6.1. Background

Caregiving has been hypothesized to lead to chronic stress (Pearlin et al., 1990). Certain characteristics of the caregivers (e.g. socio-demographic or health characteristics), care recipients (e.g. extent of functional or cognitive limitation) and the caregiving experience (e.g. hours of care provided) may predispose to or be protective against the development of stress. Such predictors of stress may also vary by the relationship of the caregiver with the care recipient (spouse or adult child). Hence, it is important to identify the predictors of stress among informal caregiver of older adults with ADL limitations and to assess whether they vary by the relationship of the caregiver with the care recipient.

6.2. Results

This section presents the key predictors of stress in daily life (measured as a 'stress score': ranges from 1 to 10, where 1 represents 'Not much stress at all' and 10 represents 'Great deal of stress') amongst caregivers in Singapore, using Ordinary Least Squares (OLS) regression.

Table 17. Association of caregiver, care recipient and care giving characteristics with the stress score: standardized regression estimates from OLS regression (N=1150)

Caregiver Characteristics	Unadjusted estimates	Interaction Model
Age (in years)	-0.02	-0.11*
Gender (ref: Males)		
Females	0.04	-0.01
Ethnicity (ref: Indians & others)		
Chinese	-0.06	-0.06
Malays	-0.16**	-0.06
Educational Status (ref: Greater than Secondary education)		
Primary Education or Lower	-0.01	-0.03
Lower Secondary/Secondary	-0.04	-0.02
Type of Housing (ref: 1 to 2 rooms Public Housing)		
3-4 rooms Public Housing	-0.10	-0.08
≥ 5 rooms Public Housing	-0.09	-0.09
Private Apartments	-0.05	-0.05
Bungalow/ Semi-detached/ Terrace House	-0.13**	-0.12*
Relationship with Care-Recipient (ref: Adult Child)		
Spouse	0.002	-0.18
Amount of Care Provided (in hours)	0.004	-0.02
Disrupted Schedule and Health Problems due to caregiving	0.41**	0.26**
Financial Problems due to caregiving	0.33**	0.14**
Lack of family support in caregiving	0.26**	0.02
Self-esteem	-0.09*	-0.07*
Perceived Emotional Support	-0.16**	-0.02
Number of Chronic Diseases	0.16**	0.13**
Help received from a foreign domestic worker/maid	0.02	0.04
Care-Recipient Characteristics		
Age (in years)	0.02	0.02
ADL limitations	0.12**	0.04
Memory score	0.12**	-0.006
Disruptive behavior score	0.22**	0.06
Depressive symptoms score	0.28**	0.15**
Spouse caregiver X Disrupted schedule and health due to caregiving	-	0.30*

**p<0.001; *p<0.05

Note: Unadjusted estimates refer to bivariate relationships between level of caregiver stress and a predictor variable
Note: There were missing values for 40 cases on one or more than one response(s) to perceived emotional support and number of chronic diseases. These cases were dropped from the analysis.

Source: Survey on Informal Caregiving

As presented in Table 17, holding all other factors constant, caregivers who are older, of higher socioeconomic status (those living in a bungalow/semi-detached/terrace house) and those with higher self-esteem from caregiving are less stressed.

Caregivers who reported significantly higher stress scores are those facing disrupted schedules, health and financial problems due to caregiving. In addition, caring for an elderly person with a higher depressive symptom score leads to more caregiver stress.

Spouses reported significantly higher stress scores than children when caregiving impacted their schedules and their health.

6.3. Discussion

The most significant factors associated with higher caregiver stress scores are the impact that caregiving has on the caregiver's schedule and health, financial problems due to caregiving, the health of the caregiver and his or her relationship to the care recipient. In terms of the care recipient's characteristics, if the care recipient is depressed the caregiver is more likely to be depressed. We discuss each of these factors below.

Caregivers with more chronic diseases report higher stress scores. This may reflect the lower physical capacity of those with higher number of chronic diseases to provide care since providing care, especially physical care, to an older person can be exceptionally strenuous. In any case, it suggests that the implementation of more chronic disease management programs in the community for caregivers may be useful. Community based community care programs will provide easier access for caregivers and reduce the amount of travel time needed to see a primary care provider.

Caregivers whose care recipients have more depressive symptoms are more stressed. It has been reported that depression in the elderly is associated with depression in their caregivers (Jones and Peters, 1992), and the finding above likely reflects the same. And, it points towards the utility of early diagnosis and treatment of 'negative mood' or depression among the elderly, which will benefit not only them but also their caregivers.

Caregivers residing in larger housing types, compared to those residing in 1-2 room housing types, are less stressed. This could be reflective of greater physical, social and financial reserve and resources available to economically well-off caregivers, which enable them to cope better with providing for care recipients' care needs. At the same time, financial problems due to caregiving have a substantial impact on caregivers' stress level even after controlling for the caregivers' housing type. This suggests that financial inadequacy resulting from having to pay for the care recipients' needs is stressful for caregivers across the board, regardless of their socioeconomic status.

Younger caregivers are found to be more stressed than older caregivers. This could be due to younger caregivers having multiple commitments, such as employment in addition to their caregiving duties, resulting in greater stress. It could also be due to less experience with

care provision among younger caregivers relative to older caregivers, resulting in care provision being relatively more hectic and stressful for younger caregivers. This suggests that younger caregivers need more support in order to help them cope with caregiving and other aspects of their lives.

Caregivers with higher self-esteem from caregiving are less stressed. It may be useful for caregiver training and educational programs to help prepare caregivers physically and mentally for the caregiving tasks in order to ease them into the role of a caregiver. Being better equipped to cope with caregiving, caregivers may be more positive about caregiving, hence less stressed.

The results suggest that equipping caregivers with knowledge, skills and services (e.g. respite care) to better manage their schedule (which enables them to take out time for their own social and recreational activities) as well as addressing their health problems may lead to reduction in their stress levels. This may be especially important for spousal caregivers, who found the impact of disrupted schedule and having their own health problems to be much more stressful compared to adult child caregivers.

7. Predictors of Depressive Symptoms Amongst Caregivers

7.1. Background

In this section we review findings from an analysis on depressive symptoms amongst caregivers (Malhotra, Malhotra, Matchar, Ostbye, Chan, 2012). Various theoretical models have been proposed for the pathway between the act of providing care to a family member or friend and development of (adverse) psychological outcomes, including depression, in the caregiver (Pearlin et al, 1981; Lawton et al., 1991; Yates et al., 1999 and Clyburn et al., 2000). However, these theoretical models have not been empirically tested in Singapore. Doing so will allow for estimation of the potential value of strategies for alleviating depression among caregivers. We used path analysis, using Structural Equations Modeling (SEM), to examine the care recipient and caregiver characteristics and caregiving dimensions associated with depression (Figure 8).

7.2. Results

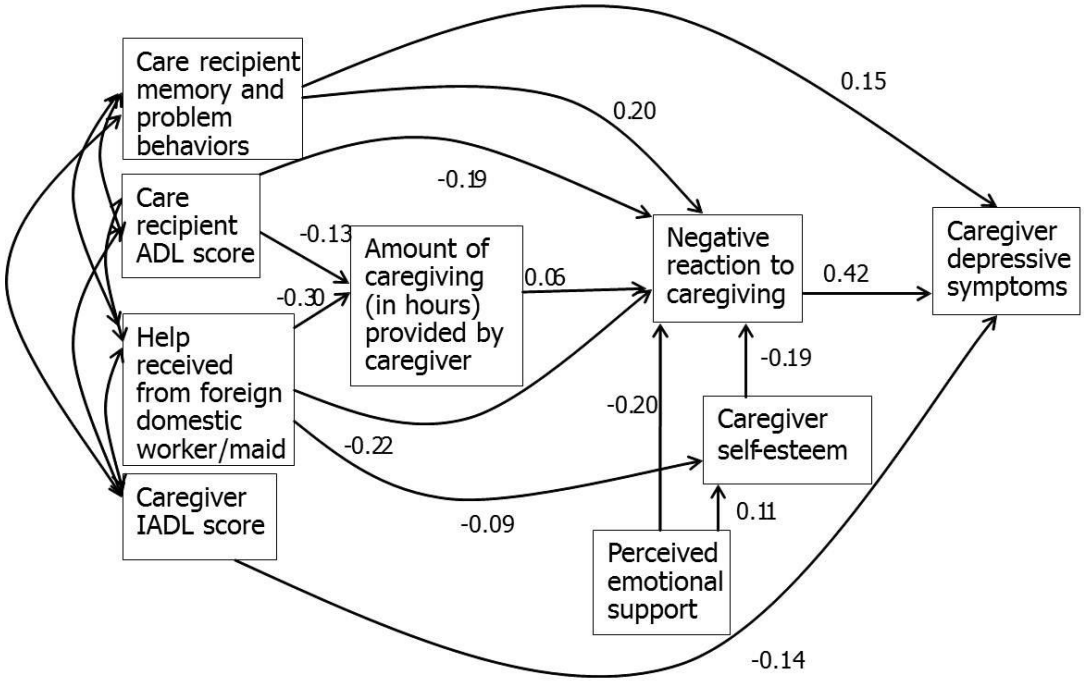

Figure 8. Path Analysis of Caregiver Depressive Symptoms
Source: Malhotra, Malhotra, Matchar, Ostbye, Chan, 2012

A caregiver's negative reaction to caregiving has been identified as the leading factor in predicting depressive symptoms among caregivers. Other factors associated with lower negative reaction to caregiving are greater functional ability of care recipients (higher ADL score), greater emotional support from family and friends, more positive caregiver self-

esteem and help received from foreign domestic worker. However, help from foreign domestic worker simultaneously reduces caregivers' self-esteem.

Care recipients' memory and behavioral problems, on the other hand, leads to more negative reaction towards caregiving. While the number of caregiving hours also leads to more negative reaction towards caregiving, the association is relatively weak.

7.3. Discussion

The key predictor of depressive symptoms among caregivers is their negative reaction towards caregiving. Negative reaction towards caregiving measures the caregivers' perception of the lack of family support with caregiving and the extent to which caregiving has negatively impacted their schedule, health and financial situation. Negative reaction towards caregiving in turn has an inverse association with (greater) emotional support from family and friends, (positive) self-esteem and help received from foreign domestic worker. This indicates that availability of instrumental and emotional support may be beneficial for caregivers in terms of reducing their negative reaction of caregiving, which then may result in improving the mood of the caregivers.

Care recipients' characteristics, including limited functional ability and memory and behavioral problems are predictive of more negative reaction towards caregiving. Improving the functional ability of the care recipient and early diagnosis and treatment of depression and behavioral problems among the care recipient is likely to positively influence the mood of the caregivers.

Amount of care hours provided is weakly associated with negative reaction towards caregiving. It has been argued that caregivers' subjective perceived stressfulness and overload of the caregiving situation is predictive of caregivers' mental well-being (Son et al., 2007; Haley et al., 2003). Similarly, the negative reaction towards caregiving observed in the current analysis can be a result of their subjective appraisal of caregiving, resulting in depression rather than the actual amount of care provided. This also suggests that a small change in the care hours per week is not likely to result in a substantial change in the negative reaction towards caregiving, and subsequently depressive symptoms, in the caregiver.

In sum for this set of analysis, the mood of the caregivers is likely to benefit from emotional support from family members and friends, instrumental support from a foreign domestic worker and optimal treatment of depression and behavioral problems among the care recipient.

8. Conclusions

This report has highlighted key characteristics of care recipients and their caregivers. The report also provides information on potential care recipients and caregivers, a sample which serves as a control group against which we can test the effects of caregiving on various outcomes such as caregiver stress and depression.

The study recruited care recipients who are above the age of 75 who require human assistance with at least one ADL. Most of the care recipients in the sample are highly dependent on somebody else for their basic daily care needs. Caregivers tend to be female and middle aged. There is a substantial group of single (never married) caregivers (26%).

The use of foreign domestic workers to help care for care recipient is common. At least half of the families interviewed had hired a foreign domestic worker to assist with caregiving of the care recipient. Most foreign domestic workers do not have any experience or formal training in caring for older persons.

The impact of caregiving on the physical health of the caregivers varies by the caregivers' relationship with the care recipients. This difference in the impact could be attributable to the difference in the type of care provided. The children and "other" caregivers provide fewer care hours and are more likely to hire a foreign domestic worker to provide care for the care recipient compared to spousal caregivers. This suggests that spousal caregivers could be providing more instrumental support such as physically helping the care recipients with their daily needs which is more physically demanding. It could also be due to spousal caregivers being much older than children and "other" caregivers, therefore, their health is more susceptible to the negative impact of caregiving.

Spousal caregivers perceive a higher chance of savings depletion, compared to adult child caregivers. Since the spousal caregivers are older and more likely to be retirees, their savings could be substantially lower than that of the children and "other" caregivers since they are no longer drawing regular income.

Spousal caregivers and caregivers of lower socioeconomic status are more susceptible to the negative impact of caregiving, relative to their counterparts. This is in part due to the lack of financial resources in coping with their care recipients' care needs.

A caregiver's negative reaction to caregiving has been identified as the key predictor of depression. The results suggest that the availability of instrumental and emotional support, caregiver respite and preparing caregivers for the role could help mediate the negative impact of caregiving on mental health of the caregivers.

9. Policy Implications

The following policy implications are based on the results of this report:

1. Providing respite services where caregivers could send the care recipients in for a few hours a day when needed may alleviate negative attitudes towards caregiving.
2. Foreign domestic workers are not trained in providing caregiving to the elderly. Mandatory training for foreign domestic workers to equip them with the knowledge and skills required to care for older persons may enhance the quality of care provided.
3. Employed caregivers face demands on their time. Partnering with employers to ensure the ability of caregivers to facilitate time-off in order to bring their care recipients' for medical appointments.
4. Utilization of formal care services amongst the care recipients is very low. More research should be done in this area to find out more about the reasons why utilization is low so that appropriate measures could be put in place to improve the take-up rate of the formal services.
5. Caregiver support groups may be helpful for caregivers. However, these services are not commonly used. In addition, those who have ever used expressed dissatisfaction. The services provided should be reviewed so that appropriate measures could be put in place to improve the take-up rate of the services and also to be able to better support the caregivers in future.
6. Many caregivers are also reporting that they have chronic diseases. Health promotion and disease management in caregivers are priorities.
7. Caregivers in low socioeconomic status need more assistance in dealing with the financial aspects of caregiver burden.
8. The use of telemedicine such as caregiver access to online General Practitioners and Pharmacists may aid in alleviating caregiver burden.

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