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FACTORS AFFECTING INFORMAL CAREGIVER BURDEN IN THE CARE OF THE ELDERLY

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ABSTRACT

Introduction: Singapore is facing a rapidly ageing population with its antecedent care needs. A greater understanding of informal caregiver burden and how primary care physicians can support them is therefore needed. This study investigated the contributing factors to caregiver burden in Singapore.

Methods: Eighty caregivers of elderly receiving eldercare services were randomly selected to take part in a modified Singapore Survey on Informal Caregiving. The Zarit Burden Interview was used to measure caregiver burden. Logistic regression and chi-square tests were performed to analyse the difference in factors between high and low burden caregivers.

Results: Five variables were significantly associated with level of burden. High burden caregivers were found to have a lower mean age, less positive feelings towards caregiving, more disrupted schedules, more health problems, and less self-esteem derived from caregiving.

Conclusion: The factors affecting caregiver burden are multifaceted, with caregiving having an impact on various domains of a caregiver's life. Understanding these factors will help primary care physicians provide more holistic care for the elderly in the context of their family.

Keywords: caregiver burden, elderly, ageing

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INTRODUCTION

The number of seniors aged 65 years and above in Singapore is predicted to hit over 900,000 by 2030,[1] a significant increase from approximately 730,000 in 2017, with an increasing trend in the number of seniors utilising home- and centre-based services.[2,3] Paramount also in the care of these seniors is that provided by their families, the "informal caregivers". As primary care physicians providing personal and comprehensive care in the context of the family, it is essential that these caregivers are supported in caring for the elderly.[4,5] This is especially so as the elderly population will face physical and cognitive decline as they age,[6] rendering them more dependent on others such as their family. However, the role of these informal caregivers in providing or ensuring care support for a care recipient may put a strain on them. This may lead to caregiver burden and its resultant health effects on caregivers such as depression.[7]

Caregiver burden is multifaceted, with the key domains being financial, emotional, physical, and social.[8-10] It is also commonly categorised into subjective and objective burden, where subjective burden refers to the emotional reactions and attitudes of the caregiver towards providing care that causes psychological toll, and objective burden refers to the physical or instrumental provision of aid to care recipients.[11] These two types of burden are influenced by different factors.[12-14] Moreover, caregiver burden can come from primary or secondary stressors. Primary stressors are a direct result of providing care for the care recipient and can refer to a patient's disruptive behaviour, the impacts of cognitive or functional decline, as well as the severity of conditions such as dementia.[15] Secondary stressors do not directly involve the responsibilities of providing care, but surface as problems in the caregiver's other social roles, network relations, and opinions of self. These stressors may come in the form of disruptions in work, disputes with other family members, and financial difficulty due to the responsibilities of caregiving.[16] Primary stressors trigger secondary stressors, and both types of stressors are linked to detrimental mental health among caregivers.[17,18]

There have not been many studies done in Singapore to explore caregiver burden. Mehta looked at how caregiver stress was affected by age, gender, and the care recipient's level of physical dependency.[19] Lim *et al* made the important finding that despite feeling burden, caregivers also experience gain from caregiving in the form of self-affirmation or having a changed outlook on life. Coping strategies were also found to affect the outcomes of caregiving, whether positive or negative.[20] Given the important role which informal caregivers play in the care of the elderly in Singapore and the limited number of studies exploring this, the aim of this study was to examine the contributing factors of caregiver burden among caregivers to elderly individuals. This study also aims to explore how demographic variables and caregivers' assessment of caregiving influences burden.

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HYPOTHESES

Based on past findings, which suggested that an older caregiver may face more difficulties in providing care due to their increased vulnerability,[21,22] it was hypothesised that the higher the age of the caregiver, the greater the burden experienced. Another hypothesis was that the greater the financial stress, the greater the burden experienced. Third, it was hypothesised that the more positive the caregiver's feelings towards caregiving, the less the burden experienced.[23]

METHODS

Caregivers of seniors from 17 centres of one eldercare service provider in Singapore were contacted until 40 low burden caregivers (Zarit Burden Interview-4 [ZBI-4] score of 7 and below) and 40 high burden caregivers (ZBI-4 score of 8 and above) consented to participating, for a total of 80 participants. This allowed for a comparison between caregivers with high and low burden. Apart from the Zarit Burden Interview, which is a valid and reliable tool for assessing caregiver burden in Singapore,[24-27] demographic data were also extracted. To understand the caregiving experience, a modified version of the Singapore Survey of Informal Caregiving (SSIC)[7] was administered as an interview with the caregivers. In this modified version, questions regarding the caregiver's socio-demographic particulars, social and fitness activities, positive feelings about caregiving, reactions to caregiving, as well as caregiver needs were asked.

Positive Feelings About Caregiving

Within the SSIC, Tarlow *et al*'s Positive Aspects of Caregiving (PAC) scale,[23] which has been validated in the local population, was used to measure caregiver's positive feelings about caregiving.[28] The 9-item scale combines the self-affirmation and outlook on life components to produce a single score that indicates the positive perception of the caregiver experience.

Caregiver Reaction

The Caregiver Reaction Assessment (CRA)[29] was used to measure the caregivers' reactions to caregiving in the SSIC. The CRA is broken down into five subscales: (a) "disrupted schedule", which measures the extent to which caregiving interrupts usual daily activities; (b) "financial problems", which measures the financial strain on the caregiver; (c) "lack of family support", which measures the extent to which the caregiver perceives a shortage of family support and of being abandoned; (d) "health problems", which measures the caregiver's feeling of deterioration in physical health; and (e) "self-esteem", which measures the extent to which caregiving imparts individual self-esteem (i.e., items assess whether caregiving is enjoyable or causes resentment).

Ethics

Informed consent was taken from caregivers. This study was approved by the National University of Singapore Institutional Review Board.

Results

The caregivers who participated (27 males, 53 females) had a mean age of 54.75 years. The majority were Chinese (97.5 percent), Buddhist/Taoist (53.8 percent), currently married (65.0 percent), staying in a 3-4 room public flat (56.3 percent), and were the daughters of their care recipient (48.8 percent). For care recipients, the majority were females (73.8 percent), 84 years old and above (28.8 percent), and lived with their caregiver (88.8 percent). Out of the 80 care recipients, 38 (47.5 percent) suffered from dementia.

A series of chi-square tests and logistic regressions were performed to ascertain the association of various demographic variables, the PAC scale, as well as the CRA with caregiver burden. Demographic variables included the caregivers' age, gender, religion, race, housing type, and relationship to care recipient. None of the categorical demographic variables showed a statistically significant association with caregiver burden (refer to **Table 1**).

The only demographic variable that showed statistical significance with caregiver burden was age, with an odds ratio (OR) of 0.94 for high caregiver burden, explaining 10.7 percent of the variance in the level of burden (p=0.015). The logistic regression model for positive feelings towards caregiving, as indicated by the total score on the PAC scale, showed statistical significance for high caregiver burden (OR 0.92, p=0.015) and explained 10.5 percent of the variance in the level of burden. Higher "disrupted schedule" and "health problems" scores were significantly associated with an increased likelihood of experiencing high caregiver burden (OR 1.18, R^2 10.7 percent, p=0.015 and OR 1.27, R^2 13.7 percent, p=0.007 respectively), while lower "self-esteem" scores were associated with an increased likelihood of experiencing high caregiver burden (OR 0.83, R^2 10.1 percent, p=0.018). The full results of the logistic regression analyses performed are presented in **Table 2**.

Table 1. Comparisons of Demographic Variables by Level of Burden Experienced

Demographic variable	Overall sample	Low burden	High burden	Chi-square tests
Gender *n* (%)				
Male	27 (33.8)	15 (37.5)	12 (30)	χ^2 (1) = 0.50
Female	53 (66.2)	25 (62.5)	28 (70)	*p* = 0.478
				Φ = 0.08
				n = 80
Race *n* (%)				
Chinese	78 (97.5)	39 (97.5)	39 (97.5)	χ^2 (1) = 2.00
Others	2 (2.5)	1 (2.5)	1 (2.5)	*p* = 0.368
				Φ = 0.16
				n = 80
Relation to care recipient *n* (%)				
Wife	5 (6.3)	3 (7.5)	2 (5.0)	χ^2 (6) = 3.29
Husband	3 (3.8)	2 (5.0)	1 (2.5)	*p* = 0.772
Son	21 (26.3)	10 (25.0)	11 (27.5)	Φ = 0.20
Daughter	39 (48.8)	18 (45.0)	21 (52.5)	*n* = 80
Son/Daughter-in-law	7 (8.8)	3 (7.5)	4 (10.0)	
Sibling	3 (3.8)	2 (5.0)	1 (2.5)	
Others	2 (2.5)	2 (5.0)	0 (0.0)	
Marital status *n* (%)				
Married	52 (65.0)	30 (75.0)	22 (55.0)	χ^2 (1) = 3.52
Not married	28 (35.0)	10 (25.0)	18 (45.0)	*p* = 0.061
				Φ = 0.21
				n = 80
Living with care recipient *n* (%)				
Yes	57 (72.2)	26 (65.0)	31 (79.5)	χ^2 (1) = 2.06
No	22 (27.8)	14 (35.0)	8 (20.5)	*p* = 0.151
				Φ = -0.16
				n = 80
Adequate financial resources *n* (%)				
More than adequate	10 (12.5)	5 (12.5)	5 (12.5)	χ^2 (4) = 2.10
Adequate	47 (58.8)	25 (62.5)	22 (55.0)	*p* = 0.717
Occasionally adequate	11 (13.8)	5 (12.5)	6 (15.0)	Φ = 0.16
Usually inadequate	11 (13.8)	4 (10.0)	7 (17.5)	*n* = 80
Don't know	1 (1.3)	1 (2.5)	0 (0.0)	
Household income *n* (%)				
<$500	11 (13.8)	5 (12.5)	6 (15.0)	χ^2 (8) = 6.89
$500-$999	6 (7.5)	2 (5.0)	4 (10.0)	*p* = 0.548
$1,000-$1,999	6 (7.5)	5 (12.5)	1 (2.5)	Φ = 0.294
$2,000-$2,999	8 (10.0)	5 (12.5)	3 (7.5)	*n* = 80
$3,000-$3,999	7 (8.8)	3 (7.5)	4 (10.0)	
$4,000-$4,999	5 (6.3)	4 (10.0)	1 (2.5)	
≥$5,000	25 (31.3)	11 (27.5)	14 (35.0)	
Don't know	6 (7.5)	3 (7.5)	3 (7.5)	
Refuse to answer	6 (7.5)	2 (5.0)	4 (10.0)	
Education level *n* (%)				
Lower primary	1 (1.3)	0 (0.0)	1 (2.5)	χ^2 (9) = 11.24
Primary	4 (5.0)	4 (10.0)	0 (0.0)	*p* = 0.259
Lower secondary	4 (5.0)	3 (7.5)	1 (2.5)	Φ = 0.38
Secondary	16 (20.0)	6 (15.0)	10 (25.0)	*n* = 80
Upper secondary: General	5 (6.3)	4 (10.0)	1 (2.5)	
Upper secondary: Vocational	1 (1.3)	1 (2.5)	0 (0.0)	
Polytechnic diploma	9 (11.3)	4 (10.0)	5 (12.5)	
Professional qualification	2 (2.5)	1 (2.5)	1 (2.5)	
University first degree	26 (32.5)	13 (32.5)	13 (32.5)	
Postgrad diploma/degree	12 (15.0)	4 (10.0)	8 (20.0)	

Table 2. Logistic Regression Predicting Likelihood of High Caregiver Burden based on Age, PAC, and CRA

							95% CI for Odds Ratio	
	β	*SE* β	Wald	*df*	*p*	e^{β}	Lower	Upper
Age	-0.06	0.03	5.90	1	0.015	0.94	0.89	0.99
Constant	3.38	1.41	5.75	1	0.017	29.50		
Positive Aspects of Caregiving	-0.09	0.035	5.93	1	0.015	0.92	0.86	0.98
Constant	2.96	1.24	5.68	1	0.017	19.38		
Disrupted Schedule (CRA)	0.16	0.07	5.89	1	0.015	1.18	1.03	1.34
Constant	-2.61	1.11	5.59	1	0.018	0.07		
Financial Problems (CRA)	0.11	0.10	1.12	1	0.290	1.12	0.91	1.37
Constant	-0.87	0.85	1.04	1	0.307	0.42		
Lack of Financial Support (CRA)	0.09	0.06	2.34	1	0.126	1.10	0.97	1.24
Constant	-1.16	0.79	2.15	1	0.142	0.31		
Health Problems (CRA)	0.25	0.09	7.38	1	0.007	1.29	1.07	1.54
Constant	-2.64	0.99	7.08	1	0.008	0.07		
Self-esteem (CRA)	-0.19	0.079	5.61	1	0.018	0.83	0.71	0.97
Constant	4.78	2.03	5.52	1	0.019	118.72		

DISCUSSION

The results presented in this study highlight how the factors that contribute to caregiver burden are multifaceted. Out of all the demographic variables, only age was found to be significantly correlated to caregiver burden. However, contrary to past research findings, it was found in this study that the lower the age of the caregiver, the higher the burden experienced. Several reasons can account for this result. Firstly, Neugarten posited that caregiving may be more developmentally "on time" for older caregivers than younger caregivers.[30] Hence, older caregivers might be less likely to experience burden while providing care as it is seen as an expected role as they get older. Specifically, for spousal caregivers, providing care for one's spouse might be viewed as a marriage commitment,[31] preparing the spouse for the role they have to play and the responsibilities they have to take up as their spouse's caregiver, thus reducing the burden experienced. Another reason why younger caregivers may experience higher burden is the effects of being in the sandwich generation, defined to be the adult children of elderly, who are "sandwiched" between their ageing parents and their own young children.[32] For caregivers who have to look after their own children, the added responsibility of caring for their aged parents can make the process of caring even more stressful. This would be exacerbated if they have to work as well, which is a common scenario in Singapore.

Another surprising finding was that household income yielded no significant association with burden. Additionally, the "financial problems" subscale of the Caregiver Reaction Assessment (CRA) also indicated no significant correlation between burden and financial problems. This seems to run counter to feedback of many caregivers lamenting about their financial issues being in part due to the need to care for an elderly family member.[33] It is possible that in the Singapore context, the increasing number of government financial schemes to help with the costs of community services and medical care have been effective in giving caregivers an assurance that financial aid is available should they require it.

Other results on the CRA subscales showed that a caregiver's "disrupted schedule", "health problems", and "self-esteem" were correlated to the level of burden experienced. Although not hypothesised, it was found that the more disrupted a caregiver's schedule was due to caregiving responsibilities, the greater the burden a caregiver experienced. This is in line with past research studies where it was found that the impact of providing care on a caregiver's schedule is associated with caregiver burden.[34] This can be due to role overload, described as the situation where caregivers feel that there are too many activities expected of them to perform, considering the amount of time available, their abilities, as well as other responsibilities.[35] A highly disrupted schedule may cause the caregiver to experience role overload, resulting in increased caregiver burden. This situation can be made worse if the caregiver has a number of health problems, which this study found to be significantly correlated to caregiver burden, as it may reduce the ability a caregiver has to deal with the responsibilities of being a caregiver and his/her disrupted schedule, in addition to the burden those health problems create in themselves (e.g., medical appointments to attend, treatment regimens to adhere to, and pain or discomfort associated with the health problems).

Both the "self-esteem" subscale of CRA and the PAC scale yielded significant results, suggesting that having higher levels of positive feelings towards caregiving can result in lower burden experienced. This is consistent with other studies where it was found that positive aspects of caregiving were associated with lower depressive symptoms, caregiving burden, and better self-assessed health.[36] The experience of positive aspects of caregiving can alleviate the negative aspects of caregiving such as increased responsibilities, disrupted schedules, and managing challenging behaviours, therefore reducing the level of caregiver burden experienced. Though this finding is in line with past studies, further exploration would allow some insight into how positive feelings can serve as a protective factor against high caregiver burden.

CONCLUSION

The present study serves to broaden research on caregiver burden by exploring the contributing factors that were associated with higher burden in caregivers. The findings of this study highlight the need to address the caregiver stress experienced by those in the younger age groups, as well as emphasise the positive aspects of caregiving by primary care physicians as part of the holistic care of their elderly patients. As caregiver burden is a complex construct, future research could incorporate qualitative methods to study more in-depth the various interactions the different factors have on each other and how they collectively contribute to caregiver burden.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest in relation to this article.

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