SYSTEMATIC REVIEW

A Systematic Review on Caregiver's Burden Among Caregivers of Dementia Patients in Malaysia

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ABSTRACT

Introduction: Increasing prevalence of dementia and the associated caregiving burden are expected due to longer life expectancy. This review aimed to critically assess dementia-driven caregiving burden and the associated factors in Malaysia. **Methods:** A systematic search using several combinations of keywords was conducted in Ovid Medline, PubMed, Science Direct, ProQuest, and Ebscohost databases. The primary outcome was the score or level of caregiver burden, while the secondary outcome was the factors associated with such burden. The quality of the individual articles was assessed using the Newcastle–Ottawa Scale and the Joanna Briggs Institute checklist. **Results:** The systematic search resulted in seven studies being reviewed, consisting of six cross-sectional studies and one quasi-experimental study. Using the Zarit Burden Interview, two studies reported moderate caregiver burden with mean scores of 35.4 (15.08) and 46.0 (17.0). High levels of burden or strain were reported using the Caregiver Strain Index in other studies. The three main associated factors with burden identified in these studies were the presence of behavioural and psychological symptoms of dementia (BPSD), higher education level, and lack of social support. **Conclusion:** Moderate to severe caregiving burden level were found to be experienced by dementia caregivers in this country. High education, lack of support, as well as taking care of patient with BPSD being the most prominent factors associated with burden. Therefore, burden should be regularly assessed among the dementia caregivers especially among those with lack of social support and manage family members with BPSD, as to prevent adverse outcome from dementia caregiving.
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INTRODUCTION

The world is experiencing an ageing population, with greater ageing impact experienced by developing countries due to the rapid ageing population, with longevity and reduced fertility being the two main contributing factors. However, living longer has put older persons at risk of multimorbidity, including dementia. An increasing prevalence of dementia has been reported with increasing age in many aged nations. This phenomenon involves the deterioration of memory, thinking ability, behaviour, and the ability to perform everyday activities, thus contributing towards one of the major causes of disability and dependency among older persons. According to the World Health Organization, approximately 50 million people have dementia, with nearly 10 million new cases diagnosed globally every year (1). The prevalence of dementia was also projected to reach 82 million in 2030 and 152 in 2050, mainly contributed by the low- and middle-income countries (LMIC).

The proportion of people with dementia residing in LMIC are expected to rise from 58% in 2010 to 63% by 2030, and 71% by 2050 (2). Being a middle-income country, Malaysia is expected to become an aged nation by 2030, with more than 15% of the total population consisting of individuals 65 years old and older. Malaysia had an estimated 123,000 people with dementia in 2015, and this number is expected to be doubled by 2030, reaching nearly 600,000 by 2050 (3). There is a rising concern regarding the ability of this nation to provide quality health and social care to support people with dementia, as well as the preparedness of family members to care for relatives with dementia (4).

Lack of formal services and benefits for patients with

dementia and their caregivers in developing countries may significantly lead to higher level of stress, as well as serious depressive symptoms and physical problems among caregivers due to the caregiving burden (5). Caregiver burden is a widely accepted feature of many caregiving studies that measure the effects of caregiver stressors and emotional symptoms (6). Caregiver burden is defined by Zarit et al. (1986) as the extent to which caregivers perceive the adverse effect that caregiving has on their emotional, social, financial, and physical functioning (7).

Previous studies have shown that caregiver burden or strain associated with dementia can lead to negative health consequences (8–10). Providing care for people with dementia was found to be more stressful than for physically-impaired people, which can lead to chronic stress (11), with elevated rate of psychological disorders, such as depression, anxiety, and mood disorders among caregivers (12). Their physical health is also often neglected as they tend to have insufficient sleep and poor nutritional intake, which may impair their immunological and hormonal functions (10,13). This in turn will increase their vulnerability to diseases, which will subsequently reduce their ability to provide optimal care for the patients (9).

Many factors related to both patients and caregivers have been identified to contribute to caregiver burden. The negative physical effects experienced by caregivers may be associated with physical exertion, lack of self-care, physiological effects of psychological conditions, and changes in cardiovascular functions (14). The main contributor of caregiver burden is the presence of behavioural and psychological symptoms of dementia (BPSD) among patients, also known as neuropsychiatric symptoms (8,15,16). Other contributors, as determined in this review, were the sociodemographic and psychological factors of the caregivers (17). This review aimed to identify the caregiving burden and its associated factors among caregivers of people with dementia in Malaysia, as well as to explore the extensiveness of the burden studies among dementia caregivers in the local setting.

METHODS

This review was conducted and reported in accordance with the guidelines by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (18).

Eligibility criteria
This study has included all related observational and intervention studies that measured caregiver burden and its associated factors. The primary outcome of this review was the score or level of caregiver burden of caring for patients with dementia in Malaysia, with the associated factors being the secondary outcome. Non-English

or non-Malay studies, proceedings, reports, reviews, descriptive studies, protocols and studies involving clinical/pharmacological measures, and unavailable full text were excluded.

Data sources and search strategy
Relevant published articles were systematically searched using five databases, namely, Ovid Medline, PubMed, Science Direct, ProQuest, and Ebscohost. General engine, such as Google Scholar, were also used to find relevant studies published in the local language. The search was initially limited to a 10-year period from 2010 until 2020, which was later extended to 20 years due to limited relevant local studies. Several combinations of keywords using the MeSH terms, such as caregiver OR carer, AND, dementia OR Alzheimer OR cognitive impairment OR cognitive decline, AND, burden OR strain OR stress, AND, Malaysia OR Sabah OR Sarawak in the title, abstract, or keywords were used to effectively search relevant studies. A cross-reference from the bibliography of the selected articles was also performed to ensure a comprehensive literature search.

Study selection
A pair of authors have independently assessed the titles and abstracts of a defined set of articles, which were identified based on the keywords used. These studies were categorised as either included, excluded, or unsure status. Studies that were categorised as included and unsure status were further assessed by retrieving the full texts. Eligible studies were identified based on the predetermined criteria. Any discrepancies in the assessment were resolved by having a discussion that led to a consensus.

Data extraction
Data extraction was done independently by two authors and they both reviewed the extracted data to ensure precision. Information on the articles, including authors' name, year of publication, study design, location, study population, sample size, tools used to determine caregiver burden, and reported outcomes (level of caregiver burden and its associated factors) have been summarised in an Excel table. Initial data extracted by the authors were presented to the rest of the authors, where discussions were held to reach a consensus for any disagreement.

Data analysis
Caregiving burden cases reported as mean (SD) and median (IQR) scores were reviewed in this study. The factors associated with caregiver burden were categorised according to the patients', caregivers', and caregiving characteristics. As for the association between factors and caregiver burden, estimates of correlation coefficient, t-test, F-test, and Beta coefficient were extracted, together with the p-value, or 95% confidence interval.

Quality assessment
The methodological quality of the included cross-sectional studies was assessed using the Newcastle–Ottawa Scale (NOS), which is commonly used for assessing the quality of non-randomised studies worldwide (19,20). Since these were mostly cross-sectional studies, a NOS modified by Herzog et al. (2013) was used (21). This modified scale was adapted for cross-sectional studies to yield a score for each appraised article based on three domains, namely, selection of groups (4 items), comparability of groups (1 item), and ascertainment of outcome (2 items) (22). These domains were assessed through seven items: 1) the representativeness of the sample of each study; 2) adequacy of sample size; 3) response rate; 4) ascertainment of exposure; 5) comparability of groups by controlling single or more than one study factors; 6) assessment of outcome; and 7) appropriate statistical test. The maximum stars for the first domain are five, while the second and third domains have two and three stars, respectively. These studies were categorised as very good, if they score between 9 to 10 stars, good if they score 7 to 8 stars, satisfactory if they score 5 to 6 stars, and unsatisfactory if the score was 0 to 4 stars. An article with a score of ≥ 7 stars would be considered as a high quality study (23). All articles were appraised separately, including two articles that were derived from the same study, since some of the information was not available in either of these articles. Therefore, both articles were included in this study to gather all available information. Subsequently, two of the cross-sectional studies were found to be of unsatisfactory quality (24,25), two were satisfactory (26,27), while another two (28,29) were excellent, as shown in Table Ia.

The Joanna Briggs Institute (JBI) checklist for quasi-experimental studies was also used to evaluate the quality of the only interventional study included in this review and to determine whether interventional studies have addressed the possibility of bias in their design, conduct, and analysis clearly. This checklist consists of nine items and the reviewer needs to decide whether all of the items have been described clearly in the study by stating 'Yes', 'No', 'Unclear', or 'Not Applicable'. This checklist is often used to conclude whether a study is of high or low quality, whereby a low-quality study should be excluded. However, the purpose of this review was only to examine the quality, without excluding the study. The only published interventional study involved in this review was an experimental study without a control group for comparison. The caregiver burden scores were identified, and the score prior to and the score after several sessions of support group intervention were compared. This interventional study clearly aimed to investigate the effect of the support group on caregiver burden. However, it failed to satisfy other requirements of a good-quality non-randomised interventional study, as suggested by the JBI, resulting in it scoring as a poor-quality study (Table Ib). The outcomes, however, were measured using a reliable validated tool and analysed appropriately.

RESULTS

Search results
A total of 257 articles were identified during the initial screening using a combination of keywords. After excluding 41 duplicated studies, a total of 202 articles were further excluded based on title and abstract

Table Ia: Quality assessment of included cross-sectional studies using NOS

Authors	SELECTION				COMPARABILITY	OUTCOME		Total scores
	Representative of sample	Sample size	Non-respondents	Ascertainment of exposure	Confounding are controlled	Assessment of outcome	Statistical test	
Choo et al. (2003) (24)	-	-	-	+ +	-	+	+	4
Rosdinom et al. (2011) (25)	-	-	-	+ +	-	+	-	3
Rosdinom et al. (2013) (26)	-	-	+	+ +	+	-	+	5
NurFatihah, Rahmah and Rosnah (2013) (27)	+	+	-	+ +	-	+	+	6
Baharudin et al. (2019) (28)	+	+	+	+ +	+ +	+	+	9
Chan et al. (2019) (29)	+	+	+	+ +	+ +	+	+	9

Score indicators of studies: Very good 9-10 points; Good 7-8 points; Satisfactory 5-6 points; Unsatisfactory 0-4 points

Table Ib: Quality assessment of included interventional study using JBI

Authors	Clarity on cause and effect	Similarity on comparisons	Comparisons receiving similar treatment	Presence of control group	Multiple measurement of outcome	Complete follow-up or adequately analyzed	Outcomes in comparison group measured same way	Outcomes measured reliably	Appropriate statistical analysis
Zakaria and Razak (2017) (30)	Yes	NA	NA	No	No	No	NA	Yes	Yes

*NA = not applicable

screening of irrelevant diseases (other than dementia), non-caregiving-related burden, irrelevant study location (other than Malaysia), reports/review articles, proceedings, and irrelevant outcomes. From a total of 14 full texts assessed, seven were excluded due to irrelevant content (non-dementia related). Figure 1 shows the flowchart of the search results based on PRISMA.
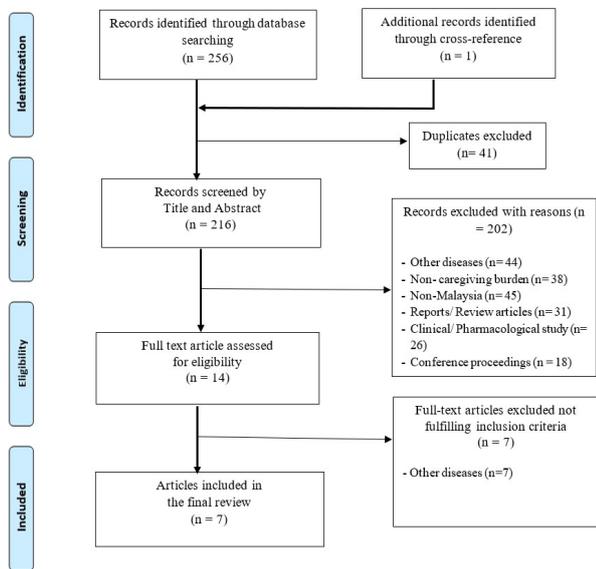

Figure 1: The PRISMA flowchart for systematic search on burden of dementia patients' caregivers in Malaysia

Study characteristics
Out of the seven selected articles, two were published from the same study, six of these articles were cross-sectional studies, while the remaining one was an interventional study. The study characteristics are summarised in Table II. These studies were conducted among informal caregivers, i.e., family members taking care of patients with dementia in home settings, and published between 2003 and 2019. The non-probability sampling approach was employed in all seven studies for recruitment of respondents. A total of 793 caregivers were involved in these seven studies, with the lowest sample size being 16 (30) and the highest was 230 caregivers (29). The majority of the respondents were recruited from healthcare facilities, except in two studies, which identified their respondents through a community support organisation, namely, the Alzheimer's Disease Foundation Malaysia (ADFM) (28,29).

The characteristics of the respondents based on patients', caregivers', and caregiving characteristics are summarised in Table II. The majority of the caregivers involved in the selected studies were female (70%), with mean age ranging between 44.12 (± 10.92) and 55 (± 15.86) years old. The children of people with dementia were the commonest caregivers compared with spouses, as reported in these studies. The majority of them were married and only two studies involved cohabitation, in which most of the caregivers live together with patients with dementia (24,29). The majority of the caregivers

were employed, either part-time or full-time.

As for the patients, the mean age of approximately 75 years old was reported in four of the seven studies (24–27). Only two studies reported the mean duration of dementia of 4.00 (2.92) years (24) and 4.92 (3.12) years (26). Meanwhile, four studies reported caregiving durations of more than a year (26,28–30).

Caregiver burden
All reviewed studies used validated tools to measure the caregiving burden. This review found that four studies used the Zarit Burden Interview (ZBI) (24–28), while the other two used the Caregiver Strain Index (CSI) (29,30). Only four studies provided the mean scores for caregiver burden, of which two used the ZBI (24,27), and the other two used the CSI (29,30). Based on the ZBI, Choo et al. (2003) and NurFatihah et al. (2013) described the caregiver burden as moderate, with mean scores of 35.4 and 46.0, respectively (24,27). Meanwhile, by using the 13-item CSI, the other two studies described higher levels of caregiver burden or strain (29,30). Approximately 50% of caregivers in the study by Zakaria and Razak (2017), and 77.7% in the study by Chan et al. (2019) faced high strain, with mean scores of 6.88 (± 4.60) and 12.0 (± 5.8), respectively (29,30).

Factors associated with caregiver burden
The factors associated with caregiver burden were categorised based on patients', caregivers', and caregiving characteristics, which are summarised in Table III.

Patient's characteristics
Behavioural and psychological symptoms of dementia (BPSD) have been investigated in two studies, with both reporting its significant association with caregiver burden (26,28). Rosdinom et al. (2013) also reported the association between gender (26), while Chan et al. (2019) reported the physical functional status (29) with caregiver burden. Female patients with dementia and better physical functions were being associated with lesser burden, respectively.

Caregiver's characteristics
In terms of caregiver's characteristics, the association between ethnicity and caregiver burden were investigated by three studies (24–26,29). Only one study reported a significant association, in which caregivers of Chinese ethnicity was found to have the highest mean burden score of 38.61 (24). Next, two studies reported the significant role of education to predict caregiver burden, with caregivers who attained higher education level reported as feeling more burdened (26,29). Only one study reported the association between caregiver burden and the relationship that patients with dementia have with their caregivers (29), while other studies reported personality traits and coping styles (28), as well as the resilience of caregivers (29). Caregivers who

Table II: Characteristics of included studies

Authors	Study design	Location	Study population (caregiver's characteristics)					Living in same household	Patient's characteristics	Caregiving characteristics		Caregiver burden tool	Score of caregiver burden, mean (SD)
			Sample population	Sample size (sampling method)	Mean age, Years (SD)	Gender	Relationship with patient		Mean age, Years (SD)	Duration of caregiving	Support in caregiving		
Choo et al. (2003) [?]	Cross-sectional	NS	Recruited from multiple centres; 1. ADFM 2. Two district hospitals 3. One university hospital 4. Rural health centres from different states of Malaysia	70 caregivers (convenience sampling)	52.3 (12.8)	Male 30% Female 70%	Spouse 30% Son/daughter 60% Others 10%	Yes 84.3%	75.6 (8.67)	NS	Support from maids or private nurses 36%	ZBI	35.4 (15.08)
Rosdinom et al. (2011) [?]	Cross-sectional	Kuala Lumpur	1. Psychogeriatric and memory clinics, Universiti Kebangsaan Malaysia Medical Centre 2. Psychogeriatric and memory clinics, Hospital Kuala Lumpur	65 dyads (convenience sampling)	49.23 (12.17)	Male 33.8% Female 66.2%	Spouse 15.4% Son/daughter 64.6% Others 18.6%	NS	74.11 (7.47)	Mean: 2.63 (1.11)	NS	ZBI	NS
Rosdinom et al. (2013) [?]	Cross-sectional	Kuala Lumpur	As above	As above	As above	As above	As above	As above	As above	As above	As above	As above	NS
NurFatihah et al. (2013) [?]	Cross-sectional	Sarawak	Psychiatric clinics in 5 hospitals	145 caregivers (purposive sampling)	55 (15.86)	Male 26.2% Female 73.8%	Spouse 37.3% Non-spouse 62.7%	NS	74.9 (8.47)	NS	Informal social support: 49% perceived good, 51% perceived poor support	ZBI	46 (17.0)
Zakaria and Razak (2017) [?]	Interventional	Kelantan	Memory clinic, Hospital Universiti Sains Malaysia	16 caregivers (convenience sampling)	44.12 (10.92)	Male 25.0% Female 75.0%	Spouse 6.2% Son/daughter 93.8%	NS	66.69 (6.64)	More than one-year 81.3%	NS	CSI	6.88 (4.60)
Baharudin et al. (2019) [?]	Cross-sectional	Selangor	ADFM, Petaling Jaya	202 caregivers (purposive sampling)	NS Majority 50 and above (55%)	Male 28.7% Female 71.3%	Spouse 18.3% Son/daughter 58.9% Others 22.8%	NS	NS	Less than a year 33.7% 1-5 years 39.2% More than 5 years 27.2%	NS	ZBI	NS
Chan et al. (2019) [?]	Cross-sectional	ADFM in different states throughout Malaysia	ADFM	230 caregivers (convenience sampling)	50.4 (14.5)	Male 20.3% Female 79.7%	Spouse 16.4% Son/daughter 61.4% Others 17.4%	Yes 65.2%	NS	2 months - 25 years Mean: 4 (4.1) years	Help from family members 78.7% Emotional support 65.2% Hire help: Yes 47.3% No 51.2%	CSI	12.0 (5.8)

*NS= not specified   *ZBI= Zarit Burden Interview   *CSI = Caregiver Strain Index

Table III: The summary of risk factors associated with caregiver's burden

Factors/ Characteristics	Statistical values	References
Patient's characteristics		
Gender (Female)	β = - 0.370, p=0.012	(26)
Presence of BPSD	r = 0.417 (p=0.001), B = 0.38 (p=0.005) β = 0.538, p < 0.05 delusion r= 0.121, p <0.05 agitation r= 0.115, p <0.05 irritability r= 0.126, p <0.05 night-time behaviour r= 0.113, p<0.05 hallucination r= 0.184, p <0.01 depression r= 0.157, p <0.01 apathy r= 0.379, p <0.01 disinhibition r= 0.201, p <0.01 motor disturbance r= 0.144, p <0.01	(26, 28)
Activities of daily living	β = -0.172, p<0.05	(29)
Caregiver's characteristics		
Ethnicity	F = 3.246, df = 69, p = 0.042	(24)
Educational level	β = 0.500, p = 0.001 p = 0.047	(26,29)
Relationship with care recipients	r = 0.18, p < 0.05	(29)
Personality traits	extroversion r = - 0.186, p<0.01 agreeableness r = - 0.342, p< 0.01 conscientiousness r = - 0.391, p<0.01 neuroticism r = 0.282, p<0.01	(28)
Coping strategies	self-distraction r = 0.478, p<0.01 active coping r = 0.325, p<0.01 denial r = 0.156, p<0.05 instrumental support r = 0.235, p< 0.01 venting r = 0.358, p< 0.01 positive reframing r = 0.255, p< 0.01 planning r = 0.393, p<0.01 acceptance r = 0.427, p<0.01	(28)
Resilience	β = - 0.338, p < 0.001	(29)
Caregiving characteristics		
Social support	X² = 3.611, df = 1, p≤0.05 β = -0.790, p = 0.026 mean difference = 2.32 (SD 2.21, 95% CI 1.13-3.49, p = 0.001)	(24, 27, 30)
Sharing responsibilities with siblings	F = 3.194, df = 69, p = 0.045	(24)
Years of care	r = 0.173, p = 0.018	(29)

were children of people with dementia have higher strain scores compared with spousal caregivers (29). Reportedly, four out of five traits were weakly correlated with caregiver burden, of which three, namely, extroversion (r = -0.186), agreeableness (r = -0.342), and conscientiousness (r = -0.391), were negatively correlated, while neuroticism (r = 0.282) was positively correlated (28). Meanwhile, eight out of 14 coping styles among caregivers were found to have significant positive correlations with caregiver burden: self-distraction (r = 0.479) and acceptance (r = 0.427) were moderately correlated; planning (r = 0.393), venting (r = 0.358), active coping (r = 0.325), positive reframing (r = 0.255),

instrumental support (r = 0.235), and denial (r = 0.156) were all weakly correlated with caregiver burden (28). Additionally, findings from Chan et al. (2019) showed that being less resilient was predictive of higher burden (β = -0.338).

Caregiving characteristics

The role of social support to reduce caregiving burden was reported in three articles (24,27,30). High informal social support scores, particularly from family members, were found to significantly reduce caregiver burden (β = -0.790) (27). Similarly, sharing responsibilities in caregiving was also found to significantly lower the burden (F = 3.194) (Choo et al., 2003). Only one study reported significant positive correlation between years of care and caregiving burden (Chan et al., 2019), although the correlation was weak (r = 0.172) (29).

DISCUSSION

This review has revealed moderate to high levels of burden among caregivers of people with dementia in Malaysia, with the use of CSI showing higher levels of burden compared with the use of ZBI, which limited the accuracy of comparisons between these studies. CSI consists of three dimensions of strain, namely, the perception of caregiving, care-recipient characteristics, and emotional status (31). Meanwhile, ZBI is a more comprehensive tool introduced by Zarit et al. (1980) and is among the most popular tools for measuring caregiver burden (17,33). ZBI measures the objective and the multidimensional subjective burden among caregivers by taking the physical, psychological or emotional, social, and financial burdens into consideration (34).

In practice, the term 'caregiver burden' is used interchangeably with other terms, such as 'caregiver strain' or 'caregiving stress' (35). Higher level of caregiving burden among caregivers of people with dementia is an established issue, with reportedly higher level of stress, serious depressive symptoms, and physical problems when compared with non-dementia caregivers (11). An overall prevalence rate that ranged between 34% and 44% of elevated depressive and anxiety symptoms was previously reported in a systematic review involving 17 articles (36). However, measuring caregiver burden is a challenging task, since it is constructed by cultural backgrounds, ethical and religious belief, awareness, and personal values of caregivers (37). Nonetheless, the numerous measurement tools available have neither a uniform approach nor a definitive consensus on what constitutes a significant caregiver burden (38).

The moderate to severe scores for caregiver burden obtained in this review indicated the possibility of inadequate support received by the caregivers. Social support from family members and sharing responsibilities were identified in this review as being able to reduce the caregiving burden experienced by

the caregivers. The lack of support and resources that can provide optimal care for patients with dementia were also reported in other Asian countries (16,39–43). According to van der Lee et al. (2014), support can also act as a mediator between stressors and outcomes in caregiving (44). Interestingly, the trend of caregiving burden in Malaysia has increased over the years when comparisons between studies using the same tool were made (24,27,29,30). Longevity of life may be a part of the reason for this trend, since dementia progresses with increase in age, as well as the deterioration of functions that make caregiving tasks more challenging.

This recent review has also revealed the association between the presence of BPSD and caregiver burden. Patients' behavioural problems were also reported as one of the most consistent determinants of caregiver burden, depression, and mental health problems in the systematic review by van der Lee et al. (2014) (44). The presence of these symptoms complicates caregiving tasks, and the difficulties are even more prominent if the patient's functional status is low. Education level was also found to be a risk factor of caregiver burden, which could probably be explained by the level of understanding of the complexity of this disease and the adoption of effective dementia management, as well as realistic expectations among caregivers (45). A study involving 966 caregivers in Germany had concluded that caregivers with higher education levels have increased odds of feeling mentally burdened by caregiving compared with those with lower education levels, even after performing adjustments for health parameters (46). Subjective health was found to have a significant mediation effect between education level and caregiving burden (46).

Limitation of study
This review has included all available and relevant studies conducted in this country pertaining to caregiver burden. The search was extensively conducted by not limiting the search in the English language, but also in the local language. However, a limited number of studies were available, whereby the search yielded published studies only from 2003 and onwards. In terms of the quality of these studies, this review has identified that only a few studies in this area are of good quality, which consequently deemed more research to be conducted in this field. The majority of these studies applied the cross-sectional study design, and although one experimental study was included in this review, it failed to satisfy the requirements of a high-quality interventional study design. The non-probability sampling methods adopted by these studies may create high bias, and hence, the results were not generalisable. Furthermore, the small sample sizes in the majority of these studies may have reduced their potency, which might have led to different findings on certain factors studied. Another limitation of this review was only to include published articles.

CONCLUSION

This current review offers information on the worrying scores of caregiver burden ranging between moderate to severe among caregivers of people with dementia in Malaysia. This range of scores was determined based on education level and social support received by the caregivers, as well as the presence of behavioural and psychological symptoms among patients with dementia. Caregivers with high education level and lacking social support, as well as looking after patients with behavioural and psychological symptoms, should be regularly screened for their level of burden, as to prevent further complication on their mental and physical health that rises from caregiving burden. More research is needed, particularly those with robust methodological approaches, to obtain more representative and accurate findings for comparison purposes.

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