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Abstract
This study aims to determine the influence of nutritional care practices for the bedridden elderly at home on the burden borne by caregivers. The nutritional care practices for the bedridden elderly at home was used to evaluate the level of care practices provided by caregivers. Whereas caregivers' burden was used to determine the level of burden borne by caregivers when caring for the bedridden elderly at home. This quantitative study used the survey technique to address the research questions and achieve the objectives. Questionnaires were distributed to 127 caregivers of bedridden elderlies living at home. Data were processed using the Statistical Package for Social Sciences (SPSS) version 22 software and analysed using descriptive and inferential analyses. Findings indicate that nutritional care practices provided by caregivers are at a moderate level, while caregivers bore a low to moderate level of burden. In addition, there is a significant relationship between nutritional care practices and caregivers' level of burden. A series of interventions or practices relevant to the nutritional management of bedridden elderlies should be introduced for the well-being of the elderly and caregivers in the future.
Keywords: Nutritional Care, Bedridden Elderly, Practices, Burden

Introduction

Caregiving is associated with negative effects on the caregiver's physical and mental health (Chen et al., 2015; Lacey et al., 2019). Numerous studies have shown that there are signs of depression among caregivers who care for the elderly. It is important to note that a caregiver's burden increases when the elderly become bedridden (Chiao et al., 2015; Mendes et al., 2019). Loh et al (2017) reported that 40.2% of caregivers caring for stroke patients were depressed. In Canada, caregivers' burden of caring for elderly stroke patients is higher due to caregivers having to spend more time on caregiving activities (Ganapathy et al., 2015).

In the United States, nearly 8.6 million of the elderly population consume unsafe nutrition (National Council on Aging, 2021). Whereas in Malaysia, one in ten elderly consume unsafe nutrition, especially those who are in rural areas and lack social support (Salleh et al., 2020). Unsafe nutrition is associated with increased mortality, deterioration in physical functions, impaired mental health, decreased resilience and higher rate of re-hospitalization (Ahmed and

Haboubi, 2010). Therefore, caregivers play a major role in ensuring that the elderly get adequate and nutritious food. However, it becomes a big challenge for caregivers when they lack resources or have difficulty in identifying the best food for bedridden elderlies, especially those suffering from chronic diseases or need special nutritional care (Keller et al., 2008; Kissal et al. al., 2019; Labossiere and Bernard, 2008; Riffin et al., 2019).

Bedridden Elderly and Nutrition

Adequate nutrition is the basis of good health, but food is also intimately related to self-identity, social and cultural aspects of life and it plays a vital role in the individual's quality of life (Hestevik et al., 2020). Elderlies are at a high risk of malnutrition due to various factors including sensory loss, anorexia, difficulty in chewing and swallowing, chronic and acute diseases as well as a multi-medication regime that can affect food intake and cause nutritional deficiencies and malnutrition (Volkert et al., 2006; Pauly et al., 2007; Locher et al., 2008). The consequences of malnutrition in the elderly include increased mortality (Payette et al., 1999; Ahmed and Haboubi, 2010; Landi et al., 2016), decreased function or frailty (Bartali et al., 2006; Landi et al., 2010); Morley, 2102; Artaza-Artabe et al., 2016), complications worse than other health conditions (Landi et al., 2016), decreased quality of life (Vailas et al., 1998) and health care costs (Janssen et al., 2004; Fávaro-Moreira, 2016).

One massive challenge faced by caregivers is to identify the best food for bedridden elderlies, especially those suffering from chronic diseases or need careful nutritional care (Labossiere and Bernard, 2008). Some of the difficulties faced by caregivers are choice of food, modification of food and means of increasing the elderly's appetite (Silva et al., 2013). In addition, this problem is more precarious with bedridden elderlies who are tube fed (Okada et al., 2001).

Some studies are more focused on nutrition education intervention for the elderly but many studies related to nutrition for the elderly do not involve caregivers (Lyons, 2014; Sahyoun et al., 2004; Locher et al., 2008). Participation of caregivers in nutrition education is important in order to curtail the decline in the elderly's health status. Furthermore, some studies found that educational intervention designed for caregivers was effective in preventing and treating malnutrition in 78 elderlies in the community (Lauque et al., 2004; Pivi et al., 2011; Riviere et al., 2001; Salvà et al., 2011).

Methodology

This quantitative study used the survey method as a research design. Quantitative research is a study involving a large number of respondents with at least more than 10 samples for measuring variables in a certain research and uses statistics for data analysis (Krejcie and Morgan, 1970; Cohen, 1992). This study's 127 respondents were selected based on the method suggested by Cohen (1992) and also using the G*power 3.1 software.

The data collection method involved questionnaires, which comprised 20 questions with five types of frequencies that were measured using a 5-point Likert scale with values ranging from 1 to 5 ("never" to "very often"). Questions covered aspects of nutritional care for the bedridden elderly (Eljedi et al., 2015; Alhosis et al., 2012). In addition, this study also used the Malay version of the Zarit Burden Interview Scale (ZBI, 22 items) to obtain information related to the level of burden faced by caregivers when managing bedridden elderlies. The ZBI

provides a summary of caregivers' interpretations of the impact of caregiving on their daily lives. It consists of 22 questions with five frequencies that requires caregivers to choose between “never” to “almost always”. Thus, in order to ensure that this questionnaire instrument is acceptable, a pilot study was conducted involving 40 caregivers. Results of the Cronbach’s Alpha test in Table 1 show that the reliability index for the level of nutritional care practices for bedridden elderlies is 0.73 (for the pilot test) and 0.90 for the actual study. Whereas for the caregiver’s level of burden, the Cronbach’s Alpha value is 0.75 for the pilot study and 0.71 for the actual study.

Table 1
Cronbach’s Alpha Reliability Test

Variables	**No. of Item**	**Pilot Study (n = 40)**	**Actual Study (n = 127)**
Level of nutritional care practices for bedridden elderlies	20	0.73	0.90
Level of caregivers’ burden	22	0.75	0.71

Data analysis focused on the descriptive statistical analysis, which involved the mean score and standard deviation for determining the level of nutritional care practices for bedridden elderlies at home. Interpretation of the mean score was based on (Pallant, 2007). Table 2 shows that Pallant (2007) divided the mean score value into three levels, namely a mean score of 1.00 to 2.33 (low level), 2.34 to 3.66 (medium level), and 3.67 to 5.00 (high level). According to Pallant (2007), these three mean score levels are more appropriate and easier for differentiating the levels.

Table 2
Mean Score and Its Interpretation

Mean Score	**Interpretation (level of knowledge)**
1.00 - 2.33	Low
2.34 - 3.66	Moderate
3.67 - 5.00	High

Source: Pallant (2007)

In order to measure the caregiver's level of burden, this study used the level of burden score suggested by (Zarit et al., 1980). Table 3.7 shows that the score is divided into four levels, i.e., a score value of 0 to 20 (little or no burden), 21 to 40 (light to moderate), 41 to 60 (moderate to heavy) and 61 to 88 (severe).

Table 3
Level of Burden Score

Score	**Interpretation (level of burden)**
0 - 20	little or no burden
21 - 40	light to moderate
41 – 60	moderate to heavy
61 - 88	severe

Source: Zarit et al (1980)

Result and Discussion

Based on Table 4, there are 45 caregivers (35.4%) who have a low level of nutritional care practice provided to bedridden elderlies, while 74 caregivers (58.3%) had a moderate level and only eight (6.3%) caregivers have a high level of nutritional care practice. Overall, the mean score and standard deviation for the caregiver's nutritional care practices for the bedridden elderly (see Table 4.6) indicates that it is at a moderate level (M = 2.60 and SD = 1.162). It can be concluded that many caregivers' practices involved the handling of food, but did not include practices related to providing a proper diet to the elderly.

Table 4
Level of Caregivers' Nutritional Care Practices for the Bedridden Elderly

Level of Practice	**Frequency**	**Percentage (%)**	**Mean**	**Standard Deviation**
Low	45	35.4	2.60	1.162
Moderate	74	58.3		
High	8	6.3		
Total	127	100.0	**Moderate**	

Table 5 indicates that out of the 127 respondents involved in this study, 82 respondents (64.6%) experienced a light to moderate burden, while 43 respondents (33.9%) experienced little or no burden and only 2 respondents (1.6%) experienced a moderate to heavy burden. Therefore, it can be concluded that the majority of caregivers' caring for the bedridden elderly had experienced a light to moderate level of burden (mean = 23.49 and SD = 9.12).

Table 5
Level of Burden Experienced by Caregivers of the Bedridden Elderly at Home

Level of Burden	**Frequency**	**Percentage (%)**	**Min**	**Standard Deviation**
Little of no burden	43	33.9	23.49	9.12
Light to moderate burden	82	64.6		
Moderate to heavy burden	2	1.6		
Total	127	100.0	**Light to Moderate**	

Results of the Pearson's Correlation statistical analysis (see Table 6) show that there is a significant correlation between nutritional care practices (r = .707, sig = .000) and the level of burden experienced by caregivers.

Table 6
Relationship between the Level of Nutritional Care Practices and the Level of Caregivers' Burden When Caring for the Bedridden Elderly

Variables		**Nutritional Care Practices**
Level of Burden	Pearson Correlation	.707**
	Sig. (2-tailed)	.000
	N	127

Deterioration in the nutritional status of the elderly is a serious public health problem (van der Pols-Vijlbrief, 2016; Abizanda, 2016). Furthermore, the lack of knowledge about nutrition among health professionals, caregivers and the elderly themselves remains a challenge (Amaral et al., 2016). Overall, it was found that the level of caregivers' nutritional care practices for the bedridden elderly is moderate. Masia et al (2020) found that caregivers' nutritional care practices were insufficient and training should be increased to ensure that nutritional care practices are more effective.

Nevertheless, in terms of diet management, caregivers seldom or never prepare food according to the food pyramid, identify the appropriate type of diet, make occasional diet modifications or measure daily food intake based on to the health status of the elderly. Moreover, caregivers very seldom check on the body weight or changes in the physical size of the elderly, do not prepare food as recommended by the doctor or advise the elderly against asking for food that is not suitable for their health condition. Fernández-Barrés et al (2017); Kapucu et al (2009) found that caregivers need to be educated about the nutrition suitable for the elderly to ensure that the elderly do not suffer from malnutrition in addition to changing the eating habits of the elderly. Thus, it is clear that the level of caregivers' nutritional care practices for the elderly is still insufficient.

Caregivers should be skilled in handling food that is safe for the elderly. However, Blackburn et al (2014) found that safe food handling practices are lacking. Most of the caregivers in this study said that safe food preparation is occasionally practiced due to the lack of knowledge about proper food preparation for the elderly. Among the practices listed are ensuring that the buying, preparing, cooking and storing of food is safe, reheated liquid food is cooked until it boils and the food is not too hot or too cold when served to the elderly, providing soft food for easier chewing and swallowing, and the administration of medicines, vitamins or food supplements that follow the proper method, dose and schedule. Caregivers were found to experience numerous difficulties in preparing good food for the elderly and need general information about foodstuff, such as buying, cooking and eating, especially for the elderly, who might be suffering from one or more chronic diseases (Fernández-Barrés et al., 2017). Some of the difficulties experienced by caregivers are choice of food, food modification and method of increasing the elderly's appetite (Silva et al., 2013).

Some caregivers prepare food according to the correct schedule, whereby the elderly is fed at least three times a day, namely is morning, noon and night; however, there are caregivers who prepare food three to five times a day. Likewise, when it comes to monitoring the elderly during meal times, some caregivers are aware of the proper way to eat based on the elderly's health condition and provide feeding aids such as spoons, straws or tubes. Caregivers

sometimes encourage the elderly to eat by themselves if they are able to and monitor them (to avoid choking, vomiting, not wanting to eat etc.). According to Mamhidir et al. (2006), caregivers should to be aware of the need for suitable feeding aids for the elderly because feeding aids also affect their appetite.

Medication management is a critical responsibility held by caregivers. Studies have reported that caregivers often give medicine, vitamins or supplements to the elderly according to the prescribed method, dose and time. However, some caregivers pay little or no attention at all to this aspect. Schumacher et al (2008); McMillan and Moody (2003) found that caregivers felt ill prepared to manage medicines. This causes caregivers to lose focus on the need to ensure that the elderly is given proper medication. This finding is supported by Lingler et al (2016) who reported that there were mistakes in the management of medication for mental patients, which included the type and dosage as well as schedule for dispensing the medication.

This study also found that the level of caregivers' burden was light to moderate (M = 23.49, n = 82). This finding is consistent with Normah et al (2009); Khazaeipour et al (2017); Mendes et al (2019), who found that most caregivers experienced a light to moderate level of burden when caring for the elderly who are suffering from chronic diseases. Bekdemir and Ilhan (2019); Unver et al (2016) also reported that caregivers experienced a moderate level of burden when caring for the bedridden elderly. However, other studies found that caregivers experienced moderate to heavy Ma et al (2014) and light to zero levels of burden (Rodakowski et al., 2012). Although the role of caregivers is crucial in providing care and support for the bedridden elderly, they often feel unprepared and receive little or no support to bolster their confidence in efforts to manage these elderly (Given et al., 2008; Messenger et al., 2019). Therefore, the caregivers' level of burden depends on various factors related to the caregivers themselves and the recipients (Lai, 2012).

The elderly's limited physical ability to feed themselves requires monitoring and physical assistance from caregivers. This requires caregivers to accompany the elderly until they have finished their meals. The nutritional status of the bedridden elderly was also found to be significantly correlated with caregivers' stress. This finding is supported by Tana et al (2019), who found that the presence of physical frailty, such as the risk of malnutrition, significantly increased the caregiver's level of burden. Eating problems (feeding) experienced by the elderly are also related to the caregiver's level of burden (Suzana et al., 2014). Additionally, Villar-Taibo et al (2017) found that oral supplementation in combination with proper nutrition was associated with a higher level of caregivers' burden. Whereas, Rullier et al (2013) found an inverse and non-significant correlation between the nutritional requirement status of the elderly and caregivers' level of burden. In this regard, it is crucial to integrate nutritional risk assessment with a comprehensive psychosocial assessment of caregivers. The discovery of a low nutritional status allows remedial measures to be taken.

According to Ball et al (2015), caregivers need to accompany them or feed them during meal times in order to encourage the elderly to eat. This situation requires a lot of patience from the caregiver since the caregiver has other activities or tasks to finish at the same time. Furthermore, this is a more worrisome issue for bedridden elderlies who use feeding tubes (Okada et al., 2001). Caregivers also need to pay more attention to elderlies who have difficulty eating, such as swallowing and chewing disorders, anorexia or the inability to use

their hands well (Okada et al., 2001; Bartali et al., 2003; Nyberg et al., 2015; Namasivayam-MacDonald and Shune, 2018).

Conclusion

Since nutritional care practices need to be observed routinely every day, caregivers need to spend more time, energy and expenses to ensure that the elderly receive food that is safe and based on their respective health conditions. This situation puts a burden on the caregiver. Therefore, educational and support resources provided to caregivers at home need to incorporate practical strategies to ensure that appropriate and sufficient support is provided to ease the burden arising from the provision of nutritional care to the elderly. Accordingly, a series of interventions or practices that can be used in the management of bedridden elderly need to be established to safeguard the well-being of both, the elderly and caregivers, in the future.

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