

Original Article

The Role of a Multicomponent Home-Health Intervention in Reducing Caregiver Stress in Singapore: A Qualitative Study

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Received September 3, 2015; Accepted January 12, 2016

Decision Editor: Jan Warren-Findlow, PhD

Abstract

Purpose: The relationship between caregiving and negative health outcomes is well established in the literature. Previous studies have shown that community-based programs reduce caregiver stress. However, the mechanisms by which this happens have not been well investigated. This qualitative study examines caregivers' experiences as a part of the Aging-In-Place intervention, a home-health program in Singapore targeted at frequently hospitalized patients and their caregivers.

Method: We interviewed 32 caregivers to study the underlying processes by which caregiver stress was ameliorated. Transcripts from semistructured interviews were analyzed thematically within the theoretical framework of the stress process model.

Results: Primary stressors related to routine patient care were reduced through the intervention program that provided health monitoring to patients and facilitated linkages to community-based services. Increased access to advice and medical information provided by intervention staff reduced caregivers' uncertainty, a substantial secondary stressor. Caregivers who employed a foreign domestic worker (FDW) gained additional reductions in both primary and secondary stressors.

Discussion: The multidimensional home-health intervention reduced both primary and secondary stressors for caregivers. FDWs constituted a resource that caregivers could rely on and the training provided to FDWs by intervention staff further reduced caregiver stress. Implications for program planning and future research are discussed.

Key Words: Caregiving/caregivers—Foreign domestic workers—Home-health—Qualitative—Singapore—Stress process model.

The combination of decreasing birth rates and lengthening life spans has led to a period of rapid population aging in many Asian countries (United Nations, 2001). In Singapore, approximately 11% of the population was older than 65 years in 2014 (Department of Statistics Singapore, 2014) and recent projections bring this figure

to nearly 30% by 2050 (United Nations, 2013). One consequence of rising longevity is an increase in the number of years individuals are living with disabling health conditions (Salomon et al., 2012), translating into a growing cohort of elderly who are in need of long-term support from a caregiver (Yong, Saito, & Chan, 2010).

Although there is increasing interest in the positive aspects of providing care to family members (Brown & Brown, 2014; Roth, Dilworth-Anderson, Huang, Gross, & Gitlin, 2015; Zarit, 2012), the experiences of informal caregivers are often characterized by the stressors they encounter such as physical and mental distress (Smith et al., 2014), financial difficulties (Barusch, 1988), and occupational disruptions (Covinsky et al., 1994). These stressors could potentially last for decades and can leave a caregiver feeling overwhelmed and trapped (Adelman, Tmanova, Delgado, Dion, & Lachs, 2014). Studies of caregivers in several countries including Singapore have shown that persistent exposure to caregiving stressors can lead to depression (Malhotra, Malhotra, Østbye, Matchar, & Chan, 2012; Pinquart & Sörensen, 2003), anxiety (Grunfeld et al., 2004), physical health complications including metabolic disorders and hypertension (Vitaliano, Zhang, & Scanlan, 2003), as well as diminished quality of life (Ho, Chan, Woo, Chong, & Sham, 2009) and higher rates of health services utilization (Chan, Malhotra, Malhotra, Rush, & Østbye, 2013; Ho et al., 2009). Most strikingly, caregivers under high levels of strain also have higher rates of mortality (Perkins et al., 2013; Schulz & Beach, 1999).

A number of intervention studies have been conducted in an attempt to create evidence-based caregiver support programs. Day care services and in-home support have been the mainstay of caregiver respite programs (Arksey et al., 2004), intended to free up caregivers' time for self-care and social activities. Studies of these assistance programs typically find high levels of caregiver satisfaction yet the results for self-reported quality of life and health outcomes for caregivers and their patients are mixed (Arksey et al., 2004). Educational and training programs have also been developed to help caregivers provide better care, manage stress, and cope with changing life roles (Bourgeois, Schulz, Burgio, & Beach, 2002; Elvish, Lever, Johnstone, Cawley, & Keady, 2013; Gonyea, O'Connor, & Boyle, 2006; Goy, Freeman, & Kansagara, 2010). These psychoeducational programs have generally produced positive short-term results, but their long-term impacts are less apparent.

In perhaps the most comprehensive intervention study targeting caregiver burden and depression, the Resources for Enhancing Caregiver Health (REACH) project in the United States found that active interventions, such as demonstrating appropriate caregiving techniques, benefited caregivers more than passive interventions, such as providing educational materials (Gitlin et al., 2003). REACH II, a randomized-controlled follow-up study, tested the effectiveness of multicomponent interventions composed of active caregiving training combined with stress management techniques and linkage to community support compared with educational mailers and telephone assessments only (Belle et al., 2006). Each caregiver's personalized intervention was based on their level of need and the various components of the program were delivered both at home and over the telephone. Results from this 6-month trial demonstrated that caregivers in the intervention

experienced statistically significant and clinically meaningful reductions in depressive symptoms and burden compared with those in the control condition. Findings from the REACH studies clearly illustrate the utility of multifaceted home- and telephone-based interventions for informal caregivers.

Program Description and Study Rationale

The present qualitative study contributes to the literature by examining the *processes* in which a multicomponent home-health program acts to mediate caregiver stressors. The Aging-In-Place (AIP) program is a person-centered home-health intervention for frequently hospitalized patients and their caregivers offered through a public hospital in northern Singapore. Patients who were hospitalized 3 or more times within a 6-month period were eligible to join the AIP intervention at no cost. Frequently hospitalized patients tended to have multiple chronic conditions, such as diabetes, hypertension, and chronic obstructive pulmonary disease, which may not have been adequately managed. Additionally, patients may have been recovering from a stroke or fall and were readmitted rapidly after experiencing difficulty in linking to appropriate outpatient rehabilitation services. The AIP program was conceptualized by a senior geriatrician and the Chief Transformation Officer at the host hospital after identifying unmet needs of patients that may have contributed to their frequent hospitalization. Patients were offered a place in the program regardless of diagnosis, age, or comorbidities meaning the intervention served a very diverse, heterogeneous group of patients. The intervention began with a small-scale pilot in September of 2011 and was gradually expanded throughout 2012 as additional funding was secured. Funding is currently provided by the Government of Singapore and is dispersed to the coordinating hospital through the Singapore Ministry of Health.

At the heart of the program, nurses and community health workers provided medical, functional, and social supports and services to both the patients and their caregivers in the home and over the telephone with the goal of meeting the needs of patients in the community. Training and supervision for the intervention staff was provided by senior health professionals at the hospital including lead physicians and nurse managers with experience in geriatric medicine. AIP intervention staff aimed to visit patients and caregivers in the home within the first 2 weeks after discharge from the hospital. Intervention nurses and community health workers assessed the patient's and caregiver's clinical and social needs to determine the appropriate frequency of contact, the level of care patients required, and the amount of support caregivers needed. During their initial home visits, intervention staff also surveyed the patient's home environment taking special note of any physical improvements that could be made to benefit the health and safety of the patients. On average, AIP staff members interacted with patients twice per month with

the frequency of contact dependent upon the needs of the patient and their caregiver. At the time of writing, the program was still active and enrolling patients.

Specifically for caregivers, AIP staff offered individualized assistance with varying degrees of intensity and duration dependent upon their level of need. AIP intervention staff provided a combination of both active and passive support to caregivers. For example, caregivers were actively trained how to monitor the patient’s blood pressure. Assistance was also offered through passive means such as by providing information regarding additional resources available in the community. Mechanisms in which caregivers become burdened have been explored in previous studies (Streid et al., 2014), as well as the benefits and barriers experienced by caregivers in accessing community-based services (Winslow, 2003). Here, we present qualitative results specific to a particular home-health intervention in reducing the sources of stress for caregivers. As with most qualitative studies, we were interested in uncovering *how* caregiver stressors were mediated by the home-health intervention rather than *if* they were mediated.

Theoretical Framework

For this qualitative study, we utilized a combined inductive and deductive approach (Mayring, 2000; Potter & Levine-Donnerstein, 1999) in our content analysis applying the stress process model developed by Pearlin and colleagues (Pearlin, Lieberman, Menaghan, & Mullan, 1981; Pearlin, Mullan, Semple, & Skaff, 1990) to the experiences of caregivers in the AIP program. Pearlin and colleagues’ (1990) model contains five interconnected domains: (a)

background and context, (b) primary stressors, (c) secondary stressors, (d) mediators of stress, and (e) outcomes or manifestations of stress (Figure 1). The stress process model is viewed as comprehensive and has been applied successfully in many caregiving contexts including those in North America (e.g., Bainbridge, Krueger, Lohfeld, & Brazil, 2009; Ducharme et al., 2006; Haley, LaMonde, Han, Burton, & Schonwetter, 2003), Europe (e.g., Verbakel, 2014), and sub-Saharan Africa (e.g., Streid et al., 2014).

Previous qualitative studies of caregiver interventions have focused primarily on the outcomes of the interventions such as changes in competence and development of coping skills (Berg-Weger, Rubio, & Tebb, 2001; Marziali & Donahue, 2006; Sørensen, Waldorff, & Waldemar, 2008). Here, we used qualitative content analysis to examine the underlying mechanisms in which the AIP intervention acted to mediate caregiver stressors (Pearlin et al., 1981). Our analysis focused on describing how the AIP program mediated both primary and secondary stressors for caregivers. We considered primary stressors as those which arose directly from health needs of patients resulting in the demand for routine care from the caregiver. Secondary stressors were those stressors caregivers encountered in other dimensions of their lives as a result of the patient’s ill health such as extreme anxiety surrounding the patient’s prognosis. Secondary stressors were not considered less important or less detrimental to caregiver well-being; the label pertains only to the temporal sequence of these stressors in relation to primary stressors.

One unique component of this intervention was the interaction between AIP staff and the foreign domestic worker (FDW) employed by families to support patients in

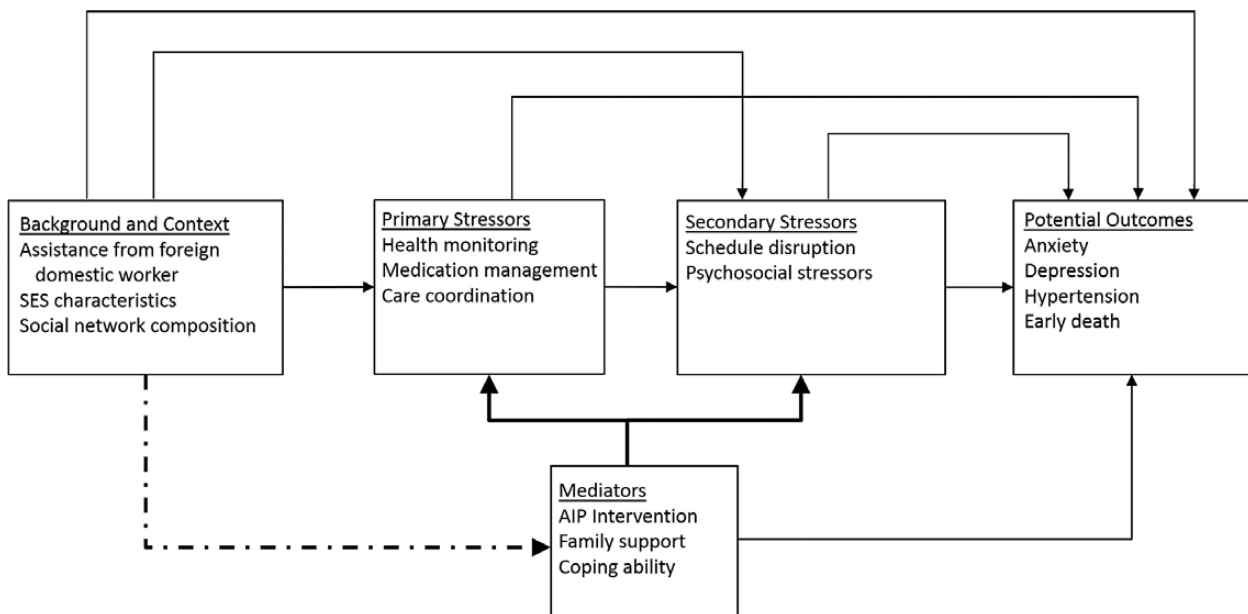


Figure 1. Conceptual framework modified from the stress process model originally proposed by Pearlin and colleagues (1990). Pathways under investigation in the current study are represented by the arrows in bold. The pathway between background and context and mediators is represented by a dashed line because all patients were offered services through the program regardless of their personal backgrounds.

the home. Although family members typically lead informal care for patients, nearly half of Singaporean households containing an older adult with a functional limitation employ a FDW to assist with caregiving (Ansah et al., 2013). This form of assistance is becoming more common throughout the world, particularly in large parts of Asia and the Middle East (e.g., Cheng, 1996; Silvey, 2006). In Singapore, FDWs are usually young women, around the age of 30 years, hired from Indonesia or the Philippines (UNIFEM-Singapore, Humanitarian Organisation for Migration Economics, 2011) who live within the household of the families they assist. The demand for FDWs is expected to grow by 50% over the next 15 years, mostly driven by the role they fill in providing care for children and older adults (National Population and Talent Division, 2012).

In the context of the current study, assistance provided by a FDW has been shown to buffer some of the detrimental impacts of caregiving such as reducing negative health effects and schedule disruptions (Østbye, Malhotra, Malhotra, Arambepola, & Chan, 2013). Importantly, Østbye and colleagues (2013) reported that less than half of the FDWs in their Singapore-based study had any formal training or prior experience in providing care to older adults. During their home visits, AIP staff were able to witness the caregiving practices of FDWs. This overlap enabled AIP staff to provide training to FDWs who oftentimes fulfilled complex caregiving responsibilities. We utilized information from the caregiver interviews to examine the interplay between the AIP intervention and FDWs to describe their combined influence on caregiver stress. Although not the focus of this study, it is important to point out that, like family caregivers, FDWs are also exposed to stressors associated with providing care to an ailing individual. Also, live-in workers likely experience a wide range of additional hardships including being separated from their own family, having to navigate complex relationships within the household, as well as coping with a highly asymmetrical power differential with their employer (Yeoh & Huang, 2010).

Method

We conducted in-depth, semistructured interviews with caregivers of patients enrolled in the AIP program. Interviews were conducted as a part of a larger mixed-methods evaluation of the program. Ethical approval was granted by the National Healthcare Group's Domain Specific Research Board (reference number: 2013/01116) and written informed consent was obtained from all participants.

Setting

Kho Teck Puat Hospital (KTPH) is a publicly funded hospital in the North Region of Singapore. Approximately 500,000 people lived in the North Region at the 2010 census (area of 135 km²) and 15% of the population was

aged 55 years or older (Department of Statistics Singapore, 2014). KTPH began treating patients in July of 2010 and, like the vast majority of the public hospitals across the country, the occupancy rate of its 590 beds rose rapidly to exceed 80% (Ministry of Health, 2015). The AIP program began in 2011, targeting patients who repeatedly utilized inpatient services with the aim of reducing the frequency of hospitalizations for this population, hence easing bed shortages. Approximately 2,400 patients have been included in the AIP program since its inception in 2011 and, on average, AIP patients lived 3.2 km from KTPH. In addition to AIP, KTPH offers a full range of medical services including 22 medical specialties such as emergency medicine, intensive care, and rehabilitation.

The core study team was composed of geriatricians, psychologists, sociologists, social workers, and public health professionals with credentials of at least the Master's level. Individuals within the study team were experienced with qualitative research methods.

Recruitment

The primary caregivers for patients enrolled in the AIP program for at least 3 months were eligible to participate in this study. Caregivers had to be at least 21 years old and capable of providing informed consent. We excluded caregivers of patients with active psychiatric disorders and caregivers of patients who were not discharged from the hospital into the community, this included patients who died in the hospital or were admitted into a long-term care facility. Patients identified their primary caregiver during their inpatient treatment at KTPH; caregiver's contact details were provided to hospital staff by the patient or the caregiver. Telephone numbers for eligible caregivers were extracted from the hospital's electronic records for recruitment purposes. Research staff making recruitment calls were conversant in English, Mandarin, Chinese dialects, and Malay, and conducted the recruitment in the preferred language of the participant. Seventy-five caregivers were contacted in order to obtain the final study sample of 32 caregivers; 43 caregivers chose not to participate because of time constraints, family objections, or being uninterested in the study.

Data Collection

A team of local interviewers with backgrounds in health-care research were trained on interview techniques and on the appropriate methods for obtaining informed consent. Training sessions included role-play exercises that gave the principal investigators the opportunity to provide feedback while the interviewers familiarized themselves with the interview guides. The interview team was proficient in English, Mandarin, Chinese dialects, as well as Malay; a Malay-English translator was used during one interview when the Malay speaking interviewer was unavailable. The interviewers followed a standardized interview guide that

presented caregivers with questions covering the effects of caregiving on their personal lives, their views of the support they gained from the intervention, their desire for additional support, and their experiences with the intervention staff. For example, interviewers asked each participant, "How stressed do you feel on a daily basis, as a result of taking care of (the care recipient)?" Caregiver's responses could then be followed up with additional prompts such as, "How equipped do you feel in dealing with these stressors?" The caregiver interviews covered a range of topics beyond stress and, in an attempt to limit potential bias, interviewers were unaware of the specific stress-related research aims. Data collection took place between May and December 2014. Participants' demographic characteristics were also collected at the time of the interview. Each participant received a S\$25 grocery store voucher at the end of the interview.

Interviews took place in the participant's home, at the participating hospital, or at a location in the community chosen by the participant. Interviews ranged from 8 to 38 min in duration and were conducted in English, Mandarin, Chinese dialects, and Malay. Table 1 presents the number of interviews conducted in each language. One participant did not consent to being audio recorded; notes were taken by hand in English for this individual's interview. All other interviews were audio-recorded and the recordings were transcribed verbatim from the audio file for content analysis. Interviews conducted in Mandarin, Chinese dialects, and Malay were translated into English during the transcription process. Bilingual members of the research staff cross-checked a sample of the translated interviews against the original audio files to validate the transcripts and correct translation errors.

Analysis

Data analysis took place in two phases beginning with a period of open coding conducted by two independent coders not involved in the recruitment or data collection portions of the study. During this inductive coding phase (Hsieh & Shannon, 2005), each coder read a selection of the interview transcripts, established and coded themes within the interviews, and then discussed their codes with one another. The resulting discussions identified recurrent themes and subthemes and led to refinement of the coding scheme that was used for the entire collection of transcripts. In order to develop consistent and coherent themes, the two

independent coders met regularly to discuss emerging patterns as they read all 32 transcripts. Through thorough discussion, the two coders came to consensus on the codes and thematic groupings that emerged from the data and agreed upon the application of the codes to the transcripts. The larger project team also met to examine emerging patterns and review preliminary findings; feedback from the principal investigators was incorporated to improve the coding categorizations.

Phase two of the analysis consisted of the deductive application (Hsieh & Shannon, 2005) of the coding frame to the stress process model created by Pearlin and colleagues (Pearlin et al., 1990). The goal of this second phase was to assess the fit of our inductive analysis of the interviews with the stress process model. We aimed to determine how the AIP intervention influenced caregivers' experiences within the various components of the stress process model in an attempt to identify mechanisms of stress reduction. Specifically, we were interested in viewing the AIP program as a mediator to the primary and secondary stressors caregivers were exposed to, hence influencing caregiver's psychosocial and physical well-being. Additionally, we examined how the AIP intervention further bolstered the support provided by a FDW in the home, a component of caregivers' background and context, to mediate caregiver stress.

Results

Caregiver Characteristics

The ages for the 32 caregivers' ranged from 26 to 83 years old and averaged to 57 years. The majority of caregivers were female ($n = 21$) and were either the daughter ($n = 8$), son ($n = 7$), or daughter-in-law ($n = 3$) of the individual they provided care to. An additional 13 caregivers were the spouse of the care recipient and one caregiver was a friend of the patient. Most of the caregivers reported being married at the time of the interview ($n = 22$) followed by never married ($n = 6$), divorced ($n = 2$), separated from their spouse ($n = 1$), and widowed ($n = 1$). The characteristics of the current sample approximates those in previous studies of informal caregivers in Singapore (see Chan et al., 2013; Malhotra et al., 2012).

Findings

We present the findings of our inductive content analysis in three parts. The first two sections discuss the mediating effects of the AIP intervention on caregivers within the context of the stress process model. The first part describes the supports gained through the AIP program as mediators to primary stressors. Here, primary stressors are considered those sources of hardship that arise directly from the needs and demands of the patient, which could lead to caregivers becoming overwhelmed. The second

Table 1. Count of Caregiver Interviews Conducted in Each Language

Language	Number of interviews
English	12
Mandarin	15
Chinese dialect	1
Malay	4

portion of our analysis focuses on the effects of the AIP services on secondary stressors such as the psychological and emotional stress caused by the patient's health issues. It is important to reiterate that the primary–secondary distinction refers only to cascading nature of stress and does not have any relevance to the potency of the stressors (Pearlin et al., 1990).

The third portion describes the effects of the AIP program on households employing a FDW. Migrant workers have become a large component of the elder-care system in Singapore (Yeoh & Huang, 2010) and we aimed to examine the additive effect the AIP intervention imparts to those families who seek elder-care assistance from a hired FDW.

Because over half of the interviews were translated into English from another language, we opted to provide important words parenthetically in the in-text quotes where additional context was needed. Also, colloquial Singaporean English contains a large number of filler words when spoken. Although these filler words can be used to support a sentiment (Chng, 2003), we have removed them from the presented quotes to make the text easier to read; our deletions did not change the overall meanings of any of the quotes.

Mediation of Primary Stressors

Provision of Health Monitoring in the Home

Patients enrolled in this home-health intervention were hospitalized 3 or more times within a 6-month window, indicating a relatively high degree of medical need. The AIP staff helped ameliorate primary stressors associated with caregivers' provision of day-to-day care to the patients by monitoring the patient's health during their home visits. Caregivers may have received some basic training on how to monitor the patient's health but still found the task cumbersome and time consuming. The regular health monitoring provided by the AIP nurses, most often measuring patients' blood pressure and blood sugar levels, were the most conspicuous mediators of primary stressors. Of note is the fact that caregivers relied on the AIP staff to not only monitor the patient's health but to also make informed decisions on how to properly assist patients if the measurements indicated an arising problem.

Actually it is quite good, because at least you know, now the program come in and, you know, there is a specialist people to really check on her, see she need any more care or what, so see? (49 years old, divorced son caring for his mother)

Less [stress], because if they come every month, they can help monitor [my husband's] conditions. If [my husband's] leg swollen, I can inform them and they can advise me, to go see doctor and other advice. (60 years old, wife caring for her husband)

Some caregivers were caring for patients with limited mobility or who were completely immobile. The in-home

nature of the intervention reduced the need for caregivers to transport these patients to and from medical appointments. Caregivers of patients with limited mobility reported a large reduction in frustration surrounding transportation issues because the in-home component of the AIP program circumvented caregivers' struggles with transportation.

And then this is one thing... Mentally, physically you can say definitely, less stress as compared to you have to get the transport, you have to take the wheelchair, just for example, to have a normal appointment just to interview, for example, beside the appointment, [arrange transport] for medicine, you see a lot of difference. (57 years old, married son caring for his mother)

You know, it's just that, if I want to bring my mum every month go and see doctor for checkup, it is really troublesome for me. (49 years old, divorced son caring for his mother)

Relief surrounding transportation issues should not be underestimated. The rates of car ownership in Singapore are very low compared with many other developed countries and, although Singapore has a highly advanced public transport infrastructure, patients with limited mobility often rely on taxi services for transportation to and from medical appointments.

Linkages to Additional Services

Members of the AIP staff facilitated linkages to additional community-based services, making routine caregiving tasks easier for caregivers. The stress mediating effect of this assistance was twofold: first, the fact that it was the AIP staff making the appointments for patients and not the caregivers was a source of stress alleviation because the caregivers did not have to make the arrangements themselves, a task that can become tedious and time consuming.

Caregiver: Like that day, they told us they could install the bar, you know the one you grab on to?

Interviewer: Ah, the grab bar?

Caregiver: The nurse, I didn't know. Then she gave it to me, told me. Helped me to apply. It's also quite good.

(59 years old, married daughter-in-law caring for her mother-in-law)

Secondly, once the medical or social services were successfully implemented, caregivers were then relieved of the source of stress the newly acquired services were addressing. The caregiver quote below illustrates how the additional services facilitated by the AIP staff changed her caregiving behavior and relieved her of substantial physical strain:

Actually I was very grateful when the nurse brought in the physiotherapist because that's when I realized I don't have to lift my mother because I didn't know. My mother will just let me carry her, or you know, lift her from the chair or from the bed or to the toilet. So that

part of it I was really grateful for. (56 years old, never married daughter caring for her mother)

The two quotes above illustrate that the intervention staff played an important role in educating families on services available in the community while also assisting patients and caregivers navigate the health care system.

Promoting Self-management

AIP staff were aware of the potential for patients to become overly reliant on their caregivers for managing their condition. When possible, nurses and community health workers emphasized the role the patient played in their own health monitoring and management of their illnesses. Primary stressors for caregivers were partially alleviated through AIP staff helping patients to become more active in their own care. As patients became more willing and able to care for themselves, the caregivers were less strained by their caregiving responsibilities. The following quote was provided by a woman caring for her mother who has hypertension and demonstrates how the interaction with the AIP nurses influenced her mother's self-management behaviors.

Every time, as far as I can see, when the nurse come and tell [my mother] that her blood pressure high. Then she will try to reduce. What that is needed, what she has to do. She listen to advice. (53 years old, married daughter caring for her mother)

Additionally, the status of the nurses as health professionals likely influenced care recipients' decision to heed their advice and change their behavior. The patients were likely more willing to comply with the AIP nurses' instructions compared with the advice of untrained family members because of the nurses' affiliation with the hospital, advanced training, and elevated status as health professionals.

She'll help us advise him and such. Ah, if not he won't listen to what we say. He, look he, there's one more person to tell him, see if he listens to it. (63 years old, wife caring for her husband)

Mediation of Secondary Stressors

Reduction of Uncertainty

The AIP staff proved to be a vital source of medical information for caregivers. It is important to consider that the patients in the AIP intervention typically experienced a series of health emergencies leading to multiple hospitalizations in rapid succession. As such, caregivers experienced anxiety and uncertainty around how to most appropriately care for patients and what to expect next regarding the patient's health and recovery. Chronic uncertainty was a pervasive secondary stressor and the availability of the AIP staff to provide medical advice during the home visits was a meaningful mediator to this psychological strain.

Oh yeah, yes, yes, it does help. Because her condition, I don't know how long it would take to be this way. I hope, I hope that at least the quality of life is there, you know, she is happy, you know, it's all about that. But next, future, I don't know, I won't know. So if they are there, every month, take a look, check on her, I think that would be good. (52 years old, never married daughter caring for her mother)

The speed in which the AIP staff answered questions and provided information on the prognosis of the patient was often cited as a major component of the psychological relief provided by the intervention. The caregiver quoted below highlights the fact that her worries were calmed quickly by the AIP nurse because of the home visits and that she could also leverage the presence of the nurse to appropriately adjust her parents' schedule of medical appointments.

At least when the nurse came to see my mum or my father, right, so at least I know their condition, so I don't have to worry that much, to [wait] for the appointment. Okay, if I need an early appointment or a later appointment, then I can tell them. That's the good part! (48 years old, married daughter caring for her mother and father)

Access to Decision Making Support

AIP staff were available via telephone to field questions from caregivers in addition to providing information during their home visits. If a patient was experiencing a decline in health or caregivers wanted advice on how to appropriately handle an arising issue, the AIP staff could be contacted over the telephone during their typical work shift, Monday through Friday from 8:30 a.m. to 6:00 p.m.

Also, when something happens, there is someone I can call to discuss the problem with so I am not so stressed, like don't know what. (48 years old, married daughter caring for her mother)

The on-demand nature of this information source further reduced the anxiety regularly experienced by caregivers. This additional telephone-based support mediated the uncertainty surrounding the patient's health and how to provide adequate care, hence reducing caregiver's psychological distress.

Then when we have serious problems then we'll phone to contact the nurse. Ah, because sometimes, making appointment is difficult as well, the nurse will help. (63 years old, wife caring for her husband)

Yes, they are very good. There are many old folks, they need to take care of them, but if I'm in need, I will call [the AIP nurse]. I have her phone number. (83 years old, husband caring for his wife)

Interaction Between Caregiving Assistance From a FDW and AIP Support

As mentioned previously, a substantial portion of Singaporean households seek assistance with caregiving through the employment of a FDW. Eleven of the 32 caregivers in our study employed a FDW. Caregivers who employed a FDW tended to live in larger homes (8 of 11 lived in four- or five-room apartments) compared with those who did not employ a FDW, suggesting that families who hired an in-home assistant were of higher socioeconomic status. Some hired FDWs acted primarily as caregivers for the patient, whereas other individuals were employed to assist with household needs, such as cooking and cleaning, in addition to caregiving. All of the caregivers who employed a FDW reported that the FDW provided some level of care to the patient. Some FDWs were in charge of providing nearly all of the care patients required: preparing medications, bathing patients, and cleaning wounds. Others were less involved with the technical aspects of caregiving, primarily providing help through meal preparation, mobility assistance, and completing household chores, thus allowing the family caregiver to dedicate more time to helping the patient themselves. In the context of the stress process model, the presence of a FDW constitutes a resource that individuals can draw upon to lessen caregiver burden. We focused on how the AIP intervention interacted with the presence of a FDW to further reduce the stressors experienced by family caregivers. AIP staff interacted with FDWs hired by families during the majority of their home visits, about 1.3 times per month, on average. For households that employed a FDW, the AIP intervention acted to decrease both the primary and secondary stressors by educating FDWs on aspects of care specific to the individual they were caring for. AIP staff trained FDWs on how to treat a range of issues that may arise for each individual, thereby increasing the number of caregiving tasks they could perform and reducing caregivers' primary stressors related to day-to-day caregiving.

Caregiver: So at least [the AIP nurse] will tell the maid what she has to do. [Check] her blood pressure, all that. So at least I know...

Interviewer: You know somebody around?

Caregiver: Yeah, somebody can rely on a bit. (53 years old, married daughter caring for her mother)

Caregivers also reported feeling more confident that the patient was being cared for appropriately after the FDW interacted with the AIP nurses. This increase in confidence surrounding the FDWs skills resulted in a decrease in caregiver's level of anxiety.

Interviewer: Because the helper is not medically trained so does the nurse help the helper also? Does she learn something?

Caregiver: Yeah, she learns. She learns everything. How to give her the water, what's her limit, the medicine. Everything she learns from the nurse.

Interviewer: So care, how to care for her, control the condition?

Caregiver: Yeah, correct. If anything, she got any problem, just call this nurse, will come down and see.

Interviewer: And how do you feel? Relieved that the helper knows more like through this?

Caregiver: Yeah, I'm relieved she knows. (55 years old, married daughter-in-law caring for mother-in-law)

Discussion

This study examines the underlying processes in which a home-health intervention for frequently hospitalized patients in Singapore alleviated caregiver stressors. Through the application of the stress process model conceptualized by Pearlin and colleagues (Pearlin et al., 1990), we have shown how the AIP program specifically addressed both the primary and secondary stressors encountered by caregivers. Several intervention studies have demonstrated a reduction in stressors experienced by caregivers (Arksey et al., 2004; Belle et al., 2006; Elvish et al., 2013; Gitlin et al., 2003) yet, to our knowledge, this study is the first to qualitatively describe the process in which potential sources of caregiver burden were reduced through a home-health intervention. Additionally, we documented the processes through which caregiver stress was reduced by AIP staff who provided caregiving training to hired FDWs. The multidimensional nature of caregiver burden necessitates that intervention programs be able to address the diverse spectrum of stressors encountered by caregivers. The combined active and passive techniques employed by AIP staff, plus the additive effects of FDW training, mediated an array of stressors associated with caregiving. Our findings have relevance for caregiver assistance programs aimed at preventing caregiver burnout in Singapore and have direct implications for the development of training programs for FDWs who provide in-home assistance to older adults.

The caregivers' comments indicated that the intervention addressed sources of both primary and secondary stress. Singaporeans have a deep tradition of filial piety (Mehta & Ko, 2004)—the expectation that children will provide care and financial support to their parents—which at least partially influences families' decisions to care for ailing older adults in the home. Caregivers who participated in our interviews were mostly family members (31 out of 32), many of whom were the adult child of the patient they cared for. Patients in the AIP program had been hospitalized frequently prior to enrolling in the intervention and required close medical monitoring in order to manage their multiple chronic diseases. The primary stressors of caregivers were

mediated through the assistance they received with day-to-day caregiving responsibilities, regular monitoring of patients' vital signs, and scheduling medical appointments. The AIP staff were also pivotal mediators of primary stressors through facilitating linkages to community-based medical and social services. In addition, the in-home component of the program, which reduced the need for transportation to and from medical clinics, further reduced the amount of stress associated with routine care.

Caregiver's secondary stressors were mediated through two principal mechanisms. First, the provision of medical information by the AIP nursing staff during the home visits greatly decreased caregiver's levels of uncertainty surrounding their care recipient's health. Caregiver's ability to gain specific knowledge about the patient's condition and prognosis was cited as especially helpful. Second, the availability of the AIP nurses outside of home visits through as-needed telephone consultations also mediated secondary stressors. As articulated by the caregivers, the availability of the nurses to provide advice if a medical issue arose unexpectedly was essential in lessening anxiety. The caregiver's perception of this safety-net type support offered by the intervention staff may be as important as the actual advice provided by the nurses given the detrimental impact of anxiety on caregivers' health and motivation (Grunfeld et al., 2004; Stetz, 1989). Further research is warranted investigating the role of uncertainty, both around disease progression (Morgan et al., 2014) and pertaining to the provision of appropriate care, on caregiver stress.

The AIP intervention also had an interactive effect with the support some families already possessed through a hired FDW. As described in the stress process model (Pearlin et al., 1990), the assistance offered by a FDW in the home can be considered a component of the caregiver context that enables family caregivers to better cope with stress. Approximately one third of the caregivers who were interviewed reported receiving assistance from a hired FDW in the home. The instruction provided to FDWs by the AIP staff enabled FDWs take on additional responsibilities, easing primary stressors for caregivers. The training of FDWs also ensured caregivers that FDWs were providing appropriate care, easing secondary stressors for caregivers. Seeking help with caregiving through employing a FDW is becoming increasingly common in Asia, Europe, and North America (Akalin, 2007; Grandea & Kerr, 1998; Peterson, 2007). FDWs in Singapore often do not possess any formal caregiving training and the positive impact reported here for family caregivers demonstrates how AIP staff can assist in filling this training gap. Training courses for FDWs have been created recently by the Singaporean government but these classes are very broad (Yeoh & Huang, 2010). In contrast, the one-on-one instruction from AIP staff can prepare the hired caregiver to appropriately respond to the specific needs of those they are caring for. For example, AIP nurses could demonstrate techniques for transferring frail patients from a wheelchair into bed, reducing the potential

for injury of both the patient and caregiver. AIP staff can also train FDWs how to identify health emergencies, such as a heart attack or stroke, and how to respond if such an emergency does arise. Importantly, the assistance garnered by FDWs helps families remain as the locus of care for aging adults rather than building dependence on the government or public sector for long-term care. It is important for future studies to examine the stressors experienced by FDWs who provide care to older adults to determine if interventions such as the AIP program reduce the negative experiences of hired assistants as well.

Findings from this study demonstrate the processes in which a home-health program eases stress for caregivers in Singapore. As the country continues to become more aged, the demand for informal caregiving and the subsequent potential for caregiver burden will undoubtedly increase. We illustrated the *processes* in which stress experienced by informal caregivers was reduced through the combination of active and passive assistance offered by the AIP intervention. Future studies should be conducted to determine whether causal links exist between the reduction in stressors provided by home-health programs like the AIP intervention and caregiver health outcomes such as depression. This qualitative analysis also highlighted the effect the AIP program had on caregivers who had employed a FDW to provide at least partial care for the patient. Here, familial caregivers described how the instruction provided by the AIP staff helped to improve their confidence in the caregiving abilities of the FDW thus easing their anxiety. Future interventions could focus on providing targeted in-home training for FDWs caring for older adults.

Limitations

In light of the results described for this intervention, a number of limitations warrant mention. First, a selection bias may exist in our sample with only those caregivers who had a positive outlook on the program deciding to participate in the interviews. It is important to note caregiver comments were not exclusively positive; some caregivers did express frustration with aspects of the intervention. The focus of our study was to understand the underlying processes of stress reduction, not the presence or absence of a reduction. Second, five different interviewers conducted the face-to-face interviews which could have affected the content of the conversations. The multilingual nature of Singapore necessitated the use of multiple interviewers. Last, because over half of the interviews were translated into English during transcription, some of the nuance present in the original conversations may have been lost in the translation process.

Conclusion

Through the application of the stress process model, we demonstrated that the AIP program relieved caregiver strain through mediating both primary and secondary stressors. The AIP staff also provided training to

FDWs employed by families to help provide elder care; this training further ameliorated primary and secondary stressors for caregivers. This study illustrated the process in which professional home-based medical and social care can benefit caregivers and potentially delay the onset of caregiver burnout. As home-health programs for older adults with a wide range of needs become more heavily utilized in both public (Penkunas, Friedman, & Hahn-Smith, 2015) and private contexts, caregiver assistance components should also be included and implemented with fidelity.

Funding

Support was received from Alexandra Health System Pte Ltd, Singapore.

Acknowledgments

The authors would like to graciously thank all of the families who participated in this study for sharing their experiences.

Conflict of Interest

None to declare.

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