Title: Strategies for managing group caregiving following hip fracture surgery among family members: A grounded theory study

Short running title: Group caregiving strategies

Authors
Hui-Chin Teng RN, PhD Candidate, Lecturer [1,2], Yea-Ing L. Shyu RN, PhD, FAAN, Distinguished Professor [3,4,5,6,7], Jersey Liang PhD, Professor [4,8,9], Kröger Teppo PhD, Professor [10,11]

[1] Graduate Institute of Clinical Medical Sciences, College of Medicine, Chang Gung University, Tao-Yuan, Taiwan
[2]Department of Nursing, MacKay Junior College of Medicine, Nursing, and Management, Taipei, Taiwan
[3]School of Nursing, College of Medicine, Chang Gung University, Taoyuan, Taiwan
[4]Healthy Aging Research Center, Chang Gung University, Taoyuan, Taiwan
[5]Department of Neurology and Dementia Center, Chang Gung Memorial Hospital, Taoyuan, Taiwan
[6]Department of Gerontology and Health Care Management, Chang Gung University of Science and Technology, Taoyuan, Taiwan.
[7]Department of Nursing, Kaohsiung Chang Gung Memorial Hospital, Kaohsiung, Taiwan
[8]Department of Health Management and Policy, School of Public Health, University of Michigan, Ann Arbor, USA
[9]Department of Healthcare Management, Chang Gung University, Taoyuan, Taiwan
[10]Department of Social Sciences and Philosophy, University of Jyväskylä, Jyväskylä, Finland
[11]Centre for Care Research West, Western Norway University of Applied Sciences, Bergen, Norway

Corresponding Author:
Yea-Ing L. Shyu, RN, PhD, FAAN
School of Nursing, College of Medicine, Chang Gung University, 259, Wenhua 1st Road, Guishan District, Taoyuan 33302, Taiwan
TEL/：+886-3-2118800 ext. 5275; Fax: +886 3 328 8600.
E-mail：yeaing@mail.cgu.edu.tw

Acknowledgments: We thank the family caregivers and care receivers who participated in this study.

Ethical Approval

The study was approved by the institutional review board of Chang Gung Memorial Hospital (103-1035A3).

Funding: This original study was supported by grants from the National Health Research Institutes, Taiwan (NHRI-EX10410405PI); Chang Gung Medical Foundation (BMRP297); and Healthy Aging Research Center, Chang Gung University from the Featured Areas

Research Center Program within the framework of the Higher Education Sprout Project by the Ministry of Education in Taiwan (EMRPD1L0391)

Author contributions

HT and YIL were involved in drafting the manuscript and revised it critically for important intellectual content. HT, YLS, JL, and KT contributed to data analysis, critical review, and writing of the manuscript. All authors read and approved the final manuscript.

Strategies for managing group caregiving following hip fracture surgery among family members: A grounded theory study

Abstract

Background: Family members in many countries often share caregiving responsibilities for an older relative recovering from an injury. However, few studies have examined strategies employed when multiple family members provide care for an older relative recovering from hip-fracture surgery.

Objective: This study aimed to understand family group caregiving strategies when two or more family members provide caregiving for an older relative recovering from hip-fracture surgery.

Methods: This study used a grounded theory design. Semi-structured interviews were conducted over one year with 13 Taiwanese family caregivers from five families. Caregivers shared caregiving responsibilities for an older relative (62-92 years of age) recovering from hip-fracture surgery. Transcribed interviews were analyzed using open, axial, and selective coding.

Results: The core category describing caregiving among family members was "Preventive Group Management: strategies for family group caregiving". Three strategies were employed: explicit division of labor (two stem/patriarchal families and one older two-generation/democratic family); disconnected caregiving (one nuclear/non-communicative family); and patriarchal caregiving (one extended/traditional Chinese family). Strategies reflected family type, structure, cultural values, communication patterns, and available outside support. Components of family group caregiving involved family type's division of labor, approaches to caregiving, and implementation challenges and allowed family caregivers to maximize safety and stability and prevent harmful events during their relative's recovery from surgery.

Conclusions: There was no one-size-fits-all approach for the strategies of family group caregiving. Components of Preventive Group Management varied with family type, cultural values, communication patterns, and available outside support. Healthcare professionals should be sensitive to the dynamics of family caregivers.

Implications for Practice: Enhance group management for these family caregivers by developing interventions to optimize caregiver collaborations, which would more effectively meet the needs of older adults recovering from hip fracture surgery.

Keywords: family caregiving, family dynamics, hip-fracture surgery, qualitative study, strategies of delivering group care

SUMMARY STATEMENT OF IMPLICATIONS FOR PRACTICE

What does this research add to existing knowledge in gerontology?

- This grounded theory study provides insight into caregiving when an older relative recovering from hip fracture surgery requires assistance from multiple family members.
- Preventive Group Management: strategies for family group caregiving allowed multiple family caregivers to adopt strategies that maximized the older relative's safety, stability, and recovery.
- Three strategies of managing family group caregiving were employed, which reflected the family type and interactions between family members: explicit division of labor; disconnected caregiving; and patriarchal caregiving.

What are the implications of this new knowledge for nursing care with older people?

- Facilitating caregiving when multiple family members are providing care for an older relative recovering from a hip fracture requires awareness of family structure and dynamics.
- Knowledge about how family members plan, organize, prioritize, and implement caregiving can help caregivers optimize strategies to prevent further injury while an older relative is recovering from hip fracture surgery.

How could the findings be used to influence policy or practice or research or education?

- Family members are the primary caregivers for older persons needing assistance in Taiwan and many other countries and multiple family caregivers may need to share caregiving responsibilities.
- Limited access to training and support can prevent effective group management and increase caregiving load.
- Healthcare providers could enhance group family caregiving by developing interventions

to optimize preventive group management.

1. INTRODUCTION

Globally, older adults have the highest risk of serious injury from falls, with hip fractures a common consequence (Burm et al., 2021). The number of cases of hip fracture is increasing worldwide along with the increase in the number of adults over the age of 65. In Taiwan, there were 18,338 cases of hip fracture in 2010, which has been predicted to increase to 50, 421 by 2035 (Chen et al., 2021). In Taiwan, the population of adults 65 years of age and older is estimated to reach over 20% by 2025 (National Development Council, 2022).

Rehabilitation following hip-fracture surgery reduces the risk of disability, restricted mobility, mortality, and readmissions after discharge and enhances independence for activities of daily living (ADLs) and walking (Karlsson et al., 2020). Rehabilitation often continues post hospital discharge in-home, which can significantly reduce medical care costs (Beaupre et al., 2020). Postoperative rehabilitation training is essential to improve chances of an older adult to return to their pre-fracture life (Karlsson et al., 2020). One means of improving adherence to a rehabilitation plan is to incorporate family members or caregivers in the process of recovery (Ariza-Vega, Castillo-Perez, et al., 2021).

1.1 Background

Traditional Asian cultures, including Taiwan, have regarded the care of older adults as an essential responsibility of the family (Chien et al., 2022). Prior to 1960, nearly all older relatives in Taiwan were cared for by family members due to cultural demands including reciprocity, filial piety, debt reduction (karma), and equity of shared responsibility (Hsu & Shyu, 2003). However, as the country began to experience significant economic growth in the 1960s, society gradually became more Westernized (Payette & Chien, 2020). This Westernization has resulted in family patterns that are more heterogeneous, which includes more nuclear families and single-person households than previously (Ministry of the Interior, February 6, 2023).

The changes in the types of families have weakened the family structure, which can impact how family members provide mutual support and care for older relatives (Roberto & Blieszner, 2015). When older relatives require caregiving following an illness or injury, this weakening of the family structure can increase the caregiver burden and psychological stress, which can make it more difficult for the care receiver to recover (Liu et al., 2015). Caregiving for an older relative recovering from a hip fracture requires constant monitoring, which not only causes caregiver burden but can also lead to feelings of exhaustion (Ariza-Vega, Castillo-Perez, et al., 2021). High levels of dependence and caregiving needs among older adults with hip fracture result in high caregiver burden and a greater need for social support when only one family caregiver is responsible (Lin & Lu, 2005, 2007). Shyu et al. (2010) reported that in the first six months post-discharge, caregiver needs are especially high. Thus, family caregivers of relatives recovering from hip-fracture surgery often experience low levels of perceived general health, mental health, and health-related quality of life, especially when there is a lack of social support (Shyu et al., 2012).

In more than 80% of Taiwanese caregiving families, multiple family members share in caregiving (Chen et al., 2018). However, most studies on family caregivers of older persons focus on one single primary caregiver (Chen et al., 2018; Lee et al., 2017; Liu et al., 2015); little is known regarding multiple family members caring for an older relative, especially with regards to a relative recovering from hip-fracture surgery. Therefore, it is important to examine how multiple family caregivers in other Asian cultures, such as Taiwan, work together as a unit and what strategies they implement to provide care to an older relative. Understanding the challenges and concerns of family caregivers who are providing group care to a relative recovering from a hip fracture could be used to develop interventions tailored to support and foster family group caregiving.

2. METHODS

2.1 Design

A grounded theory approach (Glaser & Strauss, 1967) was selected to better understand the interactions and conceptualize the process of family caregiving provided by multiple family caregivers for older adults following hip fracture surgery. This was part of a larger study on family caregiving following hip fracture (Shen et al., 2020).

2.2 Participants

Older adults recovering from hip fracture surgery and their family caregivers were recruited from the trauma wards of a medical center in northern Taiwan. Caregivers were included if they met the following criteria: ≥ 20 years of age, without severe physiological or mental disease, and providing care to an older family member recovering from hip fracture surgery. All family caregivers shared caregiving responsibilities for an older relative with at least one other family member, which included assistance with ADLs or instrumental ADLs (IADLs); ages of the older relative ranged from 62 to 92 years (n = 5, two males and three females); one relative was cognitively impaired. During the early stage of analysis of the interview data, family structure, defined as the relationship of the caregivers with the care receiver and other non-caregiving family members, family dynamics, and cultural values emerged, which were used to categorize participants into a family 'type' with an accompanying dynamic: stem/patriarchal, nuclear/non-communicative, two-generation/democratic, and traditional/patriarchal. Details and definitions of the structure of family types and dynamics are shown in Table 1. This information was based on theoretical sampling during data analysis.

Table 1. Family structure, dynamics, definitions and context of the five families of caregivers

Family	Structure/Dynamic	Context
A	Stem/Patriarchal [a]	A stem family is one in which a couple's firstborn son lives with the family and that adult child's

		spouse moves into the home of the in-laws. Family A was comprised of an older father recovering from hip-fracture surgery who lived with his eldest son and wife and was cared for by two other family members. One was the father's daughter, a married housewife who lived nearby. The second caregiver was the father's granddaughter, who lived with her mother. The father's other children were employed and lived in their own homes. This family had traditional values and the dynamic was patriarchal.
B	Nuclear/Non-communicative	Two family caregivers cared for an adult male who lived with his wife and son in the same household. The wife caregiver (retired teacher) was herself an older adult; the son caregiver had recently graduated from graduate school but was unemployed. The family dynamic was democratic.
C	Two-generation/Democratic	Three daughters helped oversee the care of their mother, who had been moved to a residential nursing home for her recovery. Before the mother's fracture, she rotated living among five families representing two generations: the families of her three married daughters, one a retired; and the families of her grandchildren, who were employed. The dynamic of the five families was democratic.
D	Stem/Patriarchal [a]	A firstborn son as well as a daughter, who were unmarried family, lived with their mother, thus making Family D a stem family. This was a traditional, patriarchal family and both the son and sister were caregivers for their mother following her hip fracture. A second son, divorced with two children, also lived with the mother and his siblings.
E	Traditional/Patriarchal [a]	Four family caregivers of a traditional, patriarchal family cared for their mother, who was cognitively impaired. This extended family was representative of a typical three-generation family in Taiwan. The daughter caregiver was a housewife; however, she only was interviewed when the mother was hospitalized because she when overseas for 3 months. The three married sons lived next door to each other, and the three daughters-in-law were also caregivers.

[a]Patriarchal families follow the Chinese tradition of men as breadwinners and women as housewives.

2.3 Ethical Approval

The study was approved by the institutional review board of Chang Gung Memorial Hospital (103-1035A3). Research assistants explained the study and obtained their written informed consent. Participants were told about their right to withdraw from the study at any time and for any reason. Confidentiality was maintained by using numbers instead of the names of the participants.

2.4 Data collection

Data were collected with individual in-depth face-to-face semi-structured interviews conducted by researchers between June 2014 and June 2017 using an interview guide (Table 2). Interviews were conducted at 1-week and 1-, 3-, 6-, and 12-months post-hospital discharge. All interviews began with a broad, open-ended question, "Can you describe how you have been caring for your mother/father/mother-in-law/grandfather since their hip-fracture surgery?" We also asked about the caregiving required to meet the needs of the relative's physical or cognitive challenges. Follow-up questions depended on the responses to the four interview questions, which involved specifics about what type of help or assistance the family member received, who else provided caregiving, whether there was an established schedule, if so, how it was organized.

A total of 47 interviews were conducted with 13 family members of the five older adults recovering from hip fracture surgery: five interviews with five caregivers, four interviews with two caregivers, three interviews with four caregivers, and one interview each with two caregivers who were living or working abroad for several months. The average interview time was 59 minutes. Interviews were audio-recorded, and written memos were maintained, which included the researchers' thoughts and impressions of observed non-verbal behaviors and situations that simultaneously occurred during a family caregiver's response to the interview questions. These thoughts impressions were written immediately following the completion of the interview. Interviews were transcribed verbatim, and researchers checked

the correctness of all records and held regular meetings every month to discuss the interviews and transcripts to ensure the integrity of the interview data.

Table 2. Semi-structured interview guide

Questions
1. Can you describe how you have been caring for your relative (husband/father/grandfather/mother/mother-in-law) since their hip-fracture surgery?
2. Does your relative have any physical or cognitive challenges that have special caregiving needs? (If yes), What are these challenges?
3. Have you encountered any caregiving difficulties since your relative's surgery, including the time your relative was hospitalized? (If yes), What strategies have you used to handle the difficulties?
4. What things do you do for your relative (husband/father/grandfather/mother/mother-in-law) that makes you think you are doing a good job?

Note: Relative = husband/father/grandfather/mother/mother-in-law

2.5 Data analysis

Constant comparative analysis of the transcribed interview data and memos was implemented with open coding, axial coding, and selective coding (Glaser, 1978, 1992), which was conducted by the first and corresponding authors. Lines of text and the interviewer's thoughts and impressions from written memos representing each caregiver's experience of interacting with other family caregivers to provide care for their relative recovering from hip fracture were identified and coded by HT. Interview data, memos, and codes were reviewed by YSL, and both authors discussed the data in-depth to develop the subcategories, categories, and the core category until consensus was reached. Table 3 describes the details of the three steps used to analyze the interview data and memos.

The experience of the researchers provided theoretical sensitivity during coding, which provides "insight, the ability to give meaning to data, the capacity to understand, and

capability to separate the pertinent from that which is not (Strauss & Corbin, 1990). Professional experience can be a source of theoretical sensitivity as it enables a researcher to understand how things work in that field, why, and what happened (Glaser, 1978, 1992). The first author has experience in qualitative research and data analysis and has more than ten years of clinical experience in caring for older adult patients and their families. The corresponding author, YLS, has multiple published studies using a grounded theory approach to explore the processes of family caregiving (Shyu, 2000a, 2000b, 2000c; Shyu et al., 1998; Tsai et al., 2008). These professional experiences and long periods of engagement with the participants increased the investigators' sensitivity to the data.

Once categories were identified, the sampling method changed to theoretical sampling. Theoretical sampling is a process by which new data sources are identified based on codes and categories developed in earlier rounds of data generation or collection (Szabo & Strang, 1997). These data are used to elaborate and refine categories and identify dimensions and conditions within each category that influenced interactions among categories (Corbin & Strauss, 1990). For example, when a caregiver mentioned that medical-related work or daily life tasks were performed by different people, the data were coded as "care tasks by different caregivers". When a family caregiver described how caregiving was coordinated with other family members, the data were coded as "family type's division of labor". Through constant comparative analysis, multiple categories emerged from the data (Glaser, 1965). By using theoretical memos (the researcher's ideas about evolving codes and their relationships), the core category of "preventive team management" was developed, which reflected the central behavioral pattern of the family caregivers and linked the related categories to form an explanatory scheme (Glaser, 2002). Contextual concepts related to the implementation of team management emerged with different strategies occurring for a specific family structure/dynamic. After the core category "Preventive Group Management: strategies for

family group caregiving" emerged, we used theoretical sampling to broaden the descriptive quotes from the interview data related to caregiving strategies to increase the richness of the core category (van Rijnsoever, 2017). These quotes represented caregivers from different types of families and represented how these strategies impacted "preventive team management." Data selection continued until theoretical saturation was reached, which means that no new concepts were found, and similar instances were described repeatedly (Taylor & Francis, 2013).

Table 3. Steps for constant comparative analysis of interview data and field notes

Step	Description
Open coding	The authors repeatedly read each interview and conducted line-by-line coding to get a sense of the whole. Meaning units were identified and later condensed and labeled with codes. The codes were sorted into categories based on differences and similarities, and then into subcategories. For example, during the initial line-by-line analysis, we asked ourselves "What is this about? What social process is being referenced?" Words or sentences of data relevant to strategies used for group care caregiving were given a heading or code, then common bits of data were listed and collapsed or reduced to identify categories.
Axial coding	We identified common categories across participants, dimensions within categories, and conditions that affected how categories interacted with each other (Glaser, 1978, 1992). Thus, the overall picture and underlying meaning, latent content, and core category "Protective Team Management: group care delivering" emerged. This process involved intense discussions among the researchers regarding similarities and differences in protective team management among different families.
Selective coding	The data were further analyzed by selective coding to identify incidents that described concepts related to the core category of Protective Team Management: group care delivering (Glaser, 1978, 1992). We selected statements that would help us grasp the social process of management among different families, such as planning and organizing caregivers and the environment, and what group care strategies were selected, and how implementation of strategies was controlled.
Field notes	The field notes were the researcher's observations of observations of non-verbal behaviors written immediately following completion of the interview. They contained preliminary insights and emerging analytic ideas (Montgomery & Bailey, 2007).

2.6 Trustworthiness

The trustworthiness of this study was enhanced by credibility, dependability, transferability, and confirmability (Guba & Lincoln, 1983; Sandelowski, 1986). Multiple strategies were used to maintain rigor in data collection and analysis. Several factors contributed to the credibility of the study (Lincoln & Guba, 1985): 1) prolonged engagement of the two researchers over the interview period; 2) triangulation of data collection, which included field notes of observations of the participants, reflexive journals maintained by the two researchers, and coding the transcripts independently followed by discussions to establish the core category; and 3) peer debriefing with other members of the qualitative research team, which included meetings every three months to discuss the evolving theory and enhance the credibility of the results. Dependability was established by maintaining an audit trail, which included interview data, field notes, the coding process, and discussion notes. Transferability was enhanced with thick data obtained by interviewing caregivers from different types of families and the use of theoretical sampling of the interview transcripts to support the data analysis and ensure findings that were grounded in the experiences of participants (Strauss & Corbin, 1990). When credibility, transferability, and dependability are all achieved, confirmability is established (Guba & Lincoln, 1989).

3. RESULTS

The core category that emerged from the analysis of the interview data was “Preventive Group Management: strategies for family group caregiving”, which described the process of organizing family caregivers to work together to maximize their relative’s safety and physical stability and prevent harmful events during recovery from hip fracture surgery. Details of the 13 family caregivers interviewed for this study and their relationship with the older relative recovering from hip-fracture surgery are shown in Table 3. These caregivers represented four types of families: stem/patriarchal (two families, n = 2 in each); nuclear/non-communicative

(n = 2); two-generation/democratic (n = 3); and traditional/patriarchal (n = 4). Details of the dynamics and context of these five families are shown in Table 4.

Table 4. Demographic characteristics of caregivers and their care receivers at the beginning of the study (N = 13)

Family Caregiver						Care receiver		
Family	Caregiver ID	Age	Gender	Occupation	Relationship	Age	Gender	Relationship
A						92	Male	
	A1(01ND01)	53	Female	Housewife	Daughter			Father
	A2(03ND02)	33	Female	Nurse	Granddaughter			Grandfather
B						62	Male	
	B1(04ND03)	65	Female	Teacher (retired)	Wife			Husband
	B2(05ND04)	26	Male	College grad (Unemployed)	Son			Father
C						95	Female	
	C1(07D02)	55	Female	Civil service (Retired)	Daughter			Mother
	C2(11D04)	58	Female	Housewife	Daughter			Mother
	C3(18D11)	64	Female	Housewife	Daughter			Mother
D						79	Female	
	D1(20D13)	47	Female	Housewife	Daughter			Mother

	D2(21D14)	49	Male	Bank worker	Son		Mother
E					84	Female	
	E1(14D07)	54	Female	Accountant (Works from home)	Daughter-in-law		Mother-in-law
	E2(15D08)	48	Female	Small business owner	Daughter-in-law		Mother-in-law
	E3(16D09)	47	Female	Housewife	Daughter-in-law		Mother-in-law
	E4(17D10)	57	Female	Housewife	Daughter		Mother

3.1 Preventive Group Management: strategies for family group caregiving

"Preventive Group Management: strategies for family group caregiving" allowed participants to share caregiving responsibilities across family types. Preventive Group Management was implemented because more than one family caregiver was responsible for the care of their older relative. However, not all caregivers lived in the same home, and many were unable to maintain a routine schedule. Although caregivers believed that all family members were responsible for the older relative and were obligated to act and support the older relative's recovery, their goal was to protect the care receiver and they did not always work in concert to help one another. Therefore, we described the family members' management of caregiving as family group caregiving, which was a coordinated effort to achieve a common goal, as opposed to team family caregiving, which would be the process of working together to help one another (Gilley & Kerno, 2010).

As shown in Tables 1 and 4, the five families represented four family types:

stem/patriarchal type (Families A and D); two-generation/democratic type (Family (C); nuclear/non-communicative type (Family B), and extended/traditional Chinese type (Family E). Family types managed family group caregiving using three strategies: explicit division of labor, disconnected caregiving, and patriarchal caregiving. However, in addition to family type, strategies were also influenced by cultural values, communication patterns, and available outside support. The strategies family types implemented for family group caregiving allowed them to work together, support each other, and fulfill traditional responsibilities of meeting their relative's needs, and to prevent their relative from falling by monitoring their physical abilities during recovery from hip-fracture surgery.

3.2 Group caregiving strategies and family type

Each management strategy helped caregivers coordinate three components of caregiving: 1) family type's division of labor; 2) approaches to caregiving, and 3) implementation challenges. The strategies and components of Preventive Group Management: strategies for family group caregiving are summarized in Table 5. The goal of family caregivers was to maximize the chances of a safe and rapid recovery from surgery. The conceptual model of Preventive Group Management: strategies for family group caregiving is shown in Figure 1.

Table 5. Group caregiving strategies and components of Preventive Group Management: strategies for group caregiving among family types

	Explicit division of labor caregiving		Disconnected caregiving	Patriarchal caregiving
Caregiving components	Stem/Patriarchal Family A & D	Two-generation/Democratic Family C	Nuclear/Non-communicative Family B	Traditional/Patriarchal Family E
Family type's division of labor	Discussions allowed caregivers to group caregiving based on the competence of family members to help while minimizing disruption of family functioning.	Discussions among the three older daughters resulted in the caregiving of the mother to be provided by a residential nursing home. The daughters compensated by overseeing her care in the nursing home.	Limited by the small number of family members, caregivers had little or no discussion of who would fulfill caregiving roles. Decisions about their relative's needs were made independently from one another.	The adult sons made the caregiving decisions, and the daughters-in-law were tasked with performing the caregiving work for their mother-in-law; the daughter was overseas when the mother was discharged.
Caregiving approach	Tasks and responsibilities were assigned according to the abilities of each caregiver. However, the care burden was not modified as recovery progressed, thus care burden often was unequal.	Flexibility in caregiving allowed the three daughters to accompany and provide emotional support to their mother on a rotating basis; professional care providers in the institution performed medical and daily care.	Family members played different roles in caregiving. Some directly assisted their relative; others provided assistance to another caregiver. Most of the caregiver burden was on the wife-caregiver.	Rotation of care among the four family caregivers involved the daughters-in-law shared the care work equally and independently. They did not interfere with one another's caregiving style or decisions.
Implementation challenges	Significant caregiver burden occurred in one family member, who was overwhelmed with her responsibilities and needed additional outside assistance.	Family caregivers had different opinions on whether the older adult would return home or continue to be institutionalized after recovery.	Each caregiver made decisions about a situation individually. Conflict with other family members was avoided by having little communication about other's opinions or needs. No outside help was available, and they were passive about their need for additional caregiving support.	Caregivers took a passive approach to address any problems because the family structure gave them no power to make decisions. Despite the desire for additional caregiving support, the traditional family structure gave the daughter-in-law caregivers little power to voice their needs.

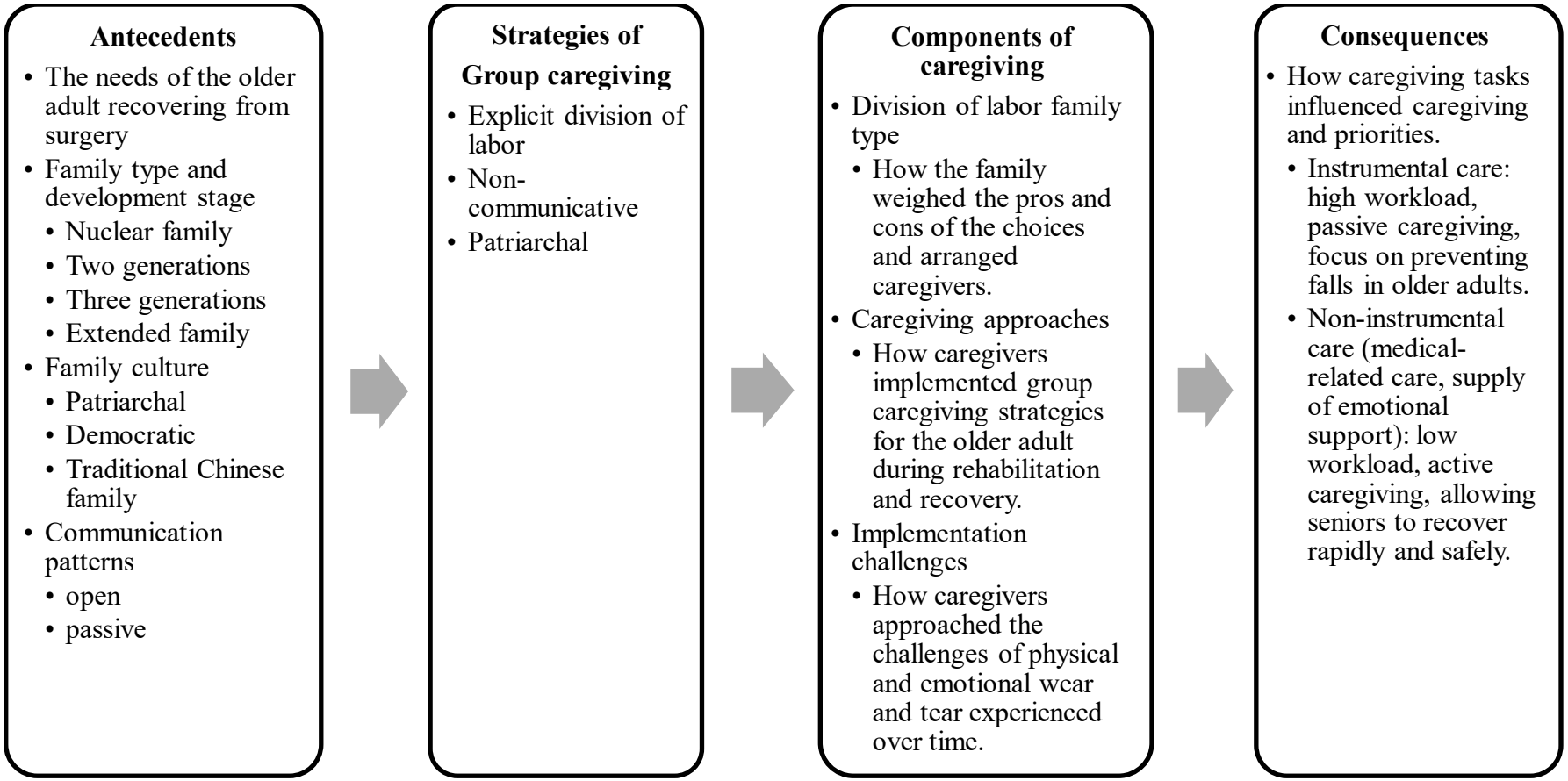

Figure 1. Conceptual model of Preventive Group Management: strategies of group family caregiving for family multiple members caring for an older relative recovering from hip-fracture surgery in Taiwan.

3.2.1 Explicit division of labor

The strategy of explicit division of labor was defined as unambiguous agreement about shared caregiving tasks among different family members. This strategy was implemented by the stem/patriarchal family caregivers, and the two-generation caregivers to manage preventive care through instrumental activities of daily living, medical-related caregiving, and to provide emotional support. Family members relegated the explicit division of labor through open communication. The two-member stem/patriarchal family caregivers assigned responsibility based on the competence of each caregiver while the three daughters in the two-generation family decided their mother could be best cared for in a nursing home. Although the caregiving workload was not necessarily equal, the caregivers in the stem/patriarchal families and the three daughters in the two-generation/democratic family were able to come to an agreement on managing caregiving so that responsibilities would be coordinated.

3.2.2 Disconnected caregiving

Disconnected caregiving referred to the caregiving tasks that were implicitly assumed, sometimes unilaterally decided, and lacked any defined management schedule. The nuclear/non-communicative family type, comprised of a retired teacher and her unemployed son, had limited financial resources and were not in agreement on how the husband/father should be cared for. They lacked the ability to communicate openly, which, coupled with no other family support, resulted in family group caregiving that was disconnected. The only goal the son and his mother had in common was preventing the father/husband from falling, to ensure the rapid recovery of the care receiver.

3.2.3 Patriarchal caregiving

Patriarchal caregiving referred to the assignment of responsibility for caregiving based on

traditional Chinese cultural values. This strategy was used by the family type that maintained Chinese patriarchal cultural traditions and values. This three-generation extended family included the recovering mother's daughter, and the extended family, comprised of three daughters-in-law. Although the daughter and the daughters-in-law were the caregivers, the sons made all decisions about instrumental care and medical-related care, which placed a greater caregiving load on one of the daughters-in-law.

3.3 Caregiving components

Each strategy for family group caregiving resulted in a different method of delivering the three components of caregiving, which are summarized in Table 5 and described below.

3.3.1 Family type's division of labor

The component of a family type's division of labor focused on determining which family member would function as the primary caregiver for their older relative following hospital discharge. This decision typically occurred during hospitalization with family members weighing the pros and cons of the available arrangements. The primary consideration was the competence and ability of each caregiver to provide for the needs of their relative and prevent physical injury while recovering from hip fracture surgery, which was based on the caregiver's home/work situation. Caregivers attempted to work together to manage caregiving responsibilities, which involved not only meeting the needs of their relative but also ensuring their relative was in a safe environment that would minimize the risk of falling.

The division of labor for delivering care in the stem/patriarchal family types was based on open discussions and coordination with other family members. For instance, the granddaughter in a stem/patriarchal family (Caregiver A2), described how the family worked in concert to deliver care for her grandfather during his hospitalization:

My aunt is a nurse practitioner, so she arranged caregiving because she had the best

> *understanding of the situation. I have a nursing background, so we took turns taking responsibility for his care in the hospital. We had a family meeting to organize his equipment, like wheelchairs and walkers, and decided which family members would provide care after discharge. Our priority was to help him return to his prior abilities without subsequent falls.*

The son caregiver (Caregiver D2), whose family type was stem/patriarchal, described sharing caregiving with his sister because he had more stamina, saying "*She (mother) needs 24-hour care because if she falls again, it will create more problems. My younger sister is not able to do it all by herself, so I rotate caregiving with her.*"

Family C, in which three older adult daughters were the caregiver for their mother, agreed to divide the labor of caregiving by relying on professional assistance for around-the-clock care and providing family group caregiving by sharing responsibility for daily visits. One daughter (Caregiver C1) described why they made this decision:

> *We all agreed that mom needs special care; we discussed it and decided that we should move her to the institution for a while because the professional people could care for her. She is safe there, gets proper rehabilitation, and my older sisters and I take turns visiting her every day*.

Division of labor in the nuclear/non-communicative family type (Family B), which implemented disconnected family group caregiving, involved little or no discussion between the two caregivers; the primary focus was providing needed care and preventing falls. Each caregiver acted alone, which was described by the son caregiver (Caregiver B2), who said, "*There is a tacit understanding between us, and the person who does things decides how to do it.*" The wife caregiver (Caregiver B1) said, "*There are only three people in our family, so we have no choice, we have no outside help, so there are no decisions to make. My husband cannot be alone because we are afraid of further falls."*

Division of labor in the in the three-generation traditional/patriarchal family type (Family E) employed family group caregiving as a means of providing around-the-clock care. Because of the strong influence of traditional Chinese culture, the sons made all the decisions about planning and organization; the daughter and daughters-in-law were excluded. This traditional patriarchal society emphasized the stratification of family responsibilities: men are breadwinners, and women are housekeepers. During the mother's hospitalization, her daughter (Caregiver E4) oversaw her care, saying, "*I just do my part take care of my mother.*" After the mother returned home, unemployed family members were considered ready-made caregivers. One daughter-in-law said:

> *Regarding how my mother-in-law is being taken care of, they [three sons] all decided together. After returning from the hospital, it is still the same. We (three daughters-in-law) take turns for one month and then rest for two months. Because she has dementia, she often forgets she had a fracture, so we need to pay attention to her movements to prevent falls. She needs someone with her all the time. My sisters-in-law and I take all the responsibilities. We want to hire outside help if our husbands agree*" (Caregiver E1)

3.3.2 Caregiving approaches

Family A, who managed family group caregiving with explicit division of labor, took an approach that was dictated by each caregiver's availability. Although explicit division of labor worked well in the early stages following surgery, as their relative recovered and became more independent, the absence of adjustments to reassess responsibilities negatively impacted the daughter because there seemed no end to her caregiving responsibilities. The two caregivers in Family A had initially divided the care workload based on their abilities and the needs of their father immediately post-discharge. However, the caregiving needs changed over the course of recovery, and the daughter (Caregiver A1) described her continued caregiving as becoming unbearable, saying, "*Although my father is getting better, I*

feel like I am fighting a battle every day, and I have endless house chores. I will go crazy if this continues."

The approach to managing caregiving was disorganized for the nuclear/non-communicative family (Family B) who employed a strategy of disconnected caregiving due to the limited manpower of the wife and unemployed son to meet the basic needs of the husband/father. However, the wife managed to assume responsibility for meals, housework, and the care of her husband while the son took responsibility for taking his father to appointments with the doctors. These approaches came about without any mutual discussion and the son assumed his mother was the primary caregiver. The son (Caregiver B2) said, "*I think my mother takes better care of my father, so I do the basic housework when I have time. I share my mom's work and let my mom take care of my dad*." However, this arrangement increased the wife's caregiver workload because she had to be more vigilant about preventing her husband from injuring himself when he became more mobile after recovery. The wife (Caregiver B1) said:

> *He recovered very fast. I worry if he goes out by himself, he might be hit by a car or something. So, I call him to see what he is doing when he goes out. I also limit the time I go out, because I am afraid something might happen to him.*

The caregiving approach used by the family that managed the team with patriarchal caregiving (Family E), required each son's family to take full responsibility for caring for their mother/mother-in-law for a period of time. However, when they were not caregiving, they stayed away and did not intervene or interfere with the practices of the other caregivers. For instance, one daughter-in-law said, "*the month I took care of her was very stressful because she got up early, so I got up at five. I didn't get enough sleep. If she tried to stand up when I wasn't there, it would be dangerous. So I needed to follow her and watch her all the time. I told my husband, and he did not consider helping me.*"(Caregiver E3)

3.3.3 Implementation challenges

As recovery from hip fracture surgery progressed, the caregiving strategies required modification. For all three strategies for managing family group caregiving, the implementation challenges were due to the physical and emotional wear and tear experienced by the caregiver over time.

The challenge for Family A, whose managed caregiving with explicit division of labor, stemmed from differences of opinions among family members. For example, a daughter (Caregiver A1) and her mother, who was not a caregiver, argued over whether hiring a foreign helper to reduce the daughter's caregiver workload was warranted. The daughter explained, "*No one helps me share the workload. I'm so tired. However, my mother thinks hiring a foreign helper is unnecessary because I am home all the time and she feels there is no need to spend the money."* After some negotiation, the mother realized that Caregiver A1 did need assistance with household chores, and seven months after surgery the mother agreed to hire foreign domestic help, giving the daughter more time to focus on caring for her father and preventing him from falling.

The challenge for team management in Family D1, a stem/patriarchal family, was the different expectations the daughter and the son caregivers had about their mother's recovery. The daughter (Caregiver D1) complained that she and her brother had different opinions about what was best for their mother. She shared that her younger brother, who was not a caregiver, acted as a go-between to help resolve their differences.

The challenge for Family C was coming to an agreement about whether their mother should be placed in a care facility. Initially, there were disputes and conflicts about each family member's point of view and acknowledging their limitations in providing preventive care and rehabilitation or their mother. However, over the course of their mother's recovery, interactions between the three daughter caregivers and the other two non-caregiver siblings

became more harmonious, and their respect and tolerance of each other increased. In the end, siblings agreed on how caregiving should be implemented. One daughter said: "*Now, when encountering problems, all five siblings discuss them together. We allow everyone to share their own opinions about whether our mother should stay in the nursing home, or if we should rent an apartment outside*." (Caregiver C2)

For the mother and son in Family B, who delivered caregiving that was disconnected, implementation challenges resulted from making decisions independent of the other family caregiver, although they were both concerned about preventing the husband/father from experiencing any injury. The son said:

> *My mom won't let my dad do the housework, and she's worried that if he gets hurt while doing the housework, her caregiving efforts will be in vain. When I saw my dad standing on one foot and sweeping the floor, I pretended I didn't see it and didn't tell my mom about it. I knew it might be dangerous but not severe, so I didn't stop him.* (Caregiver B2)

The son considered whether he should modify his caregiving methods based on his judgment of the seriousness of the situation without any discussion with his mother. When a situation had no adverse consequences, the caregivers avoided a conflict by not talking about it with the other caregiver.

Caregivers in Family E managed their team with patriarchal caregiving and implementation challenges occurred because the daughter and daughter-in-law family caregivers were required to take a passive approach to caregiving decisions made by their husbands. Patriarchal caregiving was a result of the family dynamics in traditional Chinese culture, which made these four caregivers powerless to make any changes in managing preventive care. One daughter-in-law said:

> *The extended family is very authoritative and unfair. I don't dare to ask what kind of*

care my mother-in-law received when my brother-in-law's family is in charge. When it is my turn, I have to figure out how to take care of her on my own. (Caregiver E2)

4. Discussion

This study contributes to the knowledge of how multiple family caregivers manage group caregiving for hip-fractured older adults following hospital discharge. The core concept of "Preventive Group Management: strategies of family group caregiving" focused on not only providing for the needs of an older relative, but also ensuring their safety as they recovered from surgery. Each group of family caregivers wanted to reduce the risk of their relative experiencing a fall during recovery from hip fracture surgery because they were aware of the reported increased risk of falling (Wu et al., 2013). Our findings echo other research on family caregivers in Taiwan, where home care entails allowing "individuals" to age in place rather than caring for "disabled individuals" (Chiang et al., 2020).

4.1 Strategies of family group caregiving

4.1.2 Explicit division of labor

Hip-fracture care needs are often complex, and patients and their families need to maintain engagement over time and across changes in their health situation (Sims-Gould et al., 2017). Therefore, the strategy of explicit division of labor for family group caregiving was influenced by each family type's division of labor.

The explicit division of labor employed by the stem/patriarchal and two-generation/democratic caregivers reduced the complexity of negotiations, which varied with the make-up of the families. Caregiving responsibilities were not equally shared, and caregivers did not provide mechanisms for modifying duties as their relative recovered and became more independent. One example of an inequitable workload was reported by Caregiver A1, who not only experienced an increased workload as her father recovered but

also an increase in her level of stress. This finding was similar to studies reporting more daily caregiving hours are associated with higher levels of caregiving stress (Yue et al., 2022). This finding also echoes those of a study that examined caregiver burden in family caregivers of older adults in Italy, as measured by the Caregiver Burden Inventory, which found an association between caregiver workload and the condition of the care receiver (Sardella et al., 2021).

In the two-generation family (C) explicit division of labor resulted in the daughters taking on the role of decision-makers. Traditionally, sons are accountable for fulfilling the filial duty to their older parents and are the primary decision-makers. In this family, the daughters took the initiative to raise issues about bearing the cost of financial arrangements. This active role of daughters is likely to reflect the perceptual changes about filial duty in Taiwan: sons and daughters are now more likely to be equally responsible for their parents, which is congruent with the study by Kwon and Tae (2012) and Brasher (2022). The daughters' decision to move their mother to a nursing facility might also result from the influence of geographical proximity, availability of alternative caregivers, and caregiver gender on making caregiving decisions (Szinovacz & Davey, 2013), as well as consideration of not only the parent's needs and the child's own circumstances, but also the conditions and behaviors of siblings (Wolf et al., 1997).

Communication patterns also influenced explicit division of labor. Open family communication contributes to effective individual and family coping (Huang et al., 2022). Although older people in Taiwan prefer to be cared for at home, it is not unusual to need intensive rehabilitation. In the two-generation Family C, the daughters, who were all over 50 years of age, did not have the physical stamina necessary to oversee the safety and rehabilitation of their mother. They were able to discuss their deficiencies as well as their desire to provide their mother with quality care as she recovered from surgery and arrive at

the decision to place their mother in a temporary facility. The three daughters as well as other family members felt secure that their mother's safety would be monitored closely, and the daughters were able to provide continued emotional support. In these types of situations, decisions among siblings about residential care is often necessary (Kwon & Tae, 2012) and viewed as acceptable for many in families Taiwan, because it is a means of providing quality care during recovery from an illness or injury (Tsai et al., 2008).

4.1.2 *Disconnected group care*

The strategy of disconnected group care was typical of collaborations in small families with limited manpower. The small number of family caregivers negotiated with each other to assume care responsibilities based on their own abilities as well as perceptions of their relative's needs. Family caregivers in China also frequently negotiate the limitations of family members to provide adequate care for a relative (Zhang et al., 2017).

The best example of disconnected group care was the nuclear/non-communicative Family B, in which the wife and her son cared for the husband/father by functioning independently across all three caregiving components, and their caregiving roles were primarily chosen as means of minimizing conflict without open discussion. As a result, the son reported significantly less caregiver load than his mother, which often occurs a caregiver provides indirect care, such as running errands and performing housework (Faison et al., 1999). Communication patterns with this type of family were found to be passive and implicit. This type of communication can result in expressions of support to be perceived more as nagging or criticizing, and can interfere with self-care of family caregivers (Rosland et al., 2010).

4.1.3 Patriarchal caregiving

Patriarchal caregiving strategies, implemented by Family E, were strongly influenced by

traditional Chinese culture. Older adults living in a traditional patriarchal family are cared for at home following hospital discharge for an illness or injury because all family members are expected to bear caregiving responsibilities. This finding is consistent with research from other Asian countries (Wongsawang et al., 2013; Wu et al., 2013). However, what was unique to patriarchal caregiving compared with an explicit division of labor or disconnected caregiving was that the sons in the family did not contribute to the actual caregiving. The sons' role was in "planning and organizing" the caregiving conducted by their wives. The three daughters-in-law caregivers in the patriarchal caregiving family passively followed the instructions of their husbands, all of whom were the sons of their mother-in-law. This relationship among the sons, their mother, and the daughters-in-law may not only be a result of the Chinese patriarchal culture, but might also be explained by a study in the US showing some parents favor their own offspring's decisions when caregiving decisions are required (Suitor et al., 2013). This finding differs from reports on multiple caregivers attending to a relative in Thailand where more than one caregiver identified as the primary caregiver, which included claiming responsibility for organizing and planning of family caregiving (Wongsawang et al., 2013).

This lack of support from non-caregiving family members and the care receiver can cause caregivers to restrain sharing their personal opinions and limit interactions with family members to avoid conflict (Tsai et al., 2016). This lack of communication among family members in the UK was demonstrated to inhibit the effective transfer of care (Smith et al., 2022). However, these daughters-in-law felt a strong obligation to care for their mother-in-law due to filial piety, which contributed to their ability to tolerate their caregiving role, which is consistent with findings from Hsu and Shyu (2003).

4.2 Limitations

The findings of this study have certain limitations. First, we did not explore whether the

caregivers' stress influenced outcomes among caregivers and care recipients. Second, we did not investigate which family group caregiving strategy was most helpful in the recovery of older adults. Third, although we interviewed 13 family caregivers, they represented only five families, only one of which was a nuclear family, which may limit the generalization of our findings to a broader population of caregivers. Finally, these data were collected five years ago and may represent any recent changes in the phenomenon. Future studies should broaden the scope to include interactions and mutual influences among primary, secondary, and other caregivers and understand the consequences of different types of collaborations.

4.3 Policy and environmental implications

Most rehabilitation for older adults following hip-fracture is conducted after hospital discharge, and globally, a significant amount of responsibility is carried by family members (Ariza-Vega, Castillo-Perez, et al., 2021). The climate crisis has increased the number of days of inclement weather (Watson et al., 2023), which will add the already high risk of falls for older adults. Reducing complications during recovery, increasing successful rehabilitation, and reducing the emotional stress of caregiving requires an understanding of the scope of caregivers' abilities as well as their concerns, which will take on an even greater degree of importance if the incidence of hip-fracture increases as the climate continues to change.

5. Conclusions

This study describes how family caregivers implemented Preventive Group Management when caring for an older family member recovering from hip fracture surgery. Components of Preventive Group Management: strategies for family group caregiving included family type's division of labor, approaches to caregiving, and implementation challenges. The different family structures (family type, culture, communication patterns) and the needs of

persons with hip fractures determined the family group caregiving strategies, which influenced how the components of Preventive Group Management were implemented. These findings might also apply to caregivers in other traditional Asian cultures where family caregiving takes precedent over outside support.

6. Implications for Practice

More than 80% of Taiwanese caregiving involves multiple family members. Our findings fill a gap in the literature because most qualitative studies on family caregivers have focused on only one family member. Our findings demonstrate support and care for older relatives recovering from hip-fracture surgery is more complex when multiple family members manage caregiving. These conceptual findings can enhance healthcare providers' understanding of the situations and concerns of collective family caregiving.

These findings have practical implications for nurses overseeing the care of older adults recovering from hip fracture surgery in Taiwan. Family members are the primary caregivers for older persons needing assistance in Taiwan and multiple caregivers in a family often need to work together. Family caregivers in our study had limited access to training and support to help them care optimally and respond effectively to illness-related changes, and for some, poorly organized group care increased their caregiving load. Therefore, we suggest healthcare providers in Taiwan enhance group management for these family caregivers by developing interventions to optimize caregiver collaborations and minimize caregiver workload. This could be accomplished by assessing family type for caregivers when guiding family members in management of rehabilitation for an older patient following discharged from hospital care.

Author contributions

HT and YIL were involved in drafting the manuscript and revised it critically for important intellectual content. HT, YLS, JL, and KT contributed to data analysis, critical review, and

writing of the manuscript. All authors read and approved the final manuscript.

Acknowledgments

We thank the family caregivers and care receivers who participated in this study.

Conflict of interest

None

Funding

This original study was supported by grants from the National Health Research Institutes, Taiwan (NHRI-EX10410405PI); Chang Gung Medical Foundation (BMRP297); and Healthy Aging Research Center, Chang Gung University from the Featured Areas Research Center Program within the framework of the Higher Education Sprout Project by the Ministry of Education in Taiwan (EMRPD1L0391)

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Yea-Ing L. Shyu https://orcid.org/0000-0002-9697-535X

Jieying Liang https://orcid.org/0000-0003-1959-9917

Kröger Teppo https://orcid.org/0000-0001-5019-6230

REFERENCES

Ariza-Vega, P., Castillo-Perez, H., Ortiz-Pina, M., Ziden, L., Palomino-Vidal, J., & Ashe, M. C. (2021). The Journey of Recovery: Caregivers' Perspectives From a Hip Fracture Telerehabilitation Clinical Trial. *Physical therapy*, *101*(3), 1. https://doi.org/10.1093/ptj/pzaa220

Beaupre, L. A., Lier, D., Magaziner, J. S., Jones, C. A., Johnston, D. W. C., Wilson, D. M., & Majumdar, S. R. (2020). An Outreach Rehabilitation Program for Nursing Home Residents After Hip Fracture May Be Cost-Saving. *The Journal of Gerontology, Series A: Biological Sciences and Medical Sciences*, *75*(10), E159-E165. https://doi.org/10.1093/gerona/glaa074

Brasher, M. S. (2022). Filial Norms, Altruism, and Reciprocity: Financial Support to Older Parents in China. *Journal of population ageing*, *15*(1), 259-277. https://doi.org/10.1007/s12062-020-09316-0

Burm, S. W., Hong, N., Lee, S. H., Yu, M., Kim, J. H., Park, K. K., & Rhee, Y. (2021). Fall Patterns Predict Mortality After Hip Fracture in Older Adults, Independent of Age, Sex, and Comorbidities. *Calcified tissue international*, *109*(4), 372-382. https://doi.org/10.1007/s00223-021-00846-z

Chen, P. H., Tong, Y. K., Lee, L. F., & Lin, W. C. (2018). Family Caregivers Caregiving Patterns and Stress Related to Gender in Patients with Chronic Disability. *Journal of Disability Research*, *16*(3&4), 149-161. https://www.airitilibrary.com/Publication/alDetailedMesh?DocID=17292832-201812-201901160029-201901160029-149-161

Chen, Y.-P., Kuo, Y.-J., Liu, C.-h., Chien, P.-C., Chang, W.-C., Lin, C.-Y., & Pakpour, A. H. (2021). Prognostic factors for 1-year functional outcome, quality of life, care demands, and mortality after surgery in Taiwanese geriatric patients with a hip fracture: a prospective cohort study. *Therapeutic Advances in Musculoskeletal Disease*, *13*, 1-11. https://doi.org/10.1177/1759720X211028360

Chiang, Y.-H., Hsu, H.-C., Chen, C.-L., Chen, C.-F., Chang-Lee, S.-N., Chen, Y.-M., & Hsu, S.-W. (2020). Evaluation of reablement home care: Effects on care attendants, care recipients, and family caregivers. *International journal of environmental research and public health*, *17*(23), 8784. https://doi.org/10.3390/ijerph17238784

Chien, N.-H., Tsai, C.-H., & Lin, H.-R. (2022). Lived Experiences of Newly Admitted to Long-Term Care Facilities among Older Adults with Disabilities in Taiwan. *International journal of environmental research and public health*, *19*(3), 1816. https://doi.org/10.3390/ijerph19031816

Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative sociology*, *13*(1), 3-21. https://doi.org/10.1007/BF00988593

Faison, K. J., Faria, S. H., & Frank, D. (1999). Caregivers of Chronically Ill Elderly: Perceived Burden. *Journal of Community Health Nursing*, *16*(4), 243-253. https://doi.org/10.1207/S15327655JCHN1604_4

Gilley, A., & Kerno, S. J. (2010). Groups, Teams, and Communities of Practice: A Comparison. *Advances in Developing Human Resources*, *12*(1), 46-60. https://doi.org/10.1177/1523422310365312

Glaser, B. G. (1965). The constant comparative method of qualitative analysis. *Social Problems*, *12*(4), 436-445. https://doi.org/10.2307/798843

Glaser, B. G. (1978). *Theoretical sensitivity*. Sociology Press.

Glaser, B. G. (1992). *Basics of grounded theory analysis: Emergence vs forcing*. Sociology Press.

Glaser, B. G. (2002). Conceptualization: On theory and theorizing using grounded theory. *International journal of qualitative methods*, *1*(2), 23-38. https://doi.org/10.1177/160940690200100203

Glaser, B. G., & Strauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine Transaction. https://books.google.com.tw/books?id=oUxEAQAAIAAJ

Guba, E. G., & Lincoln, Y. S. (1983). *Effective evaluation : [improving the usefulness of evaluation results trough responsive and naturalistic approaches]*. Jossey-Bass. https://books.google.com.tw/books?id=PtIovwEACAAJ

Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Sage.

Hsu, H. C., & Shyu, Y. I. L. (2003). Implicit exchanges in family caregiving for frail elders in Taiwan. *Qualitative health research*, *13*(8), 1078-1093. https://doi.org/10.1177/1049732303256370

Huang, Y. J., Acquati, C., & Cheung, M. (2022). Family communication and coping among racial-ethnic minority cancer patients: A systematic review. *Health & Social Care in the Community*, *30*(3), e605-e620. https://doi.org/10.1111/hsc.13623

Karlsson, A., Berggren, M., Olofsson, B., Stenvall, M., Gustafson, Y., Nordstrom, P., & Lindelof, N. (2020). Geriatric Interdisciplinary Home Rehabilitation After Hip Fracture in People with Dementia-A Subgroup Analysis of a Randomized Controlled Trial. *Clinical interventions in aging*, *15*, 1575-1586. https://doi.org/10.2147/CIA.S250809

Kwon, S.-H., & Tae, Y.-S. (2012). Nursing Home Placement: The Process of Decision Making and Adaptation among Adult Children Caregivers of Demented Parents in Korea. *Asian Nursing Research*, *6*(4), 143-151. https://doi.org/https://doi.org/10.1016/j.anr.2012.10.005

Lee, I., Chiou, C. J., & Su, H. S. (2017). Comparison of Caring Status and Needs between Elderly and Non-elderly Family Caregivers. *The Journal of Long-Term Care*, *21*(2), 149-164. https://doi.org/10.6317/LTC.21.149 (Original work published in Chinese)

Lin, P.-C., & Lu, C.-M. (2005). Hip fracture: family caregivers' burden and related factors for older people in Taiwan. *Journal of clinical nursing*, *14*(6), 719-726. https://doi.org/10.1111/j.1365-2702.2005.01130.x

Lin, P.-C., & Lu, C.-M. (2007). Psychosocial factors affecting hip fracture elder's burden of care in Taiwan. *Orthopaedic nursing*, *26*(3), 155-161. https://doi.org/10.1097/01.NOR.0000276964.23270.92

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. sage.

Liu, H.-Y., Yang, C.-T., Cheng, H.-S., Wu, C.-C., Chen, C.-Y., & Shyu, Y.-I. L. (2015). Family caregivers' mental health is associated with postoperative recovery of elderly patients with hip fracture: a sample in Taiwan. *Journal of psychosomatic research*, *78*(5), 452-458. https://doi.org/10.1016/j.jpsychores.2015.02.002

Ministry of the Interior. (February 6, 2023). *Monthly Bulletin of Interior Statistics*. https://www.moi.gov.tw/english/cl.aspx?n=7665

Montgomery, P., & Bailey, P. H. (2007). Field notes and theoretical memos in grounded theory. *Western Journal of nursing research*, *29*(1), 65–79. https://doi.org/10.1177/0193945906292557

National Development Council. (2022). *Population Projections for the Republic of China (Taiwan): 2022-2070*. National Development Council. https://pop-proj.ndc.gov.tw

Payette, A., & Chien, Y.-C. (2020). Culture or Context?: Comparing Recent Trajectories of Elder Care Development in China and Taiwan. *Asian Journal of Social Science*, *48*(3-4), 227-249. https://doi.org/https://brill.com/view/journals/ajss/48/3-4/article-p227_3.xml

Roberto, K. A., & Blieszner, R. (2015). Diverse family structures and the care of older persons. *Canadian Journal on Aging / La Revue Canadienne Du Vieillissement*, *34*(3), 305-320. https://doi.org/10.1017/S0714980815000288

Rosland, A.-M., Heisler, M., Choi, H.-J., Silveira, M. J., & Piette, J. D. (2010). Family influences on self-management among functionally independent adults with diabetes or heart failure: do family members hinder as much as they help? *Chronic illness*, *6*(1), 22-33. https://doi.org/10.1177/1742395309354608

Sandelowski, M. (1986). The problem of rigor in qualitative research. *Advances in Nursing Science*, *8*(3), 27-37. https://doi.org/10.1097/00012272-198604000-00005

Sardella, A., Lenzo, V., Alibrandi, A., Catalano, A., Corica, F., Quattropani, M. C., & Basile, G. (2021). A Clinical Bridge between Family Caregivers and Older Adults: The Contribution of Patients' Frailty and Optimism on Caregiver Burden. *International journal of environmental research and public health*, *18*(7), 3406. https://doi.org/https://doi.org/10.3390/ijerph18073406

Shen, M. H., Yang, C. T., Wu, C. C., Huang, H. L., Lin, Y. E., Shyu, Y. I. L., & Chung, S. C. (2020). Resuming Normal Life as a Family Caregiver During Drip-Like Recovery of Older Persons With Cognitive Impairment Recovering From Hip Surgery: A Grounded Theory. *Journal of nursing scholarship*, *52*(3), 250-260. https://doi.org/10.1111/jnu.12554

Shyu, Y.-I. L. (2000a). Role Tuning between Caregiver and Care Receiver during Discharge Transition: An Illustration of Role Function Mode in Roy's Adaptation Theory. *Nursing science quarterly*, *13*(4), 323-331. https://doi.org/10.1177/08943180022107870

Shyu, Y.-I. L. (2000b). The needs of family caregivers of frail elders during the transition from hospital to home: a Taiwanese sample. *Journal of advanced nursing*, *32*(3), 619-625. https://doi.org/10.1046/j.1365-2648.2000.01519.x

Shyu, Y.-I. L. (2000c). Patterns of caregiving when family caregivers face competing needs. *Journal of advanced nursing*, *31*(1), 35-43. https://doi.org/10.1046/j.1365-2648.2000.01262.x

Shyu, Y.-I. L., Archbold, P. G., & Imle, M. (1998). Finding a balance point: A process central to understanding family caregiving in Taiwanese families. *Research in nursing & health*, *21*(3), 261-270. https://doi.org/10.1002/(sici)1098-240x(199806)21:3<261::aid-nur9>3.0.co;2-f

Shyu, Y.-I. L., Chen, M.-C., Liang, J., & Tseng, M.-Y. (2012). Trends in health outcomes for family caregivers of hip-fractured elders during the first 12 months after discharge. *Journal of advanced nursing*, *68*(3), 658-666. https://doi.org/10.1111/j.1365-2648.2011.05778.x

Shyu, Y.-I. L., Chen, M.-C., Wu, C.-C., & Cheng, H.-S. (2010). Family caregivers' needs predict functional recovery of older care recipients after hip fracture. *Journal of advanced nursing*, *66*(11), 2450-2459. https://doi.org/10.1111/j.1365-2648.2010.05418.x

Sims-Gould, J., Stott-Eveneshen, S., Fleig, L., McAllister, M., & Ashe, M. C. (2017). Patient Perspectives on Engagement in Recovery after Hip Fracture: A Qualitative Study. *Journal of Aging Research*, *2017*, 2171865. https://doi.org/10.1155/2017/2171865

Smith, H., Grindey, C., Hague, I., Newbould, L., Brown, L., Clegg, A., Thompson, C., & Lawton, R. (2022). Reducing delayed transfer of care in older people: A qualitative study of barriers and facilitators to shorter hospital stays. *Health Expectations*, *25*(6), 2628-2644. https://search.ebscohost.com/login.aspx?direct=true&db=eoah&AN=61206314&lang=zh-tw&site=ehost-live

Strauss, A., & Corbin, J. M. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. SAGE Publications. https://books.google.com.tw/books?id=4jC2AAAAIAAJ

Suitor, J. J., Gilligan, M., Johnson, K., & Pillemer, K. (2013). Caregiving, Perceptions of Maternal Favoritism, and Tension Among Siblings. *The Gerontologist*, *54*(4), 580-588. https://doi.org/10.1093/geront/gnt065

Szabo, V., & Strang, V. R. (1997). Secondary analysis of qualitative data. *Advances in Nursing Science*, *20*(2), 66-74. https://doi.org/10.1097/00012272-199712000-00008

Szinovacz, M. E., & Davey, A. (2013). Changes in adult children's participation in parent care. *Ageing & Society*, *33*(4), 667-697. https://doi.org/10.1017/S0144686X12000177

Taylor, B., & Francis, K. (2013). *Qualitative Research in the Health Sciences: Methodologies, Methods and Processes* Routledge. https://doi.org/https://doi.org/10.4324/9780203777176

Tsai, C. J., Tsai, J. S., & Li, P. Y. (2016). Suffering and Coping Experiences amongst Family Caregivers of Dementia Patients [Suffering and Coping Experiences amongst Family Caregivers of Dementia Patients]. *Chinese Journal of Guidance and Counseling*(47), 59-90. https://doi.org/10.3966/172851862016120047004

Tsai, W.-C., Tsai, J.-L., & Shyu, Y.-I. L. (2008). Integrating the nurturer–trainer roles: Parental and behavior/symptom management processes for mothers of children with autism. *Social Science & Medicine*, *67*(11), 1798-1806. https://doi.org/10.1016/j.socscimed.2008.07.015

van Rijnsoever, F. J. (2017). (I Can't Get No) Saturation: A simulation and guidelines for sample sizes in qualitative research. *PloS one*, *12*(7), e0181689-e0181689. https://doi.org/10.1371/journal.pone.0181689

Watson, J. C., Sturgiss, E. A., & Tait, P. (2023). Special Issue: Climate Crisis and Primary Health Care. *Family Practice*. https://doi.org/10.1093/fampra/cmad037

Wolf, D. A., Freedman, V., & Soldo, B. J. (1997). The division of family labor: care for elderly parents. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, *52 Spec No*, 102-109. https://doi.org/10.1093/geronb/52b.special_issue.102

Wongsawang, N., Lagampan, S., Lapvongwattana, P., & Bowers, B. J. (2013). Family caregiving for dependent older adults in Thai families. *Journal of nursing scholarship*, *45*(4), 336-343. https://doi.org/10.1111/jnu.12035

Wu, L.-C., Chou, M.-Y., Liang, C.-K., Lin, Y.-T., Ku, Y.-C., & Wang, R.-H. (2013). Association of home care needs and functional recovery among community-dwelling elderly hip fracture patients. *Archives of gerontology and geriatrics*, *57*(3), 383-388. https://doi.org/10.1016/j.archger.2013.05.001

Yue, L., Jia, C., Hu, B., Zhang, Z., Bai, M., Wang, S., & Yao, N. (2022). Caregiving stress among family caregivers of older adults living with disabilities in China. *Geriatric Nursing*, *47*, 226-231. https://doi.org/10.1016/j.gerinurse.2022.07.017

Zhang, L., Zeng, Y., & Fang, Y. (2017). The effect of health status and living arrangements on long term care models among older Chinese: A cross-sectional study. *PloS one*, *12*(9), e0182219-e0182219. https://doi.org/10.1371/journal.pone.0182219