



Published in final edited form as:

Orthop Nurs. 2013 ; 32(2): 89–97. doi:10.1097/NOR.0b013e318289fa22.

Use of Discussion Boards in an Online Hip Fracture Resource Center for Caregivers

Eun-Shim Nahm, PhD, RN, FAAN,

University of Maryland School of Nursing, 655 W. Lombard St, Suite 455 C, Baltimore, MD 21201, Tel: (W) 410-706-4913, FAX: 410-706-3289, enahm@son.umaryland.edu

Barbara Resnick, PhD, CRNP, FAAN,

University of Maryland School of Nursing

Lisa Plummer, BSN, RN, and

University of Maryland School of Nursing

Bu Kyung Park, MS, RN

University of Maryland School of Nursing

Abstract

Background—Hip fracture is a serious health problem among older adults and often results in serious consequences, such as disabilities. Informal caregivers (CGs) are particularly important for the successful recovery of older adult hip fracture patients while they undergo surgical procedures and extensive rehabilitation therapies. In a previous study, we developed a comprehensive theory-based online hip fracture resource center (OHRC) for CGs and conducted a feasibility study. The 8-week OHRC, including learning modules, moderated-discussion boards (DB), Ask-the-Experts, and virtual libraries, was used by CGs.

Purpose—The presented study reports findings from a qualitative analysis of DB postings.

Methods—The data were analyzed using content analysis in conjunction with an inductive coding approach. The analyses yielded six themes and three categories related to hip fracture care (e.g., specific types of care provided by CGs).

Results/Conclusion—Findings suggest that DB forums can serve as a medium for CGs to share their experiences and to obtain support. Furthermore, DB forums can assist healthcare providers in identifying further opportunities to assist CGs. The study is limited to a small sample size in one hospital. Further studies are needed with larger samples in diverse settings.

Keywords

caregivers; online resource program; discussion board

Hip fracture is a significant health problem among older adults and often results in serious consequences, such as disabilities and deteriorating health conditions (Duthie, Katz, & Malone, 2007; Magaziner et al., 2003; Orwig, et al., 2011). Unlike many other chronic illnesses, however, it is an acute injury, and older adults can regain their baseline function

Correspondence to: Eun-Shim Nahm.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

with appropriate interventions (Al-Ani et al., 2008; Chudyk, Jutai, Petrella, & Speechley, 2009). The role of informal caregivers (CGs) (e.g., family members, significant others; herein caregivers) is particularly important as they are the ones who support older adults while they undergo surgical procedures, rehabilitation, and transitions through the healthcare delivery systems (Nahm, Resnick, Orwig, Magaziner, & Degrazia, 2010).

Many older adults living independently in the community experience a hip fracture(s). Their CGs often assume the CG role unexpectedly and are rarely prepared to take care of someone who has sustained a hip fracture (Nahm et al., 2010). Compared to the extensive research in other caregiving areas, relatively few studies have been conducted with the CGs of older adult hip fracture patients. Findings from those studies (Crotty, Whitehead, Miller, & Gray, 2003; Shyu, Chen, Wu, & Cheng, 2010), however, have shown that CGs of older adults post hip fracture provide need to provide physical care (e.g., helping with bathing, dressing, toileting), emotional support, and other supportive services, such as taking the CRs to follow up medical appointments.

In our previous qualitative study exploring CGs' experiences over the first 6-month recovery period (Nahm et al., 2010), the CGs perceived the hip fracture as a turning point toward a frailer state for the CR and found themselves being involved in various aspects of care across multiple transitions (e.g., in the hospital and transition to rehabilitation, skilled nursing facility and/or ultimately to the home setting). The CGs reported a lack of knowledge about what to expect through the hip fracture recovery period or how to prepare for the care that might be needed during transitions (e.g., transfers from the hospital to rehabilitation settings to home). They also mentioned specific issues and difficulties in providing care to hip fracture patients (e.g., use of devices) and noted that additional information would have helped them provide better care for their CRs.

In response to the needs of CGs, we developed a comprehensive theory-based online hip fracture resource center (OHRC) for CGs, *Caring for Caregivers*, and conducted a feasibility study (Nahm et al., 2012). The effectiveness of theory-based online interventions in health behavioral studies has been demonstrated (Nahm, Resnick, & Covington, 2006; Lorig, Ritter, Laurent, & Plant, 2008). Selected theories can be used to identify specific content of online interventions and to guide the way they are delivered. The two theories guiding the study are: stress, appraisal, and coping (SAC) and self-efficacy and outcome expectations (SE/OE) (more detailed application of theories in the interventions can be found in Nahm et al., 2012). The OHRC included self-learning modules, nurse-moderated discussion boards, an "Ask the Experts" section, and a virtual library. Each learning module included specific learning objectives, content, interactive self-assessment quizzes, and testimonials (success stories) (Table 1). The modules were tailored to transitions and progressions throughout the hip fracture recovery period commonly experienced by CRs. A moderated discussion forum accompanied each learning module. Participants could submit specific questions using an interactive online form in the Ask-the-Experts section. A virtual library included more in-depth information about the selected module content and articles recommended by experts.

The purpose of this study was to explore the CGs' experiences in taking care of their CRs while they were using the OHRC intervention over the 8-week period through the analysis of discussion board postings.

Methods

Design

This was a qualitative study using the data from an online discussion board used by CGs of hip fractures patients. The discussion board was a part of the OHRC program, which was an

8-week interactive online resource program for the CGs of older adult hip fracture patients. A moderated discussion forum accompanied each learning module of the program.

Sample/Settings

Upon approval from all necessary Institutional Review Boards, participants were recruited from six hospitals in Maryland. The hospitals were part of the Baltimore Hip Study Group Network and selected based on their availability. A dyad was eligible if both the CR and the CG met the eligibility criteria. A CR was eligible if the person (1) was 50 years or older; (2) received hip repair surgery due to hip fracture within a week; and (3) was able to perform activities of daily living (ADLs) independently before experiencing the hip fracture. A CG was eligible if the person (1) was 21 years or older; (2) was a family member, friend, or significant other identified by the participating CR as the person who provided the majority of assistance in personal care and household tasks during post-surgery recovery; (3) resided in Maryland; (4) had access to the Internet (e.g., at home or a library); (5) could use the Internet on his/her own; and (6) was cognitively intact with a Mini-Mental State Examination (MMSE) score of at least 27. During the study period, a total of 92 eligible patients were identified, and 41 dyads were found to be eligible. Among those, 36 CG-CR dyads were enrolled, and 27 dyads completed the intervention and the follow-up survey. The most frequent reason for withdrawal was illness of the CR or other family members.

Participating CGs were encouraged to complete all relevant modules for the first four to five weeks (one to two modules per week) and to review the modules as needed for the remaining weeks. A discussion forum, which accompanied each module, included two to four discussion topics designed to facilitate peer support and experience-sharing (Table 2). In particular, the topics were formulated to focus on behavioral aspects rather than simply assessing knowledge (e.g., issues/concerns the CG or the CR had during hospitalization and the approaches they took to manage them). Participants were encouraged to post their responses to the discussion topics and review others' experiences. Consistent with self-efficacy theory, the discussion board moderator, who was a registered nurse (RN), facilitated the discussions by providing positive reinforcement and verbal encouragement to participants.

Data Analysis

Discussion board postings were subjected to content analysis using NVivo 9 (QRS International, 2010) (Denzin & Lincoln, 2005; Krippendorff, 2003; Weber, 1990). The discussions were analyzed using the combination of a content analysis method suggested by Krippendorff (2003) and an inductive coding approach (e.g., generation of categories/themes as coding progresses) (Marks & Yardley, 2003; Pain, Chadwick, & Abba, 2008). The coding units were sentences. The context unit, which delineated the information to be considered when the analysis unit was coded, was the forum for each discussion topic (Krippendorff, 2003).

The units (sentences) were coded into mutually exclusive categories/themes, and frequencies of the units per each category/theme were documented. The major coding rules included: (1) if units form a list of items, a category was formed (e.g., strategies to prevent hip fractures); other units were subjected to inductive coding resulting in themes; and (2) multiple sentences that refer to the same item/concept in a single posting were coded as one unit (e.g., the following was coded as one unit under the "Lack of Information" category, "*My Mother is 90 and my brother and I faced a challenge. We did not really know how to proceed with my Mother's care upon discharge from the hospital...*"). Initially, categories/themes were developed consistent with the discussion topics. As coding progressed, most themes spanned several discussion forums (e.g., "*being a CG as learning experience*"; "*lack of information*

or knowledge and feeling lost'). Upon completion of coding, themes and coded units were reviewed multiple times, and the number of themes was reduced.

Three coders analyzed the discussion postings separately with the same coding rules. Two coders were doctorally prepared researchers who had conducted and published several qualitative studies. The other coder was a research associate who had completed doctoral-level qualitative research courses and had experience in qualitative data analysis. Two coders performed the initial coding separately and developed mutually exclusive categories/themes, including frequencies of units. The initial categories/themes were similar among coders. Discrepancies were discussed and a consensus was reached. The categorization then was validated by the third coder, who coded postings using the final categories/themes. Her results were then compared with the results from the first two coders. Discrepancies were discussed and a consensus was reached.

Reliability and validity (trustworthiness)—To ensure high reproducibility reliability (consistent categorization) three different coders performed the analyses using specific coding rules (Krippendorff, 2003; Weber, 1990). Semantic validity (Krippendorff, 2003) was assessed by evaluating correspondence between categorization of the texts and the questions asked (i.e., discussion questions), and correspondence between categorizations of the texts and the theory used to moderate the discussion boards (e.g., motivate participants to improve behaviors).

Results

The majority of CGs were female (n = 18, 66.7%) and White (n = 24, 88.9%) with at least some college education (n = 20, 74.1%). The mean age was 55.5 ± 12.7 years. The average years of web experience was 11.7 ± 4.8 (range, 4 to 20); however, no one had experience in using discussion boards. The majority (n = 25, 92.6%) accessed the discussion boards, but only 19 CGs (70.4%) actively posted their thoughts on the discussion topic. A total of 70 postings were generated by the participants. Some participants accessed the discussion board without posting (e.g., reading others' postings). The majority of postings were each participant's thoughts on the discussion topics as opposed to the comments on others' postings. The analyses resulted in three categories related to hip fracture care, such as specific types of care that CGs provided, and six themes. Table 3 summarizes the categories and themes, as well as the unit frequencies.

Categories

Types of care provided by CGs—Various caregiving activities were categorized into four groups: help with ADLs or physical therapies; environmental adjustment; provision of direct care related to the surgery (e.g., medications, medications, care of localized infection site); and use of assistive devices. Table 4 describes the frequencies and examples of each care category.

Strategies used by CGs to prevent hip fractures—Participation in this study heightened CGs' awareness of fall and fracture prevention for their CRs and themselves. The CGs used what they had learned not only for their CRs, but also for themselves and their family members. The most frequently discussed strategies related to safety, such as becoming aware of surroundings and being careful not to fall (9 units) – "*I am trying very hard to keep my hubby from falling again. I know that I am being very over protective but he just can't afford another fall.*" The impact of knowledge gained by CGs also expanded to themselves, as well as to their family members. For example, some CGs reported that they

and their family members changed calcium intake behaviors to ensure sufficient amount of calcium intake (6 units).

Coping mechanisms used by the CGs to handle stress—The CGs used several techniques to handle their stress. Several CGs (4 units) reported that support from their family and friends helped them a great deal to cope with the stressful situation (*“I’ve found that lots of family support and visits from friends helped both of us to cope”*). Others found relaxation techniques, exercise or taking a walk, or reading helped them to cope with the stress (5 units).

Themes

The discussion board was used by CGs and the themes emerged from the CGs’ postings. Some of the themes were related to the CGs’ own experiences. Other themes, however, were related to the CGs’ observations or perceptions of their CRs’ thoughts or behaviors.

CG-Related Themes

Recognizing the important roles of therapists and clinicians in recovery—Physical therapists spent a great deal of time with CRs, and their contribution to the CRs’ recovery process was much appreciated by CGs.

“They, the therapist, had him up and walking with a walker and he was, and remains amazed that in under a week he had broken his hip, had it repaired and was bearing weight. It was just the positive end to his hospital stay.”

“My father’s nurses constantly reinforced with him and our family methods and devices that would make his daily activities easier.”

Utility of the program in care provision and also in increasing awareness of bone health in family members—Participating CGs reported that the discussion board was helpful not only for caring for their CRs but also for themselves and other family members.

“Having access to this information prior to having to make these decisions is truly a blessing.”

“Certainly this experience has made me more aware of my own bone health..., additionally, I intend to make my daughter more aware of the choices she makes.”

CGs’ stress and exhaustion due to CRs’ hip fracture event—The CRs’ hip fracture imposed a great deal of mental and physical stress on CGs. Rapid changes in the CRs’ conditions and care settings increased the level of stress further.

“Both my wife and I have never gone through this before and neither did my Mom. To add to this, my Dad (92) was left at home alone, also unknown.”

“The experience of taking care of someone on a daily basis with daily activities, I have learned is an extremely tiring task,... it just seemed that there was always something to do.”

Lack of knowledge about being a CG to hip fracture patients—The hip fracture event usually occurred unexpectedly, and CGs suddenly felt placed into a CG role and were uncertain of how to function.

“My Mom and us had no idea as to what was happening, what was being done, what was going to happen, etc. This was a totally new experience and unknown.”

“We did not really know how to proceed with my Mother's care upon discharge from the hospital. Additionally, we did not understand the amount or extent of physical therapy that would be required relative to: 1) her age, and 2) the extent of therapy she would need or could handle.”

CR-Related Themes

CRs' wish to return to baseline function—The CGs observed that their CRs, who were previously independent, were anxious to go back to their active lifestyles. Some CGs, however, were concerned that this expectation might not be realistic on the part of the CR. Moreover, they were particularly concerned about the CR's safety.

“We had trouble at first, not getting Mom to do her daily activities but to let us help her a little with some activities. Mom wanted to wash herself, dress herself, do her own glucose monitoring, medicating and all.”

“As you know, my grandmother has an extremely good attitude and is not your typical 95 1/2 year old. My only concern is that she is so determined to get rid of the walker to move on to the cane and to eventually get back to normal or back to her level of functioning before the hip fracture that it concerns me that she may tire herself out or rush herself and refracture her hip, or worse, break the other side.”

Needs for adjustment to the new condition and settings—Both CRs and CGs had to adjust to new roles and environments throughout the recovery process. For instance, previously independent CRs assumed a more dependent role in activities of daily living, both basic and instrumental. Often the home environment needed to be changed for safety.

“My mother expected that potential hazards would be eliminated. What she didn't expect was the therapists suggested she remove a rocker-recliner chair permanently (which happened to be her favorite chair). . . .”

“However, to prepare him for home, we, my 2 brothers and myself, had had an additional hand rail installed before he got home. We had temporarily taken over their bills, removed throw rugs... moving in the house with a walker was difficult.”

Difficulty with transitioning to a rehabilitation facility—Transferring from a hospital to a rehabilitation setting was a very stressful process for both CRs and CGs. For CGs, transitioning from acute care to rehabilitation or a skilled level of care resulted in feelings of concern. They worried that the rehabilitation setting might not provide the expertise in hip fracture management that their CR might needed. For CRs, the new institutional environment was a challenge as it was very different from the hospital and their homes (e.g., new health care providers, new roommates).

“It was so very hard for my two daughters and myself to transfer my husband and their dad from the hospital to the nursing and rehab facility.”

“We learned quickly that room availability at the first home was extremely tight and if we deferred our selection to a later date, it was highly probable that our Mother would not obtain a room there.”

“Only real issue was one of his roommates was not too nice. Pretty mean, really. We asked for him to be moved and they granted our request.”

Discussions

The themes identified and comments from our participants helped to expand on the care related activities that CGs provide to CRs post hip fracture. Most prior findings on caregiving to hip fracture patients mainly discussed CG burden related to the provision of care for basic ADLs and instrumental ADLs (e.g., housework) (Lin, Hung, Liao, Sheen, & Jong, 2006; Lin & Lu, 2007). The findings from this study, however, included more specific skilled care services, such as wound care and pain management, which have rarely been noted in prior literature. In particular, those care activities require additional training for CGs. As the overall length of hospital stay for hip fracture patients is getting shorter, CGs are likely to assume more of these types of skilled care (Coleman, 2003; Naylor, Kurtzman, & Pauly, 2009).

The findings suggest some important potential uses of the OHRC program. The level stress experienced by the CGs of hip fracture patients is often increased due to a lack of knowledge about the care they are supposed to provide and insufficient understanding of the care trajectory. The OHRC program, that starts early from the acute hospital setting, may lessen the stress and anxiety experienced by the CGs. For example, the program could be available in a Kiosk in the emergency room or in a computer room/family visitors room on a hospital unit (if a computer with Internet access is available for the CG in the patient’s room) or via an in-house TV educational channel in the hospital. In addition, this online resource program can be included as part of discharge planning. In fact, nursing staff members at the recruitment hospitals appreciated the availability of resources as they were well aware of the CGs’ learning needs and the limited time that clinicians and CGs had in the acute care setting.

The CGs appreciated the CRs’ eagerness to return home to their independent living, yet they expressed concerns about the CRs’ safety, including whether their expectations of physical activity levels were realistic. There was a tendency on the part of CGs to protect their CRs and maybe even limit their opportunities to engage in physical activity during the recovery process. While it is understandable that CGs might be concerned about their CRs’ recurrent falls and the implications of such an event, the CGs may need additional education about the benefits of physical activity/exercise to decrease the risk of falling (Chudyk et al., 2009; Talkowski, Lenze, Munin, Harrison, & Brach, 2009). It is important for CGs to understand that the main goal of a hip fracture treatment plan is to regain baseline functions (Al-Ani et al., 2008; Chudyk et al. 2009). A Function Focused Care Philosophy (Resnick, Galik, Gruber-Baldini, & Zimmerman, 2011) in which individuals are helped to optimize their function and level of physical activity during all care interactions fits well in this context.

The study findings showed the importance of rehabilitation services. Throughout the study period, CGs repeatedly acknowledged the help of therapists, physical and occupational, whom they had the opportunity to work with to take care of their CRs. Interestingly, however, the importance of increased physical activity and exercise (e.g., balance and bone strengthening exercises) in rehabilitation was hardly discussed in the discussion on hip fracture prevention methods. In fact, provision of a sufficient amount of therapies for optimal rehabilitation to older adult hip fracture patients can be a challenging task due to several limitations, such as symptoms specific to this population (e.g., pain, fatigue) (Hung, Egol, Zuckerman, & Siu, 2012; Ortiz-Alonso et al., 2012), or lack of resources in the healthcare environment (Becker et al., 2010; Gutierrez et al., 2012). Exercise, however, is an important component for both rehabilitation and prevention of hip fracture (Crotty et al.,

2010; Resnick et al., 2007). Physical therapists are in an excellent position to further educate hip fracture patients and their CGs about the importance of exercise while they are working with their patients. Future research on optimal approaches to involve CGs in the rehabilitation treatment plan early on in the recovery process is much needed.

Some CGs reported that the information on hip fractures provided in this study raised their awareness about their own health needs and that of other members of their family. The information on bone health, such as engaging in regular exercise and eating a calcium-rich diet, was passed on to others as well (Majumdar et al., 2009; National Osteoporosis Foundation, 2008; U.S. Dept. of Health and Human Services, 2004).

Limitations

The major limitation of this feasibility study was a small sample size and the number of postings. Further studies with larger samples are needed. In regard to recruiting dyad participants, most CGs are overwhelmed and stressed by the situation and the demands of the care right after their CR's hip fracture. Thus, it is important to identify the optimal timing and approaches to introduce this type of resource program to CGs. Based on our experience, it seemed to be the optimal time to use this resource program as part of a care plan for hip fracture patients while they are in acute care.

From the qualitative analysis perspective, the discussions were driven by the specific topic provided. Thus, there may be some other areas of caregiving to hip fracture patients that were not captured by the selected topics. The discussions were facilitated by the moderator using the social cognitive theory, and her comments were not included in the analyses. Although her comments were more focused on encouragement, some flow (i.e., context) of the discussions might have been lost in the analyses.

Conclusion

The increasing number of older adult Americans and the decreasing length of hospital stay after hip fracture surgery require more active involvement of CGs in the delivery of care. Considering fast-paced transition of care with complex caregiving needs in older adult hip fracture patients, online resource programs can provide CGs more just in-time support and offer a forum to share their experiences. The findings from this study confirm the important role of the CGs and their need for comprehensive information about the hip fracture recovery period to facilitate their ability to best guide their CRs. The OHRC was perceived as a helpful resource by the CGs, and on-going research is needed to continue to evaluate this approach following the hip fracture period.

Acknowledgments

This study was supported by Grant R21AG029578 from the National Institute on Aging.

References

- Al-Ani AN, Samuelsson B, Tidermark J, Norling A, Ekstrom W, Cederholm T, Hedstrom M. Early operation on patients with a hip fracture improved the ability to return to independent living: A prospective study of 850 patients. *Journal of Bone and Joint Surgery*. 2008; 90(7):1436–1442. [PubMed: 18594090]
- Becker DJ, Yun H, Kilgore ML, Curtis JR, Delzell E, Gary LC, Morrisey MA. Health services utilization after fractures: Evidence from Medicare. *Journals of Gerontology . Series A, Biological Sciences and Medical Sciences*. 2010; 65(9):1012–1020.

- Chudyk AM, Jutai JW, Petrella RJ, Speechley M. Systematic review of hip fracture rehabilitation practices in the elderly. *Archives of Physical Medicine & Rehabilitation*. 2009; 90(2):246–262. [PubMed: 19236978]
- Coleman EA. Falling through the cracks: Challenges and opportunities for improving transitional care for persons with continuous complex care needs. *Journal of the American Geriatrics Society*. 2003; 51(4):549–555. [PubMed: 12657078]
- Crotty M, Unroe K, Cameron ID, Miller M, Ramirez G, Couzner L. Rehabilitation interventions for improving physical and psychosocial functioning after hip fracture in older people. *Cochrane Database of Systematic Reviews*. 2010; (1):CD007624.
- Crotty M, Whitehead C, Miller M, Gray S. Patient and caregiver outcomes 12 months after home-based therapy for hip fracture: A randomized controlled trial. *Archives of Physical Medicine & Rehabilitation*. 2003; 84(8):1237–1239. [PubMed: 12917867]
- Denzin, NK.; Lincoln, YS., editors. *The Sage handbook of qualitative research*. 3rd ed.. Thousand Oaks, CA: Sage; 2005.
- Duthie, EH.; Katz, PR.; Malone, ML. *Practice of geriatrics*. Philadelphia, PA: Saunders; 2007.
- Gutierrez L, Roskell N, Castellsague J, Beard S, Rycroft C, Abeysinghe S, Robbins S. Clinical burden and incremental cost of fractures in postmenopausal women in the United Kingdom. *Bone*. 2012; 51(3):324–331. [PubMed: 22684000]
- Hung WW, Egol KA, Zuckerman JD, Siu AL. Hip fracture management: tailoring care for the older patient. *Journal of the American Medical Association*. 2012; 307(20):2185–2194. [PubMed: 22618926]
- Krippendorff, K. *Content analysis: An introduction to its methodology*. 2nd ed.. Thousand Oak, CA: Sage; 2003.
- Lin PC, Hung SH, Liao MH, Sheen SY, Jong SY. Care needs and level of care difficulty related to hip fractures in geriatric populations during the post-discharge transition period. *Journal of Nursing Research*. 2006; 14(4):251–260. [PubMed: 17345754]
- Lin PC, Lu CM. Psychosocial factors affecting hip fracture elder's burden of care in Taiwan. *Orthopaedic Nursing*. 2007; 26(3):155–161. [PubMed: 17538469]
- Lorig K, Ritter PL, Laurent DD, Plant K. The internet-based arthritis self-management program: a one-year randomized trial for patients with arthritis or fibromyalgia. *Arthritis Care & Research*. 2008; 59:1009–1017. [PubMed: 18576310]
- Magaziner J, Fredman L, Hawkes W, Hebel R, Zimmerman S, Orwig DL, Wehren L. Changes in functional status attributable to hip fracture: A comparison of hip fracture patients to community-dwelling aged. *American Journal of Epidemiology*. 2003; 157(11):1023–1031. [PubMed: 12777366]
- Majumdar SR, Lier DA, Beaupre LA, Hanley DA, Maksymowych WP, Juby AG, Morrish DW. Osteoporosis case manager for patients with hip fractures: Results of a cost-effectiveness analysis conducted alongside a randomized trial. *Archives of Internal Medicine*. 2009; 169(1):25–31. [PubMed: 19139320]
- Marks, DF.; Yardley, L., editors. *Research methods in clinical and health psychology*. London, United Kingdom: Sage; 2003.
- Nahm ES, Resnick B, Orwig D, Magaziner J, Degrezia M. Exploration of informal caregiving following hip fracture. *Geriatric Nursing*. 2010; 31(4):254–262. [PubMed: 20682403]
- Nahm E-S, Resnick B, Covington B. Development of theory-based, online health learning modules for older adults: Lessons learned. *CIN: Computers, Informatics, Nursing*. 2006; 24(5):261–268.
- Nahm E-S, Resnick B, Bausell B, Orwig D, Magaziner J, Bellantoni M, Sterling R. A social cognitive theory-based online hip fracture resource center for caregivers: Effects on dyads. *Nursing Research*. 2012; 61(6):413–422. [PubMed: 23052420]
- National Osteoporosis Foundation. *Clinician's Guide to Prevention and Treatment of Osteoporosis*. Retrieved August. 2012; 27 from http://www.nof.org/sites/default/files/pdfs/NOF_Clinicians_Guide2008.pdf.
- Naylor MD, Kurtzman ET, Pauly MV. Transitions of elders between long-term care and hospitals. *Policy, Politics & Nursing Practice*. 2009; 10(3):187–194.

- Ortiz-Alonso FJ, Vidan-Astiz M, Alonso-Armesto M, Toledano-Iglesias M, Alvarez-Nebreda L, Branäs-Baztan F, Serra-Rexach JA. The pattern of recovery of ambulation after hip fracture differs with age in elderly patients. *Journals of Gerontology Series. A, Biological Sciences and Medical Sciences*. 2012; 67(6):690–697.
- Orwig DL, Hochberg M, Yu-Yahiro J, Resnick B, Hawkes WG, Shardell M, Magaziner J. Delivery and outcomes of a yearlong home exercise program after hip fracture: A randomized controlled trial. *Archives of Internal Medicine*. 2011; 171(4):323–331. [PubMed: 21357809]
- Pain MC, Chadwick P, Abba N. Clients' experience of case formulation in cognitive behaviour therapy for psychosis. *British Journal of Clinical Psychology*. 2008; 47:127–138. [PubMed: 17711615]
- QRS International. NVIVO 9. 2010. Retrieved August 27, 2012 from http://www.qsrinternational.com/products_nvivo.aspx
- Resnick B, Galik E, Gruber-Baldini A, Zimmerman S. Testing the effect of function-focused care in assisted living. *Journal of the American Geriatrics Society*. 2011; 59(12):2233–2240. [PubMed: 22091790]
- Resnick B, Orwig D, Yu-Yahiro J, Hawkes W, Shardell M, Hebel JR, Magaziner J. Testing the effectiveness of the exercise plus program in older women post-hip fracture. *Annals of Behavioral Medicine*. 2007; 34(1):67–76. [PubMed: 17688398]
- Shyu YI, Chen MC, Wu CC, Cheng HS. Family caregivers' needs predict functional recovery of older care recipients after hip fracture. *Journal of Advanced Nursing*. 2010; 66(11):2450–2359. [PubMed: 20722808]
- Talkowski JB, Lenze EJ, Munin MC, Harrison C, Brach JS. Patient participation and physical activity during rehabilitation and future functional outcomes in patients after hip fracture. *Archives of Physical Medicine & Rehabilitation*. 2009; 90(4):618–622. [PubMed: 19345777]
- U.S. Dept. of Health and Human Services, P. H. S., Office of the Surgeon General. Bone Health and Osteoporosis: A Report of the Surgeon General (2004). 2004. Retrieved August 27, 2012, from <http://www.surgeongeneral.gov/library/reports/bonehealth/>
- Weber, RP. Basic content analysis. 2nd ed.. Newbury Park, CA: Sage; 1990.

Table 1

The Content Outline of Learning Modules

Learning Modules	Content (Each module included objectives, testimonial, self-assessment quizzes)
Coping with the CG Role	Our Philosophy on Caregiving; Coping with a New CG Role; I Can Take Care of Myself; Belief and Confidence as a CG; Coping With Changing Care Settings; You Can Do It!
Care Needs During Hospitalization	Diagnosis of Hip Fracture; Treatment Options for Hip Fracture: Surgery and Early Mobilization; General Recovery Progress; Care Needs After Hip Surgery
Care Needs in the Rehabilitation Unit	Working With the Staff; Exercise Instructions; Using Assistive Devices; Activities of Daily Living (ADLs); Pain Management; Social Support
Care Needs After Discharge to Home	To Prepare for Recovery at Home; How to Assist Your Care Receiver; Pain Management; Fall Prevention; Safety in the Home Environment; Medication Management and Safety
Care Needs in a Long-Term Care Facility	Long-Term Care (LTC): Selection, Types, and Payment (including Medicare and Medicaid); Making the Transition to Nursing Home Facility Life; Methods to Help Your Loved One Make the Transition to Nursing Home Setting; Working With Care Facility Staff; Elder Rights: Long term care Ombudsman Program
Prevention of Future Fracture	Osteoporosis; Falls and Hip Fractures; Dietary Calcium; Exercise

Table 2

Discussion Forum Topics

Modules	Discussion Topics
Coping with the CG Role	Experience of being a CG Techniques that you use to handle stress
Care Needs During Hospitalization	Experience during hospitalization (issues/concerns the CG or CR had and the approaches they took to manage them) The important things for the CR's recovery, and how the CG would help the CR
Care Needs in the Rehabilitation Unit	Experiences while staying at the rehabilitation facility (issues and the approaches they took to manage them) The CG's experiences in learning about how to help the CR
Care Needs After Discharge to Home	Concerns regarding the CR's discharge to home and plans to cope with them Experience with home care services, if had any Experience with helping the CR perform his/her ADLs after his/her discharge to home Experience with pain management
Care Needs in a Long-Term Care Facility	Experience with using resources that help the CG cope with their CR's transition to a long term care facility The strategies the CG took to become an active advocate for the CR
Prevention of Future Fracture	Strategies to prevent hip fractures How the CG is doing with her/his bone health

Table 3

Categories and Themes

Categories	Units
•Types of care provided by the CGs	21
•Strategies used by CGs to prevent fractures	17
•Coping mechanisms used to handle stress: Social support (help from family members and friends) (4); Relax/Walk/Read (5)	9
Themes	Units
<i>CG-Related</i>	
•Recognition of the important role of therapists and clinicians in recovery	13
•Utility of the program in care provision and also in increasing awareness of bone health in family members.	10
•CGs' stress and exhaustion due to CRs' hip fracture event.	8
•Lack of knowledge about being a caregiver to hip fracture patients	7
<i>CR-Related</i>	
•Wish to get back to baseline (home)	16
•Needs for adjustment to the new condition and settings (e.g., functional, psychological, and environmental)	13
•Difficulty with transitioning to a rehabilitation setting	9

* The categories and themes that had less than five units were not included.

Table 4

Types of Care Provided by Caregivers

Categories	Units	Examples
Help with ADLs or physical therapies	11	<i>"... it was clear that someone needed to be with her almost the whole time to act as her advocate and to get assistance regarding bathroom needs, etc...."</i>
Environmental adjustment	6	<i>"We have her staying here at my home, a split foyer, so she can eat, sleep and watch TV all on one level."</i>
Provision of direct care related to the surgery (e.g., medications, care of localized infection site, etc.)	5	<i>"I simply made sure her medicine was always available to her."</i>
Use of assistive devices	5	<i>"Arrangement of specific beds, walkers wheelchairs, etc."</i>