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Older nursing home residents' experiences with videoconferencing to communicate with family members

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Aim. This study explored the experiences of older Taiwanese nursing home residents in using videoconferencing to communicate with family members.

Background. Enhancing communication between long-term care residents and their family is important. Interactions between residents and their family members can be increased through high-tech videoconferencing programmes.

Design. A qualitative, observational research design was used to gain a deeper understanding of the videoconference experiences of older nursing home residents in Taiwan.

Methods. In-depth interviews were used to gather information from 34 older residents at 10 nursing homes in northern Taiwan. Participants were asked to describe their three-month experience using videoconference communication with their family in the nursing home. Participants (18 women, 16 men) had an average age of 75·38 (SD 10·19, range 60–95). Verbatim transcripts of audiotaped interviews were analysed by content analysis and Atlas.ti software.

Results. Participants experiences using videoconference communication with family members were captured by four themes: enriched life, second-best option for visiting, life adjustments and true picture of family life.

Relevance to clinical practice. Our findings may enhance policy makers' and healthcare providers' understanding of older nursing home residents' experience with videoconferencing to communicate with distant family members, thus guiding development and evaluation of nursing home videoconference services to improve older people's lives in nursing homes.

Key words: experience, nurses, nursing home, older residents, Taiwan, videoconference

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Introduction

Social support has been shown to be an important predictor of good physical and mental health, as well as the ability to live independently (Potts 1997, Wang *et al.* 2003). One important aspect of social support for older nursing home residents is the continued involvement of family members. Family involvement in the care of institutionalised elders with dementia has been shown to benefit residents, family and staff (Maas *et al.* 2004), making family involvement in nursing home care a focus of research in Western countries for over 30 years (York & Caslyn 1977). However, one-third of residents were found, seldom, to have visitors (Gueldner *et al.* 1992), and the number of visitors was reduced six months after relocation to a nursing home (Barry & Miller 1980).

One factor related to frequency of visitation is geographic distance to a nursing home (Naleppa 1996, Gaugler *et al.* 2003). To shorten the distance between family members' home and a nursing home, real-time audiovisual link-ups are now possible between multiple centres via affordable high-tech videotechnology (Hui *et al.* 2001). This technology can

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provide both verbal and non-verbal elements that are rich in human communications. These two elements provide the function of 'social presence' and enrich communication between people (Short *et al.* 1976). Videophones have been shown to serve as a communication medium between nursing home residents and their family members in Western countries (Mickus & Luz 2002, Hensel *et al.* 2007). These studies have used videophones as a feasible way for family members to communicate with individuals who have mild dementia and a full range of medical conditions, but their sample sizes were small. Thus, these studies need to be confirmed with larger samples.

Taiwan, in keeping with many other modern Asian countries, has recently experienced rapid social changes. Demographic and sociological trends, longer life span, low birth rate, smaller families, urbanisation and industrialisation have contributed to changes in the health care system for older people (Lee 2004). More older people are being cared for in nursing homes rather than by their adult children. Staff members at nursing homes in Taiwan have a heavy workload and spend the majority of their time on direct care, such as medications and wound care (Liu 1998). With little chance to connect with other residents or nursing home staff, nursing home residents' social support is especially dependent on family visits and contacts.

Although videophone interventions have been shown in small studies to be a feasible technology for providing psychosocial benefit to both institutionalised residents and their families, this equipment (videophone) is expensive and unpopular in Taiwan. Since videophone does not seem to be feasible option in Taiwan, another consideration is videoconference. The benefits of videoconferencing in medicine have been recognised as a feasible way of delivering care to frail older adults living with chronic diseases (Hine & Arnott 2002). Internet videoconference programmes have also been demonstrated as a feasible method for promoting social interactions among non-speaking people living in the community (Hine & Arnott 2002). Real-time audiovisual telecommunication systems have been used to improve outcomes for nursing home residents in Hong Kong (Hui *et al.* 2001) and for community-dwelling older residents receiving home health care in Japan (Nakamura *et al.* 1999).

Insight into the experience of nursing home residents using videoconference to communicate with family members may clarify specific ways healthcare providers can use this technology to help this population. Since these issues have not been addressed in Taiwan, this study was undertaken to understand the experiences of older Taiwanese nursing home residents in using videoconference communication with family members.

Methods

Design

This study was part of a series of quasi-experimental studies and used a qualitative and observational design. That is, both individual interviews and observation were used to gain a deep understanding of videoconference, using experiences of older nursing home residents.

Setting and participants

Of the 328 nursing homes registered with the Taiwan Association of Long-Term Care Professionals (2007) in Taiwan, 20 were chosen based on their accessibility. Among the 20 nursing homes approached, seven rejected our programme, and three had no family members who wanted to join our programme. Thus, 10 nursing homes were the setting for this study. Residents of these nursing homes were invited to participate if they met these criteria: age ≥60 years no history of severe mental illness and no severe deficits in language or cognition (Mini-Mental State Examination [MMSE] score <20 for individuals with at least a primary school education, or score <16 for those with no formal education; Folstein *et al.* 1975, Liu *et al.* 2000).

These criteria were met by 251 residents, whose family members were invited to join this study. The majority of family members (n = 217, 86·5%) rejected to join our study. Their reasons included unable to use videoconference technology (28·6%), no facilities (e.g. computer or Internet) (19·4%), no time to use videoconference technology (13·4%), perceived they visited residents very often (12·9%), residents not suitable for this programme (8·3%), prefer in-person visits (12·4%), family factors (3·7%) and hired a nursing home aide, who provided support and companionship for the resident (1·3%).

The study sample included 34 participants. Their average age was 75·38 (SD 10·18, range = 60–95). Of these participants, 18 were women, 16 were men, 26 were widows/widower and one was single. The majority (n = 20, 58·8%) had only primary school education or were illiterate, reflecting the limited education of most older people in Taiwan (National Domestic Affairs of Taiwan 2003). Most participants (94·1%) had functional disability ranging from total dependence for help with activities of daily living to slight independence, as measured by the Barthel Index, Mandarin version (Mahoney & Barthel 1965, Chen *et al.* 1995).

Videoconference programme

The videoconference programme was designed for once a week (the in-person visiting frequency for the majority of families; Bitzan & Kruzich 1990, Port *et al.* 2001) and to last for three months to provide time for adjustment to a new programme (V. Brooke 1987, University of Utah, Salt Lake City, UT, unpublished doctoral dissertation, Mikhail 1992). Residents were helped to use the videoconference technology by a trained research assistant, who spent at least five minutes per week with residents at the appointment time. The contact family member was the resident's spouse, child or grandchild. The software at the facilities was either MSN or SKYPE via a 2M/256K wireless modem using a large (15·6 cm) laptop.

Data collection

At the end of the three-month videoconference programme, data were collected from participants in semi-structured, one-on-one, in-depth interviews. Interviews were guided by questions about what impressed participants most when using the videoconference to communicate with their family and what were the differences between in-person and videoconference visits.

Interviews lasted approximately one hour and were tape-recorded. Verbatim transcripts were first made in Mandarin and compared with audio-taped interviews to note relevant information such as emotional content and non-verbal behaviour. Memos and reflexive journals were used to record observations during the interview process and ideas about coding. Data collection continued until data reached saturation.

Data analysis

All audiotapes were transcribed as soon as possible following the interviews. To help make sense of the large amounts of qualitative information, the researchers also used ATLAS.ti, version WIN 5.0, a programme for text analysis and model building. This simple and readily available computer software quickly organises non-numerical information. The unit of analysis (defined as a quotation in ATLAS.ti) was regarded as a subject's whole response to one domain. Each unit of coding (a code in ATLAS.ti) represented particular features that subjects listed in their responses. During content analysis, the two authors worked directly from the raw data to extract words and phrases, which were used to generate the codes (Weber 1990).

Trustworthiness

The trustworthiness of the study findings was enhanced by using Lincoln and Guba's (1985) criteria: credibility, transferability, dependability and confirmability. These criteria were met through purposive sampling, prolonged engagement in the field, peer debriefing and maintaining an audit trail. The first author spent sufficient time (three months) in the research settings to build trust with participants and to prolong engagement. The confidentiality of transcription was ensured by using a standard form for interview content (MacLean *et al.* 2004). Confirmability was ensured by keeping memos and reflexive journals on the researchers' decision trail.

Findings

All participants appreciated the videoconferencing programme and believed it worthy of promotion. They were very grateful to have this activity, which narrowed the gap between them and their families. The average length of videoconference communication time was 11·75 minutes. The frequency distribution of videoconferencing visits was daily (11·8%), weekly (47·1%), monthly (23·5%) and seldom (17·6%). Participants' experiences in using videoconferencing were represented by four themes: enriched life (100%), second-best option for visiting (62·5%), life adjustments (50%) and true picture of family life (32·5%). The percentages represent the proportion of participants who expressed each theme.

Enriched life

All participants felt that using videoconferencing enriched their lives in the nursing home. This theme was expressed by participants as adding a sense of excitement and interest to their days. In the videoconference interactions, they had fun with their family, e.g. being entertained, sharing in-time events and looking at family photos:

> It [videoconferencing] is a fun and helpful activity. Although it just took me a little time to interact with my family, I feel fabulous every time after talking with my son. Sometimes he [the son] plays a song that I like on the violin, which he would never bring here [nursing home]. He also shared some photos with me, the pets in the house and so on. A lot of things that he might not do in the nursing home … It is really helpful.

Another resident shared a similar experience: 'My daughter-in-law owns a pet store. She always shows me what's new in her store, such as a new pet. It is really interesting.'

Second-best option for visiting

This theme expressed the participants' belief that in-person visits by their family were the best kind because they could see each other more clearly, and in-person visits allowed family members to bring gifts, to take them outside and to chat more comfortably. The older residents were sympathetic to the family's work obligations and their inability to visit them in person very often. Videoconferencing was therefore viewed as not a first priority, but they had no choice:

If my family could come to visit me in person, that would be the best way since I can see them more clearly. When they come to visit me, they bring some food for me – all my favourite food. We would go to the park of the nursing home to enjoy the food. But they are very busy and have no time to visit me every day. This [videoconferencing] may sometimes replace their in-person visits.

My son lives in America and has his own business. He only has time to visit me once or twice a year. Via videoconference, I have the chance to see my son, grandson and so on.

Life adjustments

This theme expressed the participants' need to adjust to using videoconferencing in terms of using the equipment, rearranging their schedules and the visit format.

Adjusting to using the equipment (50%)
The participants indicated that they were worried about their competence to use computers and sometimes hesitated to ask others for help. Participants were sometimes distressed by technical problems such as lag between the video and audio components. However, they were proud of learning to use this equipment and shared their knowledge with other residents in the nursing home:

I didn't know how to use it [the videoconferencing equipment]. Every time someone needed to help me use it. Sometimes I think using the phone might be quicker and easier to control. Especially, when I first used the setup, it felt very strange to talk with a computer even when my son was on other side.

Re-arranging one's schedule (37·5%)
Due to cost considerations, one fixed time was offered for participants to use the videoconferencing equipment. On the videoconference day, the participants had to eat faster or come back on time after rehabilitation. Because they did not want to miss the videoconference appointment, they usually came to wait half an hour earlier even though the researchers had not yet arrived.

Adjusting to the visit format (32·5%)
The participants described having some physical limitations, feeling shy and having no idea what to talk while using the videoconference equipment. Even though they wanted to talk with their family, they often felt they had nothing to say. After staring at the screen for a while, they eventually would find something to talk about. For example, one older resident said, 'I hope I can quickly deal with my teeth. It would help me to say more. Otherwise my dental problems would interfere with my family understanding what I am saying …' Similarly, another participant said, 'Sometimes I have no idea what to say, but it is fine since I can see my children. That part is good'.

True picture of family life

This theme expressed the participants' descriptions of videoconferencing showing them everything in their family members' homes, so they could trust everything they saw. They felt more comfortable because they were not concerned that their children might be deceiving them about their actual situation, perhaps hiding some problems or difficulties:

I feel less anxiety. If my son does not visit some week, I would not be anxious, worrying about the status of his family and clamouring to go home. This [videoconferencing] is better than the telephone for I can see the real thing. I wouldn't think my son is lying to me that everyone in the family is ok. I can see their rosy faces, which are very believable and real.

Another participant expressed a similar experience: 'Since my son emigrated to America, my grandson seldom comes back to Taiwan due to his school life. Via the videoconference programme, I can see how tall he has become'.

Discussion

Our findings revealed that older participants' experience of using videoconference in the nursing home was captured by four themes: enriched life, second-best option for visiting, life adjustments and true picture of family life. In the actual videoconferencing activities, some family members shared family photos. This activity is one example of a videoconferencing family interaction which could be facilitated by placing photos of family members and residents on MSN's photo bar. This activity resembles to some extent the digital family portrait developed to provide family members dynamic portraits from sensors in the homes of older family members who want to live alone (Mynatt *et al.* 2001). Such an approach allows family members to observe each others' real life situation, even without using videoconferencing.

The authors suggest follow-up research to understand the effectiveness of putting photos in the MSN photo bar. Another suggestion is to open the videoconference programme during nursing home activity time to promote a sense of participation among family members and strengthen interactions between family members and residents. For example, family relationships could be enhanced by using videoconferencing during a holiday meal, particularly with distant family members or those who are inconvenient to visit.

Since our findings indicate that 62·5% of participants viewed videoconference as not their first-choice method for their family visiting, we suggest that future research compare the effect of in-person and videoconference visits on health outcomes of older nursing home residents.

Many participants had no computer experience at the outset of our study and had limited computer capabilities, which made them worry about their ability to use computers. However, the ability of older adults to use computers has been shown to be enhanced through appropriate training (Dauz *et al.* 2004) and even older adults with dementia can be trained to use computers (Malcolm *et al.* 2001). In addition, older adults were found to be eager to learn computer skills, which give them a sense of personal control (Gietzelt 2001). Taken together, these results suggest that computer classes be arranged for nursing home residents. These training programmes for older adults should also be assessed for effectiveness in appropriate follow-up studies. However, some participants had physical limitations, such as in vision and hearing, suggesting the need for equipment to overcome or minimise these limitations.

Because of cost considerations, the time of videoconference interactions with residents' family members was fixed at 7–8 PM. This time was decided by discussion between the researchers and residents' families, but the findings showed that some participants came earlier to wait because they were afraid of missing the time. This finding might be explained by residents being so eager to see their family members, and they did not want to miss their videoconference time. Another possible explanation is that nursing home residents have a lot of personal time and their activities are often confined; hence, they preferred to sit in front of the computer to wait for the videoconferencing activity. The findings also suggest that nursing home administrators schedule activities just before the videoconference activity, e.g. simple rehabilitation and health education campaigns, or computer training. This approach might reduce residents' waiting time. Another approach would be to implement a flexible time to use videoconferencing.

The findings also indicate that some residents worried so much about the topic of video conversation that they could find nothing to say. This issue may be due to the Chinese cultural emphasis on balance of relationships within groups (Yang 1991), which makes Chinese people shy about taking the initiative in conversation. Added to this tendency is the novelty of videoconference interactions, particularly for older adults, which might inhibit their natural ability to start a discussion. Thus, the findings suggest that more interactive content could be developed for videoconferencing, such as using a training compact disc for residents and their family members to help families better understand the quality of medical and nursing home care as well as the residents' status.

The findings also revealed that videoconferencing provided the participants peace of mind, as they could see what actually happened in their family members' homes. By watching their families via in-time video, they were reassured that their loved ones were not hiding problems. Therefore, the residents could sleep easily and not feel worried. The results also suggest that future studies using this intervention might measure residents' anxiety levels and sleep quality.

Conclusion

The experience of older nursing home residents in using videoconferencing was captured by four themes: enriched life, second-best option for visiting, life adjustments and true picture of family life. Based on these findings, the authors suggest developing interactive videoconference programmes such as combining videoconferencing with meals or other nursing home activities to enhance interactions with family members. Residents also need some time to get used to this programme. Further computer training and flexible schedules for videoconferencing use are also suggested.

Relevance to clinical practice

Our findings suggest approaches that policy makers and healthcare providers can adopt to develop and evaluate videoconferencing programmes for older nursing home residents to communicate with family members who live far away. Such programmes can not only enhance social support but also improve the quality of life of nursing home residents.

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Contributions

Study design: HHT, YFT; data collection and analysis: HHT, YFT and manuscript preparation: HHT, YFT.

Conflict of interest

The authors declare that they have no significant financial or personal interests in any products, technology or methodology mentioned in this manuscript.

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