

Dementia Strategies using Welfare-technology

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복지기술을 활용한 치매전략 방안

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Abstract South Korea faces elderly care crisis with both low fertility rate and rapid ageing rate. Long-term care insurance in 2008 has taken care burden from family to nation. However, few options, lack of tailored services, and unstable community care plan caused blankness of care in some areas. Especially, increasing dementia rate has become an emergent social issue. Welfare technology could be a useful alternative to fill out the gap between demand and supply. Using FGI method on two groups(high-risk dementia group and MCI group), intimacy, accessibility and preventive way of dementia with welfare technology are analysed in this paper. Despites of a few differences of dementia progress, interests towards technology are expressed. More suggestions using TV and normal telephone to improve daily independence are presented as well. Amongst MCI group, help-service for technology-use at ADS and linkage ways of in-home services are also suggested.

Key Words : Dementia Service, Welfare Technology, MCI, Dementia-Technology Convergence, Care Service

요약 한국은 저출생 현상과 급속한 고령화로 인하여 노인돌봄 위기에 처해 있다. 2008년 노인장기요양보험이 본격적으로 실시되면서 노인돌봄의 사회화가 이루어지게 되었으나 다양하지 못한 서비스 선택권, 맞춤형 돌봄의 부족, 커뮤니티 케어의 불안정함 등으로 돌봄의 공백은 아직 사회문제로 남아있다. 또한 고령화의 진전에 따라 치매유병률의 증가는 새로운 사회위기이다. 이러한 상황에서 복지기술은 부족한 자원과 증가하는 수요의 공백을 메꾸어줄 미래의 중요한 대안이다. 본 논문에서는 지역에서 다양하게 제공되고 있는 치매서비스를 경험한 바 있는 경증치매노인 집단그룹면접, 치매고위험군 집단그룹면접을 통해 복지기술에 대한 친밀성, 접근성, 치매예방방안 등을 파악하였다. 치매 정도에 따른 차이는 있으나 두 그룹 모두 복지기술을 활용한 치매서비스에 관심이 높았다. 특히, 일상생활에서 자립적 훈련은 친밀한 도구인 TV나 전화를 활용하는 방안이 제시되었고 경증치매노인군의 경우 데이케어센터에서 기술활용을 위한 도움서비스와 가정 내 연계방안의 필요성이 제시되었다.

주제어 : 치매서비스, 복지기술, 경증치매, 치매기술융합, 돌봄서비스

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1. Introduction

Korea has already reached to the aged society in 2017, which indicates elderly population aged over 65 is more than 14%. Ageing is not a social issue itself, yet rapid ageing with low-fertility rate could be an important one. In 2017, the total fertility rate hit 1.17, which is a year-on-year decline of 0.07 and below the replacement level of 2.1.[1] Owing to the rapidly rising number of aged population, the old-age dependency ratio is expected to surpass 30 in 2030 and reach 88.6 in 2065, which is 4.9 times higher than the 2016 level of 18 [2].

In addition, Korea confronts this critical demographic crisis with another burden of dementia rate. In 2017, among Korean people, 725,000 are estimated to be with dementia and the management cost per dementia patient increased from 18.1 million won in 2010 to 20.33 million won in 2015[3]. The cost of dementia management is expected to increase from 13.2 trillion won in 2015 to 105.5 trillion won in 2015 [4].

With this growing social threat to economy and finances, welfare technology is suggested as a useful alternative to fill out the gap between demand and supply of elderly care[5], especially, of dementia care. It is effective to adapt welfare technology to person-centered care[6], and in reality, there is no alternative way except welfare technology[5]. Therefore, this paper explores the way in which two groups of elderly; one with MCI(mild cognitive impairment) and the other with high risk of dementia could adopt the welfare technology.

2. Welfare Technology: possibility of independence

It is the fact that trend of aging leads to tremendous increase of social costs of elderly care. However, ageing itself is not emerged as a

crucial social problem. Actually this demographic change is generally regarded as a positive signal of improved living conditions with the majority of people enjoying much higher life expectancies than in previous years[7]. However, there are more common fear about the corresponding risk of causing chronic disease such as stroke, depression and dementia in older life. A person-centered care, nowadays, is emphasized to care for elderly fragile patients, which costs more financial burden than ever. The gap between demand of proper care and limited resources would be serious social burden in the near future.

In this point, many researches emphasized welfare technology as a useful alternative of proper care. Welfare technology implies the main innovative policy for elderly people in the Scandinavian welfare states[8], commonly indicated as geron-technology or elder-technology[9]. In definition, welfare technology is all technology which in one way or another improves the lives of those who need it. The technology is used to maintain or increase security, activity, participation or independence for people with a disability or the elderly.

Welfare technology can be seen as innovation policy with older people at the center, which encompasses demographic developments, the restructuring of the welfare system and the expansion of the IT infrastructure[8]. In Europe, welfare technology is noted as assistive technology for older people and physical challengers. More commonly, EU commission uses 'ambient assisted living', which implies the supply of provision of safe environment and high quality of life for older citizen with less financial burden [10].

Dementia technology at home can be divided to six categories: residence environment management, improvement for daily activities,

cognitive stimulation, physical activities, expansion of public welfare service and observation/recording[10]. Also, as Table 1 shows, by features of information, experience, intelligence and platform and needs, welfare technology for care services are divided into several sections[11]. Divisions are various, however the main point is the availability in daily life. Looking into life cycle and health condition, the proper technology should be adopted at work and in the home.

Rooting technological innovation into old people's routine life, in-household care is

essential for their independence. Community care, in this sense, is important to keep old citizens in their residence without getting them out from the community[12]. Simple technologies such as credit cards and ATM which old people deal with every day are the necessary ones, otherwise assistive technologies are also essential to maintain them in the normal independent and safe environment[13]. Community care is preferred by policy-makers, in this context, because living at home can reduce the social costs of elderly care in comparison to traditional way.

Table 1. Welfare Technology for Care Service

Features Needs	Information	Experience	Intelligence	Platform
Everyday Practical Task	<i>Digital Key in emergency system Smart Home</i>		<i>Digital drug dispenser with record keeping function</i>	
Social & Emotional Support/ Entertainment		<i>Personalized Screen Gate-ball, Customized World Tour</i>	<i>Personalized Life-story theater</i>	
Health Monitoring/ Managing	<i>Fitbit as a personal node for monitoring system</i>		<i>Remote Home Sensing Emergency Alarm</i>	<i>Patientlike-me, dLife</i>
Compensatory Assistance Rehabilitation	<i>Fitbit as a personal node for monitoring system</i>		<i>GPS-based wheelchair</i>	

Sources: H. T. Lim & J. W. Han(2019) [11]

3. Dementia Strategies: from prevention to transition

Since 2008, the government has taken larger responsibility for the elderly care even though there have been many critical arguments around the issue: women's low-income caring work, illegal beneficiaries, institutionalization of social care and increasing social cost. In 2018, Ministry of Health and Welfare launched cognitive support categories for older people with MCI(mild cognitive impairment) in the frame of long-term care insurance. The aim of long-term care insurance is to support physical/cognitive

activities or housework for old people who have difficulty in taking care of themselves due to old age or geriatric disease. It aims at helping healthy and comfortable aging as well as improving the quality of people's lives by alleviating family members' burden of care[14].

Dealing with dementia grade in the national insurance, community care aims at ageing in place with two-fold wheels of normalization and deinstitutionalization. The traditional notion of "no one here gets out alive" to help transition long-stay residents out of nursing homes and back into the community[15]. The issue of providing long-term care services in South

Korea has been increasingly placed at the forefront of community care policy.

Recently, there has been an increasing interest in adult day services(ADS) because of its potential for delaying or preventing dementia institution placement. ADS provides long-term health care services to frail older adults and adults with disabling conditions during day time hours[16]. With transition of MCI or high-risk dementia people from the institution to the community implies that the principles of autonomy, independence, self-determination and dignity are still very important in one's very last moment.

4. FGI method and results

4.1 FGI method

According to the recent review on welfare technology, majority of the studies on elderly people are built on observations, focus groups, and interviews, which shows that the research within this domain is in its infancy and that this filed needs more research[7]. Also, it suggests that researches on people with dementia are mainly on qualitative methods due to difficulties of collecting quantitative data.

Exploring intimacy and accessibility to welfare technology, two focus groups are composed; one is dementia high-risk group who mainly use local elderly welfare center and the other is MCI group who are graded 5 from long-term insurance, staying at ADS during the daytime. FGI was held in one local elderly center and one ADS each located in KeumJeong-Gu, Busan. Both FGI was held 2 times each, during June 2021, that has about 1 hour discussion accompanied with center staff, while helping elders to understand the question and to answer properly.

Dementia high-risk group are gathered on the condition that they are current beneficiaries of

local tailored care services and use the local cognitive program for prevention of dementia. 5 people are volunteered for FGI; two participants are aged in 60s and three people are aged in 70s; four is female and one is male. All of them is lone-residents and are eligible to participate at local cognitive program.

Table 2. FGI participants' personal details

Group	Case	Age	Gender	Condition
High-risk group	1	67	F	high-blood pressure
	2	68	M	back-pain
	3	72	F	high-blood pressure, diabetes
	4	73	F	urinary-incontinence
	5	73	F	diabetes
MCI group	6	79	M	stroke
	7	81	F	diabetes
	8	83	F	high-blood pressure
	9	83	F	high-blood pressure, diabetes
	10	85	M	parkinsonism

Five people with MCI are interviewed at ADS; one is aged 79 and others are in their 80s. Most of them have chronic diseases such as stroke, parkinsonism, high-blood pressure and diabetes; and also with Mild Cognitive Impairment. Yet, Dementia was mild enough to understand questions even though they still need care-givers to help the communication beside. Under the families' permission, interviewer visited ADS for FGI, which carried out with the help of ADS staff.

FGI was carried out with three large sector-questions shown in Table 3, and consequent detailed questions are asked of.

4.2 FGI results

Starting FGI, recent Covid 19 situation leads the talk into the necessity and importance of

tele-care program for lone-household elders, as for the last two years, there have been limitation of using programs and of meeting foreign people at both center. Interests and questions about welfare technologies are across during the discussion.

Dementia high risk group is not regulated to attend cognitive program on the local basis, however lone-household elders tend to be covered by other local welfare program. 2021. As shown in the table 3, most of them are fond of using new technology, yet have few opportunities to experiences. This group shows strong interests on new technology and stimulated program to prevent memory loss and depression. Being aware of digital therapeutic effects, easy access and simple manual are needed. Using the routine electrics such as TV

and normal phone are suggested.

Table 4 shows how people with MCI discuss on the issue. At the ADS, VR service was provided, and participants are encouraged to use diverse games on it. Being familiar with some advanced technology, most participants need new programs and want to use more often.

The noticeable point at ADS is that elders with MCI are very active during the day time at center, yet there are few links with their activities with later in-home life. Everyday practice with digital cognitive program is needed, however, in reality, the connection is hardly established. Therefore, even if welfare technology is adopted at center, it should be an essential factor how technologies are connected with the detailed plan through home and institution.

Table 3. FGI results with dementia high-risk group

Question	Discussion
Intimacy to technology	<ul style="list-style-type: none"> · Intimacy is low at present, yet show high expectation to experience the various devices · Desirable of human services to be combined with technology · Preferable of horticulture therapy, digital table services
Accessibility to technology	<ul style="list-style-type: none"> · Few opportunities to use the advanced high geron-technology in daily life · Hard to find useful devices · Difficulty to use technology · Easy access needed(i.e. smart phone, smart watch, smart band etc)
Dementia prevention with technology	<ul style="list-style-type: none"> · Clear necessity and desire of use geron-tech to prevent dementia · Use of face phone · Demand and curiosity of use of digital device yet hard to figure out · Physical exercise is to combined to interesting entertainments(i.e. song, dance, etc)

Table 4. FGI results with MCI group

Question	Discussion
Intimacy to technology	<ul style="list-style-type: none"> · Interesting to use geron-technology devices in ADS · VR devices are useful · Hard to independent to use(need care helper to familiar with) · Few confidence
Accessibility to technology	<ul style="list-style-type: none"> · Everyday use in ADS, yet hard to use at home environment · Difficult to use home service, even with a family member · TV convergence program would be accessible · Desirable of outdoor/travel program
Dementia prevention with technology	<ul style="list-style-type: none"> · Short-time normal phone service · TV service with easier remote-con device · Necessity and demand exist · Memory keeping program · Missing families

When dementia starts to develop, psychological change is accompanied with physical frailty. To prevent often-occurred emotional up-downs, memory loss, communication weakness, everyday practice is essential. Continuous encouragement and assistance by care-givers are needed in order elders to keep on participating new convergence technological program. The clear thing is, ironically, that preventing dementia is one of elders' important life goals even though they are diagnosed already. Welfare technology or assistive technology can help stimulation of brain leading appropriately near to normal, however it is doubtful whether elders use it for themselves or not. Therefore, at the field, welfare technology provision is suggested to be accompanied with human services.

5. Conclusion

These days, in Europe, the use of ICT as a support for frail older people living at home and their family carers, has tendency to focus on a range of tele health and tele-care applications in the home. With the emergence of pandemic phenomena, these areas are more and more focused on. Many researches emphasize on the innovative models that have the potential to empower the older citizen and their family carer in their caring situation at home[17-19].

Welfare technology with digital assistive function can help older adults to stay healthy, independent and autonomous at work or in their community for longer and it is clearly helpful to improve the quality of life.

Considering technology application program, to prevent dementia for elder citizen should be avoided from a fragmentary and monotonous program. Improving the cognitive function, mental behavior and even life style is the important part of welfare technology in terms of

dementia and aged society.

As shown in FGI results, both dementia high-risk group and people with MCI express strong interests in new technologies to prevent further cognitive deterioration. Independent use might be difficult to elderly people with MCI, however, ADS should be a proper place to activate geron-technology for frail elder citizen to facilitate their remained capability. Three questions of intimacy, accessibility and expectation for new technology prove that elderly people with mild cognitive problems are willingly wait for new product which converged human service and elder-technology.

The main principle of dementia care is to support what frail elderly people want with the aim of self-determination and independence in daily life. In this point, development of familiar technology would be influential on dementia people. This person-centered care should be carried out in local center and their home as well. Especially, with the purpose of ageing in place, people with dementia at their home should be supported in the genuine environment of residence in the community. This is what community care stands for and where assistive welfare technology stays in.

The limitation of this research lies in small-sized focus group interview results, even with the consideration of difficulties of quantitative method with people with MCI. In this field, however, more attention would be needed involving people with dementia in research process.

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