

## *Original Paper*

# Analysis of the Psychological Dilemma of the Elderly with Grandchildren and the Design of Human-computer Intervention

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### **Abstract**

*China is facing the severe challenge of population aging, the elderly not only need to take care of themselves, but also need to take care of their children, this trend is increasingly obvious. The working hours of young people are getting longer and longer, and more and more old people take care of their children. Due to the lack of communication and long-term tension with children, the old people have a kind of emptiness, loss and emotional gap, fear and depression, which make the old people with grandchildren have a bad mood. In order to solve these problems, through the introduction of man-machine path to assist the elderly to communicate and operate, the psychological crisis of the elderly can be effectively intervened.*

### **Keywords**

*psychological predicament of the elderly with grandchildren, and intervention*

## **1. Research Background**

### *1.1 Population Aging and Generational Care Generalization*

According to the statistics of the Ministry of Civil Affairs, by the end of 2021, the elderly population aged 60 and above had reached 267 million, accounting for 18.9% of the total population; the elderly population aged 65 and above had reached more than 200 million, accounting for 14.2% of the total population (OECD, 2023). According to the National Health and Health Commission, it is estimated that during the 14th Five-Year Plan period, the total number of elderly people aged 60 and over will exceed 300 million, accounting for more than 20%, and will enter the stage of moderate aging. Around 2035, the elderly population aged 60 and over will exceed 400 million, accounting for more than 30% of the total population, and will enter the stage of severe aging (Wang, 2021). Our country is facing the severe challenge of population aging, and what is more noteworthy is that many elderly people not only have to maintain their lives, but also have to take care of their children (Golden, 1988), which is

becoming increasingly prominent. Experts say that more than 94% of the elderly are still raising their grandchildren. Many elderly people not only do not enjoy happiness after retirement, but also take care of their pregnant daughters-in-law, followed by grandchildren, which requires years of hard work. Old people with grandchildren refer to old people who have to take care of their children in addition to their own lives. It is also a very common phenomenon throughout the country for young couples to have children and for the elderly to help take care of them. Perhaps in the eyes of some young parents, the elderly can not only solve practical problems, but also get along with their children day and night, which is the best of both worlds. However, Zhong Xiaohui, a scholar, has interviewed two generations of 10 middle-class families in Guangzhou in depth. Grandparents say that taking care of their children is “going to work”. They watch their children sleep, prepare meals for their children, and keep an eye on their children at all times to avoid accidents. The younger children often have to change diapers, and the older children have to go to school. “There is no time to sit down and catch their breath” and “there is no time to get sick”. Studies have shown that as surrogate parents, the elderly need to take care of their vigorous and inseparable children and bear the physical and mental stress caused by their children, such as high blood pressure and depression and anxiety. How to solve the psychological dilemma caused by the intergenerational care of “the elderly with grandchildren” is not only a personal problem, but also a social proposition to be solved urgently by the whole society.

### *1.2 Old-age Communication and Human Care*

Human care and communication play an important role in the life of the elderly. Clinical studies have shown that the elderly can maintain their social ability through social communication, resist loneliness and inferiority, delay the decline of their cognitive ability, and have a positive effect on the body through psychology, such as reducing the incidence of cardiovascular disease (Samarasekera, Neilson, Warren, Parnham, & Smith, 2013). When talking with the elderly, whether to choose the right topic is one of the skills of conversation. Sometimes, people do a lot of work for the elderly, but still can not get the understanding of the elderly, the elderly feel that they are not enthusiastic enough, thus affecting the establishment of a good relationship with the elderly, the reason is that they talk too little with the elderly. Therefore, old-age communication should choose appropriate topics according to time, place and person, determine appropriate conversation content, and strengthen communication with the elderly and human care.

## **2. Analysis of the Psychological Dilemma of the Elderly with Grandchildren**

### *2.1 Lack of Affection and Communication*

The psychological dilemma of the elderly with grandchildren is mainly the lack of affection and communication. This usually happens when the parents are busy with work or other matters, and the parents need to take care of the grandchildren. The following is a detailed description: Older people with grandchildren often feel lonely and helpless because their children and grandchildren live in different cities or countries. In this case, the company and warmth of the children become very

important. However, due to the limitation of distance, they can not establish a close relationship with their families. This isolation and loneliness often leads to psychological problems such as depression and anxiety.

Old people with grandchildren often feel that the life of their grandchildren is far from their own life, which makes them unable to understand the life and needs of their grandchildren. This lack of communication often leads to dissatisfaction and frustration among older people because they are unable to get knowledge and feedback about their grandchildren. In addition, because children are busy with work and life, there is little time and opportunity for communication, and it is difficult to maintain a close relationship with the elderly.

To sum up, the elderly with grandchildren need the company and care of their families, as well as more communication opportunities, so as to reduce psychological fatigue and pressure and establish better family relations.

### *2.2 Imbalanced Concept and Less Care*

The concept imbalance and less care in the psychological dilemma of the elderly with grandchildren are mainly manifested in the following aspects: 1. Imbalance of ideas: The elderly often have an imbalance of ideas about their grandchildren's educational methods, living habits and changes in family roles. They may follow the educational model of their youth, neglect the application of modern science and technology, and lack the educational concept of keeping pace with the times. At the same time, the elderly may impose their values on their grandchildren, leading to contradictions and conflicts between the two sides; 2. Less caring: In the process of caring for grandchildren, the elderly often feel lonely and helpless. They may feel that their existence has become thin, that their lives have become dull, and that they lack opportunities and ways to interact with their grandchildren. At the same time, the lifestyle and interests of the grandchildren are different from those of the elderly, which makes it difficult for the elderly to find common topics with their grandchildren and feel the warmth of being concerned; 3. Depressive symptoms: In the process of taking care of grandchildren, the elderly may suffer from depression, sleep problems, loss of appetite and other depressive symptoms. These symptoms may be related to their role change, physical fatigue, and problems in the education of their grandchildren. If these problems are not paid attention to and dealt with in time, they will have a negative impact on the physical and mental health of the elderly.

Therefore, in the process of taking care of grandchildren, we need to give more care and attention to the elderly, including respecting their values, encouraging them to keep pace with the times, giving emotional support and encouragement, and providing suitable ways of communication between the elderly and their grandchildren. At the same time, we also need to pay attention to the physical and mental health of the elderly and help them solve the difficulties and pressures in life (Xinhua, 2022).

### *2.3 Heavy Housework and Emotional Gap*

In the psychological dilemma of the elderly with grandchildren, heavy housework and emotional gap are the two main problems. The specific performance is as follows:

First, the housework is heavy. Heavy housework refers to the responsibility of taking care of grandchildren and household affairs, including cooking, laundry, cleaning and so on. Sun may feel stressed and tired because these tasks require a lot of time and energy, and for older people, physical strength and energy are limited. In addition, if Sun's children and grandchildren lack gratitude and understanding for her contributions and efforts, Sun's psychological burden will be even heavier. It is manifested in the following three aspects. 1. Daily life is tedious: The elderly with grandchildren need to take care of their grandchildren's life, including feeding, bathing, changing diapers, sleeping and so on, which requires a lot of time and energy. 2. Heavy housework: In addition to taking care of grandchildren, the elderly with grandchildren also need to undertake housework, such as washing clothes, cooking, cleaning and so on, which will take up a lot of time and energy. 3. Physical discomfort: Older people are not as healthy as young people, and older people with grandchildren may suffer from physical discomfort, such as joint pain, blurred eyes and so on.

Second, the emotional gap. Emotional gap refers to the feeling of loneliness and loss that Sun may feel while taking care of his grandchildren and dealing with housework. Sun may feel that she has lost her freedom and independence, because she needs to take care of her grandchildren and deal with housework all the time, and she can't have her own time and space. In addition, if Sun's children and grandchildren do not care enough for her and accompany her, she may feel abandoned and lonely. This emotional gap will have a negative impact on Sun's mental health and well-being. It is manifested in the following two aspects. 1. Grandchildren are not sensible: Children's behavior is sometimes out of control. They may lose their temper and cry loudly, which will make the elderly feel tired and helpless. 2. Conflicts with children: Sometimes there are disagreements between the elderly with grandchildren and their children, such as differences in the way they educate their children, which will make the elderly with grandchildren feel confused and uneasy. 3. Loneliness: People who take care of their grandchildren at home all day long, without much social activities, may feel lonely and bored.

In a word, heavy housework and emotional gap are two common problems in the psychological predicament of the elderly with grandchildren. In order to help Sun relieve her psychological pressure and improve her happiness, we can advocate that children and grandchildren respect and appreciate Sun's efforts, lighten her burden of care, and arrange time and space for Sun to have her own life and hobbies.

#### *2.4 Life is Monotonous and Responsible*

In the psychological predicament of the elderly with grandchildren, monotonous life and heavy responsibilities are two other common problems. First of all, monotonous life means that Sun's daily life may become monotonous and boring, because she needs to take care of her grandchildren and deal with housework all the time, and she can't have her own time and space. This repetitive and monotonous life may lead to Sun's low mood and depression, lack of joy and satisfaction in life. Secondly, the great responsibility refers to the need for the elderly to take care of their grandchildren and deal with housework, which is a very important and energy-consuming job. Sun Lao needs to pay

attention to the safety and health of his grandchildren at all times, and provide them with a warm family environment and care, which is a very important responsibility. Sun may feel stressed and burdened because this responsibility requires her to invest a lot of effort and time, both mentally and physically.

In a word, in the psychological predicament of the elderly with grandchildren, monotonous life and heavy responsibility are two common problems. In order to help Sun alleviate this dilemma, we can suggest that Sun and his grandchildren take part in some interesting activities, such as travel, outdoor sports, cultural activities and so on, to increase the joy and diversity of life. In addition, children and grandchildren should respect and understand Sun's labor and responsibilities, help her share some housework and take care of her grandchildren, and relieve her pressure and burden.

### 3. Man-machine Intervention Design under the Background of Psychological Dilemma

Firstly, the design method model of man-machine intervention for the elderly with grandchildren in psychological distress is constructed.

**Table 1. Man-machine Intervention Design Method Model of Elderly with Grandchildren in Psychological Dilemma**

Psychological dilemma	Man-machine intervention design method model
Lack of concentration	Design engaging interfaces with colors and animations to attract attention; set reminders and alerts for tasks
Decision-making is difficult	Provide a clear interface and easy-to-understand options while providing decision AIDS, feedback, and recommendations
Feeling low	Design interfaces that support positive emotions, such as simulating pleasant experiences and using positive language and images
Coping with setbacks and difficulties	Provide a sense of accomplishment and reward, such as earning a badge or award points; while providing supportive and encouraging feedback
Impaired memory	Provides easy-to-use interfaces and tools such as notepads, reminders, and voice alerts
Addicted to use	Design interfaces with restrictions and controls, such as limiting the amount of time users can use each day or providing self-monitoring tools; and provide suggestions and techniques to help reduce usage

Secondly, construct the man-machine intervention measures with Sun Lao under the psychological dilemma. The psychological dilemma of the elderly with grandchildren mainly includes heavy housework, emotional gap, monotonous life and heavy responsibilities. These problems may have a negative impact on Sun's mental health and well-being, so a human-computer intervention design is

needed to alleviate these dilemmas.

First of all, in view of the heavy housework, we can design some household assistant applications, such as smart home system, household management software and so on, to help Sun handle household affairs more conveniently and efficiently. These applications can provide housework lists, regular reminders, automatic control and other functions to reduce Sun's labor burden and improve the quality of life.

Secondly, in view of the emotional gap, we can design some social applications or community services to help Sun expand his social circle, increase social activities, and improve social support and companionship. These applications can provide social activities, volunteer services, social networks and other functions to help Sun connect with others, share life experiences and feelings, and alleviate loneliness and loss.

Thirdly, in view of the monotony of life, we can design some entertainment and leisure applications, such as music players, game applications and so on, to help Sun kill time and increase the fun of life. These applications can provide a variety of entertainment content and user interfaces, so that Sun can easily use and enjoy them.

Finally, in view of the major issues of responsibility, we can design some health management applications, such as health monitoring software, fitness applications for the elderly, and so on, to help Sun keep healthy and happy. These applications can provide health monitoring, exercise planning, health counseling and other functions, so that Sun can better manage his health and life.

In a word, the intervention of the psychological dilemma of the elderly with grandchildren is actually a kind of human-computer interaction with the elderly, including the two-way data exchange between the elderly and the system. Its basic mode is to develop and provide human-computer interaction related to the elderly through the Internet or digital technology, and to feed back relevant information to the system in the form of data through communication and caring interaction. The analysis of the psychological dilemma of the elderly with grandchildren and the design of man-machine intervention is a comprehensive work, which needs to consider many aspects of problems and needs. Through reasonable man-machine intervention design, it can provide more convenient, efficient, happy and healthy life experience for the elderly Sun, and improve their quality of life and happiness.

#### **4. Conclusion**

The psychological dilemma of the elderly with grandchildren mainly includes the following aspects: First, anxiety and worry: taking care of grandchildren may make the elderly feel that their physical condition is not enough to cope with the needs and vitality of their children, but also worry that their abilities and images will be questioned by their children and the people around them; Secondly, stress and fatigue: taking care of grandchildren may require the elderly to pay more physical and mental efforts, but also take up the free time and life rules of the elderly, which makes the elderly feel tired and exhausted; Finally, limited independence and autonomy: The elderly need to consider the needs and

safety of their children when taking care of their grandchildren, and can not arrange their time and activities freely as usual, which may make the elderly feel that their autonomy is limited, and cause a sense of dependence and loss.

In view of the above psychological difficulties, we can provide support and help to the elderly through man-machine intervention, mainly in the following ways: 1. Provide information and knowledge: provide the elderly with knowledge and skills on infant care and nursing to help them better cope with the challenges and pressures of taking care of grandchildren; 2. Promote social interaction and interaction: encourage the elderly to communicate with other people with similar experience, share experience and experience, and provide modern social support through the Internet platform; 3. Provide services and resources: Provide convenient services and resources for the elderly, such as housekeeping services, health care, etc., to help the elderly better cope with the needs of childcare.

To sum up, human-computer intervention can help the elderly alleviate the difficulties caused by childcare, reduce their psychological pressure and anxiety, and improve their quality of life and enthusiasm by providing knowledge, promoting social interaction and sharing resources.

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