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Mechanisms of Improvement in Loneliness among Older Adults by Metacognitive Intervention Techniques

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ABSTRACT

China is gradually entering an aging society, and loneliness has become a common mental health issue among the older adults. Loneliness not only affects the mental health of the older adults, but also may lead to cognitive function decline and physical health problems. In recent years, metacognitive intervention techniques have been widely used as a psychological intervention for emotion regulation and cognitive improvement. This paper reviews the causes of loneliness in the older adults, the concept of metacognitive intervention techniques and the feasibility of its application in alleviating loneliness, providing new theoretical perspectives and practical directions for alleviating loneliness in the older adults.

KEYWORDS

Older adults; Loneliness; Metacognitive intervention techniques; Psychological interventions

1 Introduction

With the aging of the population, the psychological problems of the older adults have attracted widespread social attention. Among them, loneliness in older adults is prevalent and has a high prevalence. A meta-analysis published in 2022 showed that the prevalence of loneliness among older adults in the global community was 24.8% (95% CI: 22.5% -27.2%), with regional variations, such as the highest prevalence in the Eastern Mediterranean region (31.0%) and the lowest prevalence in the Western Pacific region (19.6%). According to the China Longitudinal Aging Social Survey (CLASS) 2021, 29.8% of older people aged 60 and above in China feel lonely, with rural older people (33.3%) feeling loneliness more than urban older people (26.4%). Another cross-sectional study of community-dwelling older adults in China showed that the prevalence of loneliness was 32.1%, and that factors such as being female, being older, living alone, being in a poorer economic situation, and having a chronic disease were associated with a higher risk of loneliness. Another study of community-dwelling older adults in China found that the prevalence of loneliness was 28.5%, and that being female, living alone, being economically disadvantaged, and having inadequate social support were the main risk factors for loneliness. Loneliness has a significant impact on the physical and mental health of older adults. Suffering from loneliness can lead to depression, reduced physical activity, cognitive impairment, and even suicide. Therefore, research on how to address loneliness in older adults can help improve their physical and mental health and promote active aging in our country.

Loneliness in older adults is not only a subjective emotional experience, but also a social cognitive problem related to physical and mental health. According to the cognitive-behavioral therapy of loneliness, loneliness stems from an individual's subjective cognitive bias toward social relationships, such that negative evaluations of social skills and negative attributions of others' intentions can make one feel lonely [1]. Through interventions such as cognitive-behavioral therapy, cognitive biases can be corrected and social skills improved in older adults, thus validating and developing cognitive-behavioral therapy of loneliness [2]. The purpose of this paper is to explore how metacognitive intervention techniques can be applied to the intervention of loneliness in older adults, so as to achieve longer-lasting psychological regulation by enhancing older adults' awareness of their loneliness for good regulation.

2 Overview of loneliness in older adults

2.1 Analysis of the causes of loneliness in older people

Loneliness is a subjective experience of distress caused by the discrepancy between people's expected and real level of social relationships [3]. Loneliness is a subjective emotional experience, and whether or not one feels lonely does not depend entirely on the connection to society. Loneliness is closely related to people's physical and mental health. For

example, a study found a negative relationship between loneliness and the quality of their physical life in the older adults. Loneliness can lead to a variety of mental illnesses such as depression, personality disorders, and Alzheimer's disease.

Early explanations of loneliness in older adults were largely based on the need for emotional relationships. One such explanation, Socioemotional Selectivity Theory (SST), suggests that as they age, older adults focus more on emotional fulfillment and intimate relationships and less on the pursuit of information acquisition and social interaction. A longitudinal study of older adults found that those who were able to maintain high-quality intimate relationships had lower levels of loneliness, while those who lacked intimate relationships were more likely to feel lonely. Another study showed that older adults' emphasis on emotional fulfillment was negatively correlated with their level of loneliness, i.e., the more emphasis they placed on emotional fulfillment, the lower their level of loneliness. It has also been found that older populations suffering from loneliness generally lack intimacy. This invariably leads to old age being in a state of social isolation. Social isolation refers to a state in which older adults are almost completely unconnected to society and are self-enclosed. A study showed that as the body continues to age, concern about their health status causes older adults to gradually focus on their own health problems. This perception causes older adults to actively reduce social skills and isolate themselves from society, which ultimately leads to loneliness. Moreover, with the advancement of urbanization, a large number of young adults have come to work in cities, leaving the older adults in the countryside. Most of the older adults have experienced the departure of their children and relatives. In addition, the lack of intimacy caused by the death of loved ones also makes loneliness stronger in the hearts of older adults. These findings support the core idea of SST that emotional fulfillment plays an important role in alleviating loneliness in older adults. Accordingly, interventions targeting loneliness in older adults, such as promoting social participation and enhancing social support, can provide empirical support for SST and further expand its theoretical implications [4].

While socio-emotional choice theory emphasizes the importance of social support in meeting the emotional relationship needs of older adults, the cognitive-behavioral theory of loneliness in older adults interprets loneliness from the perspective of cognitive bias. Cacioppo and Hawkley suggest in their theory that loneliness is closely related to an individual's cognitive bias toward social relationships. A longitudinal study of older adults found that those who rated their social skills negatively were more likely to feel lonely, and that this loneliness increased over time. In addition, another study showed that older adults' negative attributions about others' intentions were significantly and positively associated with levels of loneliness.

According to the cognitive-behavioral therapy, improving social skills is an important way to reduce loneliness. An intervention study with community-based older adults found that social skills training significantly improved older adults' social skills and reduced their levels of loneliness. Another study further showed that social skills training not only improved older adults' social behaviors, but also enhanced their positive perceptions of social interactions. These studies support the theoretical assumptions of the cognitive-behavioral therapy regarding the relationship between social skills and loneliness. A meta-analysis by Masi et al. further found that cognitive-behavioral therapy (CBT) is an effective intervention to reduce loneliness [2]. CBT significantly reduces the level of loneliness by helping individuals to identify and correct cognitive biases (e.g., negative appraisals of social skills) as well as improve social skills. For example, a randomized controlled trial of lonely older adults showed that older adults who received a CBT intervention experienced significant reductions in loneliness after the intervention, and this effect was maintained after the intervention ended. These findings validate the theoretical framework of the cognitive-behavioral therapy and suggest that loneliness can be effectively alleviated by intervening with cognitive biases.

Awareness of self-related negative information also constitutes one of the causes of loneliness in older adults. It has been found that the difficulty in falling asleep that accompanies aging leads to an increase in the frequency of rumination in older adults. Rumination is a mental process of repeatedly and passively focusing on negative emotions, thoughts, or problems. It usually manifests itself as individuals repeatedly thinking about the causes and consequences of negative events and their effects on themselves, while failing to take effective actions to solve problems. In addition, older people are generally stubborn and closed-minded, and are more likely to fall into rumination, making it difficult to divert attention from negative emotions, which further exacerbates feelings of loneliness. Rumination is one of the triggers of negative emotions, and it allows individuals to repeatedly focus on their negative selves. Studies have shown that rumination positively predicts the level of loneliness [5]. These findings support the core assumptions of the cognitive-behavioral therapy about the relationship between cognitive biases and loneliness.

2.2 Current status of intervention research on loneliness in older adults

Intervention methods for loneliness in older adults is currently an important research topic in psychology and public health. At present , the intervention methods for loneliness in the older adults mainly include social support intervention, cognitive-behavioral intervention, and intervention based on technological aids (e. g., video calls) [2]. Although these intervention approaches have alleviated loneliness in older adults to a certain extent, there are still some problems. For example, although social support interventions have reduced loneliness by providing external support to older adults. However, older adults still do not have the ability to resolve loneliness on their own, and loneliness is a subjective emotional experience that is not entirely determined by the environment. Most of the traditional intervention methods are not effective enough to maintain the efficacy over a long period of time.

3 Metacognitive intervention techniques and loneliness in older adults

In recent years, metacognitive intervention techniques have received increasing attention as an innovative approach to psychological interventions because of their potential effectiveness. The term "metacognition" was first coined by Flavell in 1976, meaning cognition of cognition [6]. Metacognitive Intervention Techniques (MIT) focuses on improving mental health by improving individuals' awareness and regulation of their own cognitive processes [7]. This technique relies on teaching individuals how to identify, monitor, and adjust their thinking styles, and influencing people's metacognitive beliefs through clinical instruction, which in turn shapes positive thinking patterns, behavioral patterns, and emotional patterns, ultimately achieving the purposes of modifying personality and treating psychological disorders. Research has shown that metacognitive intervention techniques have significant effects in treating mood disorders such as depression and anxiety, suggesting that they may also have a role to play in alleviating loneliness in older adults. Hoyer et al. found in a randomized controlled trial that older adults who received a metacognitive intervention showed significant improvements in emotion regulation and social interaction skills, and were more able to sustain prolonged efficacy compared to traditional approaches. Similarly, Morina and Normann emphasized that metacognitive interventions have demonstrated high feasibility and efficacy in helping older adults develop healthier self-perceptions.

The three core approaches of metacognitive intervention techniques include self-monitoring, cognitive restructuring, and attention training [7]. Self-monitoring techniques, such as metacognitive diaries, emphasize systematic recording of cognitive and emotional states to help individuals identify specific situations and automatic thoughts that trigger feelings of loneliness. Metacognitive diaries require subjects to record situations, accompanying automatic thoughts, and emotional intensity that trigger feelings of loneliness to identify patterns of cognitive behavior [7]. Cognitive restructuring techniques build adaptive thinking by correcting dysfunctional cognitive patterns. The process involves identifying cognitive distortions such as "all-or-nothing thinking" and overgeneralization; evidence testing, which guides the individual to assess the objectivity of automatic thinking; and generating substitutive thinking, such as reframing "I am meaningless" as " My value does not depend on the frequency of others' contact". Attention training aims to reduce selective attention to negative social cues. Commonly used methods include positive breathing exercises, and one study found that the level of positive awareness was negatively correlated with loneliness. This technique reduces the brain's sensitivity to social threats, thus alleviating loneliness.

The intervention cost of metacognitive intervention techniques is low and can be delivered through group counseling and online courses. Moreover, the long-term benefits of metacognitive intervention techniques are significant, as the metacognitive ability of the older adults can independently regulate their emotions and reduce the recurrence of loneliness. In addition, metacognitive intervention techniques activate internal psychological resources in a non-confrontational way, and the risk of side effects is much lower than that of pharmacological interventions. Overall, the metacognitive intervention technique is highly feasible to alleviate loneliness in the older adults.

4 Discussion and conclusion

This study centers on the psychological mechanisms and intervention strategies of loneliness in the older adults, and combines the analysis of existing literature and theories to propose the feasibility and practical value of applying metacognitive intervention techniques to loneliness regulation. Loneliness not only arises from the lack of objective social relationships, but also is closely related to the individual's understanding of interpersonal relationships, social value

and self-perception. Traditional interventions emphasize external support, such as enhancing social interactions or providing emotional accompaniment, which can be effective in the short term but cannot solve the deeper problems such as cognitive bias and lack of emotional regulation.

In contrast, metacognitive intervention techniques provide a new way for older adults to establish more solid psychological coping mechanisms by helping them to recognize and modify undesirable thinking patterns and to increase their awareness of emotional and cognitive activities. Self-monitoring through methods such as metacognitive diaries can help older adults identify specific situations that trigger loneliness; cognitive restructuring techniques can help them understand their own social status from multiple perspectives and avoid falling into a single negative mindset; and attention training can help to break the excessive focus on negative information, thus alleviating mood depression triggered by cognitive biases. Studies have also shown that metacognitive intervention techniques are more effective than some traditional therapies in reducing the risk of relapse.

However, at the practical level, attention still needs to be paid to the age-appropriate design of the intervention content, such as simplifying the training process, incorporating multimedia tools and enhancing interactivity. In addition, how to enhance the acceptance of this form of psychological intervention among the older adults, and how to increase the coverage and professionalism of the community services are also urgent issues that need to be addressed in the future promotion.

Overall, metacognitive intervention techniques provide a new option for improving loneliness among older adults that focuses more on internal regulation. Compared with the traditional method that relies solely on environmental factors, it focuses more on improving the individual's autonomous cognitive ability and emotional regulation, which is in line with the core spirit of the current concept of "positive aging". With the acceleration of the aging trend, the construction of a more scientific and sustainable psychological intervention system will become an important direction to improve the quality of life and happiness of the older adults. Subsequent research can be carried out in terms of diversification of intervention paths and refinement of intervention mechanisms, so as to promote the in-depth development of metacognitive intervention techniques in the field of mental health in older adults.

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