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Developing a Model of Death Anxiety Based on Perceived Social Support with the Mediation of Psychological Well-being in the Elderly with COVID-19 Experience

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A B S T R A C T

Objective: The coronavirus and its variants continue to threaten the physical and mental health of many individuals, particularly among older adults with COVID-19. The current study aimed to investigate the mediating role of psychological well-being in explaining the effect of perceived social support on death anxiety among the elderly with COVID-19 experience in Tehran.

Methods and Materials: This descriptive correlational study's population comprised all elderly men and women aged 65 to 75 years living at home in Tehran in 2022, who had experienced COVID-19 in the past six months. Among them, 400 individuals were purposively selected as the sample group and responded to the Death Anxiety Scale (Templer, 1970), the Perceived Social Support Scale (Zimet et al., 1988), and the Psychological Well-Being Scale (Ryff, 1989). For data analysis, the structural equation modeling method was used. The data obtained through confirmatory factor analysis and AMOS24 software showed that the research's structural model fits with the collected data.

Findings: There was a positive and significant relationship between perceived social support and psychological well-being, a negative and significant relationship between perceived social support and death anxiety, and a negative and significant relationship between psychological well-being and death anxiety. Also, the indirect pathways between death anxiety and perceived social support, and death anxiety were proven (p = 0.001).

Conclusion: Considering the results of the present study, it can be said that perceived social support influences death anxiety among the elderly with COVID-19 experience through psychological well-being. The findings of the current study can be utilized by counselors, psychologists, and health specialists.

Keywords: *Death Anxiety, Perceived Social Support, Psychological Well-being, Elderly, COVID-19.*

1. Introduction

On March 11, 2020, the World Health Organization declared the coronavirus disease a global pandemic, subsequently confirmed by a United States national emergency declaration on March 13, 2020 (Armitage & Nellums, 2020). As of May 22, 2020, over 5.11 million people worldwide had contracted COVID-19, resulting in over 333,000 deaths (Bostan et al., 2020; D'Adamo et al., 2020). Initial reports from Wuhan indicated that more than half of the confirmed COVID-19 cases were among older adults, who have a higher mortality rate and complications compared to other age groups (Chen et al., 2022; Zhao et al., 2022). It has also been shown that the high mortality rate from COVID-19 is significantly associated with age, such that most deaths occur among older adults. Significantly impacting all aspects of the quality of life of older adults (Hall et al., 2021). Since pandemics threaten many people with a similar disease, they affect communities differently from classic diseases. Pandemics cause masses to live in fear and anxiety, disrupting the natural flow of life. The continuous spread of the disease, complications, and high mortality rates lead to shared fear and anxiety, negatively impacting individuals' mental health. Furthermore, pandemics can negatively affect people's mental health worldwide by reminding them of the reality of death (Bostan et al., 2020; Çağlar & Kaçer, 2022). Due to the reduced immune function in older adults, they show a weaker immune response to diseases and infections. Moreover, since underlying diseases are more common in older adults compared to other age groups, they are more prone to contracting COVID-19 and death (Armitage & Nellums, 2020). The risk of infection and death from COVID-19 in older adults is three times higher than in younger people. Due to the high transmission rate of this virus, home quarantine is the first and most effective strategy to control its transmission. Given the specific physical conditions of older adults compared to other age groups, they were more susceptible to contracting COVID-19. As a result, home quarantine and social isolation were more severe in this group. During the pandemic, home quarantine and reduced social interactions led to decreased physical activities and social relationships among older adults, threatening their mental health (Armitage & Nellums, 2020). All the mentioned factors have significantly increased the prevalence of psychological disorders such as death anxiety among older adults during the COVID-19 pandemic compared to normal conditions (Karimi et al., 2020). Therefore, older adults are vulnerable and should be protected. One of these impactful aspects is the mental health of older adults, including anxiety (Abdelhafid et al., 2020; D'Adamo et al., 2020; Zhang et al., 2019). Death anxiety means the continuous, abnormal fear and dread of dying (Chen et al., 2022; Heidari et al., 2019). Although experiencing death anxiety is natural for older adults, the COVID-19 pandemic has exacerbated the feeling of death anxiety in older adults, leading to catastrophic consequences on the overall functioning of older adults' bodies and their immunity in particular. Such consequences could lead to a significant increase in the rate of complications and mortality among older adults (Pradhan et al., 2022). Death anxiety is associated with adverse health outcomes, including reduced physical function, psychological stress, disruption in self-integrity, weakened religious beliefs, dissatisfaction with life, and poor flexibility. Moreover, death anxiety is related to exposure to life-threatening events (Hoelterhoff & Chung, 2013). Death anxiety, as one of the common psychological problems, is the fear and anxiety resulting from thoughts of one's own death or that of relatives and is characterized by negative feelings such as distress, anxiety, worry, and fear of death. The persistence and intensity of death anxiety can lead to adverse health outcomes, such as physical problems, low resilience, and other mental health issues, including depression, generalized anxiety, phobia, panic, and suicidal thoughts. According to terror management theory, awareness of death causes fear and anxiety, and people use a wide range of defense mechanisms against it (Greenberg & Arndt, 2012). Numerous studies have shown that not only the level of death anxiety but also its concept and attitude are influenced by various variables, including age, gender, occupation, religious beliefs, moral and spiritual characteristics, life-threatening conditions, poor health conditions, death teachings, death experience, and social support (Chen et al., 2022; Heidari et al., 2019; Hoelterhoff & Chung, 2013; Juhl & Routledge, 2016; Khawar et al., 2013; Özer et al., 2023; Plusnin et al., 2018; Pradhan et al., 2022; Routledge & Juhl, 2010; Silva et al., 2021; Templer, 1970; Templer et al., 2006; Yousefi Afrashteh & Masoumi, 2021; Zhang et al., 2019; Zhao et al., 2022).

Social support is a vital component in adapting to life-threatening conditions and becomes even more important as individuals approach death - a form of interpersonal interaction that reduces death anxiety, and older adults with a strong social support network have less fear of death due to a greater sense of security through their relationships with

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others (Khawar et al., 2013). With the onset of the coronavirus pandemic, changes in socio-economic structures have affected the quality of relationships between older adults and their friends, neighbors, and relatives (Rajkumar, 2021). Based on available data, the severance of social connections increases the risk of depression in older adults (Rajkumar, 2021). Meanwhile, the cognitive and behavioral responses of individuals contracting the coronavirus are largely influenced by social supports (Huang & Zhang, 2022; Sirin et al., 2013). Before the pandemic, inconsistent social attention, cognition, and feelings of lonely individuals might contribute to high death anxiety in everyday life. In this case, high levels of perceived social support may create a sense of companionship and belonging for them, which can act as a psychological resource for reducing death anxiety (Khawar et al., 2013). Additionally, the effect of social support in predicting death anxiety during the coronavirus era remained constant during the peaks and declines of the coronavirus pandemic. As an acute stressor, the outbreak of the coronavirus pandemic and the associated social isolation policy may exacerbate the vulnerability of lonely individuals to anxiety (Brooks et al., 2020). However, perceiving more social support can make them feel noticed, understood, and valued by others, which can enhance an individual's self-efficacy in coping with future uncertainties (Yin et al., 2021). Confirming and expanding previous findings about the benefits of social support in disasters (Huang & Zhang, 2022; Labrague, 2020; Pietromonaco & Overall, 2021; Taylor, 2019; Tindle et al., 2022), results showed that in the pre-pandemic and declining stages of COVID-19, perceived social support from significant others and friends neutralized the detrimental effects of the trait of loneliness on death anxiety and coronavirus anxiety.

The research background showed that poor psychological well-being is somewhat related to death anxiety (Özer et al., 2023; Silva et al., 2021; Yousefi Afrashteh & Masoumi, 2021) and poor psychological well-being explains the adverse effects of death anxiety and increases the risk related to the lack of perceived social support (Zhao et al., 2022). On the other hand, terror management theory suggests that perceived social support, psychological well-being are protective factors against death anxiety (Zhang et al., 2019). These findings lead to the hypothesis that the relationship between perceived social support and death anxiety could be of an indirect nature, mediated by variables such as psychological well-being. Psychological well-being is a highly complex personal phenomenon that forms as a result of human activity in the real system of relationships with surrounding objects. Psychological well-being can be described as the sense of satisfaction with life, quality of life, personal self-fulfillment, creating objective and mental values, comprising several aspects: evaluative well-being (satisfaction with life), hedonic well-being (feeling of joy, sadness, etc.), and eudaimonic well-being (sense of purpose and meaning in life) (Majdabadi, 2015). Research conducted during the coronavirus pandemic indicates that this issue has a significant impact on mental health, reporting depression and anxiety rates between 16 to 28 percent of the general population (Rajkumar, 2021). Given that psychological well-being involves understanding existential life challenges and coping with ontological challenges, and older adults have an existential and mental challenge that life is coming to an end, death anxiety is one of the most significant existential and ontological challenges in their lives (Templer, 1970; Templer et al., 2006). In Iran, the social and cultural context is dominated by religion, and terror management theory shows how people manage their knowledge of death and how culture reduces death anxiety in religious individuals; thus, although the social and cultural context greatly influences how death anxiety is perceived, there is insufficient research to examine mental health anxiety disorders, especially in the older adult population (Majdabadi, 2015).

Furthermore, results also showed that psychological well-being could have a partial mediating role in the relationships between social support and death anxiety in older adults. Previous studies have shown that individuals' ability for psychological well-being significantly and negatively predicts death anxiety in older adults (Heidari et al., 2019; Hoelterhoff & Chung, 2013; Juhl & Routledge, 2016; Özer et al., 2023; Silva et al., 2021; Yousefi Afrashteh & Masoumi, 2021; Zhao et al., 2022). During the coronavirus pandemic, maintaining supportive resources has been challenging. In this situation, older adults with stronger psychological well-being have the potential to maintain healthy life habits, better regulate emotions, and experience more joy in controlling death anxiety resulting from the coronavirus pandemic (Huang & Zhang, 2022). Additionally, better psychological well-being can also help older adults overcome death anxiety during the coronavirus pandemic. On the other hand, previous research has provided evidence that social support can positively predict psychological well-being (Huang & Zhang, 2022; Yousefi Afrashteh & Masoumi, 2021). When various social supports are perceived by older adults from significant others, it likely increases their sense of control over life, thereby improving

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their psychological well-being. According to the psychological well-being model, social support is useful for compensating for the limited cognitive resources consumed by psychological well-being during the coronavirus pandemic (Simon et al., 2021). To better control their anxieties. Therefore, perceived social support is not only directly related to death anxiety in older adults during the coronavirus pandemic but is also indirectly related to these mental health variables through psychological well-being. This indicates that older adults can maintain and enhance their mental health by actively perceiving external social support and improving internal psychological well-being. Therefore, given the increasing number of older adults in the future and the diversity of observed stresses, especially death anxiety in older adults who have experienced contracting the coronavirus, addressing mental health and death in older adults is one of the urgent needs of the present age. Additionally, the purpose of life for older individuals is not merely to have a long life and be alive but rather the quality and kind of their life is of great importance, and one of the most significant challenges of old age is death anxiety, which can negatively affect health and prevent older adults from having an appropriate aging period. On the one hand, most research conducted on factors affecting death anxiety in older adults has examined the simple relationship between two or more variables, and there is a lack of research on the structural and concurrent relationships of the variables in this study. Furthermore, none of the conducted research has examined the cognitive, emotional, and social components of death anxiety in older adults who have experienced contracting the coronavirus and the role of mediating variables in determining the relationship between criterion and predictor variables, and the main research question was whether the relationship between death anxiety based on perceived social support with the mediation of psychological well-being in older adults who have experienced contracting the coronavirus is significant?

2. Methods and Materials

2.1. Study Design and Participants

The present study was foundational in terms of its objective and descriptive correlational based on structural equation modeling in terms of data collection and analysis methods. The population of this research included all elderly men and women aged 65 to 75 years living at home in Tehran in 2022 who had experienced COVID-19 in the past six months. In structural equation modeling methodology, the sample size can be determined to be between 5 to 15 observations per measured variable. Accordingly, in this study, a sample size of 400 individuals, including 200 women and 200 men, was given. The sampling method was purposive.

Before distributing the questionnaires, all elderly participants were informed about the research objective as much as necessary without causing bias; therefore, all elderly participants volunteered and provided informed consent to participate in the study. Moreover, all elderly participants were assured that their information would be confidentially reviewed. Completing the questionnaires required between 15 to 20 minutes; however, no time limit was imposed for completing the questionnaires. Finally, careful data collection and the elimination of hastily completed questionnaires or those following a pattern of repetitive response ensured the accuracy of the information reviewed.

2.2. Measures

2.2.1. Death Anxiety

This questionnaire, designed by Templer and published in 1970, consists of 15 items. Responses to each item are in 'Yes' or 'No' format, where 'Yes' answers are scored as one, and 'No' answers as zero. A 'Yes' response indicates the presence of death anxiety in the individual, and a 'No' response indicates its absence. Scores on this tool range from zero to 15, with scores of eight and above indicating high anxiety about death, and scores below seven indicating low death anxiety. Templer reported a test-retest reliability coefficient for this scale of .83 (Templer, 1970). In Iran, Rajabi and colleagues examined the reliability of this scale, reporting a classification reliability coefficient of .62 and a Cronbach's alpha (internal consistency) of .73, with concurrent validity based on correlations with overt anxiety and depression scales of .27 and .40, respectively. Additionally, the validity of the Death Anxiety Scale was examined using the Death Worry Scale and Overt Anxiety Scale, with correlation coefficients of .40 and .43, respectively (Yousefi Afrashteh & Masoumi, 2021). The Cronbach's alpha for the questionnaire in the current study was reported as .74.

2.2.2. Perceived Social Support

The Multidimensional Scale of Perceived Social Support (Zimet et al., 1988) performs a mental assessment of the

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adequacy of social support. This scale measures perceptions of adequacy of social support from three sources: "family," "friends," and "significant others," comprising 12 items rated on a seven-point Likert scale from strongly disagree (1) to strongly agree (7). In this scale, an increase in individuals' scores indicates an increase in their overall perceived social support score. Furthermore, the total score for individuals on each subscale is obtained from the sum of scores on the items of each scale. The study by Zimet et al. (1988) aimed to examine the psychometric properties of the Multidimensional Scale of Perceived Social Support showed that this instrument is valid and reliable for measuring perceived social support. The study by Brauer et al. (2008) in analyzing the psychometric properties of the Multidimensional Scale of Perceived Social Support using confirmatory factor analysis showed that the three-factor structure of this scale (significant others, family, and friends) fits the data acceptably. In the mentioned study, Cronbach's alpha coefficients for the overall perceived social support factor and the three dimensions of significant others, family, and friends in the Iranian sample were .89, .84, .85, and .91, respectively, and in the Swedish sample .92, .86, .87, and .91, and overall .94, .84, .89, and .92. Salimi et al. (2009) reported the reliability of the scale using Cronbach's alpha for the three dimensions of social support received from family, friends, and significant others in life as .86, .86, and .82, respectively (Salimi Azime, 2009; Zimet et al., 1988). In the current study, Cronbach's alpha for social support-family was .83, social support-friends .86, and others .81.

2.2.3. Psychological Well-Being

The Psychological Well-Being Scale is a self-report measure where respondents answer a number of questions about themselves on a six-point Likert scale. This scale was first developed by Ryff in 1989. According to Ryff, well-being consists of six components: self-acceptance, autonomy, positive relations with others, purpose in life, personal growth, and environmental mastery. Therefore, Ryff designed a scale that measures these six components in 120 items, with each component having 20 items. Besides the long form, there are shorter forms of this scale with 84, 42, and 18 items available, with the 84-item form being used in the current study. Cronbach's alpha rates in studies have been reported between 72 to 89 percent. Factor analysis results also indicate six factors. Bayani, Kochaki, and Bayani (2008) examined the reliability of this scale, and its internal consistency was measured using Cronbach's alpha. The obtained results for environmental mastery (.77), positive relations with others (.77), personal growth (.78), self-acceptance (.71), purpose in life (.70), and autonomy (.82) were reported (Majdabadi, 2015). In the current study, Cronbach's alpha was reported as .57 for environmental mastery, .58 for positive relations with others, .64 for personal growth, .72 for self-acceptance, .67 for purpose in life, and .63 for autonomy.

2.3. Data analysis

The collected data were analyzed using descriptive and inferential statistical methods. Descriptive statistical methods such as mean, standard deviation, and frequency distribution tables were used to examine demographic information and research variables. Furthermore, to estimate and generalize the information obtained from the research sample to the statistical population after observing statistical assumptions such as skewness and kurtosis, normality (Kolmogorov-Smirnov), linearity of the relationship between predictor variables and criterion variable, and multicollinearity (tolerance and variance inflation factor), inferential statistical methods such as Pearson correlation coefficient and bivariate regression analysis were used. Additionally, to examine the mediating role of psychological well-being in the relationship between perceived social support and death anxiety, path analysis with a structural equation modeling approach was used. Data analysis was performed using SPSS.v24 and AMOS.v23 software. The significance level in this study was set at .05.

3. Findings and Results

To address the research question, conventional content analysis by Hsieh & Shannon (2005) was used, and for the development of the package, the package development method of Yousefi & Golparvar (2023) was utilized.

In the current study, 406 elderly individuals (203 women and 203 men) participated, with an average age and standard deviation of 68.02 and 3.62 years, respectively. Among the participants, 45 individuals (11.1%) were employed, 99 (24.4%) were homemakers, 157 (38.7%) were retired, 39 (9.6%) were disabled, 30 (7.4%) were unemployed, and 36 (8.9%) were in other employment situations. Ultimately, 29 participants (7.1%) were single, 213 (52.5%) were married, and 36 (8.9%) were separated from their spouses. It is noteworthy that the spouses of 128 participants (31.5%) had passed away. Table 1 displays the correlation coefficients between the study variables.

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Table 1

Correlation Coefficients Between Research Variables

Research Variables	1	2	3	4	5	6	7	8	9	10
1. Social Support - Family	*0.39									
2. Social Support - Friends	*0.28	*0.65								
3. Social Support - Others	*0.31	*0.71	*0.62							
4. Psychological Well-being - Autonomy	*0.24	*0.22	*0.18	*0.21						
5. Psychological Well-being - Environmental Mastery	*0.42	*0.44	*0.32	*0.44	*0.30					
6. Psychological Well-being - Personal Growth	*0.43	*0.42	*0.32	*0.43	*0.34	*0.61				
7. Psychological Well-being - Positive Relations	*0.19	*0.31	*0.17	*0.37	0.09	*0.44	*0.40			
8. Psychological Well-being - Purpose	*0.25	*0.26	*0.20	*0.24	*0.31	*0.37	*0.33	*0.17		
9. Psychological Well-being - Self-Acceptance	*0.42	*0.44	*0.39	*0.32	*0.32	*0.60	*0.56	*0.45	*0.32	
10. Death Anxiety	*-0.37	*-0.30	*-0.24	*-0.28	*-0.23	*-0.39	*-0.37	*-0.19	*-0.30	*-0.43

*P<0.01

Table 1 shows the correlation coefficients between the variables, indicating that the components of perceived social support and psychological well-being were negatively and significantly correlated with death anxiety. Subsequently, Table 2, in addition to the mean and standard deviation of the research variables, shows the skewness and kurtosis values of each variable and the Variance Inflation Factor (VIF) and Tolerance coefficient of the predictor variables.

Table 2

Mean ± Standard Deviation, Skewness (Kurtosis), and Tolerance (Variance Inflation Factor)

Variable	Mean ± SD	Skewness (Kurtosis)	Tolerance (VIF)
Social Support - Family	19.80 ± 4.96	-0.77 (0.54)	0.25 (4.05)
Social Support - Friends	18.58 ± 4.94	-0.97 (-0.21)	0.36 (2.77)
Social Support - Others	19.17 ± 4.92	-0.87 (-0.36)	0.28 (3.57)
Psychological Well-being - Autonomy	11.05 ± 2.03	-1.03 (-0.52)	0.79 (1.27)
Psychological Well-being - Environmental Mastery	10.48 ± 2.21	-0.48 (-0.27)	0.56 (2.20)
Psychological Well-being - Personal Growth	11.22 ± 2.40	-0.56 (-0.03)	0.47 (2.13)
Psychological Well-being - Positive Relations	9.12 ± 1.78	-0.35 (-0.74)	0.67 (1.49)
Psychological Well-being - Purpose	9.88 ± 2.06	-0.06 (-0.90)	0.74 (1.35)
Psychological Well-being - Self-Acceptance	10.50 ± 2.16	-0.21 (-0.16)	0.45 (2.21)
Death Anxiety	7.78 ± 3.51	-0.34 (-0.25)	-

In this research, to assess the assumption of univariate normal distribution, skewness and kurtosis of each variable were examined and, as Table 2 indicates, the values of skewness and kurtosis for all components were within ±2 range. This finding indicates that the assumption of univariate normal distribution among the data was met. The assumption of linearity in this research was examined using the Variance Inflation Factor and Tolerance coefficient. The assumption of linearity was also met among the data, as based on the findings of Table 2, the Tolerance values of predictor variables were greater than 0.1, and the Variance Inflation Factor values of each were less than 10.

This study used "Mahalanobis distance" analysis to evaluate the assumption of multivariate normal distribution. The skewness and kurtosis values related to Mahalanobis distance came out to 1.93 and 3.29, respectively, showing that the skewness values of the said data were outside the ±2 range. Consequently, a box plot of the Mahalanobis distance data was drawn and observed that the data from four participants formed multivariate outliers. Therefore, data related to those four participants were removed, and with this action, the skewness and kurtosis values of the Mahalanobis distance data were reduced to 0.87 and 1.12, respectively, establishing the assumption of multivariate normal distribution among the data. Finally, to assess the homogeneity of variances, a scatter plot of standardized error variances was examined, and the results indicated that this assumption was also met in the current study's data.

In the research measurement model, the two variables, psychological well-being and perceived social support, were latent variables and, along with their indicators, formed the measurement model of the study. The fit of the measurement

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model was evaluated using confirmatory factor analysis, AMOS 24.0 software, and Maximum Likelihood (ML) estimation.

In the structural model, it was hypothesized that perceived social support, mediated by psychological well-being, affects the death anxiety of the elderly with COVID-19 experience. The model was analyzed using the structural equation modeling method, and as Table 3 indicates, all fit indices from the analysis supported the acceptable fit of the structural model with the collected data (χ^2/df = 1.59, CFI = .980, GFI = .950, AGFI = .917, and RMSEA = .054). Table 3 shows the path coefficients in the structural model.

Table 3

Total, Direct, and Indirect Path Coefficients Between Research Variables in the Structural Model

Path	b	S.E.	β	p
Perceived Social Support → Psychological Well-being	0.066	0.023	0.504	< 0.001
Psychological Well-being → Death Anxiety	-1.126	0.437	-0.568	< 0.001
Direct Effect: Perceived Social Support → Death Anxiety	0.018	0.061	0.023	0.750
Indirect Effect: Perceived Social Support → Death Anxiety	-0.222	0.051	-0.286	< 0.001
Total Effect: Perceived Social Support → Death Anxiety	-0.204	0.072	-0.264	< 0.001

Table 3 demonstrates that the total path coefficient between perceived social support and death anxiety is negative and significant (p = .001, β = -.262). The path coefficient between psychological well-being and death anxiety was negative and significant (p = .001, β = -.568). Table 3 indicates that the indirect path coefficient between perceived social support and death anxiety is negative and significant (p = .001, β = -.286). Accordingly, it can be stated that psychological well-being significantly and negatively mediates the effect of perceived social support on death anxiety among the elderly. Figure 1 shows the structural model of the study in explaining the effect of perceived social support on death anxiety among the elderly with COVID-19 experience, based on the mediating role of psychological well-being.

Figure 1

Summary of the Educational Package on Successful Intelligence Aimed at Reducing High-Risk Behavior

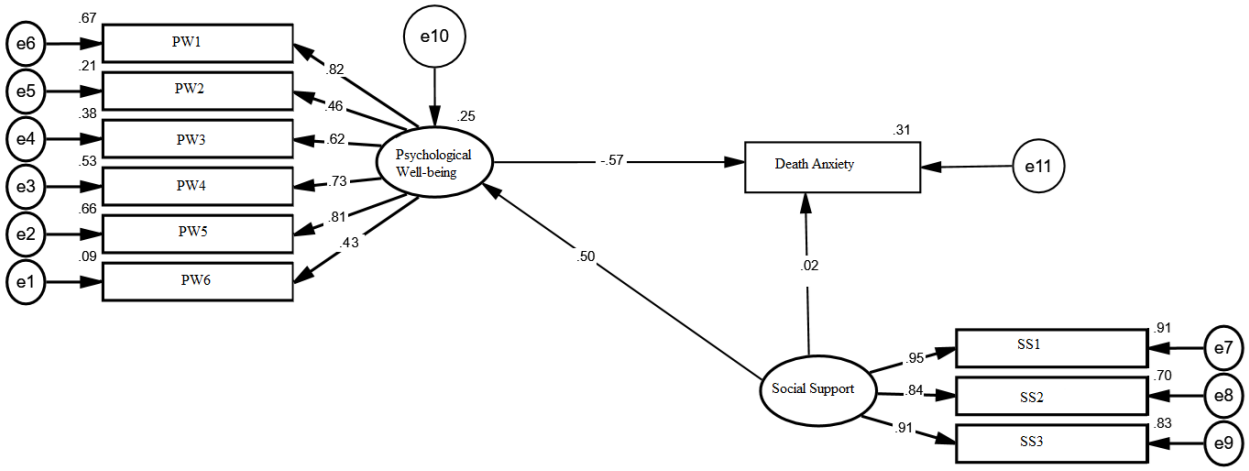

Figure 1 shows that the total squared multiple correlations (R^2) for the variable of death anxiety was .31, indicating that perceived social support and psychological well-being together explain 31 percent of the variance in death anxiety among the elderly with COVID-19 experience.

4. Discussion and Conclusion

The purpose of this research was to explain the structural model of death anxiety based on perceived social support with the mediation of psychological well-being in the elderly who have experienced COVID-19. The results obtained

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from structural equation modeling, after fully fitting the data of the desired model, support the research hypothesis that the total path relationship between perceived social support and death anxiety, mediated by psychological well-being, is significant in the elderly with COVID-19 experience. Considering the findings, it can be concluded that psychological well-being mediates the effect of perceived social support on death anxiety in the elderly who have experienced COVID-19. No research was found to be directly aligned with the above findings. However, the findings of the studies (Heidari et al., 2019; Hoelterhoff & Chung, 2013; Juhl & Routledge, 2016; Khawar et al., 2013; Özer et al., 2023; Silva et al., 2021; Sirin et al., 2013; Yousefi Afrashteh & Masoumi, 2021; Zhao et al., 2022) implicitly support this research finding.

In explaining this finding, it can be stated that perceived social support has a positive and significant correlation with death anxiety and psychological well-being. These results confirm our hypotheses. Our findings are consistent with previous studies (Sirin et al., 2013). Perceived social support can significantly and negatively predict death anxiety among the elderly during the COVID-19 pandemic. Due to the increased stress from specific life conditions during the COVID-19 pandemic, the elderly urgently needed emotional support provided by significant others to help them overcome these difficulties. If they could perceive sufficient and effective support, their negative mental health would improve. Results showed that older adults with more social support usually suffer less from death anxiety during the COVID-19 pandemic. Terror management theory states that death anxiety is caused by thoughts related to death and exists in all humans because human cognitive ability allows them to understand their vulnerability and mortality, thus creating existential worries (Greenberg & Arndt, 2012). As the COVID-19 pandemic continued, a high level of death anxiety was observed in the general population (Chen et al., 2022). It is believed that death anxiety is related to psychological disorders, such as panic, generalized anxiety, and depressive disorders. Considering the traditional cultural nature, the elderly are not compatible with thoughts related to death because they perceive death as something unpleasant (Yin et al., 2021). The pandemic highlighted mortality. According to terror management theory, a leading theory explaining the impact of death on individual behavior in the context of social psychology, perceived social support and psychological well-being are explained as protectors against death anxiety during mortality (Khawar et al., 2013; Özer et al., 2023; Pradhan et al., 2022). Perceived social support is support received from social networks, and in the absence of perceived support, i.e., support provided by family members, friends, and significant others (Özer et al., 2023; Pradhan et al., 2022; Salimi Azime, 2009). Psychological well-being is a cognitive dimension that emphasizes the meaningful outcome in life (Heidari et al., 2019; Hoelterhoff & Chung, 2013). In fact, psychological well-being is the extent to which an individual has a positive view of themselves. Previous research based on terror management theory focused on how each of these factors mitigates the impact of death anxiety on individual behavior or well-being with less focus on the reciprocal relationships between perceived social support, psychological well-being, and death anxiety (Chatard et al., 2020; Juhl & Routledge, 2016; Plusnin et al., 2018; Silva et al., 2021). As a result, only unidirectional interventions with limited impact for managing death anxiety and its effect on individual behavior or well-being have been developed (Chatard et al., 2020; Silva et al., 2021). For the development of targeted multi-component interventions, the reciprocal relationships between perceived social support, psychological well-being, and death anxiety need to be understood (Plusnin et al., 2018; Silva et al., 2021).

Terror management theory suggests that perceived social support and psychological well-being are protective factors against death anxiety (Zhang et al., 2019). Beyond terror management theory, other theoretical reports predict the relationship between perceived social support and psychological well-being. Attachment theory indicates that satisfying relationships with attachment figures provide a sense of order and coherence, which are primary components of psychological well-being in life (Dewitte et al., 2019; Plusnin et al., 2018). To our knowledge, this study is one of the few empirical investigations to examine the relationships between perceived social support, psychological well-being, and death anxiety based on terror management theory. This study has contributed to the existing evidence that psychological well-being can mediate the relationship between perceived social support and death anxiety both individually and serially. These findings add to the knowledge of the relationships between perceived social support, psychological well-being, and death anxiety based on terror management theory and have practical implications for developing multi-component interventions to manage death anxiety aimed at increasing perceived social support and psychological well-being.

In general, it can be asserted that death anxiety among participants in this study during the pandemic period is

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higher than among the elderly in the non-pandemic period (Juhl & Routledge, 2016; Khawar et al., 2013; Özer et al., 2023; Plusnin et al., 2018; Pradhan et al., 2022). The elderly may worry whether their "death" would be burdensome to the entire family; thinking, "If something happens to me, what will happen to my family?" (Yousefi Afrashteh & Masoumi, 2021; Zhang et al., 2019). Another reason for the high level of death anxiety in this study is the COVID-19 pandemic (Pradhan et al., 2022). The level of death anxiety in the general population examined during the COVID-19 pandemic was much higher than the level of death anxiety in the non-pandemic period (Chen et al., 2022; Heidari et al., 2019). Observers have noted that the number of deaths and the severe contagiousness of the coronavirus likely contributed to the increase in death anxiety (Pradhan et al., 2022; Routledge & Juhl, 2010). Moreover, terror management theory shows that increased death anxiety motivates individuals to maintain psychological well-being to mitigate anxiety (Greenberg et al., 2014). However, during the COVID-19 pandemic, the elderly need perceived social support and psychological well-being to protect against increased levels of death anxiety (Zhang et al., 2019). A more comprehensive support system aimed at increasing perceived social support, psychological well-being, and psychological well-being should be developed for situations like pandemics that naturally reduce the outlook of supportive social interactions.

As previously mentioned, there is a direct relationship between perceived social support and death anxiety. According to terror management theory and previous studies, supports from social network members play a crucial role in reducing death anxiety (Plusnin et al., 2018). In our study, higher perceived social support was associated with lower death anxiety in bivariate analyses. Additionally, this study shows that the presence of psychological well-being can fully mediate the relationship between perceived social support and death anxiety. Specifically, feeling supported by social networks provides a deeper sense of meaning for individuals, allowing them to maintain their significance through symbolic immortality, thus higher perceived social support is associated with lower death anxiety through increased psychological well-being (Heidari et al., 2019).

5. Limitations & Suggestions

The present study, like other research, had its limitations. Since this study was conducted on the elderly population in Tehran, caution should be exercised in generalizing the results. The simultaneity of the research with the COVID-19 pandemic was one of the limitations of this study, creating difficulties in data collection. Also, the large number of questions caused fatigue among the elderly respondents. Additionally, one of the limitations of this study was the lack of control over intervening variables, such as other psychological abilities and characteristics, personality traits, emotional atmosphere of the family, and moderating variables such as socio-economic status. Moreover, this study was conducted on the elderly, so the results cannot be generalized to individuals of other age ranges; therefore, it is suggested that to generalize the findings of this study, it should be replicated in other cities of the country. Given the limitation of this study regarding the control of intervening, moderating, and facilitating variables, it is suggested that the effect of intervening and mediating variables (such as the emotional atmosphere of the family, maladaptive schemas, emotion regulation strategies) be examined in future research. It is also recommended that qualitative studies be used for deeper investigation in future research. In addition, it is suggested that interviews be used alongside questionnaires in other studies to further ensure measurement validity. Furthermore, it is recommended that researchers use random sampling to validate the research. Finally, it is suggested that in future research, the predictor and criterion variables of the present study (death anxiety and lifestyle promoting) be studied with other mediating variables such as emotion regulation strategies, meaning in life, self-esteem, integrative self-knowledge, coping strategies, and compare the results with those of the current study. The results of this study have significant implications for preventing the risk of mental health problems. When providing support to vulnerable individuals like the elderly, psychological well-being should be fully considered. The elderly should be encouraged to actively use their psychological strength to solve their problems instead of passively waiting for support from others. Psychological well-being, as a powerful adaptive ability, can be improved through continuous practice or enhanced cognitive adaptation, which not only can directly help the elderly overcome problems but also indirectly transfers the beneficial effect of perceived social support to them. Therefore, healthcare providers and researchers should consider how to effectively integrate both internal resources of psychological well-being and external resources of perceived social support into a set of comprehensive counseling strategies for the mental health of the elderly. It

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is proposed that implementation programs and therapeutic protocols be developed and executed in counseling centers and hospitals for the elderly.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. The present study commenced with the necessary approvals from the Ethics Committee of Islamic Azad University, Central Tehran Branch, with the ethics number IR.IAU.CTB.REC.1402.017.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed in this article.

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