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Mourning in the time of coronavirus: Examining how grief differs in those who lost loved ones to COVID-19 vs. natural causes in Iran

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Abstract

Objectives. Our study aimed to analyze and compare the grief experiences of individuals in Iran who lost family members to COVID-19 and those who lost loved ones to other natural causes.

Methods. In this study, telephone interviews were conducted with 640 first-degree relatives, and finally, a total of 395 people remained in the research. Participants answered the Prolonged Grief Questionnaire (PG-13-R) and Grief Experience Questionnaire.

Results. The results showed that the most common symptoms and features of grief were feeling guilt, searching for an explanation, somatic reactions, and rejection, with no significant difference observed between the 2 death groups. However, the average scores for these symptoms were higher in the COVID-19 death group. Moreover, the majority of bereaved reported signs and symptoms of prolonged grief, with a higher percentage in the COVID-19 death group, although there was no significant difference between the 2 death groups in terms of the distribution of symptoms and signs of prolonged grief. These findings suggest that the bereavement process can be challenging, and losing a loved one to COVID-19 may lead to more intense experiences of grief.

Significance of results. The study reveals high levels of guilt, searching for meaning, somatic reactions, and rejection among COVID-19 grievers. Losing loved ones to the pandemic appears linked to more intense, prolonged grief symptoms.

Introduction

In December 2019, a virus called the coronavirus (COVID-19) was discovered in the city of Wuhan, China. It quickly spread worldwide, so the World Health Organization declared the world a public health emergency in 2020 (Tanoue et al. 2020; Tull et al. 2020). It declared the new virus a pandemic to gain international attention. The continuous spread of this acute respiratory virus is a great threat to human health and is one of the biggest challenges that has involved humanity after the Second World War, which is still lurking in human lives (Chakraborty and Maity 2020; Fauci et al. 2020). The consequences that the coronavirus has left are undeniable (Nasri et al. 2023). Due to the excessive speed of transmission, pulmonary complications, and infections caused by this disease and the lack of definite and specific treatment, it has caused an increase in deaths worldwide (Bastan et al. 2020).

Therefore, this new virus has not only significantly increased the risk of death but also caused intolerable psychological effects. Among the significant psychological effects caused by the coronavirus, we can mention the different grief processes among the bereaved of the deceased during this period (Kaplow et al. 2010). The remarkable developments that we are witnessing in this era are specifically related to the people involved in COVID-19, so face-to-face meetings, being next to the patient, trying to discharge the patient, and transfer him home have replaced the distance from the patient, and the impossibility of face-to-face meeting and the patient being quarantined (Morris et al. 2020).

The COVID-19 pandemic has profoundly impacted the rituals and practices surrounding death, dying, and grief worldwide (Dyregrov et al. 2023). In general, funeral ceremonies can be classified into burial ceremonies and memorial ceremonies (third, seventh, fortieth, and anniversaries). The purpose of these ceremonies is to remember the goodness of the deceased and send blessings and charity in their name. This is a traditional custom

of bowing in respect to the deceased so that kindness will be given to them. In normal situations in Iran, the relatives of the bereaved should not leave the bereaved person alone for 3 days so that the bereaved person does not feel lonely and finds peace. Therefore, close people can mourn for at least 3 days. On the third day after a person's death, a funeral is held in memory of the deceased. In these gatherings, people offer condolences to the bereaved and share in their grief. One of the most common and important parts of all funerals, especially the third, seventh, and fortieth ceremonies, is the reception of guests, where fruits, sweets, cakes, halva, dates, and drinks are served. These customs prevent a person from being overwhelmed by the issue of death and provide social support. Preparing for these ceremonies shows the need to balance life issues with mourning. However, most regions of Iran have special cultural norms and ceremonies for mourning. In Western areas, people deny themselves wearing bright colors, attending parties, and engaging in recreational activities for a long time (Assare et al. 2014); additionally, imitating the behaviors of the deceased is recognized as one of the common ways to express grief (Hall et al. 2014). It is customary to pay people who professionally sing elegy to express grief at funerals. Mourning sounds continue for days to show the family's love for the deceased, and women cut their hair and scratch their faces to show sadness. In southeastern areas, family members remain barefoot for 40 days, and during this time, the widow usually wears black and avoids decorative cosmetics. In northern Iran near the Caspian Sea, while reciting the Quran, the corpse is washed with water from a nearby river, and rose water is also sprinkled on the body. In central areas, Zoroastrians have a custom of placing the corpse in the Tower of Silence until only the bones remain, then the mourners pray and sprinkle water on the bones (Nasri et al. 2023; Yousefi and Ashouri 2023; Yousefi and Jafari 2023).

During the COVID-19 outbreak time, people faced serious restrictions due to existing policies to control special coronavirus conditions, and the bereaved faced restrictions for holding funerals, the mourning process, and attending cemeteries. A large number of people refused to participate in the funeral due to the stressful atmosphere of the epidemic (Cardoso et al. 2020; Corpuz 2021; Diolaiuti et al. 2021; Eisma et al. 2020; Gómez-Salgado et al. 2020; Nasri et al. 2023). Therefore, all the mentioned cases during the epidemic, especially in the early years of the beginning of COVID-19, can have a stressful effect on the bereaved, which can make the experience of grief different. On the other hand, the bereaved may experience difficult conditions as defined by the Diagnostic And Statistical Manual Of Mental Disorders, Fifth Edition, Text Revision (DSM-5-R) diagnostic criteria for prolonged grief (Boelen et al. 2020; WHO 2023).Grief is a psychological-physiological phenomenon and a natural emotional reaction. After the loss of an important person in their life, bereaved people experience deep and intense grief, guilt, anger, and uncontrollable and overwhelming sadness. But finally, with the passing of weeks and months in the process of grief, they cope with their grief and adapt to their conditions (Ashouri and Yousefi 2023; Diolaiuti et al. 2021; Horowitz et al. 2003; Yousefi et al. 2022). For years, the usual and natural process of grief has been presented as 5 stages of denial, anger, bargaining, depression, and acceptance (Bolden 2007; Gonçalves Júnior et al. 2020). In some cases, this process is not normal, and critics believe that situational factors and the type of death are much more influential than time in the process of reacting to grief (Holland and Neimeyer 2010). Therefore, in a group of people, the process of grief is debilitating and continuous, and in other words, the person is stuck in his grief; instead of grief problems decreasing over time, they continue or increase, which is called complicated grief (CG) (Jordan and Litz 2014; Maercker et al. 2013).

CG is diagnosed in the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as a persistent complex bereavement disorder (in the category of other disorders related to specified trauma and stress) (Boelen et al. 2019). In 2021, in the new edition of DSM-5, persistent complex bereavement disorder has been changed to prolonged grief disorder (PGD). According to the new diagnosis, symptoms include an intense longing for the deceased person, preoccupation with memories of the deceased person, identity disturbance, feelings of disbelief about death, avoidance of remembering that the person is dead, severe emotional pain associated with the death, difficulty reintegrating life after death, emotional numbness as a result of death, sense of meaninglessness of life as a result of death, and feelings of extreme loneliness as a result of death (Albuquerque et al. 2021; Boelen and Lenferink 2022; Prigerson et al. 2021). There is a similar diagnosis with the same title in the 11th edition of the International Classification of Diseases (ICD-11). The difference between this disorder and the new disorder proposed in DSM-5-R is the duration and types of symptoms (Ashouri and Yousefi 2023; Boelen and L. I.Lenferink 2020; Tang and Xiang 2021).

A funeral refers to a ceremony and gathering that is carried out in the direction of mourning. The body or remains of the deceased are present in that ceremony, then according to different cultures, the body is buried, cremated, mummified, etc. in the cemetery (de Souza and de Souza 2019). Burials, also are valuable activities that help people channel their emotions, share their beliefs, and communicate their values. Therefore, performing rituals and ceremonies aims to get away from overwhelming emotions and control them, which can also reduce sadness (Nakajima 2018; Santos et al. 2018). Therefore, research claims for various reasons that the conditions of the Corona epidemic may affect the grief process and cause changes in this process and also prepare the ground for prolonged grief. Because firstly, disasters with high casualties leave higher levels of disruption in the grief process in bereaved people than in other ways of death. Secondly, the grief process can be expected to be different in conditions of the Corona era, because bereavement through unexpected death, not holding traditional grief rituals such as saying goodbye to the deceased, not holding a funeral ceremony, or lack of physical and social support can go through a different process (Castle and Phillips 2003; Lobb et al. 2010; Nasri et al. 2023).

Since the beginning of the pandemic, several studies have investigated the response of bereaved following deaths from coronavirus and other deaths. Regarding the comparison of grief experience among survivors of COVID-19 and other causes of death, a study has been conducted in Iran, which shows that no significant difference in the overall experience of grief has been reported between the 2 groups. Considering that the number of the research sample (75 people) is very small and the sample includes first- and second-degree relatives, it is suggested to repeat this research in a wider sample of first-degree relatives of the deceased (Shahini et al. 2022).

Regarding prolonged grief, the results of some studies indicate that bereaved deaths caused by COVID-19 report higher levels of prolonged bereavement compared to those bereaved by natural deaths (Eisma and Tamminga 2020; Eisma et al. 2021). In this regard, other studies do not report any difference (Breen et al. 2022; Downar et al. 2022). The differences can be caused by the different samples used as well as the use of different tools to measure bereavement, for example, Eisma et al. (2021) used TGI-SR or

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TGI-SR+ and Breen et al. (2022) used the Pandemic Grief Scale in his research. As a result, considering that on the one hand, many people around the world have died due to Corona and this death rate continues; this experience can be very traumatic for the victims of the COVID-19 era. On the other hand, taking into account the new criteria for diagnosing prolonged grief, there is a need to conduct comprehensive research in the field of examining the experience of grief and prolonged grief based on the new criteria of the statistical guide for mental disorders among victims of COVID-19 and natural death.

Method

Participants and procedure

With the university's introduction to (removed for blind review) Masih Daneshvari Hospital in Tehran, sampling started from the mentioned hospital. In this way, the list of 2 groups of first-degree relatives of death caused by COVID-19 and death caused by natural causes in (removed for blind review) Masih Daneshvari Hospital from 2021 March to 2023 January was provided to the researcher. According to the condition of the Corona epidemic, online sampling was selected. Questionnaires were designed in the Porsline platform. First, a telephone interview was conducted with the bereaved, and if they meet the criteria for entering the research and have consented to participate in the research, the link to the questionnaires will be provided through platforms such as Telegram, WhatsApp, etc. to answer the questions. At the beginning of the questionnaires, people were assured that their personal information would be protected and they were asked to enter the demographic information section, then the death information, and finally the PG-13-R and the Grief Experience Questionnaire (GEQ), and at the appointed time answer the questions. Severe psychiatric disorders were assessed through an initial screening, and this variable was subsequently removed to control for potential confounding variables that could affect grief. In the case of deaths caused by murder and suicide, as these fall under the category of traumatic or unnatural deaths, they are not included in the category of deaths due to natural causes. The entire process took about 10 minutes to complete. The phone number and email address of the researcher were provided to the participants so that in case of any problem while completing the questionnaire, the researcher could be contacted. In this way, telephone interviews were conducted with 640 first-degree relatives, and finally, 403 people accepted to participate in the research, 8 people left the research due to the exclusion criteria, and a total of 395 people remained in the research. We collected data between 20 January 2023 and 22 May 2023.

The inclusion criteria were that the age range was 18–65 years. The cause of death was not suicide, execution, accident, or murder, and the person had a first-degree relationship with the deceased (spouse, father, mother, sister, brother, or child). At least 6 months and at most 2 years have passed since the death of the deceased. Exclusion criteria were that the participants who did not fully answer the questionnaire items and those who had severe psychiatric disorders and severe cognitive deficits (this item was checked through interviews) were excluded from the study.

Measures

Sociodemographic information form

After the consultation of the researcher with the associate professors in this research, this questionnaire was prepared and designed in order to collect the personal information of the participants in a standard way. This questionnaire includes information related to age (in years), gender (female and male), educational status (high school and less, diploma, associate degree, bachelor's degree, master's degree, Ph.D. and above), marital status (single, married, divorced, and widowed), and employment status (unemployed, student, full-time, retired, and housewife). Furthermore, in this questionnaire, factors related to death are questioned. Questions include the cause of death (COVID-19, other natural causes of death), the relationship between the bereaved and the deceased (sister, brother, father, mother, wife, and child), date of death, opportunity to say goodbye, holding a funeral, loss of more than 1 person, and history of taking psychiatric medication.

Prolonged Grief Questionnaire (PG-13-R)

This is a 13-question self-report scale designed to measure prolonged grief based on a set of different criteria of DSM-5, DSM-5-R, and ICD-11. Items 3–12 scoring on a Likert scale are ranged from 1 = not at all to 5 = very much. Item 1 is about whether the person has lost someone. Item 2 is related to the length of time that the deceased has been missing. Item 13 is related to bereaved dysfunction. According to our aim to examine prolonged grief based on DSM-5-R, we used a total score of 30 and a "yes" answer to item 13 as an index to diagnose prolonged grief (Prigerson et al. 2021). The Prolonged Grief Questionnaire has suitable psychometric properties. Cronbach's alpha is reported as 0.93. In general, the Persian PG-13-R possessed adequate internal consistency and mean inter-item correlations as well as temporal stability at both the scale and item levels. This research indicates that prolonged grief overlaps with depression but is distinct from the disorder, but low self-esteem or feelings of worthlessness are both well-known distinctive symptoms of depression. In addition, studies have shown that the higher a person's level of optimism, hope, and belief in self-efficacy, the milder the symptoms of prolonged grief. Furthermore, the results indicated that having lower levels of education, losing a child/spouse (in comparison with other relationships), being a woman, and dying an unnatural death (vs. dying a natural death) are correlated with higher levels of disturbed grief (Ashouri et al. 2023).

Grief Experience Questionnaire

This questionnaire contains 34 questions that evaluate 7 dimensions of the grief experience (feelings of guilt, search for explanation, somatic reactions, rejection, responsibility, shame, and stigmatization). The scoring of the questionnaire is on a 5-point Likert scale from never (1) to always (5). The total score is between 34 and 170. The correlation of this questionnaire with the Symptom Checklist Inventory ($p = 0.005$) and the General Health Questionnaire ($p = 0.004$) was statistically significant. Cronbach's alpha coefficient of this questionnaire has been reported as 0.88. Examining and observing the content of GEQ questions in Iran indicate that this questionnaire includes many signs and manifestations of grief, including physical reactions, psychological manifestations (disbelief, confusion, etc.), emotional manifestations (sadness, depression, anxiety, feelings guilt, etc.), and behavioral manifestations (social withdrawal, distraction, etc.). Except for factor 5 (judgment of a person or others about the cause of death) and factor 7 (notoriety), it has acceptable validity; except for factor 5 (judgment of a person or others about the cause of death) and factor 7 (notoriety), it has acceptable validity; it can be stated that embarrassment and notoriety are specific symptoms of mourning

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caused by suicide, as some evidence also confirms it (Mehdipour et al. 2009).

Data analysis

SPSS-28 statistical software was used to classify, analyze data, and examine research hypotheses. First, in order to separate the bereaved based on the cause of death, descriptive statistics (frequency and frequency percentage) were used. In this regard, we considered the cause of death (COVID-19 = 0, natural death = 1). Then, a 2-way analysis of variance test was used to compare the overall grief experience in 2 groups of bereaved of death due to COVID-19 and bereaved of death due to other natural causes of death in terms of demographic variables and variables related to death. Next, we used descriptive statistics (mean and standard deviation) in order to investigate the most common grief experiences among bereaved of death due to COVID-19.

To compare the grief experience between the 2 groups of bereaved, we used an independent *t*-test. Finally, we compared the level of prolonged grief in 2 groups of bereaved using a chi-square test and analyzed the prevalence of symptoms and signs of prolonged grief among all bereaved with descriptive statistics. A series of independent samples *t*-tests were conducted to compare scores on the prolonged grief measure between those who reported certain death rituals (mourning and burial) and those who did not, separately for the natural death and COVID-19 death groups.

Results

The ratio of the number of deaths due to COVID-19 to the number of deaths due to other natural causes of death is 51.4% (203) to 48.6% (192). According to the results of Table 1, the highest percentage of participants was in the age range of 35–45, which covered 32.9%. Women made up 60.8% of the target society. According to the results of this table, it was found that the *p*-value in the variables of age, gender, educational status, and employment status was more than 0.05. Therefore, the distribution of age, gender, educational status, and working status of the first-degree relatives in the 2 death groups was not significantly different. On the other hand, there was a significant difference in the distribution of the bereaved's marital status in the 2 death groups, the number of married people in deaths caused by COVID-19 is more and the number of unmarried people is less.

Table 2 displays the characteristics of variables related to death in 2 death groups. According to the results of Table 2, most of the bereaved were the children of the deceased (52.2%). The period of time that passed since the death of the deceased was 18–12 months, 18–24 months, and 12–6 months, respectively. About 79.2% of the bereaved did not have the opportunity to say goodbye to the deceased. Most of the participants reported holding funeral ceremonies (64.1%) and mourning ceremonies (57.5%).

The relationship of the bereaved to the deceased, the likelihood of conducting a funeral ceremony, the likelihood of organizing a mourning ceremony, and the history of psychiatric drug use were all found to exhibit significant differences between the 2 groups under study: those who experienced deaths due to COVID-19 and those who experienced deaths due to natural causes. So, there was a higher incidence of children being related to the deceased in the group experiencing deaths due to COVID-19. Additionally, this group of deaths due to COVID-19 demonstrated a lesser propensity to hold funeral and mourning ceremonies and exhibited a higher prevalence of psychiatric drug use. On the other hand, regarding the time of death, the opportunity to say goodbye, loss of more than 1 person, and drug use since the time of death of the deceased, there were no significant differences between the 2 groups.

Table 3 displays a comparison of the average symptoms and features of grief between the 2 death groups. Upon examination of the table, it is evident that the symptoms and features of grief in the group of first-degree relatives of those who died due to COVID-19 had the highest mean in feeling guilt, search for explanation, somatic reactions, and rejection, respectively. No significant difference was observed between the 2 death groups, death due to COVID-19 and natural death, in any of the symptoms and features of grief. Although in most of the symptoms and characteristics of grief, including feeling guilt, search for explanation, somatic reactions, responsibility, and stigmatization, the average scores in the group of first-degree relatives of those who died due to COVID-19 are higher than the group of first-degree relatives of those who died due to natural death.

Finally, the results of Table 4 showed that according to DSM-5 and ICD-11 diagnoses, 38% of all bereaved, 39.4% of bereaved deaths due to COVID-19, and 36.5% of bereaved deaths due to natural death receive a definitive diagnosis of PGD. Considering that the *p*-value is more than 0.05, therefore, the distribution of symptoms and signs of prolonged grief and the definite diagnosis of prolonged grief in the 2 death groups are not significantly different, although it is more in the COVID-19 death group.

For the natural death group, Levene's tests confirmed equal variances between groups for both the funeral ceremony comparison ($F = 0.167$, $p = 0.684$) and mourning ceremony comparison ($F = 0.943$, $p = 0.335$). Independent *t*-tests revealed no significant differences in prolonged grief scores between those who did versus did not have a burial ceremony for the naturally deceased loved one. Similarly, no significant difference was found based on having a mourning ceremony. For the COVID-19 death group, Levene's tests also showed equal variances for funeral ($F = 2.132$, $p = 0.148$) and mourning ceremonies ($F = 0.543$, $p = 0.465$). The *t*-tests revealed no significant differences in prolonged grief scores between those who had a burial versus those who did not for the COVID-19 deceased. Also, no significant difference was found for mourning ceremonies (see Table 5).

Discussion

In this study, we compared grief symptoms and PGD between bereaved relatives of COVID-19 versus natural cause deaths in Iran. The COVID-19 group reported higher, though not statistically significant, mean levels of guilt and searching for an explanation. Due to the unknown nature of this new virus and the possibility of being a carrier without the person knowing about it, the relatives of the deceased may also feel guilty. Since death due to COVID-19 is not acceptable for the bereaved due to the speed of death, the search for an acceptable explanation for the cause of death is more intense for the bereaved (Calhoun et al. 1984; Nelson 1976). Also, these results align with the Iranian cultural emphasis on familial cohesion and the unexpected nature of COVID-19 deaths (Nasri et al. 2023; Yousefi and Ashouri 2023; Yousefi and Jafari 2023). As reported in the results, mean differences between groups were not statistically significant, contrasting some Western studies showing COVID-19 grief is more severe (Eisma et al. 2021). This divergence could reflect sociocultural differences in grieving and the epidemics' worldwide impacts on non-COVID deaths through treatment barriers. Importantly, COVID-19 restrictions

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Table 1. Characteristics of sample and group comparison ($N = 395$)

	Total		COVID-19 death		Natural death		Chi-square test	
Variable	*N*	%	*N*	%	*N*	%	Statistics	*p*-value
Age (in years)								
18–25	56	14.2	30	14.8	26	13.5	1.986	0.851
25–35	101	25.6	46	22.7	55	28.6		
35–45	130	32.9	68	33.5	62	32.3		
45–55	75	19.0	41	20.2	34	17.7		
55–65	22	5.6	12	5.9	10	5.2		
65 and more	11	2.8	6	3.0	5	2.6		
Gender								
Male	155	39.2	89	43.8	66	4.34	3.709	0.054
Female	240	60.8	114	56.2	126	6.65		
Educational status								
High school and less	48	12.2	20	9.9	28	14.6	10.489	0.063
Diploma	85	21.5	44	21.7	41	21.4		
Associate degree	27	6.8	18	8.9	9	4.7		
Bachelor's degree	146	37.0	73	36.0	73	38.0		
Master's degree	76	19.2	45	22.2	31	16.1		
Ph.D. and above	13	3.3	3	1.5	10	5.2		
Marital status								
Single	115	29.1	49	24.1	66	34.4	15.572	0.001
Married	247	62.5	143	70.4	104	54.2		
Divorced	14	3.5	2	1.0	12	6.3		
Widowed	19	4.8	9	4.4	10	5.2		
Working status								
Unemployment	52	13.2	20	9.9	32	16.7	5.152	0.272
Student	50	12.7	25	12.3	25	13.0		
Full-time	169	42.8	89	43.8	80	41.7		
Retired	29	7.3	18	8.9	11	5.7		
Housewife	95	24.1	51	25.1	44	22.9		

severely limited Iranian death rituals, with most bereaved unable to say goodbye, hold funerals, or receive social support (Nasri et al. 2023; Yousefi and Ashouri 2023; Yousefi and Jafari 2023).

The dimensions of the grief experience showed higher, but not significantly different, mean scores in the COVID-19 group compared to the natural death group. The dimensions of the grief experience may vary in different types of death. The research conducted by Shahini et al. (Shahini et al. 2022) shows consistent results. The results show that there is no significant difference in the average score of total grief between the 2 groups of COVID-19 bereaved and death due to natural causes. In the conditions of the epidemic, bereaved people faced countless problems and challenges. Although the average of most characteristics of grief was higher in the group of deaths due to COVID-19, the circumstances of death during the epidemic also disturbed the process of grief for bereavement not related to COVID-19. On the other hand, for people who were suffering from other serious diseases, their treatment was delayed due to the lack of hospital spaces, medical facilities, etc., or they avoided going to medical centers to avoid getting infected. All these cases caused the death of this group of people, and it was difficult for the survivors to cope with these conditions. Therefore, the survivors of other causes of natural death also experienced the special limitations of their conditions during the epidemic. So, when a collective death occurs, despite its painful nature, it forms a collective empathy that makes the grief process somewhat more bearable (Nasri et al. 2023; Yousefi and Ashouri 2023; Yousefi and Jafari 2023).

According to the results of the present study, 79.2% of the survivors did not have the opportunity to say goodbye to the deceased. The presence of the family by the patient's side until the moment of death is considered one of the factors of a good death that facilitates the grief process, especially in Asian culture, which emphasizes the

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Table 2. Characteristics of variables related to death in 2 death groups

	Total		COVID-19 death		Natural death		Chi-square test	
Variable	*N*	%	*N*	%	*N*	%	Statistics	*p*-value
Relationship with deceased								
Sister	46	11.6	13	6.4	33	17.2	20.224	0.001
Brother	47	11.9	30	14.8	17	8.9		
Mother	18	4.6	14	6.9	4	2.1		
Father	36	9.1	20	9.9	16	8.3		
Partner	42	10.6	17	8.4	25	13.0		
Child	206	52.2	109	53.7	97	50.5		
Time since loss in months								
12–6	109	27.6	55	27.1	54	28.1	0.053	0.974
18–12	149	37.7	77	37.9	72	37.5		
24–18	137	34.7	71	35.0	66	34.4		
Saying goodbye								
Yes	82	20.8	37	18.2	45	23.4	1.629	0.202
No	313	79.2	166	81.8	147	76.6		
Burial ceremony								
Yes	253	64.1	104	51.2	149	77.6	29.805	0.000
No	142	35.9	99	48.8	43	22.4		
Mourning ceremony								
Yes	227	57.5	85	41.9	142	74.0	41.562	0.000
No	168	42.5	118	58.1	50	26.0		
Losing more than 1 person								
Yes	104	26.3	54	26.6	50	26.0	0.016	0.900
No	291	73.7	149	73.4	142	74.0		
History of psychiatric medication								
Yes	85	21.5	54	26.6	31	16.1	6.387	0.011
No	310	78.5	149	73.4	161	83.9		
Taking medicine since the death of the deceased								
Yes	40	47.1	26	48.1	14	45.2	0.71	0.791
No	45	52.9	28	51.9	17	54.8		

role of family cohesion (Hauksdóttir et al. 2009; Yun et al. 2019). Also, the results of the current research show that holding funerals and mourning ceremonies are less reported in the group of survivors of deaths caused by COVID-19. Examining the research results shows that holding a mourning ceremony reduces the symptoms of grief and increases the feeling of control in the survivors (Gamino et al. 2000; Norton and Gino 2014). Therefore, COVID-19, in addition to increasing deaths, has also changed society's performance in terms of how to hold ceremonies and funerals. For example, hugging and saying goodbye to the deceased and possibly touching the coffin, the possibility of holding multiple ceremonies was not available for the survivors in many cases (Burrell and Selman 2022).

Research examining the psychological consequences of natural disasters that share similarities with pandemics, including high mortality and disruption of daily life, suggests that the prevalence of PGD may increase dramatically as a result of pandemics (Eisma et al. 2020). In the Netherlands, it has recently been shown that bereavement during a pandemic causes more severe acute grief (a significant predictor of PGD) than before the pandemic (Eisma and Tamminga 2020). When comparing individuals bereaved specifically for death due to COVID-19, compared to those bereaved for a natural, but not unnatural cause, they report greater grief intensity (Eisma et al. 2021). However, in both of these studies, the length of time since death was insufficient to meet the time criterion for PGD (i.e., 12 months), and therefore, conclusions regarding the development of PGD are hindered (Eisma and Tamminga 2020; Eisma et al. 2021). COVID-19 has taken a lot of victims so it is possible that in the high death toll, and given that the virus has indiscriminately infected people from

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Table 3. Characteristics and comparison of average symptoms and features of grief in 2 death groups

Variable	*N*	Mean	SD	Independent *t*-test	
				Statistics	*p*-value
General grief					
COVID-19 death	203	87.29	27.68	0.23	0.816
Natural death	192	86.69	24.46		
Feeling guilt					
COVID-19 death		20.91	7.53	0.70	0.384
Natural death		20.46	6.07		
Search for explanation					
COVID-19 death		19.63	7.22	0.98	0.327
Natural death		18.94	6.57		
Somatic reactions					
COVID-19 death		11.88	4.94	0.59	0.550
Natural death		11.60	4.41		
Rejection					
COVID-19 death		11.81	4.51	0.75	0.481
Natural death		12.11	3.96		
Responsibility					
COVID-19 death		7.35	3.17		
Natural death		7.31	2.99	0.11	0.905
Shame					
COVID-19 death		8.72	3.57		
Natural death		29.9	60.3	1.58	0.114
Stigmatization					
COVID-19 death		7.01	2.80		
Natural death		6.86	2.64	0.54	0.586

Table 4. Prevalence of prolonged grief and definitive diagnosis of prolonged grief based on DSM-5 and ICD-11 criteria in 2 death groups

Variable	Total		COVID-19 death		Natural death		Chi-square test	
	N	%	*N*	%	*N*	%	Statistics	*p*-value
Prolonged grief symptoms								
Yes	249	0.63	129	63.5	120	62.5	0.046	0.829
No	146	0.37	74	36.5	72	37.5		
Definite prolonged grief								
Yes	150	0.38	80	39.4	70	36.5	0.365	0.546
No	245	0.62	123	60.6	122	63.5		

all walks of life, the guilt and then the stigma will be reduced. Therefore, when collective death occurs, despite its painful nature, it forms collective empathy (Mein 2020). In this regard, in 2021, a study collecting data online from 1470 respondents between October 2020 and July 2021 found that deaths due to COVID-19 were more likely to be associated with PGD than dementia, with a similar trend to other natural causes of death. Compared to unnatural causes of death such as homicide deaths, those who reported COVID-19 as the cause of death were less likely to meet the criteria for PGD (Baud et al. 2020). The results of this research are somewhat consistent with our research results. In this study, contrary to previous research (Eisma et al. 2020), the findings did not support the prediction that deaths from COVID-19 are associated with a higher prevalence of PGD (Gang et al. 2022). One explanation for this is that the 2- to 8-week period between the onset of symptoms of COVID-19 to death (Baud et al. 2020) may allow mourners to prepare for the loss of their loved one (Gang et al. 2022).

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Table 5. Prolonged grief in COVID-19 and natural death groups: Sociodemographic and loss-related factors

	COVID-19 death PG	Test statistic	Natural death PG	Test statistic
Mourning	M (SD)	$t = -1.47$	M (SD)	$t = -0.186$
Yes	37.37 (18.55)		33.33 (9.07)	
No	39.10 (19.35)		33.78 (9.24)	
Funeral	M (SD)	$t = -0.968$		$t = -0.256$
Yes	34.79 (18.55)		32.77 (9.07)	
No	35.10 (19.35)		33.79 (9.24)	

Note: PG = prolonged grief; $p < 0.01$.

Another significant finding of the present study is that the distribution of symptoms and signs of prolonged grief based on DSM-5-R and ICD-11 criteria was not significantly different in the 2 death groups. In a research, Eisma et al. (2021) investigated acute grief after death caused by COVID-19, natural causes, and unnatural causes (Eisma et al. 2021). The results of the study showed that the grief of COVID-19 brought higher levels of prolonged grief symptoms than natural grief (but not unnatural grief), while some recent research reports that loss due to COVID-19 does not increase the risk of problematic grief (Breen et al. 2022; Downar et al. 2022; Lenferink and Boelen 2023). Considering that a significant amount of time had passed from the time of the start of COVID-19 to the sampling of the present study, the participants may have come to terms with the death caused by COVID-19 to some extent. However, a significant percentage (38%) of participants reported PGD. This high percentage can be because the bereaved who lost their loved ones during this period, regardless of the cause of death, faced serious restrictions, including restrictions on holding funerals and other mourning rituals and not receiving social support. The prevalence of prolonged grief is 1.2%–1.5% in the general population (Rosner et al. 2021) about 10% in bereaved people (Lundorff et al. 2017), 49% after unnatural deaths (Djelantik et al. 2020), death due to natural disasters such as earthquakes, floods, and tsunamis between 9% and 80%, and natural death is reported to be 10%–20% (Gesi et al. 2020; Kersting et al. 2011; Shear et al. 2011). Research results show that about a third of the bereaved people related to COVID-19 suffer from prolonged grief and its prevalence during the COVID-19 epidemic has been reported as 29.3%–37.8% (Tang and Xiang 2021). Indeed, 38% of the overall sample met criteria for PGD, far exceeding pre-pandemic norms. For Iranian psychologists and social workers, these findings underscore COVID-19's potential to complicate mourning and necessitate grief counseling modifications to offset ritual loss. Recommendations include implementing virtual goodbye rituals, offering continued remote support, validating heightened grief given constraints, training religious leaders on grief management, and directly assessing and addressing guilt and meaning-making struggles.

The literature has produced paradoxical evidence regarding the role of funeral rituals in grieving outcomes (Burrell and Selman 2022; Mitima-Verloop et al. 2021). However, the current study did not detect benefits specific to death type. This suggests rituals may not differentially impact grief outcomes based solely on cause of loss. A potential factor is that pandemic restrictions limited ritual conduct equally for both groups. Being unable to perform expected traditions due to circumstances beyond control may override rituals' typical protective effects on grief. It is also possible individual coping styles and relationships with the deceased play a stronger role than objective loss characteristics (Burrell and Selman 2022; Mitima-Verloop et al. 2021). Personal meaning-making and social support networks may better predict grief outcomes. Future research should explore psychological mediators and moderators influencing the ritual-grief relationship. Qualitative approaches examining subjective ritual experiences pre-versus during-pandemic could provide insights. Larger sample comparisons are also needed to disentangle complex interactions between cultural, contextual, and dispositional factors shaping the grieving process.

However, the findings of this research should be considered in the light of several limitations. Among the limitations of the current research, we can mention voluntary sampling to participate in research, which has led to the participation of more women. The data are also based on the self-report scale, which should be used with caution in generalizing the results. Many first-degree relatives did not agree to participate in the research due to having unfavorable mental conditions and anger from the existing conditions, and the participation of these people in the research could significantly impact the results. Despite these considerations, the results of the present study improve our knowledge and information regarding the consequences of death caused by COVID-19. COVID-19 remains a serious public health concern worldwide, and there is a need to further examine the impact of deaths from COVID-19 compared to other deaths.

Data availability statement. The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Competing interests. The authors declare that they have no competing interests.

Ethical approval. All procedures performed in this study involving human participants were in accordance with the ethical standards of the research committee of the Tehran University of Social Welfare and Rehabilitation Science. The code of ethics for conducting this study was IR. USWR.REC.1401.008.

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