

## Knowledge Level of Health Care Providers about Complicated Grief during the COVID-19 Pandemic

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### Abstract

**Objective:** The coronavirus 2019 (COVID -19) pandemic had great psychological impact on COVID-19 patients and their families. Relatives of the deceased COVID-19 patients are at risk for complicated grief. Healthcare providers (HCPs) should be able to identify complicated grief cases. The aim of this study was to assess HCP knowledge regarding complicated grief during the COVID-19 pandemic.

**Method:** This cross-sectional study was conducted using an online researcher-made questionnaire. The questionnaire was designed and validated before being used in this study. The questionnaire included demographic questions as well as knowledge about complicated grief and its symptoms, risk factors and management. The link to the questionnaire website was sent to HCP governmental and private sectors. Data was analyzed using the ordinal regression model by the SPSS 16 software.

**Results:** A total of 887 HCPs (69% female and 31% male) participated in this study. Majority of the participants (594, 70%) had fair overall knowledge about complicated grief while 206 (23.2%) participants had poor knowledge. Poor knowledge level about risk factors for complicated grief was observed in 44.3% of the participants. Fair or poor knowledge about prevention and management of complicate grief was observed in 39.2% of participants. Knowledge about complicated grief had a significant positive relationship with female gender (OR: 1.55; 95% CI: 1.15-2.08) and higher education level (OR: 1.86; 95% CI: 1.37-2.54).

**Conclusion:** Knowledge of HCPs about complicated grief was low. There is need for HCP knowledge improvement regarding complicated grief by appropriate education.

**Key words:** *Adjustment Disorder; COVID-19; Grief; Health Personnel; Knowledge*

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**C**COVID-19 is a severe acute respiratory syndrome caused by the coronavirus family. The disease, which began in late December 2019 in Wuhan, China, spread rapidly and soon became a global pandemic (1). The disease symptoms include fever, dry cough, sore throat, shortness of breath, diarrhea, fatigue, and myalgia, which can lead to severe respiratory distress and death (2).

In addition to the great financial and physical burden COVID-19 has inflicted on the people and governments globally, the new Coronavirus also has had psychological impacts on people (3). The rapid rise in the number of deaths, followed by lack of diagnostic and treatment facilities, shortage in personal protective equipment, and lack of definitive treatment or vaccines have restricted disease prevention to advice on social distancing and personal hygiene, including hand washing (3).

Psychological disorders currently observed in communities due to this pandemic include fear of contamination and anxiety and paranoia about attending mass ceremonies. Furthermore, students, employees and travelers who have been deprived of their life, study, work and living facilities due to COVID-19 suffer from mental disorders. The mental disorders are caused by stress, reduced autonomy due to job, financial and security concerns (4-6). COVID-19 pandemic is predicted to have long-term psychological consequences including fear and panic in society, which are predicted to be far more damaging to societies than the disease itself (7). One of the major challenges associated with COVID-19 is the relatively high incidence of morbidity and mortality. The current crisis and the growing number of patients who unfortunately die during the epidemic have sounded the alarm about the need for intervention in families with deceased members due to COVID-19.

Grief is an inevitable experience in every person's life (8, 9). However, people's ability to accept grief extends in a wide spectrum from acceptance to serious consequences. In many cases, the grief process goes through naturally life events (9, 10). Loss of a loved one is a painful experience that has mental, psychological, and social consequences for family members. Duration of these symptoms and how they are expressed vary widely within and between different cultural groups. Eventually, these symptoms improve within 2 to 4 months or a maximum of 6 months, and the person gradually returns to normal life. Grief may include a wide range of emotional experiences including the perception that life would be difficult in future, but, in most cases, relief and reduction of symptoms will occur gradually (11). Meanwhile, social support from friends and relatives and participation of family members in mourning ceremonies help to alleviate suffering in mourners and helps them better adapt to the natural grief process (12).

On the other side of the spectrum of the grief phenomenon is abnormal or complicated grief. In some cases, grief symptoms persist and symptoms, including depression and severe helplessness, can deviate individuals from normal life (13). In general, abnormal or complicated grief is more likely to occur when a person does not go through the normal grief process. Other risk factors include lack of social support, elongated grief duration, person's inability to return to routine function or serious interference with the course of life in oneself or relatives (13). In other words, complicated grief occurs when the mourning is incomplete and the person has not attended or prevented from attending the funeral, when the phenomenon of loss is not accepted or denied, unexpected death of relative, or loss of several people at the same time (14-16).

The reported prevalence of complicated grief ranges from 24 to 44 percent (17), but it seems that the prevalence of complicated grief has increased significantly in the current context following the COVID-19 pandemic crisis. In fact, one of the most important issues in dealing with grieving families at an epidemic is holding funerals safely and at the same time respecting the human rights of the deceased and their families. Death of a patient in quarantine and burial by people other than the family effectively deprives the patient's family of contact with the missing person, seeing and touching and saying goodbye to him/her in the moments after death. In fact, relatives do not have the opportunity to mourn and express their emotions at time of burial. Another important point is that not only the patients who died from the disease, but also their families are exposed to stigma. COVID-19 stigma results in rejection of the family by society and reduced desire of friends and relatives to participate in the deceased house, both due to fear of spreading the disease and stigma. These consequences can lead to intensified isolation, loneliness, and experience of loss without adequate emotional support and empathy from others. Lack of social support from friends and relatives result in unexpressed emotions during the grief period. The risk factors for complicated grief have been evaluated before but there is inconsistency in terms of risk factors between the studies. In a study conducted in Taiwan, the risk factors for complicated grief in care givers of terminally ill patients were spousal or parent-child relationship between the care giver and the patient, lack of religious beliefs, lack of family support, and history of other comorbidities in the patient (18). On the other hand, the mentioned study showed that longer duration of disease, medical history of disease in the patient and admission to the hospice ward were the preventive factors against complicated grief (18). In another study conducted on the general population in Japan, risk factors for complicated grief were close relationship with the deceased, short duration of disease or unexpected loss, admission to hospice, and

accompanying the deceased in the last week of life (19). On the other hand, there is not enough evidence regarding risk factors for complicated grief and results of the currently available articles are controversial. To the best of our knowledge, prevalence and risk factors for complicated grief have not been reported in HCPs who care for severe COVID-19 patients.

Timely and appropriate psychological interventions are very important in these cases. The first step in performing these interventions is to accurately diagnose complicated grief. Health care providers (HCPs) in private and public health sectors can play an important role in identification, intervention, and referral of complicated grief cases, as they have close contact with patient families. Therefore, it is necessary for HCPs to have sufficient knowledge about recognizing this disorder.

Considering the short duration of COVID-19 and lack of facilities that fulfill the needs of patients especially in disease peaks, it was hypothesized that risk of complicated grief may increase with increase in death due to COVID-19. Furthermore, it is hypothesized that demographic variables including gender, education level and work experience might play a role in susceptibility of HCPs to complicated grief. Therefore, the primary objective of this study was to investigate HCPs' knowledge level about complicated grief in families of deceased patients due to COVID-19. The second objective of this study was to identify demographic risk factors for complicated grief among HCPs. These risk factors provide the opportunity to rapidly identify complicated grief risk in HCPs working in a health care facility and to predict the required interventions and support to prevent and manage complicated grief among HCPs.

## Materials and Methods

### *Study design, procedure, and sampling*

This online cross-sectional study was conducted from May 1/ 2020 to June 1/ 2020, coinciding with the first wave of COVID-19 in Iran, among Iranian HCPs employed by both the public and private sectors. The participants entered the study based on the convenience sampling strategy. The online questionnaire was designed using Google forms. The first page of the form provided detailed information on the design and the aim of our research. The next page was the consent form for participation in the study and the questionnaire was presented in subsequent pages. To prevent respondents from leaving questions blank, completion before submission, and to avoid missing data, the "Required" box was checked for all questions. Link to the questionnaire website was sent to all national HCPs in governmental and private sectors through social media (Telegram, WhatsApp, and Instagram) and SMS.

The inclusion criterion in this study was working as an HCP team member, including healthcare staff, midwives, health educators, physicians, or dentists in

public or private sectors. In order to determine knowledge status of HCPs about complicated grief in families of the deceased patients due to COVID-19, the minimum sample size was determined to be 869 subjects based on the formula  $((Z_{(1-\alpha/2)} + Z_{(1-\beta)})/E)^2$  with a confidence interval of 95%, a test power of 0.8, a small effect size  $E = 0.1$  according to Cohen's guidelines (20), and a drop-out rate of 10%.

### *Measures*

Questions were divided into three parts. The first part included demographic information, including gender, age, marital status, occupation, and level of education. The second part included questions about information on COVID-19 before its spread in Iran, source of information about COVID-19, history of COVID-19 infection in family and close friends, history of providing care to COVID-19 patients, COVID-19 mortality in patients or clients, self-assessment of knowledge status to manage complicated grief in people who have lost relatives due to COVID-19, and having access to grief management protocols. The third part was a researcher-made questionnaire about HCPs' knowledge status about complicated grief during the COVID-19 outbreak. For this purpose, a meticulous literature review was conducted to discover available resources on knowledge about complicated grief. In the second stage, 39 items were designed in three domains. The first domain was about the signs and symptoms of completed grief. The second domain was about risk factors and the third domain was about management and preventative behaviors. The questionnaire items were scored based on a 3-point Likert scale (correct, incorrect and I do not know). Incorrect answers or "I do not know" response were assigned a score of 0, and the correct answer was given a score of one. The total score was calculated by summing up all the scores on questions. The higher the total score, the higher the knowledge level.

### *Validity and reliability*

The content validity of the questionnaire was assessed by a panel of 19 experts including 12 psychiatrists, 6 psychologists, and one consultant. Two indices including content validity ratio (CVR), and content validity index (CVI) were used to evaluate content validity. Thirty-five items, including 23 items in domain 1, 6 items in domain 2, and 6 items in domain 3 had a CVR higher than 0.44 (ranging from 0.44 to 0.88) based on the Lawshe's critical value for CVR. The CVI for accepted items was also higher than 0.79 (ranging from 0.79 to 1.00) (21). The reliability of the questionnaire was also assessed using the Kuder-Richardson coefficient of reliability (KR-20) in a study on 30 individuals. The KR-20 coefficient of variation was 0.94, which indicated a good reliability (22).

### *Ethical considerations*

The Ethics Committee of the Gonabad University of Medical Sciences approved the study design (Code: IR.GMU.REC.1399.23). Participants who were willing to

participate in the study filled the online questionnaire anonymously.

**Statistical analysis**

The obtained data were analyzed by the statistical package for social sciences (SPSS) software version 16. Descriptive statistics for quantitative variables were presented using mean and standard deviation. Frequency, percentage, and confidence interval (CI) were used for qualitative variables. To assess the relationship between knowledge score (dependent) and gender, work experience, and educational level (independent variables), the ordinal regression models were used. For this purpose, the variables that had  $P < 0.2$  in simple ordinal regression were entered into the multiple ordinal regression model and their relationships were assessed in presence of other variables (potential confounding variables). The results were presented using raw and adjusted odds ratio (OR). Level of statistical significance was considered as  $P < 0.05$ .

**Results**

**Demographic characteristics**

Data of 887 HCPs were collected and analyzed. The mean age of the participants was  $36.5 \pm 7.9$  (range: 20-75) years old. The mean work experience was  $10.6 \pm 7.7$  years. Other characteristics of the participants were shown in Table 1.

**Knowledge of HCPs about complicated grief due to COVID-19 disease**

The mean total score for knowledge about complicated grief was  $20.5 \pm 5.4$ . The findings showed that knowledge level was generally poor to fair among 206 (23.2%; 95% CI: 20.4%-26.1%) and 594 (70.0%; 95% CI: 63.7%-70.1%) of the participants, respectively. Only

87 (9.8%; 95% CI: 7.9%-11.9%) of the participants had good knowledge about complicated grief (Table 2). Results demonstrated that the level of general information about symptoms of complicated grief was poor in 44.3% (95% CI: 41.0%-47.6%) and fair in 51.0% (95% CI: 47.6%-54.3%) of the participants. The mean score of knowledge about risk factors for complicated grief during COVID-19 outbreak was  $4.3 \pm 1.4$ . Good knowledge about the risk factors for complicated grief during COVID-19 outbreak was observed in 451 (50.8%; 95% CI: 47.5%-54.1%) respondents. The mean knowledge score regarding management and preventive behaviors towards complicated grief during COVID-19 outbreak was  $4.4 \pm 1.3$ . Level of knowledge about management and preventive behaviors towards complicated grief during COVID-19 outbreak was poor or fair in 348 (39.2%; 95% CI: 36.0%-42.5%) participants.

**Relationships between level of knowledge about complicated grief during COVID-19 outbreak and gender, educational level, and work experience**

Simple ordinal regression results revealed that gender (OR raw: 1.55; 95% CI: 1.15-2.08) and education level (OR raw: 1.86; 95% CI: 1.37-2.54) were significantly related to knowledge about complicated grief. No significant difference was observed between knowledge about complicated grief and work experience (OR raw: 1.00; 95% CI: 0.98-1.02). Based on the multivariable ordinal regression results, women had higher levels of knowledge than men (OR adjusted: 1.53; 95% CI: 1.14-2.06). Furthermore, participants with Master's degree or above had higher level of knowledge compared to participants with Bachelor's degree or below (OR adjusted: 1.85; 95% CI: 1.35-2.52) (Table 3).

**Table 1. Demographic Characteristics, COVID-19 History, and Knowledge of the Study Participants**

Characteristics	N (%)
Gender	
Female	612 (69.0)
Male	275 (31.0)
Marital status	
Married	582 (65.6)
Single/widowed/divorced	305 (34.4)
Educational level	
Bachelor's degree or below	617 (69.6)
Master's degree or above	270 (30.4)
Job	
Physician/Nurse/Dentist	383 (43.2)
Allied health professionals	504 (56.8)
Previous information about COVID 19 before its spread in Iran	
Yes	357 (40.2)
No	530 (59.8)
Source of information about COVID-19	

Scientific journals	156 (17.6)
Ministry guidelines	382 (43.1)
Social media	197 (22.2)
Family and friends	5 (0.5)
Television	146 (16.5)
Newspapers	1 (0.1)
COVID 19 infection in family and close friends	
Yes	380 (42.8)
No	507 (57.2)
COVID 19 patient care history	
Yes	493 (55.6)
No	394 (44.4)
COVID 19 mortality in patients or clients	
Yes	601 (67.8)
No	286 (32.2)
Amount of information to manage complicated grief in people who have lost relatives due to COVID-19	
Very high	8 (0.9)
High	126 (14.2)
Low	472 (53.2)
Very low	281 (31.7)
Access to grief management protocols	
Yes	119 (13.4)
No	768 (86.6)

**Table 2. Mean Scores for Complicated Grief Knowledge among Study Participants**

Knowledge Level	N (%)
General information about symptoms of complicated grief (differentiating it from natural grief and depression).	
Poor	393 (44.3)
Fair	452 (51.0)
Good	42 (4.7)
Score (Mean ± SD)	12.6 ± 3.7
Risk factors for complicated grief during COVID-19 outbreak	
Poor	102 (11.5)
Fair	334 (37.7)
Good	451 (50.8)
Score (Mean ± SD)	4.3 ± 1.4
Management and Preventative behaviors towards complicated grief during COVID-19 outbreak	
Poor	77 (8.7)
Fair	271 (30.6)
Good	539 (60.8)
Score (Mean ± SD)	4.4 ± 1.3
Total knowledge towards complicated grief	
Poor	206 (23.2)
Fair	594 (67.0)
Good	87 (9.8)
Score (Mean ± SD)	20.5 ± 5.4

**Table 3. Relationships between Gender, Education Level, and Work Experience with Knowledge Level about Complicated Grief during the COVID-19 Outbreak**

Predictors	Ordinal Logistic Regression Analysis			
	Simple OR Raw (95% CI)	P-value	Multiple OR Adjusted (95% CI)	P-value
Gender				
Female	1.55 (1.15-2.08)	0.004	1.53 (1.14-2.06)	0.005
Male			1	
Educational level				
Master's degree or above	1.86 (1.37-2.54)	< 0.001	1.85 (1.35-2.52)	< 0.001
Bachelor's degree or below	1		1	
Work experience	1.00(0.98-1.02)	0.707		

Note: OR, Odds ratio; CI, Confidence Interval.

### Discussion

The present study demonstrated that more than half of the studied HCPs had poor knowledge about complicated grief during COVID-19 pandemic and only 9.8% of the patients had good knowledge. According to the results of the present study, gender and education level were significantly related to knowledge about management of complicated grief.

COVID-19 had various effects on different populations. During the recent outbreak, many individuals experienced various degrees of physical or mental health problems due to being quarantined for a long time (23). Moreover, many people experienced different levels of emotional strain and many people lost their family members or close friends. Grief after losing a family member or close friend is one of the most intense psychological distresses during life (24). Acute grief is an intense emotion and individuals experiencing acute grief deal with thoughts and memories of the deceased patients (24). Most of the individuals adapt themselves with the grief but some may experience chronic and complicated grief. Many situations may provoke development of complicated grief. Traumatic events and disease outbreaks are considered as conditions that negatively affect grief. Many factors may affect complicated grief during pandemics. Mental, physical and social aspects of isolation and long term social distancing are among the important factors that have a negative effect on complicated grief during the COVID-19 pandemic (23). Important risk factors for complicated grief include low social support and sudden death (25). Both of these risk factors are common during disease outbreaks. The physical condition of COVID-19 patients may rapidly shift from a healthy individual to an ill and end stage patient (23). Moreover, because of social distancing, many individuals may experience lack of social support and dissociation from family or even community (25). During the COVID-19 outbreak, prevalence of many psychological disorders increased alongside the complicated grief. HCPs face individuals

with the mentioned psychological complications daily (26).

Despite lack of unique terminology and diagnostic criteria for complicated grief, there is agreement on importance of managing complicated grief (27). A recent systematic review about knowledge and attitudes of mental health professionals toward complicated grief demonstrated an urgent need for translating research findings into clinical practice (27). There is no doubt that individuals who deal with complicated grief are more susceptible to developing negative health sequelae (24). These individuals require professional support as untreated complicated grief correlates with prolonged debility and susceptibility to other psychological disorders, including depression and even suicidal behaviors (24).

The present study demonstrated that healthcare providers have fair knowledge about complicated grief. Most HCPs including physicians, nurses as well as healthcare workers are not involved in assessment of families coping with traumatic grief and most of them refer these families to pastoral care. Ladoris *et al.* demonstrated that many physicians seek medical education on traumatic grief as they are not familiar with this psychological problem (28). A qualitative study on 30 HCPs showed that due to low level of knowledge about complicated grief, HCPs were concerned about misdiagnosing natural grief for complicated grief and performing false referrals (29). The present study also found that female HCPs were more likely to have higher knowledge about complicated grief. To the best of our knowledge, no study has yet assessed gender differences in knowledge about complicated grief in HCPs. It was previously shown that no gender differences were observed in knowledge and attitude toward providing care to mentally ill patients among nurses in South Africa (30). The reason for this difference might be due to the higher number of female HCPs as well as inclusion of participants from a variety of health care professions in the current study. Moreover, the findings of the current study revealed that HCPs with higher education level

were more likely to have higher level of knowledge regarding complicated grief. To the best of our knowledge, no study has yet assessed the difference in knowledge status regarding complicated grief between HCPs with different levels of education. It was previously shown that professional level health workers had higher knowledge about medical conditions and patient illness (31).

It is noteworthy to mention that not all individuals experience complicated grief during the COVID-19 outbreak and healthcare providers should differentiate complicated grief from other psychological disorders and provide appropriate management to prevent further psychological problems (23). The first important issue regarding management of complicated grief is considering the possible differential diagnoses, including major depressive disorder (MDD) and post-traumatic stress disorder (PTSD). It should be noted that although MDD, PTSD and complicated grief may share similar manifestation, concomitant presence of these psychological disorders should always be considered (24). Symptoms including sorrow and yearning for the deceased individual and difficulty in accepting the reality of death are not usually present during MDD and PTSD (24). Individuals with previous history of depression, anxiety and mood disorders, as well as drug and alcohol addiction are more likely to develop complicated grief (24).

Various questionnaires have been developed for screening and diagnosis of complicated grief (24). By using these questionnaires, HCPs can diagnose complicated grief and facilitate screening of patients during COVID-19. In the present study, we developed a questionnaire to evaluate knowledge level of HCPs about complicated grief.

As far as we know, this was the first study to evaluate knowledge of Iranian HCPs about complicated grief in families of deceased patients due to COVID-19. A further strength of this research was the large sample size. There were also some limitations to this study. First, the design of this study was cross-sectional; therefore, it was not possible to assess causal relationships. Second, to avoid the possibility of COVID-19 infection transmission, we conducted an online survey using non-random sampling, which can lead to selection bias and poor generalizability. Third, self-reported questionnaires may be a further source of bias in this study.

### **Limitation**

One of the limitations of this study was related to the study design. As the data was gathered through questionnaires, there is a possibility of bias due to the self-report nature of this study design. As the study was conducted in the time when healthcare workers had long shifts and work overload due to the primary waves of COVID-19, interview was not applicable for data collection. Therefore, it is recommended that further

studies evaluate the knowledge of the healthcare providers through questionnaire and interviews. Another limitation of this study was related to its online design, which might have neglected the healthcare workers who did not have access to internet. However, considering the high internet penetration rate in Iran, it can be hypothesized that the study sample could still be a representative of the healthcare worker population in Iran.

### **Conclusion**

According to the results of the current study, level of knowledge in HCPs about complicated grief was low. We suggest that healthcare authorities provide educational courses, workshops, guidelines, and pamphlets to HCPs. We also suggest that HCPs be familiarized with using complicated grief diagnostic questionnaires during disease outbreaks in order to provide better management services to individuals with complicated grief.

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### **Conflict of Interest**

None.

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