Pandemic Grief Scale in detection of grief reaction among physicians in COVID-19 era

Samir El Sayed¹*, Sarah Gomaa², Shereen Aboelfotoh¹ and Mohamed El Wasify¹

Abstract

Background: Physicians are considered one of the most vulnerable groups who might develop pandemic grief during this critical time of COVID-19 infection, and this grief reaction might have deleterious effects on their life. This cross-sectional observational online study aimed to investigate the pandemic grief reaction among physicians and its burden on their aspects of life.

Results: Socio-demographic characteristics of 900 physicians were collected. The Pandemic Grief Scale (PGS) was used to detect the grief reaction among them and also Patient Health Depression Questionnaire-9 (PHQ-9) was used to evaluate the depressive manifestations. Sheehan Disability Scale was considered to investigate the burden of this grief on different aspects of life. The study revealed high mean score of Pandemic Grief Scale: 11.12 ± 2.34; the mean score of Sheehan Disability Scale was 17.63 ± 5.17, and the mean score of Patient Health Depression Questionnaire-9 was 19.89 ± 4.27.

Conclusion: Pandemic grief is commonly experienced by the physicians during this COVID-19 era due to sudden loss of loved one or the cases themselves. This pandemic grief has drastic effect on domains of physicians’ life.

Keywords: COVID-19, Grief, Pandemic

Background

According to WHO, there are 161,513,458 confirmed cases of COVID-19 including 3,352,109 death cases [1]. People responded variably to the death of a loved one. Many experienced distorted functioning while others experienced initial dysfunctioning decreasing in the later months after this loss, also approximately 10% of bereaved individuals were overwhelmed by chronic and devastating distress [2].

Recent research showed that acute grief reaction after COVID-19 mortality was worse than death a result of other natural causes [3]. Socio-functional impairment is a diagnostic criterion in psychiatric disorders including impairments in social, occupational, and other domains of functioning [4].

Updated study and case reports indicated that functional impairment is a crucial compound of the consequences of the grief after COVID-19 death [5].

A sudden loss, in intensive care unit with other psychosocial stressors like catching infection, lockdown, and economic burden have been considered triggering factors in severe grief reactions in COVID-19 bereavement [6].

In a study conducted by Lai and colleagues composed of 1257 healthcare workers reached to the results that general distress was estimated in 72% of the study group, followed by depressive manifestations (50%), anxious symptoms (45%), and difficulty in falling asleep (34%) (Lai J et al. 2019).

To our knowledge, there are no enough studies investigating the occurrence of grief reaction among physicians during COVID-19 pandemic.

We aimed in this study to investigate the COVID-pandemic grief reaction among physicians, its effects on...
development of psychiatric manifestations and implications on different domains of life in this important society group.

Methods
Study design
This is cross-sectional online study conducted via Google Document domain starting from 2nd of January 2021 to 13th of February 2021.

Study population
A convenient sample of 900 participants performed this online google document.

Inclusion and exclusion criteria
Participants of sexes, age range from 25 to 65 years and all medical specialities were included.

Those have major psychiatric disorders, other general medical conditions like chronic diseases or under the effect of psychotropic medications were excluded from the study.

Socio-demographic characteristics
The study socio-demographic data included age, sex, marital status, residence, smoking, relation to the deceased, work position, duration of the grief, seeking psychiatric help, and COVID-19 status.

Pandemic Grief Scale (PGS)
A 5-item Likert rating scale using 4-point time-anchored scale that spans a 2-week period (0 = not at all to 3 = nearly every day), participants rated how frequently they experienced each grief symptom (Sherman A. Lee and Robert A. Niemeyer, 2020) [7].

Patient Health Depression Questionaire-9 (PHQ-9)
A 9-item Liker scale using 4-point time anchored scale assessing the depressive manifestations over the last 2 weeks (0 = not at all to 3 = nearly every day). Total score as the following:

A- 1–4 means minimal depression
B- 5–9 means mild depression
C- 10–14 means moderate depression
D- 15–19 means moderately severe depression
E- 20–27 means severe depression

Also, there are 10 questions of the scale which did not include in the total score but assess to what extent these manifestations affect the different domains of life [8].

Sheehan Disability Scale (SDS)
It is a self-report scale, in which the participant rates the extent to which work/school, social life, and home life of family responsibilities are impaired by his or her symptoms on a 10-point visual analog scale. This 10-point visual analog scale uses spatiovisual, numeric, and verbal anchors simultaneously to assess disability. The numeric ratings of 0–10 can be translated into percentage. The 3 items can be presented as a single dimensional measure of global functional impairment ranging from 0 (unimpaired) to 30 (highly impaired).

There is no cut-off point but researcher must pay attention to participant score 5 on any of the 3 domains because high scores associated with drastic functional impairment [9].

Ethical consideration
(1) Local ethical committee approval was taken to conduct this study.
(2) Informed consent was obtained electronically from all participants after giving full data about the aim of the study.
(3) Patients were confirmed about the confidentiality of the data collected and that they were able to withdraw from the study at any time without any reasons.
(4)STROBE statement and Guidelines: N/A

Statistical analysis and data interpretation
Data were fed to the computer and analyzed using IBM SPSS Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp. Qualitative data were described using number and percent. Quantitative data were described using mean and standard deviation for parametric data after testing normality using Kolmogrov-Smirnov test. Significance of the obtained results was judged at the (0.05) level.

Data analysis
Qualitative data
- Chi-square test for comparison of 2 or more groups
- Monte Carlo test as correction for chi-square test when more than 25% of cells have count less than 5 in tables (> 2*2).

Quantitative data between groups
Parametric tests
- Student’s t test was used to compare 2 independent groups

Correlation
Pearson’s correlation
The Pearson product-moment correlation is used to determine the strength and direction of a linear relationship between two normally distributed continuous variables.
Results

Table 1 showed the socio-demographic data of the studied group in which the mean age was 42.96 ± 10.62; the study sample composed of 504 males (56.0%) and 396 females (44.0%). Seven hundred sixty-five (85.0%) of the sample lived in urban areas while 135 (15.0%) lived in rural areas. One hundred twenty-one (13.4%) were single, 722 (80.2%) were married, 40 (4.4%) were divorced, and 17 (1.9%) were widowed.

Regarding smoking status, 657 (73%) were non-smokers while 243 (27%) were smokers. As regards the relation to the deceased, 231 (25.7%) were immediate family members, 365 (40.6%) were extended family members, 109 (12.1%) were close friends, 93 (10.3%) were acquaintances and 102 (11.3%) were others.

Regarding the work position, 54 (6%) were residents, 44 (4.9%) were demonstrator, 55 (6.1%) were assistant lecturers, 121 (13.4%) were lecturers, 120 (13.3%) were assistant professors, 241 (26.8%) were professors, 80 (8.9%) were specialists, and 185 (20.6%) were consultants.

Duration of the grief reaction

The number of the participants < 1 month were 391 (43.4%), from 1 to 3 months were 267 (29.7%), and from 4 to 6 months were 242 (26.9%). For seeking professional psychiatric help, 510 (56.7%) sought professional help while 390 (43.3%) did not.

Regarding COVID-19 status, 394 (43.8%) were positive while 506 (56.2%) were negative.

The mean score of Pandemic Grief Scale was 11.12 ± 2.34 (mean ± SD) (range 4.0–15.0), the mean score of Sheehan Disability Scale was 17.63 ± 5.17 (mean ± SD) (range 6.0–26.0), and the mean score of Patient Health Questionnaire-9 was 19.89 ± 4.27 (mean ± SD).

Results

Table 1 showed the socio-demographic data of the studied group in which the mean age was 42.96 ± 10.62; the study sample composed of 504 males (56.0%) and 396 females (44.0%). Seven hundred sixty-five (85.0%) of the sample lived in urban areas while 135 (15.0%) lived in rural areas. One hundred twenty-one (13.4%) were single, 722 (80.2%) were married, 40 (4.4%) were divorced, and 17 (1.9%) were widowed.

Regarding smoking status, 657 (73%) were non-smokers while 243 (27%) were smokers. As regards the relation to the deceased, 231 (25.7%) were immediate family members, 365 (40.6%) were extended family members, 109 (12.1%) were close friends, 93 (10.3%) were acquaintances and 102 (11.3%) were others.

Regarding the work position, 54 (6%) were residents, 44 (4.9%) were demonstrator, 55 (6.1%) were assistant lecturers, 121 (13.4%) were lecturers, 120 (13.3%) were assistant professors, 241 (26.8%) were professors, 80 (8.9%) were specialists, and 185 (20.6%) were consultants.

Duration of the grief reaction

The number of the participants < 1 month were 391 (43.4%), from 1 to 3 months were 267 (29.7%), and from 4 to 6 months were 242 (26.9%). For seeking professional psychiatric help, 510 (56.7%) sought professional help while 390 (43.3%) did not.

Regarding COVID-19 status, 394 (43.8%) were positive while 506 (56.2%) were negative.

The mean score of Pandemic Grief Scale was 11.12 ± 2.34 (mean ± SD), the mean score of Sheehan Disability Scale was 17.63 ± 5.17 (mean ± SD), and the mean score of Patient Health Depression Questionnaire-9 was 19.89 ± 4.27 (mean ± SD).
Table 2 Association between socio-demographic, Sheehan Disability Scale, Pandemic Grief Scale, and COVID-19 infection among studied group

| Variables                      | COVID-19 | Test of significance |
|--------------------------------|----------|----------------------|
|                                | Negative | Positive             |
|                                | n = 506  | n = 394              |
| Age/years                      | 42.91 ± 10.58 | 43.02 ± 10.66 | t = 0.155  |
|                                |           |                      | p = 0.877  |
| Sex                            | 284(56.1)| 220(55.8)            | χ² = 0.008 |
| Male                           | 222(43.9)| 174(44.2)            | p = 0.931  |
| Female                         | 65.00    | 65.00                | 0.008      |
| Residence                      | Urban    | 425(84.0)            | 340(86.3)  |
|                                | Rural    | 81(16.0)             | 54(13.7)   |
|                                | χ² = 0.921 |                   | 0.337      |
| Marital status                 | Single   | 67(13.2)             | 54(13.7)   |
|                                | Married  | 404(79.8)            | 318(80.7)  |
|                                | Divorced | 22(4.3)              | 18(4.6)    |
|                                | Widow    | 13(2.6)              | 41(1.0)    |
|                                | χ² = 0.084, P = 0.77 |
|                                | χ² = 0.11, P = 0.745 |
|                                | χ² = 0.03, P = 0.87 |
|                                | χ² = 2.89, P = 0.09 |
| Smokers                        | Non-smoker | 365(72.1)            | 292(74.1)  |
|                                | Smoker   | 141(27.9)            | 102(25.9)  |
|                                | χ² = 0.439 |                   | 0.507      |
| Relation to disease            | Immediate family member | 119(23.5) | 112(28.4) |
|                                | Extended family member | 211(41.7) | 154(39.1) |
|                                | Close friend | 68(13.4) | 41(10.4) |
|                                | Acquaintance | 55(10.9) | 38(9.6) |
|                                | Others    | 53(10.5)             | 49(12.4)   |
|                                | χ² = 2.79, P = 0.09 |
|                                | χ² = 0.627, P = 0.428 |
|                                | χ² = 1.91, P = 0.17 |
|                                | χ² = 0.358, P = 0.549 |
|                                | χ² = 0.848, P = 0.356 |
| Position                       | Resident  | 32(6.3)              | 22(5.6)    |
|                                | Demonstrator | 25(4.9) | 19(4.8) |
|                                | Assistant lecturer | 28(5.5) | 27(6.9) |
|                                | Lecturer   | 71(14.0)             | 50(12.7)   |
|                                | Assistant prof | 54(10.7) | 66(16.8) |
|                                | Prof       | 135(26.7)            | 106(26.9)  |
|                                | Specialist | 46(9.1)              | 34(8.6)    |
|                                | Consultant | 115(22.7) | 70(17.8) |
|                                | χ² = 0.215, P = 0.642 |
|                                | χ² = 0.007, P = 0.935 |
|                                | χ² = 0.672, P = 0.412 |
|                                | χ² = 0.342, P = 0.558 |
|                                | χ² = 7.08, P = 0.008* |
|                                | χ² = 0.006, P = 0.94 |
|                                | χ² = 0.058, P = 0.809 |
|                                | χ² = 3.34, P = 0.07 |
| Pandemic Grief Scale           | 10.56 ± 2.38 | 12.06 ± 2.01 | t = 9.95  |
|                                |           |                      | p < .001*  |
| Duration of the grief          | < 1       | 225(44.5)            | 167(42.4)  |
|                                | 1–3       | 153(30.2)            | 113(28.7)  |
|                                | 4–6       | 128(25.3)            | 114(28.9)  |
|                                | χ² = 1.49 |                   | 0.47      |
|                                | P = 0.47  |                      |
| Seeking psychiatric help       | No        | 224(44.3)            | 166(42.1)  |
|                                | Yes       | 282(55.7)            | 228(57.9)  |
|                                | χ² = 0.412 |                   | 0.521     |
|                                | P = 0.521 |                      |
| Sheehan Disability Scale       | 17.28 ± 5.29 | 18.08 ± 4.98 | t = 2.31  |
|                                |           |                      | p = 0.02*  |
quality of life, 267 (29.75%) are not difficult at all, 170 (18.9%) somewhat difficult, 239 (26.6%) very difficult, and 224 (24.9%) extremely difficult.

Table 2 illustrated a statistically significant positive association between the position of the Associated Prof. and being tested positive with COVID-19. Also, there is a statistically significant positive association between the mean score of Pandemic Grief Scale and positive cases of physicians with COVID-19.

Also, there is a statistically positive association between mean score of Sheehan Disability Scale and positive cases of COVID-19.

Patient Health Depression Questionnaire-9 has a statistically significant association with being positive with COVID-19, also positive cases of COVID-19 cases have a statistically significant association with extremely difficult degree of impairment of domains of life.

Table 3 highlighted the statistically significant positive association between mean score of Patient Depression Health Questionnaire-9 and positive cases of COVID-19 among the studied group.

Table 4 showed the statistically significant association between the mean score of Pandemic Grief Scale and mean scores of Patient Health Questionnaire-9, Sheehan Disability Scale, and degree of impact of domains of life.

Discussion
To our knowledge, there are no enough studies examining the COVID-19 pandemic grief among the physicians, so the aim of the study is to use the Pandemic Grief Scale as an innovative tool to investigate the COVID-19 grief among the physicians and its impacts on psychological, social, and physical domains of their life during this pandemic era.

The results of this study were in parallel with the study conducted by Selman et al. [10] noted physicians were the front liners during COVID-19, had developed pandemic grief because of deaths of patients, colleagues, and their own loved members. Although many researches were conducted regarding COVID-19 grief of non-medical personnel, studying pandemic grief among physicians needed more attention.

The study has a result of mean score of PGS among studied physicians and was more than the cut-off score which is in accordance with result of the study by [8] who concluded that 56.6% of the sample scored above the cut score of 7 on the PGS for clinically dysfunctional pandemic grief.

The high mean score of PGS occurred among physicians before 6 months after grief which is in accordance with the study conducted by [11] who noted that most of the grief cases occurred during the 1st half of the year after loss of a loved one.

The study has a high mean score of PGS among physicians who were diagnosed positive with COVID-19; this result is in agreement with the result of a study conducted by ([12]) in which those who were diagnosed with COVID-19 have had higher PGS scores than those who were not diagnosed. This might be attributed by their relation to the deceased and their own physical and psychological manifestations related to COVID-19 infection.

The current study concluded that a remarkable percentage of physicians experienced pandemic grief beyond 1 month, which is in harmony with a study carried out by Robinson [14] who noted that physicians who witnessed facing the patients’ death, helplessness, crying, impaired concentration, and anxiety manifestations, the pandemic grief often persisted more than 1 month and might need professional psychiatric management.
Also, the study found that the pandemic grief reaction was obvious when the deceased was one of the family members either immediate or extended; this is in accordance with the findings of the study by Wallace et al. [15] noting that the end-of-life events and the relationships of the health care workers to their loved ones were noticed as a crucial factor in the detection of the magnitude and consequences of pandemic grief.

This study revealed high mean scores of Patient Depression Health Questionnaire-9 which are in harmony with the study carried by Lu et al. [16] concluding that physicians who faced COVID-19 pandemic grief could have negative emotions like loss of loved one, guilty feeling, frustration, fear, and depressive manifestations.

Also, the study has a higher mean score of Sheehan Disability Scale which in accordance with the study conducted by Mayland et al. [17] highlighting that health
Care workers during COVID-19 pandemic were more liable to have deleterious effect on their domains of quality of life including physical, psychological, and social aspects as well as burnout syndrome.

Also, the study have results of high mean scores of Sheehan Disability Scale and Patient Depression Health Questionnaire-9 in contrary to the results of the study carried out by [18] who found that the total scores of depressive manifestations, pandemic COVID-19 grief, and functional disability were below clinically significant levels of impairment.

PGS in this study was more evident if the loss was one of the family member either immediate or extended; this finding is in line with the study done by [19] and another study conducted by [20], both concluding that people who were woman, younger age, recently bereaved, bereaved by the loss of a partner or child, and bereaved due to an unnatural loss had higher symptom profile in comparison to the other classes.

In conclusion, pandemic grief was commonly observed among the studied physicians’ group; also, the depressive manifestations and impacts on different aspects of physicians’ life were highly reported, which were positively associated to pandemic grief.

**Conclusions**

In conclusion, pandemic grief reaction is common among the physicians during the COVID-19 era because of loss of loved one, death of COVID-19 cases; also, this pandemic grief affected their different domains of life, so they must seek for professional help to overcome this COVID-19 pandemic grief.

**Study limitations**

This is an online cross-sectional study so we need more follow-up studies, and also we need clinical operational evaluation and to study if the speciality of the physician will have a role in pandemic grief, all these limitations will need further studies.

**Abbreviations**

WHO: World health organization; COVID-19: Coronavirus diseases-19; APA: American psychiatric association; PGS: Pandemic grief scale; SDS: Sheehan disability scale; PHQ-9: Patient health depression questionnaire-9

**Acknowledgements**

Not applicable

**Authors’ contributions**

M.E. contributed to study design, interpretation of the data, and preparing and revising the manuscript. S.G. contributed to study design, assessing, interviewing the patients, collecting, and analyzing and interpreting the data. S.A. contributed to study and interpreting the data. S.EI. contributed to study design, collecting, analyzing, interpreting of the data, and preparing and revising the manuscript. Also, he is the corresponding author. All authors have read and approved the manuscript and ensure that this is the case.

**Funding**

No funding of any type is to be declared.

**Availability of data and materials**

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

**Declarations**

**Ethics approval and consent to participate**

(1) Local ethical committee approval was obtained from Eradaa Mental Complex, Ministry of Health, Riyadh, KSA (Reference No.: ER:212:2021).

(2) Informed Online consent was obtained from all participants after giving them all the information about the study.

(3) The confidentiality of the data collected was informed to all the participant withholding from the study at any time without giving reasons.

**Consent for publication**

Not applicable

**Competing interests**

The authors declare that they have no competing interests.

**Author details**

1Department of Psychiatry, Faculty of Medicine, Mansoura University, Mansoura, Egypt. 2M.D Psychiatry, Mansoura University Students’ Hospital, Mansoura University, Mansoura, Egypt.

Received: 8 June 2021 Accepted: 25 July 2021

**Published online**: 03 August 2021

**References**

1. World Health Organization. WHO Coronavirus disease (COVID-19) Dashboard 2021. Available from https://covid19.who.int/. Accessed 15 May 2021.
2. Lundorff M, Holmgren H, Zachariae R, Farver-Vestergaard I, O'Connor M (2017) Prevalence of prolonged grief disorder in adult bereavement: a systematic review and meta-analysis. J Affect Disord 212:138–149. https://doi.org/10.1016/j.jad.2017.01.030
3. Eisma MC, Smid GE, Boelen PA (2021) Acute grief after deaths due to COVID-19, natural causes and unnatural causes: an empirical comparison. J Affect Dis 278:54–56. https://doi.org/10.1016/j.jad.2020.09.049
4. American Psychiatric Association (2013) Diagnostic and statistical manual of mental disorders, 5th edn. Author, Washington, DC. https://doi.org/10.1176/9780890425596
5. Gallagher MW, Zvolensky MJ, Long LJ, Rogers AH, Garey L (2020) The impact of Covid-19 experiences and associated stress on anxiety, depression, and functional impairment in American adults. Cog Ther Res 44(6):1043–1051. https://doi.org/10.1007/s10608-020-10143-y
6. Lee SA, Neimeyer RA (2020) Caring for bereaved family members during the COVID-19 pandemic: before and after the death of a patient. J Pain Symptom Manage 60:70–74
7. Lee SA, Neimeyer RA (2020) Pandemic grief scale: a screening tool for dysfunctional grief due to a COVID-19 loss. Death Stud 1–11. 8. Koenke K, Spitzer RL, Williams JB (2001) The PHQ-9: Validity of a brief depression severity measure. J Gen Intern Med 16:606–613
9. Sheehan DV (1983) The anxiety Disease. Charles Scribner Sons, New York, NY, USA
10. Selman LE, Chao D, Sovden R et al (2020) Bereavement support on the frontline of COVID-19: recommendations for hospital clinicians. J Pain Symptom Manage 60:1–86
11. Lenferink LIM, de Keijser J, Smid GE, Djelantik AAAMJ, Boelen PA (2017) Prolonged grief, depression, and posttraumatic stress in disaster-bereaved individuals: latent class analysis. Eur J Psychotraumatol 8:1
12. Meneses RE, Neimeyer RA, Meneses RG (2020) Death anxiety, loss and grief in the time of COVID-19. Behav Change 30:11–15
13. Nielsen MK, Christensen KS, Neergaard MA et al (2020) Exploring functional impairment in light of prolonged grief disorder: a prospective, population-based cohort study. Front Psychiatry 11:1–13
14. Robinson B. Virtual grieving: when pandemic death stares us in the face. Forbes 2020. Available at: https://www.forbes.com/sites/bryanrobinson/2020/07/13/virtual-grieving-when-a-colleague-loses-the-battle-to-covid-19/#308d0a2761b1. Accessed 5 July 2021.
15. Wallace CL, Wladkowski SP, Gibson A, White P (2020) Grief during the COVID-19 pandemic: considerations for palliative care providers. J Pain Symptom Manage 60:70–76
16. Lu W, Wang H, Lin Y, Li L (2020) Psychological status of medical workforce during the COVID-19 pandemic: a cross-sectional study. Psychiatry Res 288:112936. https://doi.org/10.1016/j.psychres.2020.112936
17. Mayland CR, Harding AIE, Preston N, Payne S (2020) Supporting adults bereaved through COVID-19: a rapid review of the impact of previous pandemics on grief and bereavement. J Pain Symptom Manage 60:e33–e39
18. Lee SA (2018) Factorial structure of the persistent complex bereavement inventory: testing a hierarchical factor model. Death Stud 42(6):356–361. https://doi.org/10.1080/07481187.2017.1348402
19. O’Connor M, Laigaard M, Larsen L, Johannsen M, Lundorff M, Farver-Vestergaard I, Boelen PA (2019) Comparison of proposed diagnostic criteria for pathological grief using a sample of elderly bereaved spouses in Denmark: perspectives on future bereavement research. J Affect Disord 251:52–59
20. Cai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, Wu J, du H, Chen T, Li R, Tan H, Kang L, Yao L, Huang M, Wang H, Wang G, Liu Z, Hu S (2020) Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open. 3(3):e203976. https://doi.org/10.1001/jamanetworkopen.2020.3976.

Publisher’s Note
Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Submit your manuscript to a SpringerOpen journal and benefit from:

- Convenient online submission
- Rigorous peer review
- Open access: articles freely available online
- High visibility within the field
- Retaining the copyright to your article

Submit your next manuscript at ► springeropen.com