Supplementary material

## Supplementary Figure : Recruitment diagram Flow Chart

Surveys removed *before screening*:

Consent not attempted (n = 1154)

Did not consent (n = 21)

Records identified from REDCap:

Surveys (n = 4655)

**Identification**

Surveys excluded:

Participant less than 2 months post bereavement (n = 539)

Ineligible death (n = 17)

Death did not occur during the pandemic (i.e., death date before 2020) (n = 30)

Duplicate surveys (n = 99)

Did not complete survey (n = 571)

Surveys assessed for eligibility

(n = 3480)

**Screening**

Excluded from analysis

Did not complete Mental Health Measures for this analysis (n = 313)

Total commenced

(n = 2224)

**Valid responses**

Included in analysis

(n = 1911)

**Included**

Supplementary Table 1: Frequency of COVID-19 pandemic-related challenges experienced at end of life and in bereavement

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Total sample | Low  | Grief | Depress/ Anxiety | Grief/Depress/ Anxiety |  |
|  | N = 1911 | 895 (46.8%) | 330 (17.3%) | 338 (17.7%) | 348 (18.2%) |  |
| I was unable to care for them as I would have liked | 46.1  | 44.1  | 45.2  | 46.7  | 51.4  |  |
| I was unaware of their status | 18.8  | 15.9  | 17.3  | 20.7  | 25.9  | \*\* |
| I was unable to say goodbye as I would have liked | 45.3  | 46.7  | 35.2  | 51.5  | 45.1  | \*\* |
| I was unable present at their death | 35.3  | 37.4  | 27.6  | 39.3  | 33.0  | \* |
| I had reduced contact with them at the end-of-life | 45.2  | 49.3  | 33.9  | 48.5  | 42.2  | \*\* |
| I was unable to visit them before their death | 28.6  | 29.8  | 22.1  | 36.7  | 23.6  | \*\* |
| Unable to spend time with them as a whole family | 49.3  | 51.1  | 47.0  | 51.8  | 44.8  |  |
| Unable to visit; awaiting COVID-19 test results | 2.0  | 1.9  | 1.5  | 2.1  | 2.6  |  |
| There were restrictions on funeral numbers  | 70.1  | 69.6  | 73.0  | 72.8  | 66.1  |  |
| Unable to travel to them due to border closures | 24.8  | 25.7  | 23.0  | 31.1  | 18.1  | \* |
| Family members were not able to travel | 47.5  | 46.1  | 50.9  | 49.7  | 45.4  |  |
| I had reduced contact with family and friend | 52.1  | 47.8  | 57.0  | 54.7  | 55.7  | \* |
| I experienced social isolation and loneliness | 47.5  | 31.7  | 63.6  | 53.6  | 67.0  | \*\* |

 Note: \* p < .05; \*\* p <.001; (note adjusted alpha.05/13; p <.004)

Supplementary Table 2: Multinomial logistic regression to identify covariates of class membership

|  |  |  |  |
| --- | --- | --- | --- |
|  | Grief | Depress/Anxiety | Grief/Depress/Anxiety |
| Low class as reference class | B (SE) | 95 CI for Odds Ratio | B (SE) | 95 CI for Odds Ratio | B (SE) | 95 CI for Odds Ratio |
|  |  |  L OR U |  |  L OR U |  |  L OR U |
| Participant age | -0.08 (.13) | .72 .92 1.20 | -0.09 (.11) | .74 .91 1.12 | -0.29 (.13) | .58 .75 .97 |
| Age of deceased | -0.28 (.17) | .55 .76 1.05 | -0.36 (.13) | .54 .70 .89 | -0.28 (.16) | .55 .76 1.05 |
| Time since death (months) | -.02 (.01) | .96 .98 1.01 | -0.04 (.01) | .94 .96 .99 | -0.05 (.01) | .93 .96 .98 |
| Cause of death Cancer  Chronic health conditions  Sudden health event or illness (incl COVID-19-related)  Other | .08 (.29).26 (.31)-.35 (.29)-.11 (.45) | .61 1.09 1.93.71 1.30 2.41 .40 .71 1.24.37 .90 2.17  |  0.03 (.29) 0.35 (.30)-0.08 (.28)-0.13 (.40) | .59 1.03 1.82.80 1.42 2.54.53 .93 1.61.40 .88 1.93 | 0.09 (.31).49 (.33)-0.21 (.29)-0.11 (.46) | .60 1.10 2.02.86 1.63 3.10.46 .81 1.44.31 .90 2.22 |
| Place of death Hospital ED or ICU Hospital: Other ward  Specialist palliative care unit Aged care facility  Other | -0.07 (.26)-0.26 (.24)-0.27 (.26)-0.51 (.31)-0.27 (.41) | .56 .94 1.56.49 .77 1.23.46 .76 1.26.33 .60 1.09 .34 .76 1.69 | -0.03 (.25)-0.14 (.23)0.24 (.24)0.09 (.26)-0.82 (.48) | .60 .97 1.60.55 .87 1.37.80 1.27 2.03.66 1.09 1.81.17 .44 1.12 | -0.12 (.27)-0.53 (.26)0.21 (.26)-0.42 (.33)-0.27 (.41) | .89 .52 1.49.35 .59 .99.73 1.24 2.08.35 .65 1.24.34 .76 1.70 |
| Relationship of deceased  Parent Partner Child Sibling Other family member | 0.88 (.43)1.75 (.47)1.61 (.50)0.60 (.42)-0.33 (.49) | **1.05 2.42 5.58****2.29 5.76 14.47****1.89 5.01 13.25**.80 1.82 4.17.27 .72 1.89 | 0.71 (.34)-0.04 (.48)0.47 (.46)0.31 (.36)0.81 (.35) | **1.04 2.03 3.97**.38 .97 2.46.65 1.59 3.92.67 1.37 2.77**1.12 2.25 4.52** | .81 (.40)1.53 (.47)1.60 (.47)-0.30 (.44)-0.79 (.49) | **1.03 2.24 4.91****1.85 4.62 11.54****1.96 4.93 12.45** .36 .81 1.85 .17 .42 1.06 |
| Preparedness | -0.29 (.06) | .67 .75 .83 | -0.16 (.05) | .78 .85 .94 | -.53 (.06) | .52 .59 .67 |
| Current Relationship status Single Separated/divorced Widowed | 0.29 (.28)0.37 (.31)0.22 (.37) | .77 1.34 2.33.79 1.45 2.65.60 1.25 2.59 | 0.55 (.25)0.02 (.29)-0.10 (.40) | **1.07 1.73 2.83**.58 1.02 1.79.41 .90 1.99 | 0.47 (.28).88 (.30)0.40 (.40) | .92 1.61 2.79**1.34 2.42 4.36**.69 1.50 3.26 |
| Living in single person household | .12 (.23) | .72 1.29 1.76 | -0.27 (.23) | .48 .76 1.21 | -0.17 (.23) | .53 .84 1.33 |
| Tertiary education | -0.39 (.16)  | .49 .68 .92 | -0.40 (.15) | .50 .67 .91 | -0.81 (.17) | .32 .44 .62 |
| Employment status Looking for work Retired Not employed for other reasons | 0.80 (.46)0.01 (.24)-0.21 (.27) | .88 2.22 5.58.63 1.01 1.60.48 .81 1.38 | 0.16 (.49)-0.05 (.24)0.50 (.22) | .44 1.17 3.15.60 .96 1.52**1.07 1.65 2.55** | 1.77 (.31).04 (.27)1.03 (.23) | **2.55 5.87 13.49**.62 1.04 1.76**1.78 2.80 4.40** |
| I was unable to care for them as I would have liked | 0.53 (.18) | **1.18 1.69 2.43** | 0.09 (.17) | .79 1.10 1.52 | 0.73 (.20) | **1.41 2.07 3.04** |
| I was unaware of status | 0.03 (.22) | .67 1.03 1.59 | 0.10 (.20) | .74 1.10 1.63 | 0.16 (.22) | .77 1.18 1.80 |
| I was unable to say goodbye as I would have liked | -0.48 (.24) | .39 .62 .98 | -0.10 (.21) | .60 .90 1.36 | -0.12 (.23) | .56 .89 1.40 |
| I was unable present at their death | 0.13 (.24) | .71 1.14 1.84 | -0.21 (.22) | .53 .81 1.24 | 0.18 (.24) | .74 1.19 1.92 |
| I had reduced contact with them at the end-of-life | -0.60 (.22) | .38 .55 .81 | -0.22 (.17) | .58 .81 1.13 | -0.33 (.20) | .48 .72 1.07 |
| I was unable to visit them before their death | 0.04 (.24) | .65 1.04 1.67 | 0.37 (.21) | .96 1.44 2.17 | -0.28 (.25) | .46 .75 1.23 |
| we were unable to spend time with them as a whole family | 0.52 (.62) | .49 1.68 5.69 | -0.42 (.69) | .17 .66 2.54 | 1.00 (.59) | .85 2.71 8.58 |
| Unable to visit; awaiting COVID-19 test results | 0.08 (.19) | .75 1.08 1.57 | -0.12 (.18) | .63 .88 1.25 | -0.20 (.21) | .54 .81 1.21 |
| There were restrictions on funeral numbers  | 0.22 (.19) | .87 1.25 1.80 | 0.06 (.17) | .76 1.06 1.49 | -0.06 (.19) | .65 .94 1.36 |
| Unable to travel to them due to border closures | 0.22 (.22)  | .82 1.25 1.92 | 0.00 (.19)  | .69 1.00 1.45 | -0.35 (.24) | .44 .70 1.12 |
| Family members were not able to travel | -.02 (.17) | .70 .98 1.37 | -0.02 (.16) | .72 .98 1.33 | -0.02 (.18) | .69 .98 1.39 |
| I had reduced contact with family and friend | -0.29 (.18) | .53 .75 1.08 | -0.15 (.17) | .62 .87 1.20 | -.28 (.19) | .52 .76 1.11 |
| I experienced social isolation and loneliness | 1.39 (.19)  | **2.80 4.02 5.78** | 0.94 (.17) | **1.84 2.55 3.55** | 1.48 (.20) | **2.97 4.37 6.45** |
|  | Grief $ | Depress/Anxiety$ | Depress/Anxiety %  |
| $Grief/Depression/anxiety as reference class%Grief as reference class | B (SE) | 95% CI for Odds Ratio | B (SE) | 95% CI for Odds Ratio |  |  |
|  |  |  L OR U |  |  L OR U |  |  |
| Participant age  | 0.21 (.14) | .93 1.24 1.64 | 0.20 (.14) | .93 1.21 1.57 | -.02 (.14) | .75 .98 1.29 |
| Age of deceased | 0.00 (.19) | .69 1.00 1.46 | -0.08 (.17) | .66 .92 1.28 | -0.08 (.18) | .65 .92 1.30 |
| Time since death (months) | 0.03 (.02) | **1.00 1.03 1.06** | 0.01 (0.02) | .98 1.01 1.04  | -0.02 (.02) | .95 .98 1.01 |
| Cause  Cancer  Chronic health conditions  Sudden health event or illness (incl COVID-19-related)  Other | -0.01 (.32) –0.23(.34)-0.14 (.30)0.00 (.50) | .53 .99 1.84.41 .80 1.55.48 .87 1.57.38 1.00 2.65 | -0.06 (.34)-0.14 (.36)0.32 (.32)-0.02 (.51) | .48 .94 1.67.43 .87 1.83.61 1.14 2.15.36 .98 2.66 | -0.05 (.33)0.09 (.35)0.27 (.32)-0.02 (.51) | .45 .95 1.83.55 1.09 2.17.70 1.31 2.47.37 .98 2.64 |
| Setting Hospital ED or ICU Hospital: Other ward  Specialist palliative care unit Aged care  Other | 0.06 (.28)0.27 (.27)-0.48 (.29)-0.09 (.37)0.00 (.39) | .61 1.06 1.83.77 1.31 2.24.35 .62 1.08 .44 .92 1.89.46 1.00 2.16 | 0.09 (.30)0.39 (.29)0.03 (.29)0.51 (.35)-0.55 (.50) | .61 1.10 1.97.84 1.48 2.62.58 1.03 1.83.84 1.67 3.33.22 .58 1.54 | 0.04 (.30)0.12 (.27)0.51 (.29)0.60 (.34)-0.55 (.51)  | .28 1.03 1.85.66 1.12 1.93.95 1.67 2.96.93 1.83 3.57.21 .58 1.55 |
| Relationship of deceased  Parent Partner Child Sibling Other family member | 0.06 (.48)0.22 (.52)0.02(.53).90 (.51).46 (.60) | .42 1.08 2.80.45 1.25 3.43.36 1.02 2.85.90 2.56 6.70.49 1.58 5.13 | -0.10 (.43)-1.57 (.55)-1.13 (.51)0.61 (.48)1.60 (.51) | .37 .91 2.12.07 .21 .61.12 .32 .87.73 1.84 4.68**1.82 4.96 13.49** | -0.18 (.47)-1.79 (.56)-1.15 (.54)-0.29 (.47)1.14 (.53) | .34 .84 2.10.06 .17 .50.11 .32 .91.30 .75 1.88**1.12 3.14 8.80** |
| Preparedness | 0.24 (.07) | **1.11 1.27 1.46** | 0.38 (.07) | **1.27 1.46 1.67** | .14 (.06) | **1.01 1.15 1.30** |
| Current Relationship status Single Separated/divorced Widowed | -0.18 (.30)-0.51 (.33)-0.18 (.41) | .46 .83 1.51.31 .60 1.15.38 .83 1.85 | 0.08 (.29)-0.87 (.34)-0.50 (.48) | .61 1.08 1.93.22 .42 .81.24 .60 1.51 | 0.26 (.30)-0.36 (.35)-0.32 (.46) | .72 1.30 2.35.35 .70 1.40.30 .73 1.78 |
| Living in single person household | -0.10 (.28) | .83 1.34 2.14 | -0.10 (.26) | .54 .91 1.53 | -0.39 (.27) | .40 .67 1.15 |
| Tertiary education | 0.42 (.18)  | **1.07 1.52 2.17** | 0.41 (.18) | **1.05 1.51 2.18** | -0.01 (.19) | .69 .99 1.43 |
| Employment status Looking for work Retired Other | -0.97 (.41)-0.03 (.28)-1.24 (.27) | .17 .38 .84.56 .97 1.68.17 .29 .49 | -1.61 (.49)-0.09 (.31)-0.53 (.24) | .08 .20 .53.50 .92 1.67.37 .59 .95 | -0.64 (.54)-0.05 (.28)0.71 (.29) | .18 .53 1.52.54 .95 1.65**1.16 2.03 3.54** |
| I was unable to care for them as I would have liked | -0.20 (.21) | .54 .81 1.23 | -0.64 (.21) | .35 .53 .80 | -.44 (.21) | .43 .65 .97 |
| I was unaware of status | -0.13(.24) | .55 .88 1.40 | -0.07 (.24) | .59 .94 1.49 | 0.06 (.25) | .66 1.07 1.72 |
| I was unable to say goodbye as I would have liked | -0.36 (.26) | .42 .70 1.15 | 0.02 (.25) | .62 1.02 1.67 | 0.37 (.26) | .87 1.45 2.44 |
| I was unable present at their death | -.05 (.27) | .57 .96 1.61 | -0.39 (.27) | .40 .68 1.15 | -0.34 (.27) | .42 .71 1.22 |
| I had reduced contact with them at the end-of-life | -0.26 (.22) | .50 .77 1.19 | .12 (.22) | .73 1.12 1.73 | 0.38 (.22) | .96 1.46 2.24 |
| I was unable to visit them before their death | .33 (.27) | .81 1.35 2.37 | 0.65 (.27) | **1.13 1.91 3.23** | .32 (.27) | .82 1.38 2.33 |
| Unable to visit; awaiting COVID-19 test results | -0.48 (.63) | .18 .62 2.12 | -1.42 (.75) | .05 .24 1.06 | -0.93 (.79) | .08 .39 1.84 |
| We were unable to spend time with them as a whole family | .29 (.22) | .87 1.33 2.04 | -.07 (.22) | .70 1.09 1.69 | -0.20 (.22) | .54 .82 1.30 |
| There were restrictions on funeral numbers  | 0.29 (.21) | .89 1.33 1.99 | 0.12 (.21) | .75 1.31 1.71 | -0.16 (.21) | .56 .85 1. 29 |
| Unable to travel to them due to border closures | 0.58 (.26)  | **1.08 1.78 2.93** | 0.35 (.25)  | .86 1.42 2.34 | -.23 (.24) | .50 .80 1.28 |
| Family members were not able to travel | 0.01 (.19) | .69 1.01 1.46 | 0.01 (.20) | .68 1.00 1.48 | -0.01 (.19) | .68 1.00 1.46 |
| I had reduced contact with family and friend | -0.01 (.20) | .66 .99 1.49 | .13 (.21) | .75 1.14 1.73 | 0.14 (.21) | .77 1.15 1.73 |
| I experienced social isolation and loneliness | -0.08 (.22)  | .60 .92 1.40 | -.54 (.22) |  .38 .58 .90 | -0.45 (.21) | .42 .64 .96 |

Note: $ = grief/depression/anxiety class as reference class %= grief class as reference class; R2 = .38 (Cox and Snell) .42 (Nagelkerke). Model = X2(117) = 811.47, p = 000; L = lower 95% CI limit, OR = odds ratio and U = upper 95% CI limit; Reference classes for covariates are: cause of death: “traumatic/human involvement”; setting of death: home; relationship of deceased: not a family member; education level: not tertiary educated; relationship status: partnered; household: not living alone; employment: employed/self-employed; Covid-19 related variables No. Participant age and deceased age were standardised for inclusion. Due to missing data on correlates, n = 1681.