# Stress, anxiety, and depression among nursing home healthcare workers during a pandemic

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## Abstract

**Aims**: This study aimed to investigate the relationship between age, work experience and stress, anxiety, and depression. It also aimed to investigate the affect contact with COVID-19 in the workplace will have on levels of stress, anxiety, and depression. Lastly, the study aimed to investigate the affect a person's job role will have on levels of stress, anxiety, and depression. **Method:** Healthcare workers (Nurses, health care assistants and social care works) that had worked through the pandemic in nursing home facilities were recruited using social media. Participants completed a short demographic questionnaire before completing the DASS-21. **Results:** A significant, weak, positive correlation was found between age and stress, anxiety, and depression. A significant, moderate, positive correlation was found between work experience and stress, anxiety, and depression. A MANOVA found contact with COVID-19 to be significant in effecting levels of stress, anxiety, and depression. The second MANOVA found a participant's job title effects levels of stress, anxiety, and depression, with nurses **Conclusion:** Findings provide an insight into the mental health of healthcare workers. Findings have shown similar results to previous research in hospital settings and have shown that COVID-19 has affected healthcare workers.

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## Introduction

On the 11th of March 2020 the WHO declared the new coronavirus a global pandemic (Mandheari, A., et al.,2019), the virus had first been discovered in Wuhan, China the previous December. Many countries began extreme lockdowns, with only essential work allowed, in an attempt to eradicate the disease. Unfortunately for nursing home facilities, visiting was not allowed and still remains restricted to prevent the spread of infection. Previous research into outbreaks such as SARS have found that during these times people will experience increased symptoms of anxiety, stress, and depression (Reynolds, D. L., et al., 2008). A group particularly at risk of mental health issues during the pandemic is healthcare workers, as the pandemic has highlighted their importance and the harsh conditions they face as they are now required to wear personal protective equipment and risk contracting COVID-19.

The covid 19 pandemic has placed healthcare workers in an unprecedented situation, where they are being forced to make hard decisions as they face being understaffed, limited resources, and being at risk of contracting COVID-19 (Greenberg, N., et al., 2020). At a time when they are needed most, healthcare workers physical and psychological wellbeing are being tested. Throughout the pandemic healthcare workers have been forced to isolate from their families, even when it has not been required by government. This is due to the fear they have they may transmit the virus to a family member, or carry the virus into the workplace (Ehrlich, H., et al., 2020). If we look at previous outbreaks such as SARS, research from that time suggested that healthcare workers are at a significantly higher risk of developing anxiety, depression, and stress during these periods (Wu et al., 2005). Unfortunately, protection measures were not put in place to prevent this occurring again if and when another pandemic occurred.

It is not just the pandemic that may have caused depression, stress, and anxiety in healthcare workers. Prior to the covid – 19 pandemic research had shown that healthcare workers were the third highest occupation for depressive episodes (Letvak, S., et al., 2012). This is not the only early research that suggests that healthcare workers are naturally at higher risk due to the nature of their job. Lin et al (2010) conducted research on 154 nurses and found 12.8% had mild depression, while 7.8 suffered with moderate and 7.1% with severe depression. Another study focused on general healthcare workers in a hospital ward, with the research showing 31% were displaying symptoms (Mealer ML., et al., 2007). It is not only depression that was found in healthcare workers, a high prevalence of anxiety has also been found in prior studies. Ding et al (2014) conducted research on anxiety levels among healthcare workers and found that 38 % were suffering with symptoms of anxiety. Such high levels, prior to covid, would suggest that healthcare workers are already at an increased risk of depression, stress, and anxiety.

One of the earliest studies that looked at anxiety and depression in healthcare workers during the pandemic took place in Jinan, China just three months into the pandemic (Xing, L. Q., et al.,2020). The results showed that 28.5% of staff were suffering with anxiety and 56% with depression. The levels of depression found in this study are similar to other studies conducted in similar studies such as a study conducted in Trinidad. Similarly, depression levels were found in 42% of healthcare workers, although there is a significant difference in anxiety symptoms with 56.2% displaying symptoms (Nayak, B. S., et al., 2021). Depression levels did not vary much between this study and the previous study but there is a dramatic increase in the levels of anxiety almost doubling. This may be due to the difference in data collection, this study used the DASS-21 to collect data. The shortening of the questionnaire, variety of hospitals taking part and different locations may also explain the differences in levels exhibited. Another possible reason

may be the timing of the studies. The first study was conducted at the beginning of the pandemic, with the later study conducted a few months after. It is possible that the level of anxiety among healthcare workers may have increased as the pandemic progressed. These two studies were conducted at different times, in different countries, dealing with the pandemic different but they both share similar results showing that there is high levels of stress and anxiety found in healthcare workers during the pandemic.

There has been limited research conducted on healthcare assistants within Ireland, although one study conducted in acute Irish hospitals has shown similar results to studies conducted in other countries. This study examined the psychological effects of covid- 19 on healthcare working in acute hospitals (Ali, S., et al., 2020). The study consisted of 472 healthcare workers but differed from other studies as it included non-medical staff working at the hospitals. The results found that depression symptoms were present in 42.6% of participants, and 45.1% of participants displayed symptoms of anxiety and stress. These scores are similar to the previous studies, although each study used different healthcare workers, in different countries, using different questionnaires they are finding similar results. The similarities being found would suggest that the increase in stress, anxiety and depression is universal for all healthcare workers.

An area of healthcare that which is less represented in the literature is that of nursing home facilities. Many of the studies that have focused on the depression, stress and anxiety levels in healthcare workers has been conducted on healthcare workers within hospital settings. Although majority of covid cases are occurring within hospitals, nursing home facilities in Ireland have suffered throughout the pandemic. Of the 5,609 deaths that have occurred in Ireland to date, 90% of these are in the over 65 age group with many occurring in nursing homes. The first confirmed case of covid- 19 within an Irish nursing home was reported on the 16$^{th}$ of March 2020, resulting

in weekly testing regime for all residents and staff members (Kennelly S.P., et al., 2021). Since then, nursing homes have been reported as having high transmission rates, there may be many possible reasons such as sharing of bedrooms, bathrooms, and gathering in common areas (Centres for Disease Control and Prevention, 2020). In nursing home facilities, it is usual for the number of registered nurses on site to be low, with most of the care being provided by healthcare assistants (Laxer., et al., 2016) and although healthcare assistants are provided with constant training they are not trained or equipped in dealing with such an infectious disease as covid has proved to be. The low numbers of registered nurses will put extra pressure and stress on the few on site, and the extra workload will be felt by healthcare assistants providing direct care. Although nursing home facilities are faced with battling covid, they also face regular stressors such as staffing issues, high staff turnover rate and high resident to staff ratios (Dorritie, R., et al., 2020).

Nursing homes have changed drastically as a result of the pandemic, leading to added stress on those working in the facility (Blanco-Donosal, LM., et al., 2021). Since the onset of the pandemic all healthcare staff within nursing home facilities must wear a face mask at all times while on the premises. This has caused interpersonal issues, with many residents suffering a deterioration in hearing, the wearing of face masks has made communication between staff and residents more complicated (Einav S., et al., 2014). Many healthcare staff have and will continue to contract the virus, resulting in the need to self-isolate away from family members and their workplace. Although it is known isolation can cause an increase in loneliness and anxiety, research has found that frontline staff that are quarantining often suffer with guilt about leaving their colleagues understaffed and fears of who they have spread the virus to (Brooks.SK., et al., 2020).

Many studies have begun to investigate the factors that affect the high levels of stress, anxiety and depression being found in healthcare workers. One of these factors is the job role the person holds in the healthcare setting. Previous studies have found nurses tend to score the highest in comparison to other healthcare workers (Cai. H., et al., 2019). An explanation for this would be the amount of direct contact nurses have with patients would be more in comparison to doctors

Another factor that may affect levels is the amount of work experience the healthcare worker holds. Studies have found that the less work experience a healthcare workers has the more likely they are to experience symptoms of stress, anxiety, and depression (ref). If a healthcare worker is less experienced, they may fear contagions more than experienced staff members. Healthcare workers also experience a large volume of training while working, in areas such as infection prevention and control therefore less experienced staff may not be as aware of procedures and policies in place to prevent the spread of infection.

Age is another factor which has been found to affect levels of stress, anxiety, and depression. Studies have found that in the case of the COVID-19 pandemic, the levels of stress, anxiety, and depression are increasing as age increases (ref). This is a shift from previous studies finding higher rates of anxiety and stress in younger populations. A possible cause for this is the increased worry that accompanies age, it has been found that mid- late adults are concerned with infecting their families and as age increases, they begin to worry about the effects the disease would have on themselves.

**Overview of the Findings**

Reviewing the literature has shown that this is currently an important area for researchers and there is limited research available to date. Although older studies found high levels of depression, stress, and anxiety among healthcare workers, it is not yet understood how the

pandemic has affected this. The covid- 19 pandemic has highlighted the importance of healthcare workers mental health. By comparing the studies conducted in different countries we can see a trend emerge of high levels of anxiety, depression, and stress among healthcare workers. It is important to investigate these levels and to examine the variables which effect these levels to put supports and resources in place for healthcare workers. Although research has begun, there has been in insufficient number of studies conducted in Ireland. Many studies have focused on hospitals, although many of Irelands covid-19 deaths occurred in nursing home facilities. Researchers have failed to examine if this trend of depression, anxiety and stress levels is replicated in nursing home facilities. With an aging population, and an increase in the amount of nursing homes throughout Ireland it is important to examine the psychological impact covid- 19 has had on nursing home healthcare workers.

**The Current Study**

The aim of the current study is to investigate the levels of stress, anxiety, and depression in healthcare workers in Irish nursing home facilities and to investigate if contact with COVD-19 has affected these levels. Based on prior literature the first research question that will be investigated is does a relationship exist between age and levels of stress, anxiety, and depression? Based on previous research it is hypothesised that a higher age will be associated with higher levels of stress, anxiety, and depression.

The second research question that will be addressed is does a relationship exist between the amount of work experience a person has and their levels of stress, anxiety, and depression. It is hypothesised that an increase in work experience will result in a decrease in levels of stress, anxiety, and depression.

The third research question is does contact with COVID-19 have an effect on levels of stress, anxiety, and depression. It is hypothesised from previous research that if a person has been in contact with COVID-19 in their workplace they will have higher levels of stress. anxiety and depression.

The fourth research question is does a person's job role within healthcare affect their levels of stress, anxiety, and depression. From previous research it is hypothesised that levels will differ across the different job roles, with nurses having the highest levels of stress, anxiety, and depression.

# Methodology

## Participants

The sample for the current study consisted of 242 (Males: n= 95; Females: n=147) healthcare workers. G*Power: Statistical Power Analyses (Faul, Erdfelder, Buchner, & Lang, 2009) was used to determine the sample size required for a statistically powerful analysis. with the minimum sample size required n=240. Of the 242 healthcare workers that participated; 115 (47.5%) were healthcare assistants, 98 (40.5%) were registered nurses, and 29 (12%) were social care workers. Ages of participants ranged from 19 to 56 years old, with an average age of 33 (SD= 7.68). Participants were also asked their highest level of education; 119 (50%) held a bachelor's degree, 95 (39.9%) held a post leaving certificate, 19 (8%) have their leaving certificate and 5 (2.1%) held a master's degree. All participants resided in Ireland and worked in an Irish nursing home during the pandemic. Participants were recruited using a non- probability convenience sampling strategy, using the researchers own social media accounts (Facebook, Instagram, and LinkedIn).

## Design

The research design of the current study is a cross sectional design, all data was collected at a specific point in time. The current study is also quantitative, using survey research to collect data. The independent variables are age, experience, contact with COVID-19 and job role. The dependant variables are stress, anxiety, and depression. A Pearson's correlation and a spearman's rho was conducted in order to assess the first and second hypothesis. Two MANOVA'S were used to assess the third and fourth hypothesis.

## Materials

The study consisted of demographic questions including the participants sex, age, education level and job role.

### DASS21

The Depression Anxiety Stress Scales is a 21-item self-report instrument which used a four-point Likert, 0= Never, 1=applied to me to some degree/some of the time, 2=applied to me a considerable degree/good part of the time, 3=applied to me to very much/most of the time (Lovinbond, S.H., Lovibond, P.F., 1995). The reliability of the DASS-21 showed it had excellent sores on the Cronbach's alpha values of 0.81, 0.89 and 0.78 for the subscales of depressive, anxiety, and stress. The DASS-21 has internal consistency and concurrent validity in acceptable to excellent ranges (Antony et al., 1998). Depression score is calculated by adding the totals for question 3,5,10,13,16,17 and 21 and multiply the total by 2. Anxiety score is calculated by adding the totals for question 2,4,7,9,15,19 and 20, then multiplied by 2. Stress score is calculated by adding the totals for question 1,6,8,11,12,14 and 18, then multiply by 2. Normal scores are as follows; depression 0-9, anxiety 0-7 and stress 0-14. Mild scores; depression 10-13, anxiety 8-9, stress 15-18. Moderate scores; depression 14-20, anxiety 10-14, stress 19-25. Severe scores; depression 21-27, anxiety 15- 19, stress 26-33. Extremely severe for depression in a score about 28, anxiety score of over 20 and a stress score of over 34.

## Procedure

All participants were recruited using social media platforms including Facebook, Instagram, and LinkedIn. A link to the questionnaire was shared on the researchers own social media and

shared to various healthcare groups on Facebook. All participants required an internet connection and a device such as laptop, tablet, or mobile phone in order to participate. When a participant clicked on the link, they were brought to an information sheet which provided participants with the title of the study, the aims of the study, the researcher, and supervisors names. Participants were then given a description of the study, including what they are required to do, and the inclusion and exclusion criteria (see Appendix A) This was done to ensure that participants were fully informed in order to give informed consent. Once a participant was properly informed, they were then required to tick the box to indicate they read and understand the terms and give their consent (see Appendix B). Ticking boxes were used rather than participants signature in order to keep questionnaires completely anonymous.

Once a participant agreed to take part, they were then brought to the first part of the questionnaire which was a demographic questionnaire (see Appendix C). Participants were asked to indicate which gender they identity with, female, male, nonbinary or other in which case they had the option to enter their own option. Participants then were asked to input their age. Participants were then asked to choose the highest level of education they had received, junior certificate, leaving certificate, post- leaving certificate, bachelor's degree, or master's degree. Participants were then asked to input how many years they had worked in this role and whether or not they had come into contact with covid-19 while in their workplace.

After demographic information was collected participants moved onto the next section which was the DASS-21, consisting of 21 questions (see Appendix D). Participants were required to read each statement carefully and to click the number which indicated how much the statement applied to them in the past week. Once the participants have completed the DASS-21 they were brough to a debriefing sheet (see Appendix E) This thanked the participants for taking part in the

study and provided the contact information for the researcher and their supervisor in the event that a participant had questions after completion. The debriefing sheet also provided various contact details for supports participants may need.

*Ethical consideration*

The current research study was approved by the National College of Ireland's Ethics Committee. All data was collected in accordance with the National College of Ireland's ethical guidelines. Participants were invited to take part voluntarily and received no incentive. Participants were provided with an information sheet to inform them of what taking part would involve and they were provided with a consent form to indicate they had read and accepted the terms and conditions. After participation a debriefing form was provided with contact details for helplines, in the event that a participant felt distressed after taking part in the study.

## Results

Descriptive statistics for demographic variables are presented in Table 1. The current data was taken from a sample of 239 participants (*n*=239). Of the 249 participants, 60.7% were females (*n*=145) and 39.3% were males (*n*=94). 47.5% of participants (*n*=113) were health care assistants, 41% (*n*=98) were registered nurses and 11.7% (*n*=28) were social care workers. In regard to education level, 502% (*n*=120) held bachelor's degree, 39.7% (*n*=95) held post-leaving certificates, 7.9% (*n*=19) held leaving certificates and 2.1% (*n*=5) held a master's degree. Of the 239 participants, 76.6% (*n*=183) had come into contact with covid-19 in their workplace, with 23.4% (*n*=56) having not came into contact with covid-19.

Table 1

*Descriptive statistics for categorical variables*

| Variable | Frequency | Valid % |
|---|---|---|
| **Gender** | | |
| Female | 145 | 60.7 |
| Male | 94 | 39.3 |
| **Job Title** | | |
| Health care assistant | 113 | 47.3 |
| Registered Nurse | 98 | 41 |
| Social Care Worker | 28 | 11.7 |
| **Education Level** | | |
| Leaving certificate | 19 | 7.9 |
| Post leaving certificate | 95 | 39.3 |
| Bachelor's degree | 120 | 50.2 |
| Master's degree | 5 | 2.1 |
| **Covid contact** | | |
| Yes | 183 | 76.6 |
| No | 56 | 23.4 |

The mean, standard deviation, skewness, kurtosis minimum and maximum scores are displayed below in Table 2 for each of the continuous variables in this study.

Table 2

*Descriptive statistics – continuous variables*

| Variable | *M* [95% CI | *SD* | *Skewness* | *Kurtosis* | Range |
|---|---|---|---|---|---|
| Age | 33.87 | 7.92 | .436 | -.149 | 19-60 |
| Experience | 10.44 | 6.76 | 1.68 | 6.54 | 1.0-53 |
| Anxiety | 12.72 | 7.39 | -.380 | -.516 | 0-34 |
| Stress | 24.6 | 8.26 | -.365 | -.813 | 4-40 |
| Depression | 20.05 | 8.92 | -.223 | -.979 | 0-38 |

**Inferential statistics**

A Pearson's correlation coefficient was conducted to assess the relationship between the age of participants and levels of stress. Preliminary analysis was conducted to ensure there was no violation of the assumptions of normality, linearity, or homoscedasticity. There was a significant, weak, positive correlation between age and stress ($r$= .1227, n=239, $p$= < .05). This indicates that the two variables share 3% variance (See Table 3).

A Pearson's correlation coefficient was conducted to assess the relationship between the age of participants and levels of depression. Preliminary analysis was conducted to ensure there was no violation of the assumptions of normality, linearity, or homoscedasticity. There was a significant, weak, positive correlation between age and depression ($r$= .195, n=239, $p$= < .05). This indicates that the two variables share 3% variance (See Table 3).

A Spearman rho correlation coefficient was conducted to assess the relationship between age and anxiety. This was conducted as preliminary analysis indicated that anxiety was non normally distributed therefore a non-parametric test was required. There was a significant, weak, positive correlation between age and anxiety ($r$=.133, n=239, $p$= <.05). This indicated that the two variables share 1% of variance (See Table 5).

A Pearson's correlation coefficient was conducted to assess the relationship between experience and stress. Preliminary analysis was conducted to ensure there was no violation of the assumptions of normality, linearity, or homoscedasticity. There was a significant, moderate, positive correlation between experience and stress ($r$= .350, n=239, $p$= < .01). This indicates that the two variables share 12% variance in common. Results indicate that higher level of experience is associated with higher levels of stress (See Table 4).

A Pearson's correlation coefficient was conducted to assess the relationship between experience and depression. Preliminary analysis was conducted to ensure there was no violation of the assumptions of normality, linearity, or homoscedasticity. There was a significant, moderate, positive correlation between experience and depression ($r$= .311, n=239, $p$= < .01). This indicates that the two variables share 12% of variance in common. Results indicated that a higher level of experience is associated with higher levels of depression (See Table 4).

A Spearman rho correlation coefficient was conducted to assess the relationship between experience and anxiety. This was conducted as preliminary analysis indicated that anxiety was non normally distributed therefore a non-parametric test was required. There was a significant, weak, positive correlation between experience and anxiety ($r$=.247, n=239, $p$= < .01). This indicates that the two variables share 6% of variances in common. Results indicate that a higher level of experience is associated with higher levels of anxiety (See Table 6).

Table 3

*Pearson's correlations between continuous variables*

| Variable | 1 | 2 | 3 |
|---|---|---|---|
| 1.Age | 1 | | |
| 2. Stress | .227* | 1 | |
| 3. Depression | .195* | .826* | 1 |

N = 239; Statistical significance: *p < .01

Table 4

*Pearson's correlations between continuous variables*

| Variable | 1 | 2 | 3 |
|---|---|---|---|
| 1.Experience | 1 | | |
| 2. Stress | .35* | 1 | |
| 3. Depression | .31* | .826* | 1 |

N = 239; Statistical significance: *p < .05

Table 5

*Spearman Rho's correlations between continuous variables*

| Variable | 1 | 2 |
|---|---|---|
| 1.Age | 1 | |
| 2. Anxiety | .133* | 1 |

N = 239; Statistical significance: *p < .01

Table 6

*Spearman Rho's correlations between continuous variables*

| Variable | 1 | 2 |
|---|---|---|
| 1.Experience | 1 | |
| 2. Anxiety | 24* | 1 |

N = 239; Statistical significance: *p < .01

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A one-way between- groups multivariate analysis of variance was performed to investigate differences in those who came into contact with covid-19 in the workplace and those that did not in terms of their anxiety, stress, and depression levels. Three dependant variables were used: stress, anxiety, and depression. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance- covariance matrices, and multicollinearity. Anxiety was shown to violate the assumption of equality of variances therefore Pillai's trace was reported as this is more robust to violations of assumptions. There was a statistically significant difference between contact with covid and non-contact on the combined dependant variables, $F$ (3,234) = 41.49, $p$= < .01, Pillai's trace= .346, partial eta squared= .34. When the results for the dependent variables were considered separately, a Bonferroni adjusted alpha level of .017 was used. Stress was statistically significant, F (1, 237) =

122, *p*= < .01, partial eta squared= .34. Anxiety was statistically significant, F (1,237) = 55.15 *p*= < .01, partial eta squared= .19. Depression was also statistically significant, F (1,237) = 90.25, *p*= < .01, partial eta squared= .27. An inspection of the mean scores indicated that contact with covid reported higher levels of stress (M= 27.09, SD= 7.04) than those with no contact (M= 15.6, SD= 5.92). The mean scores also indicated that contact with contact with covid reported higher levels of anxiety (M= 14.6, SD=6.82) than those with no contact (M= 7.2, SD= 5.13). The mean scores also indicated that contact with covid reported higher levels of depression (M= 22.66, SD= 7.73) than those with no contact (M= 11.82, SD= 6.6).

A one- way between-groups multivariate analysis of variance was performed to investigated differences between healthcare assistants, registered nurses, and social care workers in levels of stress, anxiety, and depression. Three dependent variables were used: stress, anxiety, and depression. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance- covariance matrices, and multicollinearity. Assumption testing showed that the dependent variables violated the assumption of equality of variances, therefore Pillai's trace was reported as it is a more robust to violations of assumptions. There was a statistically significant difference between the three job roles on the combined dependent variables, *F* (6,470) = 7.67, *p*= < .01, Pillai's trace= .178, partial eta squared=.089. When the results for the dependent variables were considered separately, a Bonferroni adjusted alpha level of .017 was used. Stress was statistically significant, *F* (2,236) = 22.14, *p*= < .01, partial eta squared=.158. Anxiety was statistically significant, *F* (2,236) = 17.15, *p*= < .01, partial eta squared=.127. Depression was also statistically significant, *F* (2,236) = 18.43, *p*= < .01, partial eta squared=.134. An inspection of the mean scores indicated that on stress, nurses mean score was highest (M=26.02, SD= 8.2),

healthcare assistants was similar (M=25.23, SD= 7.77) with a significant drop shown in social care workers (M=15.36, SD= 5.07). The mean scores indicated that for anxiety nurses had the highest mean (M=14.57, SD=6.75), health care assistants were just below (M=13.02, SD=7.07) and social care workers were significantly lower (M=6.14, SD= 4.98). The mean scores indicated that on depression registered nurses had the highest mean (M=21.71, SD=8.19), healthcare assistants scored just one point below (M=20.94, SD=8.57) and social care workers had the lowest mean (M=11.36, SD=6.37).

## Discussion

The current study aimed to examine the levels of stress, anxiety, and depression in healthcare workers in Irish nursing homes during the COVID-19 pandemic. The study aimed to investigate the differences in levels experienced by healthcare workers that came into contact with covid-19 compared to those who did not. It also aimed to investigate the levels experienced by different healthcare workers, choosing to examine healthcare assistants, registered nurses, and social care workers.

In support of the first hypothesis, a correlation analysis was run to investigate if a relationship existed between age and stress, anxiety, and depression. The results showed that age had a significant, positive correlation with stress, anxiety, and depression. Therefore, we accept the hypothesis. These findings suggest that as age increases, levels of stress, anxiety and depression will also increase. These results are consistent with previous research, which has indicated that stress, anxiety, and depression increase as a person's age increases, specifically in healthcare workers (Alnazly, E., et al.,2021). Previous studies have suggested that the increase in stress and anxiety found in healthcare workers as age increases may be due to the worry of infecting family, themselves, and others (Cai., et al., 2020).

For the second hypothesis, a correlation analysis was run to investigate the relationship between the amount of work experience a person has and stress, anxiety, and depression levels. The results showed a significant, moderate, positive correlation. These findings suggest that as experience increases, levels of stress, anxiety and depression will also increase. The results are not what was hypothesized therefore the hypothesis is rejected. Previous research has shown to have varied results in relation to work experience. Previous research investigating anxiety, stress, and depression in healthcare workers has found that the less professional experience a healthcare

worker has, the more they will experience anxiety, stress, and depression (Elbay, R. Y., et al., 2020). This particular study is similar to the current study as levels of anxiety, stress and depression were measured using the DASS-21. Although both studies are similar the difference in results could be explained as different samples were used, the initial study was conducted early in the pandemic on doctors in hospital settings compared to the current study which is focusing on various healthcare workers in nursing homes almost two years into the pandemic.

The third hypothesis was investigated using a multivariate analysis of variance to investigate the difference in stress, anxiety and depression levels in healthcare workers that came into contact with COVID-19 compared to those who did not. The results indicated that a significance difference existed between the two groups. When considered separately, all of the variables were statistically significant. Upon inspection of the means, those who had been in contact with COVID-19 had significantly higher means of stress, anxiety, and depression. The results are in line with our hypothesis; hence the hypothesis is accepted. The results suggest that healthcare workers that came into contact with COVID-19 in their workplace had significantly higher levels of stress, anxiety, and depression. These results are in line with previous studies which found that health care workers that came into contact with COVID-19 were twice as likely to experience anxiety, stress, and depression, in comparison to those who did not (Xiao, X., et al.,2020). Prior to the COVID-19 outbreak the literature surrounding contact history and weather it affects workers psychological health was quite controversial. A study conducted during the SARS outbreak found that coming into contact with an infected patient was not a factor for psychological health (Maunder.R.G., et al.,2006). This shift in results may be due to the disease the studies are focusing on, COVID-19 has shown to be more contagious (Liu, J., et al., 2020) and has an increased death rate.

To investigate the fourth hypothesis a multivariate analysis of variance was used to investigate the difference in stress, anxiety, and depression levels in different job roles in healthcare, registered nurses, healthcare assistants and social care workers. The results indicated that a significant difference existed between the three job roles. When the three job roles were considered separately, nurses had the highest mean on all three variables, anxiety, stress, and depression. The results are in line with the hypothesis, for that reason we accept the hypothesis. This would suggest that registered nurses experience the highest levels of stress, anxiety, and depression. Healthcare assistants scored just slightly slower than nurses which would suggest experience similar levels. Social care workers had significantly less scores, suggesting that they do not experience as high levels of stress, anxiety, and depression. The results of the current study are similar to previous studies, which have found nurses to experience the highest levels of stress, anxiety, and depression among healthcare staff (ref). Although the current study has produced similar results, there are major differences between the current study and previous literature investigating the difference in job roles. As highlighted previously, much of the previous research has been conducted in hospitals, generally using doctors and nurses as participants. The current study is unique as it focused on nursing homes, and the three major healthcare staff that work in those facilities. The results have shown that health care assistants scored just below nurses on stress, anxiety, and depression. A possible cause for both job roles scoring similar may be the way in which healthcare staff are structured in nursing home facilities. In most settings there will more health care assistants, who will be involved in direct patient contact. This is an interesting aspect of the results, as this has not been found in previous research due to difference in participants and settings. This would be an area for future research, to focus on the long term affects on the healthcare staff in nursing homes.

**Practical Implications**

Previous research has suggested that healthcare workers experienced high levels of stress, anxiety, and depression prior to the COVID-19 pandemic (Hall, L. H., et al., 2016). The current study has demonstrated that the levels found from previous research in hospitals can be replicated in a nursing home facility. It has also shown that these levels have been increased in healthcare staff that have came into contact with COVID-19. This may be due to low levels of personal protective equipment, fear of contracting the virus and infecting others. With the knowledge that this has caused increases, management could potentially put steps in place to ease the stress and anxiety of their staff. An example of this would be ensuring that there are adequate amounts of personal protective equipment available to staff and regular COVID-19 testing, which was in place earlier in the pandemic and could potentially minimise the stress and anxiety of spreading the disease.

Another implication is that high levels of stress, anxiety and depression in healthcare workers may affect their performance which could affect patient outcomes (Ignacio, J., et al.,2016). In order to prevent this, it is important for companies to put in place preventions, such as the mental health programme put in place by the HSE during the pandemic. Unfortunately, the programme is only available to HSE staff but a similar programme for private companies may benefit their healthcare staff.

**Limitations and future research**

The current study has several limitations that need to be considered. The study adopted a cross-sectional design therefore no causality can be inferred. Longitudal research may benefit future research in understanding the prolonged psychological effect COVID-19 may have on healthcare workers. Another limitation is that the psychological assessment was based online and

was a self-reporting tool, which can leave data prone to self-selecting bias. This means the that answers could potentially be compromised by how the participant felt in that exact moment for example if a participant had a bad day, it may influence their answers. Future research may also benefit from taking a qualitative approach to find the underlying reasons for the increases in stress, anxiety, and depression.

Another limitation is that participants were not asked about any previous mental health history. This is considered a limitation as participants with previous mental health problems may experience a higher mental health burden when faced with the challenges brought on healthcare workers due to COVID-19. Future research may benefit from excluding certain mental health problems, but this could also be an aspect for future research to investigate the prevalence of mental health problems in healthcare staff.

**Strengths**

One of the strengths of the current study is the time at which the data was collected. Data was collected from December 2021 until February 2022, which was the period of the COVID-19 Omicron variant surge. Therefore, the data reflects the levels of stress, anxiety and depression experienced during a period of increased infection rates.

Another strength of the study is it examined healthcare workers within a nursing home facility, this is something that has not been done in previous studies. Much of the previous research has focused on doctors and nurses in hospital settings, this research focused on nursing home facilities as this was one of the most affected facilities within Ireland during the pandemic. The study included healthcare assistants and social care workers, which is often not the case in previous research.

## Conclusion

This study expands on the existing literature which has found high levels of stress, anxiety, and depression in healthcare workers. The current study has built on previous research and investigated this in an Irish nursing home setting. The results have shown that the high levels already reported prior to the pandemic, have been affected by COVID-19. This would be an area for further, longitudal study to investigate weather these levels will decrease over time or if the COVID-19 pandemic will have a permanent affect on healthcare workers. This study has found significant positive relationships between age, experience and stress, anxiety, and depression. This would suggest that experienced healthcare workers are experiencing higher levels of stress, anxiety, and depression. The broader implications of this study are perhaps how healthcare companies can adapt new policies and put programmes in place to help reduce the stress, anxiety and depression found in healthcare staff.

# References

Alnazly, E., Khraisat, O. M., Al-Bashaireh, A. M., & Bryant, C. L. (2021). Anxiety, depression, stress, fear, and social support during COVID-19 pandemic among Jordanian healthcare workers. *Plos one*, *16*(3), e0247679.

Aly, H. M., Nemr, N. A., Kishk, R. M., & bakr Elsaid, N. M. A. (2021). Stress, anxiety, and depression among healthcare workers facing COVID-19 pandemic in Egypt: a cross-sectional online-based study. BMJ open, 11(4), e045281.

Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychological assessment*, *10*(2), 176.

Blanco-Donoso, L. M., Moreno-Jiménez, J., Amutio, A., Gallego-Alberto, L., Moreno-Jiménez, B., & Garrosa, E. (2021). Stressors, job resources, fear of contagion, and secondary traumatic stress among nursing home workers in face of the COVID-19: The case of Spain. *Journal of Applied Gerontology*, *40*(3), 244-256.

Brooks' S K, Webster R K, Smith L E, et al., The psychological impact of quarantine and how to reduce it: rapid review of the evidence. Lancet 2020.

Cai, H., Tu, B., Ma, J., Chen, L., Fu, L., Jiang, Y., & Zhuang, Q. (2020). Psychological impact and coping strategies of frontline medical staff in Hunan between January and March 2020 during the outbreak of coronavirus disease 2019 (COVID-19) in Hubei, China. *Medical science monitor: international medical journal of experimental and clinical research*, *26*, e924171-1.

Centers for Disease Control and Prevention (2020). Preparing for COVID-19: Long-term care facilities, nursing homes. Available at https://www.cdc.gov/coronavirus/2019-ncov/healthcare-facilities/prevent-spread-in-long-term-care-facilities.html

Ding, Yanwei, Jianwei Qu, Xiaosong Yu, and Shuang Wang. "The mediating effects of burnout on the relationship between anxiety symptoms and occupational stress among community healthcare workers in China: a cross-sectional study." *PloS one* 9, no. 9 (2014): e107130.

Dorritie, R., Quigley, D. D., Agarwal, M., Tark, A., Dick, A., & Stone, P. W. (2020). Support of nursing homes in infection management varies by US State Departments of Health. Journal of Hospital Infection. 10.1016/j.jhin.2020.02.007

Ehrlich, H., McKenney, M., & Elkbuli, A. (2020). Protecting our healthcare workers during the COVID-19 pandemic. *The American journal of emergency medicine*, *38*(7), 1527-1528.

Einav S, Hick J L, Hanfling D, Surge capacity logistics: care of the critically ill and injured during pandemics and disasters: CHEST consensus statement. Chest 2014; 146: e17S–e143S

Elbay, R. Y., Kurtulmuş, A., Arpacıoğlu, S., & Karadere, E. (2020). Depression, anxiety, stress levels of physicians and associated factors in Covid-19 pandemics. *Psychiatry research*, *290*, 113130.

Greenberg, N., Docherty, M., Gnanapragasam, S., & Wessely, S. (2020). Managing mental health challenges faced by healthcare workers during covid-19 pandemic. *bmj*, *368*.

Hall, L. H., Johnson, J., Watt, I., Tsipa, A., & O'Connor, D. B. (2016). Healthcare staff wellbeing, burnout, and patient safety: a systematic review. *PloS one*, *11*(7), e0159015.

Ignacio, J., Dolmans, D., Scherpbier, A., Rethans, J. J., Chan, S., & Liaw, S. Y. (2016). Stress and anxiety management strategies in health professions' simulation training: a review of the literature. *BMJ Simulation & Technology Enhanced Learning*, *2*(2), 42.

Kennelly, S. P., Dyer, A. H., Noonan, C., Martin, R., Kennelly, S. M., Martin, A., ... & Fallon, A. (2021). Asymptomatic carriage rates and case fatality of SARS-CoV-2 infection in residents and staff in Irish nursing homes. *Age and Ageing*, *50*(1), 49-54.

Laxer, K., Jacobsen, F. F., Lloyd, L., Goldmann, M., Day, S., Choiniere, J. A., & Rosenau, P. V. (2016). Comparing nursing home assistive personnel in five countries. Ageing International, 41, 62–78. 10.1007/s12126-015-9226-2.

Letvak, S., Ruhm, C. J., & McCoy, T. (2012). Depression in hospital-employed nurses. *Clinical Nurse Specialist*, *26*(3), 177-182.

Liu, J., Xie, W., Wang, Y., Xiong, Y., Chen, S., Han, J., & Wu, Q. (2020). A comparative overview of COVID-19, MERS, and SARS. *International Journal of Surgery*, *81*, 1-8.

Lin, H. S., Probst, J. C., & Hsu, Y. C. (2010). Depression among female psychiatric nurses in southern Taiwan: main and moderating effects of job stress, coping behaviour and social support. *Journal of clinical nursing*, *19*(15-16), 2342-2354.

Maunder, R.; Hunter, J.; Vincent, L.; Bennett, J.; Peladeau, N.; Leszcz, M.; Sadavoy, J.; Verhaeghe, L.M.; Steinberg, R.; Mazzulli, T. The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. CMAJ 2003, 168, 1245–1251.

Maunder, R. G., Lancee, W. J., Balderson, K. E., Bennett, J. P., Borgundvaag, B., Evans, S., ... & Wasylenki, D. A. (2006). Long-term psychological and occupational effects of providing hospital healthcare during SARS outbreak. *Emerging infectious diseases*, *12*(12), 1924.

Mealer ML, Shelton A, Berg B, Rothbaum B, Moss M. Increased prevalence of posttraumatic stress disorder symptoms in critical care nurses. Am J Respir Crit Care Med. 2007; 175: 693–697

Nayak, B. S., Sahu, P. K., Ramsaroop, K., Maharaj, S., Mootoo, W., Khan, S., & Extavour, R. M. (2021). Prevalence and factors associated with depression, anxiety, and stress among healthcare workers of Trinidad and Tobago during COVID-19 pandemic: a cross-sectional study. *BMJ Open*, *11*(4), e044397.

Reynolds, D.L, Garay, J.R., Deamond, s.l., Moran, M.K., Gold, W., & Styra, R. (2008). Understanding compliance and psychological impact of the SARS quarantine experience. Epidemiology & Infection, 136(7), 997-1007.

Wu K.K, Chan S.K., Ma T.M. (2005) Posttraumatic stress after SARS. *EMERG. Infect. Dis.* 11:1297-1300.

Xiao, X., Zhu, X., Fu, S., Hu, Y., Li, X., & Xiao, J. (2020). Psychological impact of healthcare workers in China during COVID-19 pneumonia epidemic: A multi-center cross-sectional survey investigation. *Journal of affective disorders*, *274*, 405-410.

Xing, L. Q., Xu, M. L., Sun, J., Wang, Q. X., Ge, D. D., Jiang, M. M., Du, W., & Li, Q. (2020). Anxiety and depression in frontline health care workers during the outbreak of Covid-19. *International Journal of Social Psychiatry*, 002076402096811

## Appendix A

Information sheet

What is this study about?

I am currently a final year psychology student in National College of Ireland. As part of my final year, I am required to complete my thesis which involves conducting my own research. Due to the events of the past year my study will be looking at the levels of depression, anxiety, and stress among healthcare workers in nursing homes.

The aim of this study is to investigate the levels of depression, stress, and anxiety among healthcare staff and to investigate whether the COVID-19 pandemic has led to high levels in healthcare staff.

This project is being supervised by Dr. Conor Nolan, psychology lecturer at the National College of Ireland.

What will taking part in the study involve?

If you decide to take part in this study, it will involve you completing a brief demographic survey, followed by the DASS-21 which is a questionnaire consisting of 21 questions which will take participants about three minutes to complete. Participants are asked to read statements and pick the number which is true for the statement. 0 indicates did not apply to me, 1 applied to some degree, 2 applied to a considerate degree, and 3 applied to me very much. Afterwards you will be provided with a debriefing sheet.

Who can take part?

You can take part in this study if you are over the age of 18. You must also be currently working or have worked in a nursing home facility during the COVID-19 pandemic. To take part in this study your role within the nursing home must be a healthcare assistant, registered nurse, or social care worker.

Do I have to take part?

Participation in this study is entirely voluntary, you are not under any obligation to take part. If you decide to take part in the study, you can withdraw at any stage up to the point of submission. Once your questionnaire is submitted it is anonymous meaning it is not possible to withdraw your data. This questionnaire includes items asking about your feelings of depression, anxiety, and stress levels. There is a small risk that these questions may cause some individuals upset or distress. If you feel that these questions may cause you to experience an undue level of distress, you should not take part in this study

What are the possible risks and benefits of taking part?

There are no direct benefits to you for taking part in this research. Although the information gathered from participants can be used to benefit society. At a time when we rely so heavily on healthcare staff, research such as this study, can show us the levels of depression, anxiety, and stress they endure.

If you decide to take part there is a possible risk of psychological distress due to the questions being based around depression, stress, and anxiety. In order to minimise you to this risk you will be provided with contact information for the researcher and supports you may need after completion.

Will taking part be confidential and what will happen to my data?

Yes, your participation will be confidential. You will be required to indicate which group you belong to regarding your age, job title, years of experience and weather you have been in contact with COVID-19. Although this information is gathered, answers will be grouped, and participants will not be required to give specific personal information. All survey's submitted will be done so anonymously. The data gathered from this study will be retained for five years in accordance with the NCI data retention policy.

What will happen to the results of the study?

The results from this study will be presented in my final dissertation, which will be submitted to the National College of Ireland. A copy of the dissertation will be retained by the NCI Norma Smurfit Library.

Who should I contact for further information?

For further information you can contact:

Research- Megan Killeen Hughes by email at psychologythesisresearch@gmail.com or

Supervisor of this study- Dr. Conor Nolan (contact details available at the end of the questionnaire)

## Appendix B

Please tick boxes to indicate you agree and consent to taking part in this study.

• I voluntarily agree to participate in this research study.

• I understand that even if I agree to participate now, I can withdraw before submitting or refuse to answer any question without any consequences of any kind.

• I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.

• I understand what participation involves.

• I understand that I will not benefit directly from participating in this research.

• I understand that all information I provide for this study will be treated confidentially.

• I understand that in any report on the results of this research my identity will remain anonymous.

• I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

☐

By ticking this box, I confirm that I have read the information and understand the terms of this study and that I voluntarily take part.

## Appendix C

**Demographic questionnaire**

What gender do you identify with?

- Female
- Male
- Non-Binary
- Other, you may enter this below

What age are you?

What is your highest level of education?

- Junior certificate
- Leaving certificate
- Post-leaving certificate
- Bachelor's degree
- Master's degree

What is your job title?

- Health care assistant
- Registered nurse
- Social care worker

How many years have you worked in this role?

Have you come into contact with COVID-19 in the workplace?

## Appendix D

DASS-21

Please read each statement carefully and click either number 0, 1, 2 or 3 which indicates how much a statement applies to you in the past week.

0= Did not apply to me at all

1= Applied to me to some degree/ some of the time

2=Applied to me a considerable degree/ good part of the time

3= Applied to me very much/ most of the time

1. I found it hard to wind down
2. I was aware of dryness of my mouth
3. I couldn't seem to experience any positive feelings at all
4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)
5. I found it difficult to work up the initiative to do things
6. I tended to over- react to situations
7. I experienced trembling (e.g., in the hands)
8. I felt that I was using a lot of nervous energy
9. I was worried about situations in which I might panic and make a fool of myself
10. I felt that I had nothing to look forward to
11. I found myself getting agitated
12. I found it difficult to relax
13. I felt down- hearted and blue

14. I was intolerant of anything that kept me from getting on with what I was doing
15. I felt I was close to panic
16. I was unable to become enthusiastic about anything
17. I felt I wasn't worth much as a person
18. I felt that I was rather touchy
19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)
20. I felt scared without any good reason
21. I felt that life was meaningless

## Appendix E

**Debriefing Form for Participation**

Thank you for your participation in our study! Your participation is greatly appreciated.

Useful contact information:

Researcher: Megan Killeen Hughes

Email address: psychologythesisresearch@gmail.com or

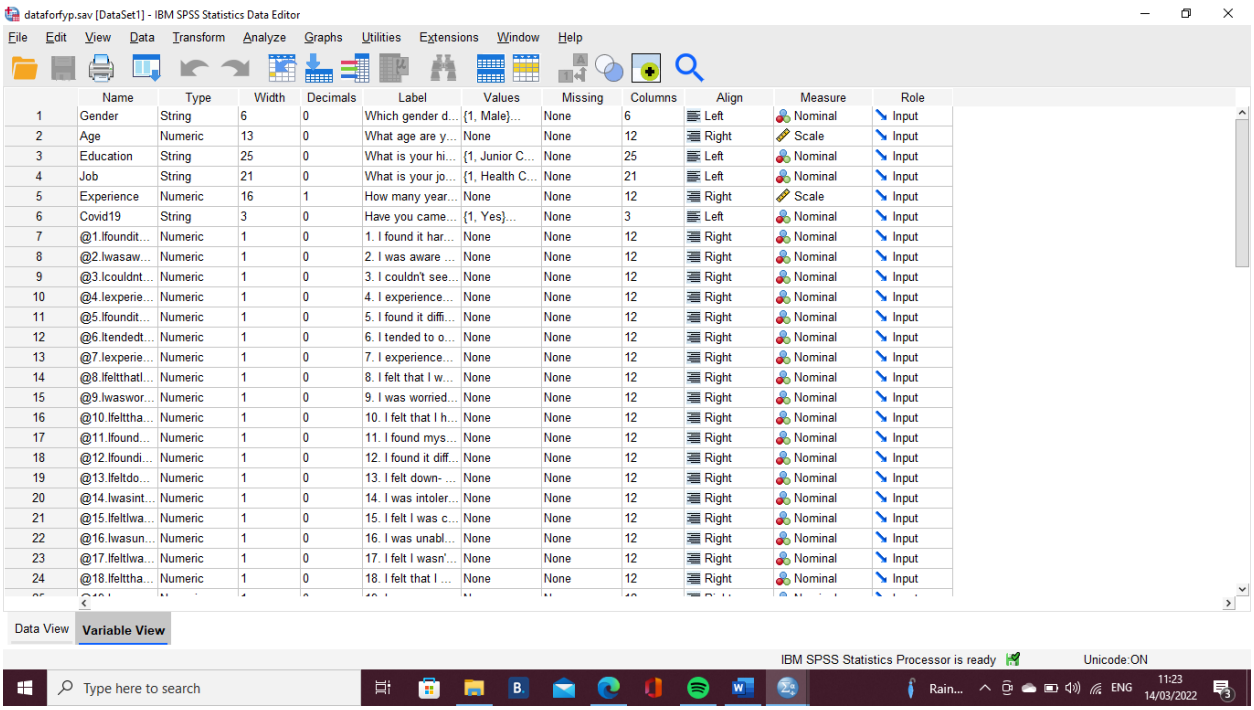
Supervisor of this study- Dr. Conor Nolan by email at conor.nolan@ncirl.ie

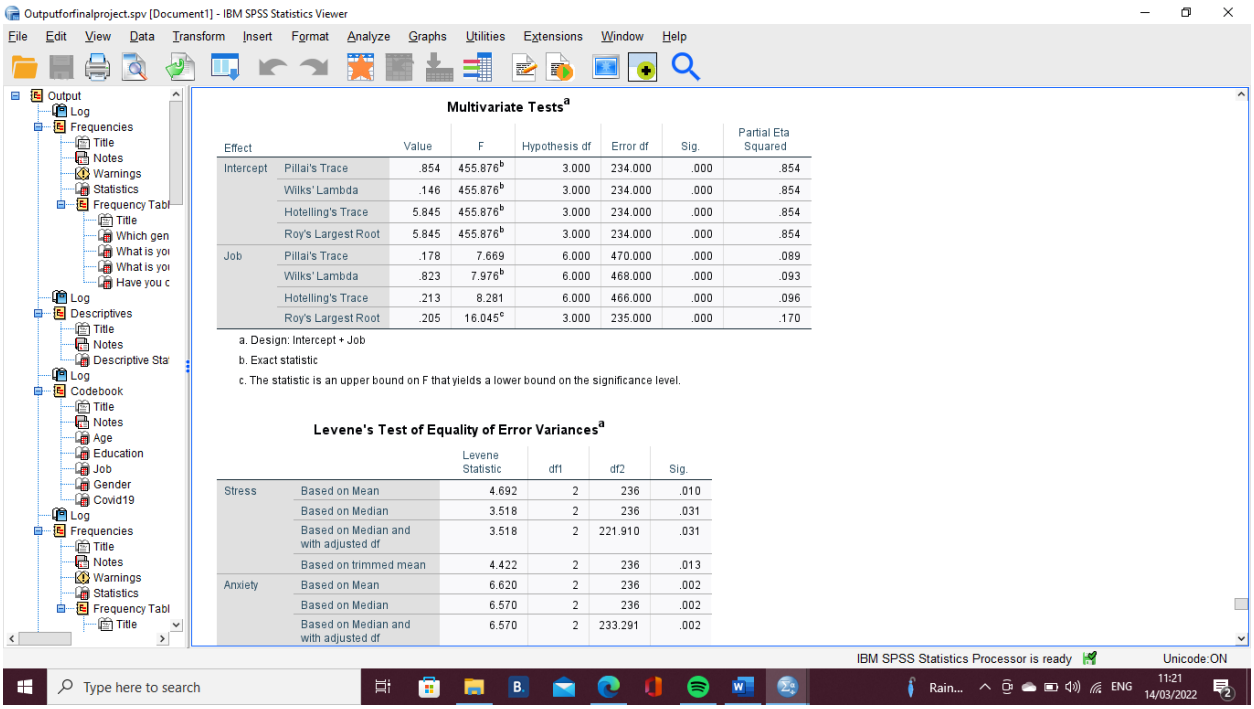
If you feel depressed, overwhelmed, distressed, or anxious in general or after participation these number provided are there to help!

- HSE Wellbeing section & staff helpline: 1850 420 420
- Jigsaw: Freephone 1800 247 247 every day 24 hours a day. Text HELP to 51444
- Mental health Ireland: Freephone 1800 80 48 48
- Connect phone counselling and support: 1800 477 477
- Samaritans: 01 671 0071

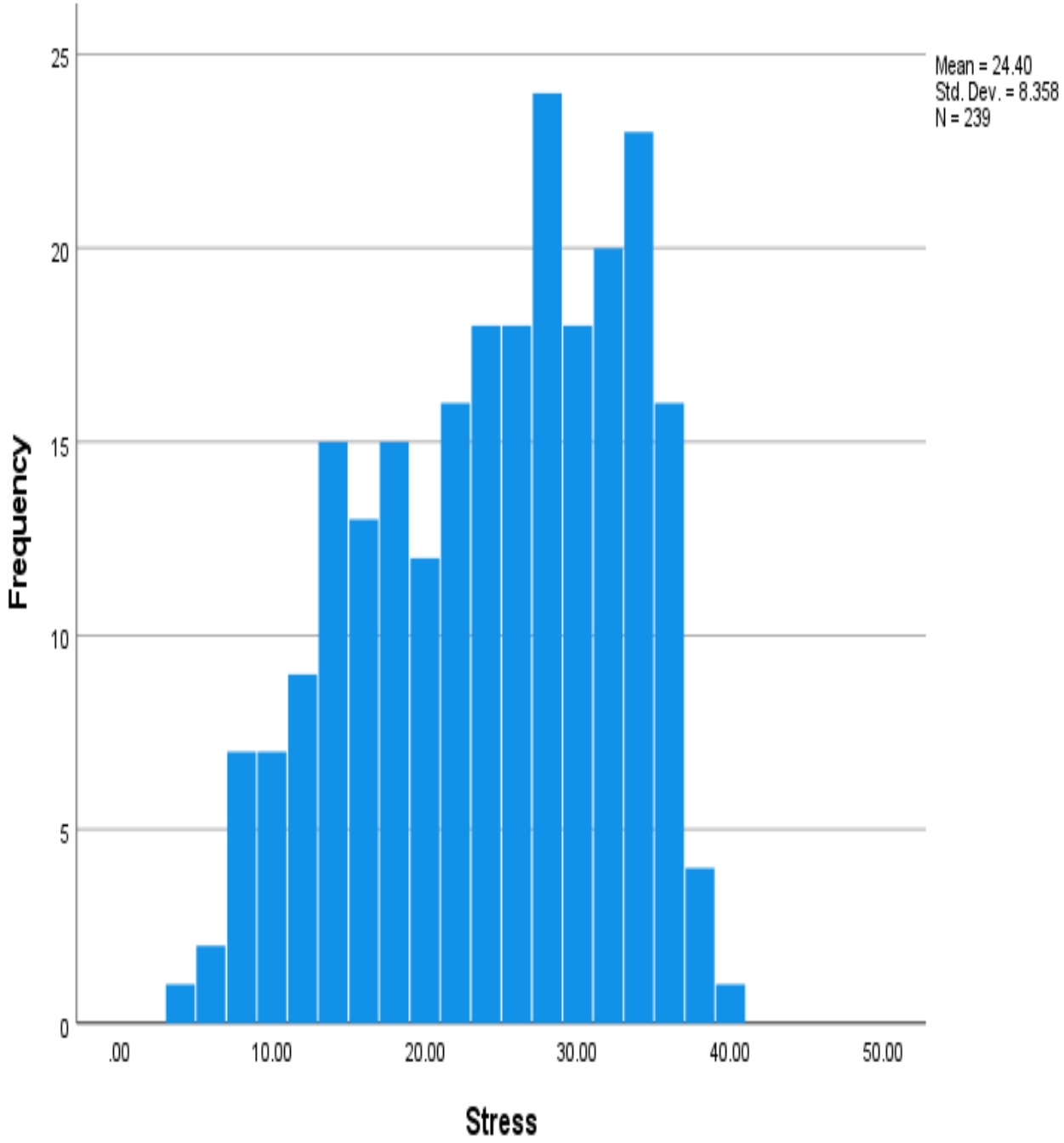
# Appendix F

Evidence of data and SPSS output (full data file available upon request)

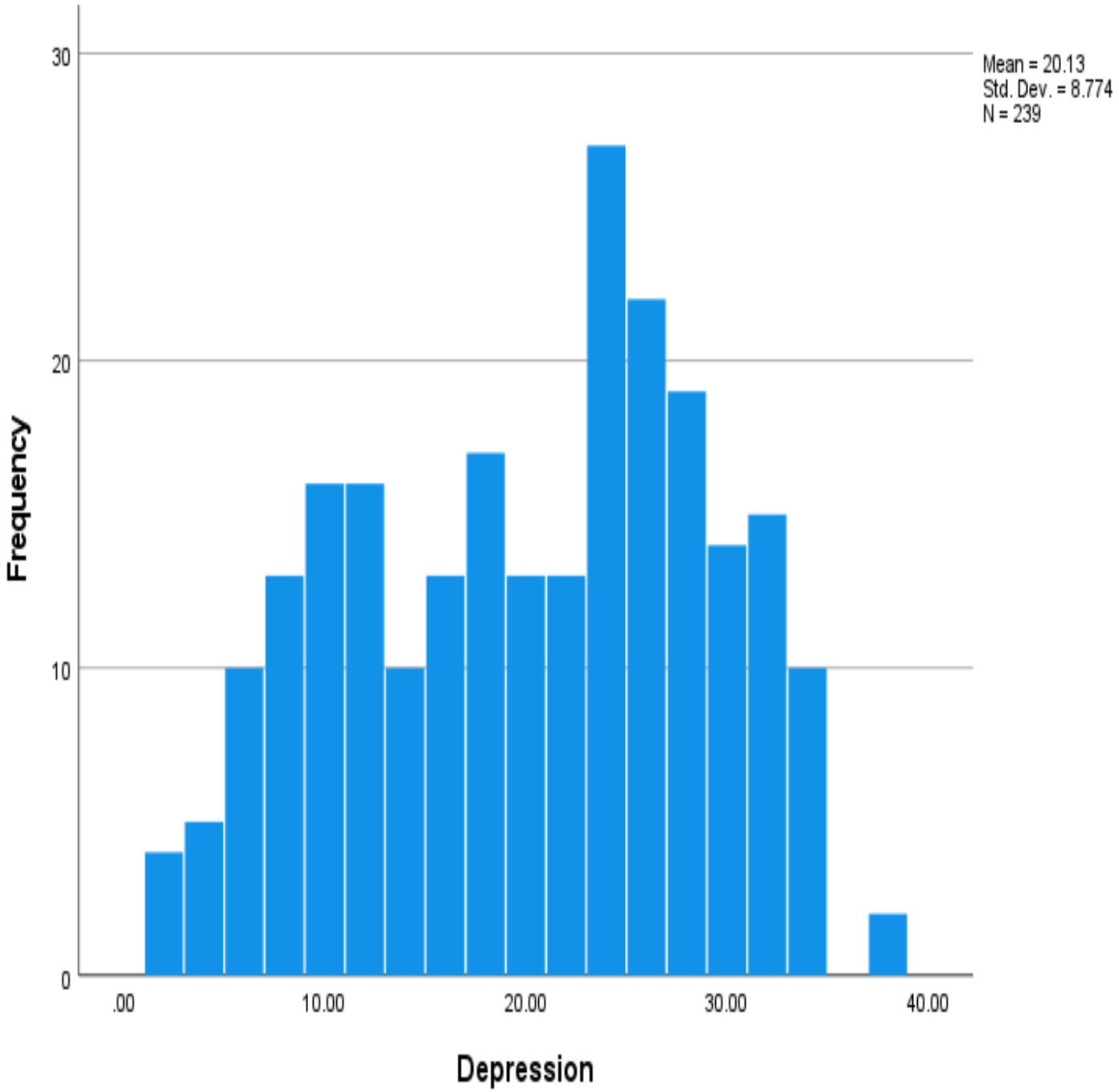


Histogram for stress



Histogram for depression



Histogram for anxiety