1 The Effect of Anxiety on Sleep Quality among COVID-19
2 Survivors in Barangay North Bay Boulevard South of Navotas
3 City

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7 ## Abstract

8 Background: The outbreak of COVID-19 has impacted the mental health of the people. The
9 study purpose is to look into the different factors or levels of anxiety that influence the sleep
10 quality of a COVID-19 survivor in Barangay North Bay Boulevard South of Navotas
11 City.Objectives: This study aimed to investigate the effect of anxiety on sleep quality of
12 COVID-19 survivors in Barangay North Bay Boulevard South of Navotas City. Materials and
13 Methods:In this cross-sectional study, data were collected between May 7, 2022 to May 25,
14 2022. The total population is 1891 with a sample size of 336. Informed consent form, GAD7
15 and Pittsburgh sleep quality index questionnaire were used as data collection tools.

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17 *Index terms*— anxiety; sleep quality; COVID-19.

18 1 Introduction

19 OVID-19 was first reported on December 31, 2019, by the Chinese authorities to the World Health Organization
20 as initial pneumonia cases of unknown origin in Wuhan City. In the following month of the year 2020, it was
21 globally announced acknowledging the number of cases surpassed 90 million. Consequently, a variety of issues
22 arose, including the increase in the intensity and level of anxiety which has an impact on a person's physical
23 activities, particularly the primary physiological critical need for sleep ??Morin et al., 2020). Moreover, human
24 anxiety was heightened by several factors such as the fast transmission of the virus, mortality caused by the
25 infection, lack of knowledge on the management and treatment, social isolation, disturbance of daily routine, and
26 uncertainties. Unfortunately, even COVID-19 survivors continue to have their usual body cycles interrupted.

27 Some studies have linked COVID-19 pandemic to the changes in an individual's various physiological needs like
28 food, shelter, and sleep, which subsequently destabilized those at the top of the hierarchy of needs, exacerbating
29 the negative consequence among individuals infected with COVID-19 ??Ryan et al., 2020). Additionally, another
30 important negative effect of COVID-19 outbreak is the deterioration of sleep quality, consisting of sleep delay,
31 sleep duration, habitual sleep efficacy, sleep disorders, use of sleeping medication and daytime dysfunction that
32 expresses the individual's sleep efficacy. Clearly, it implies that anxiety can worsen sleep quality. Furthermore,
33 one of the psychological effects of COVID-19 that could occur are sleep disturbances.

34 Overtime, anxiety evolves and aggravates other physical or mental health conditions of the person depending on
35 the duration of the negative stimulus or stressors they experienced ??Généreux et al., 2020). These circumstances
36 at hand are currently unavoidable as the pandemic shows an unknown time on when it will end. This study aims
37 to find out the effect of anxiety to sleep quality based on the respondents age and gender. This study will compare
38 the mean and standard deviation of the result from the test that measures anxiety level and sleep quality level.
39 The scores that will be gathered from these tests will be analyzed for their relationship to the gender and age
40 of the respondents with the use of two-tailed T Test for Gender and one way ANOVA for the age. Lastly, both
41 variables will be tested for relationship using Pearson R to see if both will have parallel effects interchangeably.

2 II.

3 Methodology a) Study Design

In this study, the researchers utilized a crosssectional procedure, explanatory research study design. First, the researchers examined the specific sleep quality of the participants. Second, the researchers correlated the sleep quality to the level of anxiety among demographics of age and gender. Third, the researchers correlated the relationship between the generalized anxiety and sleep quality among the COVID-19 survivors brought about by the pandemic. Lastly, the researchers used self-report measures which may be affected by social desirability bias. All questionnaires were strictly standardized and GAD7 and PSQi questionnaires were used. In addition, each of the questionnaires has a specific checklist in line with the effect of anxiety of a COVID-19 survivor and the sleep quality wherein these variables were also present in the research study. Detailed posters which included the information regarding the study were also provided prior to the interview proper.

4 b) Sample Size Computation

In the present study, the standard formula was used for determining the sample size of a known population. The confidence level was 90% (z-score of 1.645) with a default standard deviation of 50% (0.5) and margin of error of 10% (0.10). Starting with a total population of 1891, using the standard formula, it was then computed to 330 sample size which will represent the total population. This study utilized a Judgment or Purposive sampling technique. A non-probability sampling method that fits best in the type of population of this research was used as each chosen participant relies on the judgment of the researchers if they can meet the specific characteristics to participate in the study. The researcher was guided by a barangay official in gathering data in the target population.

5 c) Inclusion and Exclusion Criteria

As part of the inclusion criteria, the target population that partake in the research are Filipino male or female adults whose age ranges from 21-73 years old residing in North Bay Boulevard South of Navotas, Metro Manila. Participants are COVID-19 patient survivors who are able to comprehend the standardized questionnaire that is provided by the researchers. As part of the exclusion criteria, any person with clinical impairment such as motor, sensorial, or intellectual disability or illiteracy that may prevent answering the questionnaire as well as acute and chronic conditions that would limit the ability of the respondent to participate. Refusal to give informed consent is respected and will not be forced to partake in the study.

6 d) Interventions and Data Collection

The assigned researchers in data collection followed two types of manner of survey dissemination yet retains the process of purposive sampling; The total number of population is 1891 with a sample size of 336. The researchers utilized a well-ventilated room provided by the aid of the clinic which is coordinated with the barangay where the participants are the consented patients who are previously contracted with COVID-19. The time of administration depends on the day's clinic hours. The test administration consists of one consent form and two standardized tests, with a duration of 5 to 10 minutes each session. Throughout the administration of the test is accompanied by the assigned member of the barangay who stands as witness and confirms the record of the participant whether he or she has a history of contracting COVID-19. The other manner of survey dissemination is when it is outside the clinic hours. The researchers along with the assigned coordinator of the barangay surveys the specific locale and visits the address of covid survivors under the record list provided by the barangay coordinator. The process of administration in this method remains the same with the one in the clinic which the researchers assure that there is consent and secures the data's integrity by avoiding extraneous variables that could affect the data collection.

7 e) Measurement of Outcome and Data/ Statistical Analysis

The researchers utilized excell application to tally and arrange the raw data collected which is then forwarded to the statistician who used SPSS software to calculate the mean, correlation, two tailed T test, One way ANOVA, Pearson R, Chi square and other statistical operations. 1 Presents the frequency of distribution for each respondent based on their gender and age. As for the gender, it comprises 211 female respondents which makes up 62.80% of the total sample size in comparison to 125 male respondents which makes up for 37.20% of the total respondents. As for the distribution of respondents in consideration to Age it can be seen that most respondents are aged 35 -49 comprises the most percentage of respondents, followed by ages 50 -65 and 21 -34 as well as those greater than 66 respectively. 2 presents the summarization of data for the scores on Anxiety in relation by gender and age, the total mean score of anxiety for the male is 9.92 with a standard deviation of 5.40 which falls under the category of mild level of anxiety as well as for the female gender which scored a mean of 9.63 with a standard deviation of 5.32 which falls to mild category as well. As for the age, the score for the respondents aged 21-34, falls under the category of Minimal Anxiety, both ages 35-49 and 50-65 falls under the category of moderate Anxiety and lastly for those >66 scored a mean of 18.21 which falls under the severe level of Anxiety.

8 III.

9 Results

Table 2 also presents the summarization of data for the sleep quality in relation by gender and age, both genders male and female showed not much of differences which is 9.03 and 9.09 which both fall under moderate Sleep Disturbance, with a standard deviation of 4.65 and 4.24 respectively. As for the age, it became apparent that ages 21 -34 and 50 -65 show similarity in their level of sleep disturbances which are both mild. As for ages 35 -49 it showed to be that of moderate sleep disturbance with a score of 9.49. Lastly, those who are aged >66 with a mean of 17.87 which falls under the category of severe sleep disturbances shows that the elderly are heavily affected during pandemic. 5 presents the correlation between variables with a value of 0.604 which falls under the category of moderate positive correlation which is an ideal outcome in order to confirm the hypothesis and indicate that both variables are connected and were greatly influenced during the pandemic.

10 IV.

11 Discussion

Based on the statistical analysis utilizing Two tailed T Test, One way ANOVA, Pearson R and Chi Square, relating both variables to the demographic profile of the respondents, there were many statistically significant findings that were found. It can also be concluded that there is statistically significant evidence that can reject the null hypothesis with the computed score of 0.604 using Pearson R signifies that both variables affect each other interchangeably those who had the COVID-19 and is a survivor even up to this day.

In the case of anxiety in relation to gender, it was found out that it is statistically non-significant with a score of .900 and .904 which are both higher than the targeted P Value of 0.05, thus it can be said that gender does not play a role or influence with great significance the development of anxiety in addition to the respondents being COVID-19 survivors. In the case of the relationship of anxiety to age, it can be concluded based on the data gathered with the P Value of 0.001 that age greatly influences the development of anxiety among COVID-19 survivors. It consistently had a statistically significant result that indicates the importance of age consideration when studying the impact of the pandemic to those who had contracted and is of old age. In an existing research on the mental health burden in China during the COVID-19 outbreak, there was no difference between genders in the prevalence of generalized anxiety symptoms, however younger persons reported higher anxiety symptoms (Bäuerle, A. et al., 2020).

In consideration of sleep quality with regards to gender, it was found that yet again it yielded no statistically significant result with the score of 0.942, thus can be concluded that both genders are equally affected by disturbances to the quality of sleep of those who had COVID-19 during the pandemic. It signifies that the biological identity does not greatly influence the deterioration of sleep quality of those who had been infected. As for the sleep quality in relation to age, it shows that it is highly influenced and is statistically significant with the score of 0.022 to 0.001, indicating that by the age of the people who were positive and the deterioration of their sleep quality rises as they grow older. Data from a cross-sectional study, showed that there was no statistically significant association between gender and age as a factor for sleep disturbance ??Gupta, B. et al., 2020). Therefore, it is likely that the effects of gender and age on sleep quality among COVID-19 survivors are complicated and contradictory, and that some social-psychological factors may interact. As for the limitations of our study, it can be said that although the study was concluded to be statistically significant as supported by the analysis of data, many can still be added in order to cover more areas and consider more criteria for future research to be made. One of the limitations faced during the making of the research is the time in which the targeted response is of long overdue, relying on the ability of the respondents to recall their experiences during the pandemic heavily affected the study. During research, it is time constricted as well, making cross sectional studies have a lesser impact in comparison to other studies, but it could prove to have more fruitful results if given enough time to do so.

V.

12 Conclusion/recommendations

In conclusion, our study provided informative data to determine the effect of anxiety on sleep quality among COVID-19 survivors in Barangay North Bay Boulevard South of Navotas City. Our findings imply that sleep quality in relation to gender showed few differences which both fall under moderate sleep disturbance. Both genders are equally affected by disturbances to the quality of sleep of those who had COVID-19 during the pandemic. It signifies that the biological identity does not greatly influence the deterioration of sleep quality of those who have been positively infected. While for the relationship of age on sleep quality, it showed strong evidence that sleep quality is greatly influenced by age. The elderly were more affected and experienced severe sleep disturbances during the pandemic. It shows that it is highly influenced by the age of the people who were positive and that the deterioration of their sleep quality rises as they grow older. For the anxiety in relation to gender, it showed no significant relationship, which shows that no gender is heavily affected but rather both suffer the effects of anxiety during the pandemic. Gender does not play a role or influence with great significance the development of anxiety, in addition to the respondents being COVID-19 survivors. While for the relationship of

158 anxiety to age, it shows a very significant relationship throughout the different age groups. Age greatly influenced
159 the development of anxiety among COVID-19 survivors; it consistently had a significant result.

160   For future recommendations, evidenced-based psychological interventions may be useful when considering
161 suitable interventions for anxiety among COVID-19 survivors. Both low-intensity intervention with self-help
162 approaches and high-intensity psychotherapy can be used as evidenced-based interventions. We could also employ
163 past strategies like confidence building, distribution of informational pamphlets, describing signs and support
164 resources for anxiety, as well as availability of sessions and confidential telephone support with psychiatric staff.
    As for the sleep outcomes, especially for the elderly, adequate care,

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Respondents Characteristics		Number (n)	Percentage (%)
Gender			
?	Male	125	37.20%
?	Female	211	62.80%
Age			
?	Adult (21 -34)	39	11.61%
?	Early Middle Age (35 -49)	143	42.56%
?	Middle Age (50 -65)	131	38.99%
?	Elderly (>66)	23	6.85%
Table			

Figure 1: Table 1 :

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	Gender		Age			
	Male	Female	21-34	35-49	50-65	>66
Mean Score of Anxiety	9.92	9.63	1.07	11.37	9.04	18.21
Standard Deviation	5.40	5.32	1.22	2.42	5.33	1.88
Mean Score of Sleep Quality	9.03	9.09	7.46	9.49	7.54	17.87
Standard Deviation	4.65	4.24	3.02	2.77	4.69	0.34
Table						

Figure 2: Table 2 :

3a

Gender	Mean of Anxiety	Standard Deviation	Two-Tailed T Test
Male	9.92	5.40	.900
Female	9.63	5.32	.902

Figure 3: Table 3a :

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3b

Age	Mean of Anxiety	Standard Deviation	One way ANOVA
Adult (21 -34)	1.07	1.22	0.001
Early Middle Age (35-49)	11.37	2.42	0.001
Middle Age (50-65)	9.04	5.33	0.001
Elderly (>66)	18.21	1.88	0.001

Figure 4: Table 3b :

4a

Gender	Mean of Sleep Quality	Standard Deviation	Two-Tailed T Test
Male	9.03	4.65	0.942
Female	9.09	4.24	0.942

Figure 5: Table 4a :

4b

Age	Mean of Sleep Quality	Standard Deviation	One way ANOVA
Adult (21 -34)	7.46	3.02	0.022
Early Middle Age (35-49)	9.49	2.77	0.022
Middle Age (50-65)	7.54	4.69	0.001
Elderly (>66)	17.87	0.34	0.001

Table 4a presents the computed p value for the gender in regards to sleep quality which shows insignificant findings as well, it shows that there were no strong indications of it being a significant statistical value.

As for Table 4b it consistently shows significant statistical result with a value P value of <0.05 al throughout the age groups indicates that it has s evidence that sleep quality is greatly influenced b

Figure 6: Table 4b :

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Variable	Mean	Standard Deviation	Pearson R
Anxiety	2.62	0.89	0.604
Sleep Quality	1.66	0.70	0.604
Table			

Figure 7: Table 5 :

12 CONCLUSION/RECOMMENDATIONS

166   emotional support, and motivation should be given by their family.

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