Psychological Distress and Burnout of Radiologic Technologists in Batangas Province Amidst the COVID-19 Pandemic

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Abstract – *The existence of COVID-19 pandemic challenges the healthcare system not just physically but also mentally. This research study is conducted to evaluate the current mental health status of the radiologic technologists in the province of Batangas as they are part of the medical front line and one of the responsible in the early diagnosis and monitoring of COVID-19. The presence of depression, anxiety, stress, and burnout were determined and addressed in this research study as well as its correlation with the socio-demographic profile of the respondents. The survey questionnaire was composed of DASS-21 scale for the measurement of the psychological distress and the CBI questionnaire for the evaluation of burnout among the respondents. It was formulated in google forms and disseminated online. 51 responses were collected from the radiologic technologists who were working for at least 6 months during this pandemic in any hospital around Batangas province. The results revealed that the anxiety is the leading psychological distress being experienced by almost half of the total respondents ranging from mild to extremely severe. On the other hand, almost half of the participants experiencing mild to extremely severe depression while a quarter were experiencing mild to severe symptoms of stress. The radiologic technologists were also experiencing personal, work and COVID-19 pandemic related burnout. COVID-19 related burnout scores the highest among the three with fear of contagion as the leading reason. Majority of the variables under the socio-demographic profile were also found to be correlated with the psychological distress and burnout. This concluded that the presence of COVID-19 pandemic affects the mental health of the radiologic technologists of Batangas province.*

Keywords – *Anxiety, depression, fatigue, SARS-COV2, stress*

INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is brought by a causative agent known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1]. It has been reported with high rate of transmission and about 2% death rate and is continuously spreading worldwide [2]. This also leads to the development of mental health problems among the public [3]. Depression, anxiety, and stress with no exact symptoms is known as psychological distress [4]. Meanwhile, burnout was first described by Freudenberg and Maslach in the mid-1970s as a professional's state of "emotional exhaustion"[5]. According to Talaee et al. [6], this can also be an experience of fatigue due to the long work duration which can lead to the reduction of motivation and job interest resulting in low job productivity.

Radiologic technologists play a crucial role in evaluating the status of COVID-19 among patients since imaging techniques are used in its early diagnosis [7]. According to a research study, health care personnel that are directly responsible in dealing with COVID-19 patients are prone to develop psychological distress and mental health symptoms but only few actions are made to alleviate its effects and to address this problem [5], [8].

A research study revealed that hospital personnel were experiencing psychological symptoms ranging from moderate to severe during the this pandemic [9]. Another study confirmed that burnout among hospital personnel is higher during the pandemic compared to normal circumstances [8]. Matsuo et al. [10] asserted that 40% of the nurses and 30% of the radiologic technologists and pharmacists who participated in their study had reached the parameter for burnout. A research study conducted by Badahdah et al. [11] revealed that one in four health care workers who participated in their study suffered

moderate or severe anxiety while high-stress level is evident for females and young respondents during this pandemic season. The study of Lai et al. [5] reported that health care personnel were experiencing high levels of stress, anxiety, depression, and fear of the disease transmission on their relatives and friends. Another study confirmed that among their participants, females, individuals with psychiatric illness history, and those who were receiving psychiatric aid were highly evident to have depression, anxiety, insomnia, distress symptoms during the outbreak [12]. However, the usual participants of these studies are doctors and nurses. Personnel under the radiology department are also part of the front-line and are involved in the identification, management, and monitoring of COVID-19 patients either suspected or confirmed [7]. Studies that directly address them are indeed needed.

OBJECTIVES OF THE STUDY

This paper aimed to evaluate the prevalence of psychological distress and burnout among the radiologic technologists in Batangas province during the COVID-19 pandemic. Three aspects were considered for the psychological distress which were depression, anxiety, and stress. It's correlation with their socio-demographic profile was also determined. An appropriate program that will alleviate these issues were established based on the collected data. This identifies and address the current mental health status among radiologic technologists in Batangas province.

MATERIALS AND METHODS

Research design

The research was a cross-sectional and web-based study that determined the approximate number of radiologic technologists in Batangas province experiencing psychological distress and burnout [11].

Respondents of the Study

The respondents were radiologic technologists within Batangas province who have been working for at least 6 months during the season of pandemic. This criterion was set as it was proven in the study of Kumar & Vijai [13] that a 6-month work duration and long were correlated with burnout. The number of respondents were computed using GPower, with maximum allowable error of 0.10 and effect size of 0.3, obtaining 68 as the total sample size. A convenience sampling was used since it was the easiest where respondents were gathered based on their willingness or ability to answer the questionnaire. Also, for availability of the respondents given the limitations of the pandemic. An informed consent was presented first to the voluntary respondents before the survey questions. However, despite the effort of the researchers, only 54 responses were collected as some potential respondents declined the invitation. 3 of them did not meet the 6-month length of service criteria which resulted to a total of 51 qualified respondents.

Data Gathering Instrument

The instrument used in collecting data was a three-part online-questionnaire that was designed in google forms [14]. The first part was composed of the socio-demographic profile followed by the Depression, Anxiety and Stress Scale - 21 (DASS-21) and the CBI Copenhagen Burnout Inventory (CBI).

The DASS-21 is a validated screening instruments with three subscales which uses an integer as score for each item such as 0 (it does not apply to me) and 3 (it applies to me exactly) [6], [13]. The scores for each subscale were multiplied by 2 since this was a summarized version of the original scale. [6]. The severity ratings for each subscale are shown in Table 7 in the appendix.

Questions from Copenhagen burnout inventory (CBI) were utilized in assessing the level of burnout among the respondents with five response categories in two format using Likert scale. The first one is for intensity (a very high degree to a very low degree) and another for frequency (always to never or almost never). High scores will indicate high level of burnout having 0-100 points as the range of the scale. It will have three domain which are personal burnout, work-related burnout, and the client related burnout. The total scores were averaged. CBI score >50 will indicate the presence of burnout [8].

Ethical Approval and Data Privacy Review

The study was conducted adhering the ethical principles of the Research Ethics and Review Committee (RERC) of the Lyceum of the Philippines University-Batangas (A1-2021-002). The participation was voluntary, and a consent was presented prior to the survey. We ensured that all the accumulated data were handled properly following the data privacy act. The survey questionnaire was subjected to review for data privacy implications based on existing laws and regulations pertaining to data privacy and protection by the Data Privacy Office of the Lyceum of the Philippines University-Batangas.

Statistical Analysis

The data were computed using IBM SPSS statistics 26.0. Descriptions of variables and collected data were done using descriptive statistics such as frequency, means and standard deviation [15]. The correlation of the socio-demographic profile and other variables were done using Wilcoxon signed rank test which is a nonparametric tool as the accumulated data were unequal.

RESULTS AND DISCUSSIONS

Table 1. Percentage Distribution of the Socio-demographic profile of the respondents

	f	%
Gender		
Male	28	54.9%
Female	23	45.1%
Age		
18-29	39	76.5%
30-44	9	17.6%
45-60	3	5.9%
Marital Status		
Single	35	68.6%
Married	15	29.4%
Cohabitating	1	2.0%
Separated	0	-
Widowed	0	-
Employment Sector		
Government Hospital	12	23.5%
Private Hospital	39	76.5%
Free Standing Laboratory	0	-
Assigned field		
Computed Tomography	18	35.3%
Interventional Radiology	0	-
Magnetic Resonance Imaging	3	6.9%
Nuclear Medicine	0	-
Radiation Therapy	2	3.9%
Ultrasound	4	7.8%
Mammogram	0	-
X-ray	21	41.2%
Others	3	5.9%
Employment Status		
Full-time	49	96.1%
Part-time	2	3.9%
History of Psychiatric illness		
Yes	0	0
No	51	100%

Table 1 represents the socio-demographic profile of the respondents. A total of 54 participants completed the survey but only 51 of them met the 6 months length of work criteria. Among the 51 respondents, 28 (54.9%) of them were male and 23 (45.1%) were female. Most of the respondents' ages fell in the range of 18-29 accounting for 39 (76.5%) of the total responses. 9 (17.6%) of the respondents were around 30-44 years old while 3 (5.9%) were under the range of 45-60 years old. 36(68.6%) were single which comprises most of the participants while 15(29.4%) were married and 1(2%) were cohabitating. Most of the respondents came from private hospitals amounting to 39 (76.5%) of the population while 12(23.5%) were working in public hospitals. 21(41.2%) of the participants were assigned in X-ray, 18 (35.3%) in computed tomography, 4(7.8%) in ultrasonography, 3 (6.9%) in magnetic resonance imaging, and those who were assigned in multiple fields which were classified as others. 2 (3.9%) of the total respondents were working in the field of radiation therapy. 49 (96.1%) were working full time while 2 (3.9%) were working part-time and none of them has a history of psychiatric illness.

Male respondents were found to be more participative in this kind of survey compared to females. The study was a web-based study giving more opportunities for younger radiologic technologists to access the questionnaire and participate as they spend most of their free time online compared to older age group. Personnel of private hospital were easier to reach as they have more flexible work schedules compared to those who were in public hospitals. Computed tomography and x-ray were found to be the field where majority of the responses came as it was one of the modalities used in diagnosing COVID-19, requiring a greater number of workers compared to another field. This season of pandemic also boost the willingness of some employees to work full time which can be a factor why it has many responses for job scarcity and unemployment increases. Lastly, no respondents have the history of having a psychiatric illness due to qualifications set by the hospitals.

The study of Kafle et al. [16], also shows that majority of their responses were male which equates to 50.4% of their accumulated responses. A study shows that higher screen time were evident on younger adults with ages 34 and below than older individuals [17]. According to Pires et.al [18], a private hospital's environment was found to be more favorable as compared to public hospitals for medical staff. Radiologic technologist uses imaging techniques such as Computed Tomography (CT) for early diagnosis of the disease [7]. According to Cowan [19] fewer individuals choses to work full during this pandemic rather than having no work.

Table 2. DASS21 Result

	Normal	Mild	Moderate	Severe	Extremely Severe	Mean Scores
Depression	28 (54.9%)	11 (21.6%)	8 (15.7%)	2 (3.9%)	2 (3.9%)	1.80 ± 1.10
Anxiety	27 (52.9%)	7 (13.7%)	8 (15.7%)	4 (7.8%)	5 (9.8%)	2.08 ± 1.38
Stress	37 (72.5%)	6 (11.7%)	3 (5.9%)	5 (9.8%)	0	1.53 ± 1.00

Table 2 shows the results of the respondent's depression, anxiety, and stress according to the DASS-21 Scale. 28 (54.9%) out of 51 respondents were not suffering from depression. 11 (21.6%) respondents have mild depression. 8 respondents suffer from moderate depression while 2(3.9%) respondents were in a severe and extremely severe state. The results of the survey revealed that 27 (52.9%) respondents are still in the normal range towards anxiety. 7(13.7%) respondents suffer from mild anxiety while 8 (15.7%) respondents feel moderately anxious. 4 (7.8%) of the respondents suffer from severe anxiety. It has 5 respondents with 9.8% that is extremely severely anxious about this pandemic. 37(72.5%) respondents were still normal range for stress. 6 (11.7%) respondents are mildly stressed. 3 (5.9%) respondents have moderate feelings towards stress. Only 3 (5.9%) respondents were under severe stress. None of the respondents were extremely severely stressed.

Majority of the respondents were still in the normal range for all the categories given. The radiologic technologist's contact with the patients was minimal, unlike with nurses and doctors who spent most of their time with the patient creating high risk of COVID-19 transmission. The ongoing lockdown protocol can also be a factor as the number of infected individuals is being controlled, causing them to encounter fewer patients compared to those health care workers in urban areas. However, there are still few that were experiencing mild to extremely severe psychological distress symptoms, having anxiety as the leading one. This can mainly be due to the impact of fear for their own and their family's safety from the virus mixed with the feeling of isolation and exhaustion from too much workload.

As reported on a similar study, one factor why nurses developed psychological distress such as severe depression, anxiety, and insomnia is because they are more in contact with COVID-19 patients [12]. Another research study also concluded that the ongoing lockdown causes a positive effect on their respondents' psychological well-being as it aids in controlling the virus transmission, equating to reduced workloads [14]. However, according to Louis et al. [20] some Filipino who have been in contact with a positive individual were reported to have a higher level of health anxiety compared to those who had no known exposure. According to Kumar and Vijai [13] distance from relatives, long working hours, and risk of infection causes stress to be exaggerated.

Table 3. Personal-related burnout of the respondents

	Always	Often	Sometime	Seldom	Never/Almost Never	Mean Scores
How often do you feel tired?	9 (17.65%)	18(35.29%)	20(39.22%)	4 (7.84%)	-	65.69±21.77
How often are you physically exhausted?	9 (17.65%)	13(25.49%)	20(39.22%)	6 (11.76%)	3 (5.88%)	59.31±27.37
How often are you emotionally exhausted?	4 (7.84%)	13(25.49%)	19(37.25%)	12(23.53%)	3 (5.88%)	51.47±25.70
How often do you think "I can't take it anymore"?	3 (5.88%)	9 (17.65%)	18(35.29%)	13(25.49%)	8 (15.69%)	43.14±27.90
How often do you feel worn out?	4 (7.84%)	13(25.49%)	17(33.33%)	10(19.61%)	7 (13.73%)	48.53±28.90
How often do you feel weak or susceptible to illness?	4 (7.84%)	9 (17.65%)	19(37.25%)	10(19.61%)	9 (17.65%)	44.61±29.29
Average Mean Score				52.13±26.82		

Table 3 represents the results of the responses of the respondents in terms of their personal burnout. A mean score of 65.69 indicates that the respondents often felt tired. Others felt physically exhausted with a mean score of 59.31 and a standard deviation of 27.3. Emotionally exhaustion was also revealed among the responses with a mean score of 51.47. Meanwhile, 43.14, 48.53, and 44.61 mean scores were calculated for the questions how often they think that they can't take it anymore, how often do they feel worn out and how often do they feel weak and susceptible to weakness. The average mean score was 52.13 indicating the presence of personal burnout.

Personal burnout can be associated with the day-to-day exhaustion felt by the respondents not just in their career but also in their personal lives. A negative event in an individual's life can be a significant factor in developing personal burnout. Previous studies concluded that one of the better predictors of burnout is personal stress [21]. Dyrbye et al. [22] also asserted that negative personal life events such as major illness can be correlated with an increased probability of burnout.

Table 4 shows the results of the work-related burnout of the respondents. The data shows that a total of 52.45% said that their work becomes more emotionally exhausting during the Covid-19 pandemic. Out of 51 respondents, a total of 52.45% said that they are burnt out because of their work. Meanwhile, 44.12% said that their work is frustrating. The level of frustration on workers is not affected by this pandemic. A total of 57.35% indicates that they feel worn out after work. 51.47% reported that they are already exhausted at the thought of another day. Whilst 52.45% of the respondents said that the working hour is tiring them. A total of 66.18% still have the energy to socialize with friends and families. An average of 53.78% shows a presence of work-related burnout among the respondents.

The pandemic caused a huge impact in terms of workload. Healthcare workers spend a tremendous amount of energy to fulfill their duty and providing the needs of the different patients will surely leave them exhausted. They also have fewer rest days as some of them were forced to have long and straight days of duty due to the insufficiency of workforce. Wearing personal protective equipment and doing additional health safety protocols at the end of the day can also add to their feeling of worn out at the end of the day.

The probability of burnout in any aspects increases as the demand for the job increases [23]. According to Wilson et al. [14], healthcare workers were significantly more likely to experience symptoms of burnout than any other occupational group. Research confirms that work environments, such as workload, night work, work experience, loss of autonomy, and lack of time to socialize with colleagues, are also significant for the development of burnout syndrome [23]. Using personal protective equipment were also found to be a contributing factor of physical exhaustion to the existing psychological pressures of the health care providers [6].

Table 4. Work-related burnout of the respondents

	To a very high degree/ Always	To a high degree/Often	Somewhat/ Sometimes	To a low degree/Seldom	To a very low degree/ Never	Mean scores
Is your work emotionally exhausting?	4 (7.84%)	14 (27.45%)	22 (43.14%)	5 (9.8%)	6 (11.76%)	52.45±27.04
Do you feel burnt out because of work?	8 (15.69%)	8 (15.69%)	21 (41.18%)	9 (17.65%)	5 (9.8%)	52.45±29.26
Does your work frustrate you?	3 (5.88%)	7 (13.73%)	23 (45.1%)	11 (21.57%)	7 (13.73%)	44.12±26.26
Do you feel worn out at the end of the working day?	9 (17.65%)	11 (21.57%)	22 (43.14%)	7 (13.73%)	2 (3.92%)	57.35±26.12
Are you exhausted in the morning at the thought of another day?	9 (17.65%)	10 (19.61%)	19 (37.25%)	6 (11.76%)	7 (13.73%)	51.47±31.79
Do you feel that every working hour is tiring you?	8 (15.69%)	9 (17.65%)	22 (43.14%)	9 (17.65%)	3 (5.88%)	52.45±28.40
Do you have enough energy for family and friends during leisure time?	12 (23.53%)	12 (23.53%)	24 (47.06%)	2 (3.92%)	1 (1.96%)	66.18±24.41
Average Mean Score				53.78±27.61		

Table 5. COVID-19 pandemic related burnout of the respondents

	To a very high degree/ Always	To a high degree / Often	Somewhat/ Sometimes	To a low degree/ Seldom	To a very low degree/Never	Mean scores
Do you feel it is hard to work in the current scenario?	14 (27.45%)	20 (39.22%)	15 (19.61%)	2 (3.9%)	0	72.55 ± 21.36
Does it drain more of your energy to work during the current scenario?	12 (23.53%)	20 (39.22%)	14 (27.45%)	5 (9.8%)	0	69.12 ± 23.23
Do you find it fruitful while performing your work during the current scenario?	7 (13.73%)	13 (25.49%)	23 (45.1%)	7 (13.73%)	1 (1.96%)	58.82 ± 23.89
Do you feel that you are giving more than what you get back while working in the current scenario?	13 (25.49%)	15 (29.41%)	17 (33.33%)	5 (9.8%)	1 (1.96%)	66.67 ± 25.82
Do you hesitate to work during this current scenario?	5 (9.8%)	8 (15.69%)	23 (45.1%)	13 (25.49%)	2 (3.92%)	50.49 ± 24.74
Do you feel depressed because of the current scenario?	7 (13.73%)	10 (19.61%)	19 (37.25%)	12 (23.53%)	3 (5.88%)	52.94 ± 27.68
Do you feel that your patience is tested while working in the current scenario?	13 (25.49%)	14 (27.45%)	16 (31.37%)	8 (15.69%)	0	65.69 ± 25.96
Do you feel lockdown due to the current scenario has added stress on you?	9 (17.65%)	11 (21.57%)	16 (31.37%)	11 (21.57%)	4 (7.84%)	54.90 ± 30.00
Do you have fear to catch COVID-19 infection while working in the current scenario?	34 (66.7%)	3 (5.9%)	10 (19.6%)	3 (5.9%)	1 (2%)	82.35 ± 27.52
Do you have fear of family members catching infection because of your workplace?	48 (94.1%)	1 (2%)	0	1 (2%)	1 (2%)	96.08 ± 17.59
Do you feel welcomed by the community because you are an HCW and working in the current scenario?	10 (19.6%)	10 (19.6%)	21 (41.2%)	10 (19.6%)	0	59.80 ± 25.53
Are you indulging in any substance abuse (alcohol/drugs/smoking) during this period of lockdown?	0	3 (5.9%)	7 (13.7%)	10 (19.6%)	31 (60.8%)	16.18 ±23.36
Do you have a fear of death while working in the current scenario?	13 (25.49%)	9 (17.65%)	13 (25.49%)	12 (23.53%)	4 (7.84%)	57.35 ± 32.51
Do you feel you are being properly protected by the hospital while working in the current scenario?	8 (15.69%)	12 (23.53%)	16 (31.37%)	10 (19.61%)	5 (9.8%)	53.92 ± 30.16
Do you feel you are being supported by colleagues during the current scenario?	13 (25.49%)	22 (43.14%)	14 (27.45%)	2 (3.92%)	0	72.55 ±20.77
Average Mean Score						61.96 ± 25.34

Table 5 shows the results of the COVID-19 pandemic-related burnout of the respondents. The average mean score of 61.96, which is the highest among the three-domain, indicates the presence of burnout with regards to the COVID-19 pandemic among the radiologic technologists. The results show that the question "Do you have fear of family members catching infection because of your workplace?" has the highest mean score of 96.08. This also revealed that the respondents are in fear of catching COVID-19 infection while working in the current scenario which has the second-highest mean score of 82.35. A 72.55 mean score was accumulated for the questions "Do you feel it is hard to work in the current scenario?" and "Do you feel you are being supported by colleagues during the current scenario?". According to the responses, this scenario drains more of their energy to work with a 69.12 mean score. A 66.67 mean score was garnered among the responses regarding the question if they feel that they are giving more than what they get back while working in the current scenario. The question "Do you feel that your patience is tested while working in the current scenario" has a total mean score of 65.69.

The question "Do you feel welcomed by the community because you are an HCW and working in the current scenario?" has a mean score of 59.80 while a 58.82 mean score have resulted for the question," Do you find it fruitful while performing your work during the current scenario?". The question regarding fear of death while working during this current scenario has a mean score of 57.35. A 54.90 mean score resulted for the question "Do you feel lockdown due to the current scenario has added stress on you?" and 53.92 for the question "Do you feel you are being properly protected by the hospital while working in the current scenario?". A 52.94 mean score has resulted in the question if they feel depressed and 50.49 if they hesitate to work during this current scenario. The responses for the question "Are you indulging in any substance abuse (alcohol/drugs/smoking) during this period of lockdown? "have a mean score of 16.18 which is also the lowest.

The main factors in developing COVID-19 related burnout are the fear of contracting the infection

and the possibility of transmitting it to their close contacts as they witness the situations of their patients. This mental torture adds more weight to the physical fatigue of the radiologic
technologists. Lack of appropriate protection and support system can also be a reason for developing burnout as both protective equipment and workforce were scarce. Burnout can also arise as to how their respective community accepts and treat the corresponding respondent. Discriminations both in personal and social media can affect their perspective regarding the current situation. This burnout can also be related to the proper recognition and compensation that the health care workers need as they exert extra effort to address this current situation.

Similar results were also found in different research studies. According to Khasne et al. [8], majority of their participant's concerns were regarding the fear of being infected at work and the possibility of transmitting it to their relatives. Stigmatization, discrimination, a feeling of uncertainty, and hesitation to do the work were also identified to be a factor in developing psychological distress [5], [20]. A research study also confirms that among their respondents, those who have access to personal protective equipment and those who are properly supported have lower rates of mental health issues [24]. Frequent exposure to false information circulating through the world wide web regarding COVID-19 updates is also a considerable factor in developing negative emotions [12]. Kumar and Vijai [13] concluded that proper compensation such as financial aids and insurance from the government can help them in working confidently during this scenario. Substance abuses were also reported to be low in this study similar to the findings of Khasne et al. [8] despite the presence of psychological distress and burnout among the respondents.

Table 6 shows the correlation between the socio-demographic profile of the respondents and the DASS21 and CBI. Based on the results of the gender variable, all the correlations show to be statistically significant with $p = 0.037$ for DASS-21 $p = 0.000$ ($p < 0.05$) for Personal Burnout, $p = 0.000$ ($p < 0.05$) for Work Burnout, and $p = 0.000$ ($p < 0.05$) for Pandemic Related Burnout. There is also a significant relationship with age and the variables DASS Scale, Personal Burnout, Work Burnout, and Pandemic Related Burnout with $p = 0.005$, $p = 0.000$, $p = 0.000$, $p = 0.000$ respectively. There are also significant relationships between Marital Status and DASS Scale with, $p = 0.008$, Marital Status and all aspects under Burnout with $p = 0.000$. For the employment sector, the DASS-21 has no significant since it has a p-value of .662 while all the burnout were statistically significant with p-value of 0.000. The results also show that the employment Status and DASS Scale have no significant correlation with $p = 0.155$ since $p > 0.05$. On the other hand, it reveals that there are significant relationships between Employment Status and Personal Burnout with $p = 0.000$, Employment Status and Work Burnout with $p = 0.000$, and Employment Status and Pandemic Related Burnout with $p = 0.000$. The patient's History of Psychiatric Illness has also significant relationships between DASS Scale ($p = 0.000$), Personal Burnout ($p = 0.000$), Work Burnout ($p = 0.000$), and Pandemic Related Burnout ($p = 0.000$). The table also shows that male respondents experienced more depression, anxiety, stress, and pandemic-related burnout compared to female with mean scores of 1.89, 2.25, 1.54, and 3.50 respectively. However, female respondents experienced more personal-related burnout with a mean score of 3.15 while work-related burnout was equally experienced on both genders. Respondents' ages 18-29 were found to be more depressed with a mean score 1.9 and the most age groups experiencing personal (M=3.29), work (M=3.1 and 3.5) and pandemic (M=3.52) related burnout. The age group of 30-44 were found to experience more anxiety with mean score of 2.67 while stress was experienced by both 18-29 and 30-44 age group with mean score of 1.56. Single respondents found to be more depressed, anxious, and stress compared to other respondents with mean scores of 1.89, 2.14 and 1.51. All aspects of burnout were found to be highly experienced by married individuals with mean scores of 3.06 for personal-related, 3 and 3.30 for work-related and 3.51 for pandemic-related burnout. Respondents from private hospitals were found to experience more depression (M=1.9), anxiety (M=2.15), stress (M=1.54), and pandemic-related burnout (M=3.51). Personal and work-related burnout were highly experienced by respondents from public hospitals with 3.11, 3.42 and 3.5 mean scores. Depression was found to be high on respondents working under ultrasonography field with a mean score of 2.75 while anxiety was found to be high on respondents working as an MRI, Radiologic therapy, and ultrasound technologists with a mean score of 3. Stress is highly evident on respondents working on the radiation therapy field with a mean score of 2. Burnout in all aspects were also found high on respondents working as an ultrasonographer. Full time workers also found to experience higher level of depression, anxiety, and burnouand 4.07 respectively.

Table 6. Wilcoxon Signed Rank Test

Variables	DASS21							Copenhagen Burnout Inventory										
	Depression		Anxiety		Stress			Personal-related burnout			Work-related burnout					Pandemic-related burnout		
	Mean	SD	Mean	SD	Mean	SD	p-value	Mean	SD	p-value	Mean	SD	Mean	SD	p-value	Mean	SD	p-value
Gender																		
Male	1.89	1.22	2.25	1.55	1.54	1.10	.037	3.12	.74	.000	2.12	.97	3.38	.79	.000	3.50	.39	.000
Female	1.70	.93	1.87	1.14	1.52	.85		3.15	1.10		2.82	1.07	3.14	.76		3.46	.50	
Age																		
18-29	1.9	1.19	2	1.41	1.56	1.56	.005	3.29	2.44	.000	3.1	2.67	3.35	0.76	.000	3.52	3.36	.000
30-44	1.56	0.73	2.67	1.32	1.56	0.73		2.44	0.82		2.67	1.26	2.94	0.81		3.36	0.39	
45-60	1.33	0.58	1.33	0.58	1	0		2.33	1.04		2.44	1.35	3.33	1.01		3.31	0.27	
Marital Status																		
Single	1.89	1.18	2.14	.46	1.51	.95	.008	3.05	.85	.000	2.92	1.03	3.23	.76	.000	3.51	.42	.000
Married	1.67	.90	2.00	1.23	1.47	1.06		3.06	.99		3.00	.91	3.30	.81		3.36	.46	
Cohabitating	1	-	1	-	1			1			1	-	1	-		1		
Separated	-	-	-	-	-	-		-	-		-	-	-	-		-	-	
Windowed	-	-	-	-	-	-		-	-		-	-	-	-		-	-	
Employment sector																		
Government hospital	1.5	0.8	1.83	1.4	1.5	1	.662	3.11	0.76	.000	3.42	0.93	3.5	0.8		3.32	0.46	.000
Private hospital	1.9	1.17	2.15	1.39	1.54	1		3.08	0.96		2.85	1.01	3.2	0.77		3.53	0.42	
Free standing laboratories	-	-	-	-	-	-		-	-		-	-	-	-		-	-	
Assigned field																		
Computed Tomography	1.72	1.07	2.06	1.43	1.61	1.04	.000	3.2	0.95	.006	2.87	1.02	3.25	0.85	.002	3.47	0.49	.013
Interventional Radiology	-																	
Magnetic Resonance Imaging	2.33	2.31	3	2	2	1.73		2.28	0.48		2.56	0.69	2.75	0.66		3.64	0.4	
Nuclear Medicine	-	-	-	-	-	-		-	-		-	-	-	-		-	-	
Radiation Therapy	1.5	0.7	3	2.82	2	1.41		3.25	1.06		2.83	0.24	3.25	0.7		3.2	0.19	
Ultrasound	2.75	1.26	3	1.41	1.25	0.6		3.7	0.52		3.42	0.63	3.88	0.52		3.75	0.26	
Mammogram	-	-	-	-	-	-		-	-		-	-	-	-		-	-	
X-ray	1.71	0.96	1.81	1.17	1.48	0.98		3	0.86		3.17	1.12	3.27	0.76		3.45	0.45	
Others	1.33	0.58	1.33	0.58	1	0		2.89	1.5		2.33	1.15	3.17	1.01		3.3	0.24	
Employment Status																		
Full time	2.5	2.12	2.5	2.12	1	0	.155	3.58	0.83	.000	3.5	0.7	3.88	0.18	.000	4.07	0.19	.000
Part time	1.78	1.07	2.06	1.38	1.55	1		3.06	0.91		2.97	1.03	3.25	0.78		3.45	0.43	
History of Psychiatric Illness																		
Yes	-	-	-	-	-	-	.000	-	-	.000	-	-	-	-	.000	-	-	.000
No	1.8	1.1	2.08	1.38	1.53	0.99		3.09	0.91		2.99	1.02	3.27	0.78		3.48	0.44	

However, stress is highly experienced by employees under public hospitals with a mean score of 1.55. Respondents without any psychiatric illness history were also found to experience psychological distress and burnout in all the three aspects.

The pandemic cause higher level of psychological distress on male radiologic technologists than in female. Meanwhile, Younger individuals were gradually adapting to things as they have less experience than those with older age making them susceptible to emotional challenges. Having children at home and lots of uncertainty at home can be a considerable factor in developing emotional distress. Their work environment and the nature of their work can also cause pressure both on their physical and emotional aspect. Being a full-time worker also enables them to witness every detail of life and death in the hospitals in addition to their pile of workloads and fear of being infected, which may result in emotional damage. The pandemic also has psychological impact on radiologic technologists despite having no clinical incidence of psychiatric problem.

A research study made by Odonkor & Frimpong [15] revealed that burnout is correlated with the respondents' socio-demographic profile. In a study made by Vahedian-Azimi et al. [25] higher level of anxiety were found on men respondents than female. However, the results for the majority of the parameters on gender opposes similar studies conducted wherein female respondents scores high for depression and emotional distress [26], [27]. According to Stawski et al. [28], older adults were found to experience fewer daily stressors than younger ones since they were flexible in shifting their mindsets to avoid scenarios that will lead them in having negative emotions. Badahdah et al. [11] also concluded that older medical staff already have lots of experiences in their field leading them to develop a better coping mechanism. According to Erquicia et al. [27] , having children at home is also a considerable factor in developing high emotional distress. Radiologic technologists working at large academic medical center were also proven to have repetitive stress symptoms and the traditional way of having radiographs was also contributing to this [29]. Excessive stress and burnout can arise as they witness their patients die alone and the need to report this to their family as they deal with numerous workloads [12].

CONCLUSION AND RECOMMENDATION

The respondents were experiencing psychological distress having anxiety as the leading problem. Almost half of the respondent's experience anxiety ranging from mild to extremely severe. Depression follows anxiety, wherein also almost half of the respondents show mild to extremely severe signs. While, more than a quarter of the respondents were experiencing mild to severe symptoms of stress.

The respondents experience burnout in relation to their personal, work and their COVID-19 experiences. The rate of COVID-19 related burnout was the highest among the three with fear of both acquiring and transmitting the virus as the major factors of developing such.

The final data also concluded that majority of the socio-demographic profile of the respondents were correlated with psychological distress and burnout.

In general, the research study concluded that the presence of pandemic affects the psychological well-being of the radiologic technologist in Batangas Province. However, the said results are not applicable for free standing clinics due to not having respondents from free standing clinics.

The data collected from this study together with the action plan made by the researchers with Ms. Andrea Agatha Baldon, RPM, a registered Psychologist, can be utilized to alleviate the mental health problem of the respondents.

Further study is highly suggested to address the limitations of this study such as exploration of certain factors that are essential among Filipinos which influence their mental health status amidst unprecedented times such as this pandemic.

APPENDIX

Table 7. Severity ratings for DASS-21 scale

Severity	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	33+

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