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CLINICAL RESEARCH

A Qualitative Descriptive Cross-Sectional Study to Assess the Development of Stress among Fujairah Primary Health Care Nurses, and Ways of Coping up during COVID-19 Pandemic Crisis

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ABSTRACT

AIM

The aim of this study was to explore perceptions of the most salient sources of stress in the early stages of the coronavirus pandemic in a sample of nurses who were working in Fujairah Primary health care during the year 2020-2021.

BACKGROUND

During pandemic process, nurses reported to experience stress due to a very high risk of being infected and workload. The coronavirus disease (COVID-19) pandemic has exposed nurses to conditions that threaten their health, well-being, and ability to work. It is therefore critical to study nurses' experiences and well-being during the current crisis in order to identify risk groups for ill health and potential sources of organizational intervention.

METHOD

A qualitative descriptive cross-sectional study with a sample consisting of 180 nurses working in Fujairah Primary health care centers. To collect data, an online survey questionnaire was formulated which was used together with the Perceived Stress Scale among a sample of 280 nurses who were working in Fujairah Primary health care 2021. Content analysis was conducted on nurses' responses (n = 180) for their perceptions.

RESULTS

180 nurses' responses(N) were randomly chosen as samples in this current study of which majority were female (n = 161, 89.4%) and only 10.6% (n = 19) were males. Findings revealed the distribution of respondents by stress level either low or moderate. 89.4% of respondents had moderate stress level as compared to 10.6% with less stress. There is no presence of normal and high stress. There was no significant association between the stress

when compared to socio-economic factors like age, gender, marital status, qualification, and job title (P >0.05). But when it compared to the relationship with working position and working area, it was showing a significant association (P ≤0.05).

CONCLUSION

Nearly more than half of the nurses in Fujairah primary health care centers perceived stress above average during COVID-19 pandemic, and their working conditions also affected this situation.

IMPLICATIONS FOR NURSING MANAGEMENT

Healthcare institutions should provide opportunities for nurses to discuss the stress they are experiencing, support one another, and make suggestions for workplace adaptations during this pandemic. Meeting physiological needs, applying psychological guidance and counselling interventions in the stress management of nurses may contribute to the reduction of their stress levels. Effective infection control, reducing workload, increasing the number of nurses and strengthening the coping mechanisms can minimize the perceived stress level of nurses.

KEYWORDS

Nursing; COVID-19; Qualitative; Health workers; Pandemic; Stress; Content analysis

INTRODUCTION

The COVID-19 pandemic has started to threaten the health care systems of countries and has increased the burden on health care professionals [1,2]. Health care professionals are the most valuable resource in protecting, preventing and treating public health for all countries [3-5]. The services of primary health care, which are one of the units where these basic services are provided, are the place that have important roles in the pandemic process as in other disasters and make the first intervention to patients affected by the infectious agent [6].

As on April 23rd, 2020, more than 2.6 million cases of COVID-19 have been detected globally and the numbers were rising with each passing day. Understandably, parallel and equally urgent need to strengthen primary healthcare was required. There are several reasons for this. Primary Health Centers (PHCs) are likely to be the first point of contact for most COVID-19 patients. Experience from China and Italy suggests that of all patients with the disease, 5% - 10% become severely ill and require admission to a health facility. About 70 percent of these patients can be managed with supportive care and oxygen, which PHCs can easily provide. Additionally, on account of their proximity to the communities that they serve, primary health facilities are best suited to educate and inform them about COVID-19. And finally, at a time when there is such restricted access to healthcare due to the lockdown, PHCs ensure access to healthcare for pregnant women, elderly, children and high-risk people with conditions such as diabetes, hypertension etc.

Disease outbreaks such as COVID 19 pandemic are stress-provoking situations. Stress is common among healthcare workers especially nurses who are directly involved in managing affected patients during pandemic. The main source of stress in nurses during COVID-19 pandemic are fear of becoming infected or unknowingly infecting others [7]. It is identified other sources of stress in nurses, including lack of personal protective equipment, fear of access to COVID-19 testing, fear of transmitting the virus at work, doubt that their institution

would support them if they become infected and fear of being deployed in an unfamiliar ward or unit and lack of accurate information on the disease [8].

Stress is a universal human experience and is an integral part of the biological structure of any living organism. Stress has both positive and negative effects on people. While a low level of stress is motivating for the person, above-average stress can cause people to be unable to work or cause serious physiological problems [9].

The psychological and physical health of nurse was influenced by many factors. Previous studies reported that personal factors such as gender, age, educational level, marital status, having children or not, and personality might be correlated with the mental health among nurses [10-12].

Previous studies [13-15] carried out during the outbreak of SARS described increased mental burden on nursing staff. These frontline nurses were reported to have a high risk of psychological distress, such as increased stress level, sleep disturbance, loss of self-confidence and inability to make decisions, as well as physical health problem [16-18].

MATERAILS AND METHOD

Aim

The aim of this study was to explore perceptions of the most salient sources of stress in the early stages of the coronavirus pandemic in a sample of nurses who were working in Fujairah Primary health care during the year 2020-2021.

Design

An online survey study of nurses in Fujairah primary health care centers was conducted in December 2021. The 29-items questionnaire was developed by the research team for the purpose of the study. It included measures regarding demographic and work-related factors, as well as COVID-19 experiences concerning patient contact, emergency preparedness, personal protective equipment, fear, and mental health and well-being [19]. In addition to the 29 forced-choice items, there was a Google form of 10 questionnaire as another part of our research study to assess the stressful situations dealt with during the COVID-19 pandemic based on a classic stress assessment tool, the Perceived Stress Scale (PSS). In this study, qualitative content analysis was used to examine nurses' responses to this question.

Study Population

280 nurses working in Fujairah PHC during COVID-19 pandemic crisis.

Sample

Inclusion criteria

Nurses working full time in Fujairah PHC.

Exclusion criteria

Nursing staff who resigned, terminated, students, newly hired temporary staff and nurses who were not working full time basis.

Sample Size Calculation

The questionnaire was distributed to all the nurses working in primary health care centers of Fujairah region.

Sampling Technique

Random Sampling out of the respondents of questionnaires distributed via online survey and forms were done among the total nurses working in the Fujairah PHC.

Study Settings

The 13 different primary health care clinics located in Fujairah area of Merashid, Madina, Faseel, Qurayah, Murbah, Qidfa, Bidiyah, Siji, Hala, Wadisader, Tawain, Dadana and preventive medicine.

Duration of Study

The estimated duration was from June 2021 to June 2022.

Study Instruments

Online questionnaire with selected questions to be distributed evenly among all the staff nurses working in Primary health care centers of Fujairah district.

Plan for Pilot Study

No plan for pilot study.

Participants

Participants included all the nurses working in Fujairah PHC Nursing department, were eligible to participate (approximately 280 nurses). During the survey period, 278 responses were collected. Of these, 180 nurses' responses(N) were randomly chosen as samples that are examined in the current study. The majority of this sample was female (n = 161, 89.4%) whereas only 10.6% (n = 19) were males. Approximately 70% (n = 126) of respondents were between 31 years - 40 years of age, 23.9% (n = 43) were above 40, and 6.1% (n = 11) between 26-30. Only 6% (n = 12) were unmarried whereas 93.3% (n = 168) were married. Of which majority 87.8 %(n=158) had children while only 12.2 % (n = 22) didn't have children. Just over 3.3% (n = 6) have master's in nursing whereas 54.4% (n = 98) are bachelor's and 41.1% (n = 74) of them with diploma in nursing. The majority of respondents were registered nurses (RNs) (84.5% = 70%(nurse) + 12.8% (qualified technicians) + 1.7% (unit managers)), (n = 126 + 23 + 3 = 152), followed by dental assistants (15.6%, n = 28). Most worked in a general outpatient setting (68.3%, n = 123) with 31.7% where posted in an isolation setting (n = 57). 90% (n = 162) of participants reported being in contact with COVID-positive patients very often/daily working as front liners while only 10% of them worked as second liners. Nurses whose responses to the survey's question were taken did not differ significantly from non-respondents with regard to age, gender, position, or current stress level ($p > 0.05$ for all variables). However, a significantly larger proportion of question respondents worked as front liners (n = 162, 90%) compared to second line respondents (n = 18, 10%).

Data Collection

Fujairah PHC Nursing department IT distributed surveys directly to the nurse members. Each of the staff was sent an email with link to the online survey created by DSD with 29 Questions developed by the research team

members and a google form to assess the stress level during the COVID-19 pandemic with 10 questions based on a classic stress assessment tool, The Perceived Stress Scale (PSS).

Data collection technique & validity

The questionnaire in English and Arabic was prepared by the authors and submitted to ethical department for validation and thereby distributed. It had two parts:

Part I

Covering their sociodemographic variables and variables on their working environment, including attitude of the different category of working staff, job title, and so on.

Part II

To assess the stress level with 10 questions as part of our research study to assess the stressful situations dealt with during the COVID-19 pandemic based on a classic stress assessment tool, The Perceived Stress Scale (PSS). A total score 60, was classified into 0-13: Stress is not a problem in life; 16-30: Moderate stress, which can reasonably be reduced; 27-40: Stress is a major problem, and something must be done.

Ethical Considerations

Each nurse who participated to the survey questions were by his/her consent and not driven by any external or internal sources. The survey was confidential and anonymous, and the participants could terminate their participation at any time. The study questionnaires were approved by EHS, Data and Statistical Department.

Data Analysis

The data obtained were analysed in terms of the objectives of the study using Descriptive and Inferential statistics. A master data sheet was prepared with responses given by the participants with Frequencies and percentage for the analysis of demographic data, the mean and standard deviation of answered questions. The Chi Square test was used to determine association between stress level and selected demographic variables presented in tables and graphs.

The consolidated criteria for reporting qualitative research, were followed in the planning and execution of this study to ensure methodological integrity. Qualitative content analysis of the responses were conducted using a data-driven approach.

The Perceived Stress Scale (PSS), a classic stress assessment instrument was used to framework for structuring qualitative data for analysing the stress level that are relevant to the research question. Structuring the data in this way helps to create meaning out of complex raw data.

RESULTS

Baseline Characteristics of Respondents

A total of 280 nurses participated in the online survey, in which 180 responses which were completely answered in different section were randomly chosen. The results after analysis of data using SPSS statistical software are contained in this chapter.

The analysis of survey questionnaires revealed as described below in Table 1 Demographic and Socio-economic characteristics of nurses working in Fujairah Primary Health care centers [20].

The response rates were 10.6% male & 89.4% female in which 93.3% were married and only 6.7% were unmarried. Among the sample, only 6.1% were between 26- 30 years of age while 23.9 % were above 40 years and majority i.e., 70% of them were between 31 years - 40 years of age. In educational background, professional qualification revealed that 54.4 % were bachelor's in nursing with almost 41.1% of them diploma and only 3.3% had a master's in nursing with 1.1% of them holding other qualifications. The sample size mainly were staff nurses with registered licenses (70% + 12.8%+1.7% = 83.5%) working as qualified technicians or unit managers with only few 15.6 % of them working as dental assistants [21-24]. The study further revealed that 90% of them were working as front liners while only 10% were on second line service during the COVID-19 pandemic time. 68.3% of them were working in general units while 31.7% of respondents were working in isolation areas (Figure 1).

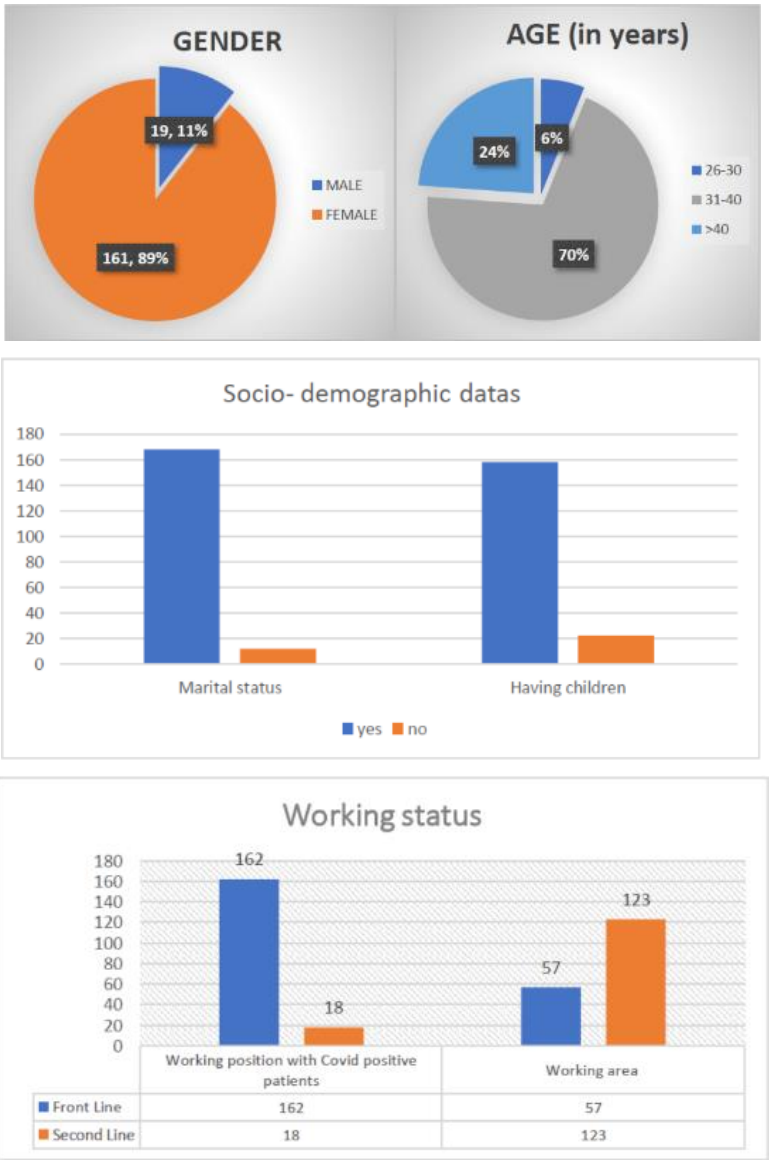

Figure 1: Graphical representations of few socio-demographic data.

Table 1: Frequency table of distribution of socio-demographic properties.

		Frequency	Percent
Gender	Male	19	10.6
	Female	161	89.4
	Total	180	100
Age	26-30	11	6.1
	31-40	126	70
	>40	43	23.9
	Total	180	100
Marital Status	Married	168	93.3
	Unmarried	12	6.7
	Total	180	100
Having Children	Yes	158	87.8
	No	22	12.2
	Total	180	100
Educational Level	Diploma	74	41.1
	Bachelor in Nursing	98	54.4
	Masters in Nursing	6	3.3
	Other's	2	1.1
	Total	180	100
Job Title	Nurse	126	70
	Dental Assistant	28	15.6
	Qualified Technician	23	12.8
	Acting Unit Manager	3	1.7
	Total	180	100
Working Position with Covid Positive Patients	Front Line	162	90
	Second Line	18	10
	Total	180	100
Working Area	Isolation	57	31.7
	General	123	68.3
	Total	180	100

Table 2: A) Stress score interpretation1: Items and way of scoring the PSS-10-C.

	During the last 7 days	Never	Almost Never	Sometimes	Fairly Often	Very Often
Q1	Last year during Covid -19 pandemic, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
Q2	Last year during Covid -19, pandemic how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
Q3	Last year during Covid -19, pandemic how often have you felt nervous and stressed?	0	1	2	3	4
Q4	In the last year during Covid -19 pandemic, how often have you felt confident about your ability to handle your personal problems?	4	3	2	1	0
Q5	Last year during Covid -19 pandemic, how often have you felt that things were going your way?	4	3	2	1	0
Q6	Last year during Covid -19 pandemic, how often have you found that you could not cope with all the things that you had to do?	0	1	2	3	4
Q7	Last year during Covid - 19 pandemic, how often have you been able to control irritations in your life?	4	3	2	1	0
Q8	Last year during Covid -19 pandemic, how often have you felt that you were on top of things?	4	3	2	1	0
Q9	Last year during Covid -19 pandemic, how often have you been angered because of things happened that were outside of your control?	0	1	2	3	4
Q10	Last year during Covid -19 pandemic, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

0: Never; 1: Almost never; 2: Sometimes; 3: Fairly often; 4: Very often

Table 3: Stress score interpretation.

S. No.	Grade	Score
1	More Stress	27-40
2	Moderate Stress	14-26
3	Low Stress	0-13

Scores: 27-40 will be considered having more stress; from 14-26 as moderate; and 0-13 having less stress.

Assessment of Stress among Staff Nurses in Fujairah PHC

Overall, our respondents had moderate to low stress with majority of them 89.4% facing moderate stress towards the effect of COVID-19 pandemic and only 10.6% facing a low stress with respondents showing no presence of more stress [25].

The below table 4 shows the level of perceived stress scale score and association towards the effect of COVID-19 pandemic among the nurses working in Fujairah PHC.

Table 4: Stress scale score.

S. No.	Grade	Number	Percentage
1	More Stress	0	0%
2	Moderate Stress	161	89.40%
3	Low Stress	19	10.60%

Findings revealed the distribution of respondents by stress level either low or moderate. 89.4% of respondents had moderate stress level as compared to 10.6% with less stress. There is no presence of more stress (Figure 2).

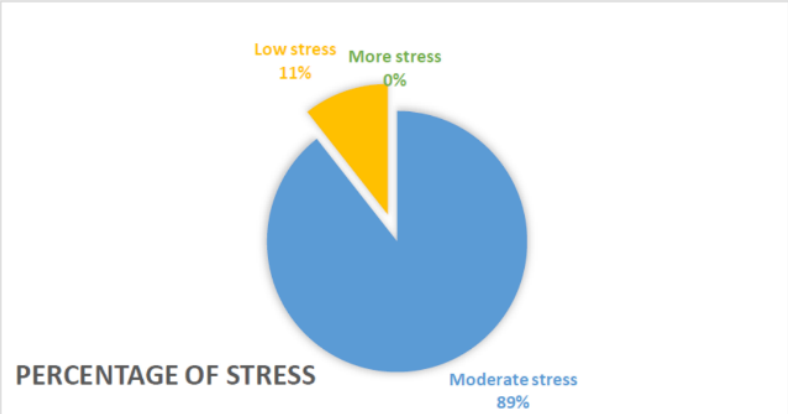

Figure 2: Percentage of stress.

Table 5: Frequency of low and moderate perceived stress by variables and associations by chi-square tests.

	Variable	Low Stress n/Frequency (%)	Moderate Stress n/ Frequency (%)	Tabulated Value	Degree of Freedom df	Calculated Value	Level of Significance
Gender	Male	3 (1.6%)	16 (8.9 %)	0.616	1	0.432	Non - significant
	Female	16 (8.9 %)	145(80.6%)				
Age	26-30	0	11(6.1%)	2.932	2	0.231	Non - significant
	31-40	12 (6.7%)	114(63.3%)				
	>40	7 (3.9%)	36(20%)				
Marital Status							
	Married	17(9.4%)	151(83.9%)	0.509	1	0.476	Non - significant
	Unmarried	2(1.1%)	10(5.6%)				
Having Children							
	Yes	15 (8.3%)	143(79.4%)	1.544	1	0.214	Non - significant
	No	4 (2.2%)	18(10%)				
Educational level	Diploma	8 (4.4%)	66(36.7%)	4.022	3	0.259	Non - significant
	Bachelor in Nursing	10 (5.6%)	88(48.9%)				
	Masters in Nursing	0	6(3.3%)				
	Other's	1 (0.6%)	1 (0.6%)				
Job Title	Nurse (RN)	18 (10%)	108(60%)	6.454	3	0.091	Non - significant
	Dental Assistant	0	28(15.6%)				
	Qualified Technician	1 (0.6%)	22(12.2%)				
	Acting Unit Manager	0	3 (1.6%)				
Working Position with Covid Positive Patients	Front Line	17(9.4%)	145(80.6%)	0.007	1	0.936	Non - significant
	Second Line	2(1.1%)	16(8.9%)				
Working Area	Isolation	6(3.3%)	51(28.3%)	0	1	0.993	Non - significant
	General	13 (7.2%)	110(61.1%)				

(P ≤0.05): Significant, (P >0.05): Not significant

The table 5 given below shows the level of significance for association between stress on nurses during COVID-19 pandemic with selected demographic variables of staff nurses working in the Fujairah PHC [26]. Finding

related to association between the occupational stress with their selected socio demographic variables among staff nurses reveal that there is no significant relationship found between occupational stress of staff nurses and sociodemographic variables such as age, gender, marital status, qualification, and job title.

Chi square was calculated to find out the association between the stress on staff nurses working in the Fujairah PHC during the coronavirus (COVID-19) pandemic with their socio-demographic variable. There was no significant association between the stress towards when compared to socio-economic factors like age, gender, marital status, qualification, and job title [27].

($P > 0.05$). But when it compared to the relationship with working position and working area, it was showing a significant association ($P \leq 0.05$) [28].

Hence, it can be interpreted that the level of PSS score related to the demographic variables were only by chance and not true and the null hypothesis is accepted (Table 5) [29,30].

IMPLICATIONS FOR NURSING MANAGEMENT

Healthcare institutions should provide opportunities for nurses to discuss the stress they are experiencing, support one another, and make suggestions for workplace adaptations during this pandemic. Meeting physiological needs, applying psychological guidance and counselling interventions in the stress management of nurses may contribute to the reduction of their stress levels. Effective infection control, reducing workload, increasing the number of nurses and strengthening the coping mechanisms can minimize the perceived stress level of nurses [31].

LIMITATIONS

While this qualitative analysis sheds light on sources of nurses' experiences of stress early in the pandemic, the study has some limitations. First, participants were limited to nurse members of only one nursing organizations that is primary health care centers in a single emirate (Fujairah), and results may not be generalizable to nurses in other PHC's, hospitals or emirates. Significantly, there are good number of nurses ($N = 180$) who completely respond to the survey questions working in Fujairah primary health care, compared to nurses who did not respond to the question. It is possible that non-respondents may have experienced different work-related factors that may have influenced their perceptions of stress. Nevertheless, the majority of respondents (over 95%) answered, which limits non-response bias. Our study sample was also substantially larger than those of two previous qualitative studies that explored the perceptions of 20 nurses [32] and 13 nurses and physicians [33] in China. As in all qualitative studies, researcher bias may influence findings. However, analysis in the current study were validated through another researcher who was not involved in the original coding [34].

CONCLUSION

The results of this study clearly demonstrate that the prevalence of stress, within front-line healthcare workers caring for COVID-19 patients are moderate. Therefore, the healthcare authorities, and decision-makers, nationally and internationally, should take measures to reduce this stress in staff treating the COVID-19 patients [35]. This increases the productivity of the staff, speeds up the measures to control the pandemic, and provides more effective treatment procedures for the COVID-19 patients [36]. Exploration of nurses' perceptions of stress during the pandemic's early phase provides important insight into the nature of nurses' experiences and potential measures

that healthcare institutions can take to mitigate nurses' stress [37-40]. Providing nurses with adequate personal protective equipment is one concrete measure that can help to keep nurses safe and to alleviate their fear of becoming infected. Healthcare units should provide opportunities for nurses to discuss the stress they are experiencing, support one another, and make suggestions for workplace adaptations during this pandemic. Healthcare institutions and nurse managers need to recognize these sources of stress in order to identify potential organizational interventions to maintain nurses' health, safety, and well-being [41-45].

COPING WITH STRESS

The COVID-19 pandemic has had a major effect on our lives. Many of us are facing challenges that can be stressful and overwhelming. Learning to cope with stress in a healthy way will help you, the people you care about, and those around you become more resilient.

Stress can cause the following:

- Feelings of fear, anger, sadness, worry, numbness, or frustration.
- Changes in appetite, energy, desires, and interests.
- Difficulty concentrating and making decisions.
- Nightmares or problems sleeping.
- Physical reactions, such as headaches, body pains, stomach problems, or skin rashes.
- Worsening of chronic health problems and mental health conditions.
- Increased use of alcohol, illegal drugs (like heroin, cocaine, methamphetamine), and misuse of prescription drugs (like opioids).

HEALTHY WAYS TO COPE WITH STRESS

It's natural to feel stress, anxiety, grief, and worry during the COVID-19 pandemic. Below are ways that you can help yourself, others, and your community manage stress.

Take Breaks from News Stories, Including those on social media

It's good to be informed, but constant information about the pandemic can be upsetting. Consider limiting news to just a couple times a day and disconnecting from phone, TV, and computer screens for a while.

Take Care of your Body

- ✓ Get vaccinated and stay up to date on your COVID-19 vaccines.
- ✓ Eat plenty of fruits and vegetables, lean protein, whole grains, and fat–free or low–fat milk and milk products. Eating well also means limiting saturated fats, cholesterol, salt, and added sugars.
- ✓ Going to bed at the same time each night and getting up at the same time each morning, including on the weekends, can help you sleep better (seven or more hours per night for adults).
- ✓ Move more and sit less-every little bit of physical activity helps. You can start small and build up to 150 minutes a week that can be broken down to smaller amounts such as 20 to 30 minutes a day.
- ✓ Take deep breaths, stretch, or meditate external icon.
- ✓ Limit alcohol intake. Choose not to drink, or drink in moderation by limiting consumption to one drink a day for women-two for men-on days that alcohol is consumed.

- ✓ Avoid using prescription drugs in ways other than prescribed, someone else's prescription, or illegal drugs. Treatment external icon is available and recovery starts with asking for help external icon.
- ✓ Avoid smoking and the use of other tobacco products. People can and do quit smoking for good.
- ✓ Continue with regular health appointments, testing, and screening.

Make Time to Unwind

Try to do some other activities you enjoy.

Connect with Others

Talk with People you Trust about your Concerns and how you are Feeling.

Connect with your Community - or Faith - based Organizations

While social distancing measures are in place, try connecting online, through social media, or by phone or mail.

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CONFLICTS OF INTEREST

This research has no conflicts of interest. The author(s) declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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