The Fear of Contracting COVID-19 among Undergraduate Student Nurses and its Impact on their Academic Performance

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Abstract

Background: The Coronavirus disease 19 (COVID-19) pandemic has evoked fear in undergraduate nursing students. This fear consequently causes a decrease in academic performance among nursing students.

Objective: The purpose of this study was to determine: 1) the fear level of contracting covid-19 among undergraduate student nurses, 2) how this fear of contracting COVID-19 among undergraduate student nurses has impacted their academic performance and, 3) if the fear of contracting COVID-19 among undergraduate student nurses in Jamaica influences their academic performance.

Methods: This research is a correlational cross-sectional study. Data collection in this research occurred by a standardized online questionnaire created on Google Forms. The participants (N=510) of this research included 1st -4th year nursing students across Jamaica. The retrieved data were stored then analyzed using descriptive and inferential statistics with the Statistical Packages for the Social Sciences (SPSS) for Windows version 27.0. The researchers used a P-value of 0.05 to determine the statistical significance.

Results: This study revealed that 54.3% of the respondents felt fearful that they might contract COVID-19. It also showed that most respondents had a high to very high fear level 36.1 (184) to 22.2 (113), respectively, towards contracting COVID-19. The cross-tabulation of the fear scale and the GPA showed a statistical association.

Conclusions: The fear of contracting COVID-19 harms undergraduate nursing students' academic performances. As such, this should raise the alarm and prompt immediate intervention planning.

Keywords: COVID-19, undergraduate, nursing students, fear, academic performance.

Introduction

Coronavirus disease 19 (COVID-19)has swiftly moved globally across many countries such as China, Japan, South Korea, Thailand, America, and Jamaica.COVID-19 undoubtedly is amongst the 12-deadliest viruses on earth, and its infectious rate across the globe is unprecedented (Harding, & Lanese, 2020). Since its on set in December 2019, COVID-19 claimed the lives of over 2million people worldwide while leaving many countries, families, and children with grief, loss, anger, frustration, and great fear (World Health Organization, 2021). The devastating effects of COVID-19 are irrefutable. It has significantly impacted many areas of daily living, from the way business is conducted to recreation, social, spiritual, and the educational spheres of life.

Owing to the COVID-19 infectious rate and the loss of life globally, COVID-19quickly morphed into a scary disease. Moreover, it has psychological and psychosocial effects on how people operate. On March 10, 2020, Jamaica reported its first COVID-19 case, and within a few weeks, 13 COVID-19 cases were recorded (JA, 2020). By January 22, 2021, reported COVID-19 cases jumped to 96,267,473, with 2,082,745 deaths recorded globally (World Health Organization, 2021). The number of COVID-19 cases continues to increase, and as it plagues the globe, new strains are emerging. The rapidly growing numbers of confirmed cases and tragic deaths due to the COVID-19 pandemic have inadvertently triggered stress among stindividuals, including college students. Undergraduates experience undesirable impacts on their psychological well-being and academic performance (Hussien et al., 2020).

COVID-19 had far-reaching effects on educational activities, and many changes occurred. Face-to-face lectures switched to online platforms, with the cancellation of some courses due to the enforced stay-at-home directives to maintain social distancing requirements resulting in the limited areas to facilitate student nurses. Furthermore, skills laboratory practical sessions were either cancelled or rescheduled. These were some of the initial challenges that required students to adjust to a new normal.

Other challenges that students faced included: 1) caring forCOVID-19 patients placed in isolation rooms, 2) working in the accident and emergency department (A&E),3) assisting nurses with the swabbing patients, and 4) working in hospitals with limited resources such as personal protection equipment (PPE) to protect them from the virus (Bella, Yifat, Anat, & Tova, 2020). These challenges contribute to increasing the fear among students causing a decrease in academic performance.

Consequently, this research analyses the fear of contracting COVID-19 amongst undergraduate students' nurses in Jamaica and its influence on their academic performance. At least 70% of undergraduate student nurses in Jamaica are fearful of contracting COVID-19. Furthermore, the fear of contracting COVID-19 among undergraduate student nurses in Jamaica influences their academic performance. A sample of undergraduate student nurses (n=510)in Jamacia completed the online survey. This research seeks to answer the following: 1) what is the fear level of contracting COVID-19 among undergraduate student nurses in Jamaica? and 2) how has a fear of contracting COVID-19 amongst undergraduate student nurses in Jamaica influenced their academic performance?

Theoretical Framework

The evolutionary theory of emotion, by naturalist Charles Darwin, was developed in 1872 and postulated that emotions evolved through adaptation allowing humans and animals to survive and reproduce. Feelings of love and affection lead people to seek mates and reproduce. Conversely, feelings of fear compel people to either fight or flee the source of danger. The evolutionary theory of emotion emphasizes that our emotions serve an adaptive role. Success and survival are dependent on how emotionally motivated individuals are in their reactions to environmental stimuli. The model also suggests that it is crucial to understand the emotions of individuals and animals because of their impacts on safety and survival. For example, if you encounter a hissing, spitting, and clawing animal, you will realize that the animal is frightened or defensive and leave it alone. The correct interpretation of the emotional displays of other people and animals allows the correct response. Responding to stimuli in the environment can also improve chances of success by understanding feelings to determine whether it is positive or negative (Cherry, 2020).

Additionally, Arora, Jha, Alat, and Das (2020)posit that while evidence suggests that moderate levels of anxiety and fear may serve as an adaptive function, high levels of anxiety and fear can lead to impaired psychological functioning and intellectual errors and disturb concentration and memory. This theory supports the research questions: 1) what is the fear level of contracting COVID-19 amongst undergraduate student nurses? 2) how has a fear of contracting COVID-19 amongst undergraduate student nurses impacted their academic performance? And 3) how has a fear of contracting COVID-19 among undergraduate student nurses affected their GPAs'? The definition of coronaphobia is "an excessive triggered response of fear of contracting the virus causing COVID-19". This fear "leads to accompanied excessive concern over physiological symptoms, significant stress about personal and occupational loss, increased reassurance and safety-seeking behaviours, and avoidance of public places and situations, causing marked impairment in daily life functioning" (Arora et al., 2020). Moreover, the likelihood of anxiety and distress increases in unavoidable situations that cause this fear.

Literature Review

This research investigates the fear of contracting COVID-19 among undergraduate student nurses and how this COVID-19 phobia impacts their academic performance. Researchers noted that nursing students recognize their need for help in reducing their fear of experiencing poor

academic performance and contracting COVID-19 (Horatio Faranzoi & Frates Cauduro, 2020; Majrashi, Khalil, Nagshabandi, & Majrashi, 2021; Medina Fernández et al., 2021; Oducado & Estoque, 2021; Son et al., 2020). Previous research provides insight into similar components of this study. Researchers in the Ashkelon Academic College, Southern District, Israel, foundan increased level of anxiety among nursing students during the COVID-19 pandemic by associating students' coping strategies with characteristics of the students among nursing students (Harding& Lanese, 2020). The fear primarily impacted female nursing students during COVID-19. The majority of nursing students experiencing fear and low academic performance during the COVID-19 pandemic were young adults (De Los Santos, Labrague, & Falguera, 2021; Hakim & Hatice, 2020). Nursing students from 1st year to the fourth year experienced an increased level of fear and lower academic performance in COVID-19 (De Los Santos et al.,2021; Hakime & Hatice, 2020;Horatio Faranzoi & Frates Cauduro, 2020; Majrashi et al., 2021; Medina Fernández et al., 2021;Oducado& Estoque, 2021; Temiz, 2020).

These findings support the fact that anxiety is highly prevalent among nursing students, even in normal circumstances. During the COVID-19 pandemic, nursing students encountered a new reality of economic uncertainty, distance education challenges, lack of personal protective equipment (PPE) at work, and the fear of infection (Bella, Yifat, Anat, & Tova , 2020). Most nursing students did not experience an optimum level of satisfaction from distance learning during COVID-19 lockdowns (De Los Santos et al.,2021; Horatio Faranzoi & Frates Cauduro, 2020; Majrashi et al., 2021; Medina Fernández et al., 2021; Oducado & Estoque, 2021; Temiz, 2020; Son et al., 2020). Arora et al. (2020) defined corona phobia and presented its contents and antecedents. The study identified the associated risk factors and the underlying mechanisms of its development (Arora et al., 2020). Nursing students scrutinized their participation in clinical training that resulted in the provision of direct care to patients that were preconformed and confirmed with COVID-19 (De Los Santos et al., 2021; Horatio Faranzoi & Frates Cauduro, 2020; Majrashi et al., 2021; Medina Fernández et al., 2021; Oducado & Estoque, 2021).

Nursing students reported having difficulty concentrating and a lower level of social interaction (De Los Santos, Labrague & Falguera, 2021; Hakime & Hatice, 2020; Son et al., 2020; Temiz, 2020). Arora (2020) indicated that an excessive triggered response of fear of contracting the virus causing COVID-19 leads to excessive concern over physiological symptoms. The authors mentioned above also suggested that significant stress about personal and occupational loss, increased reassurance and safety-seeking behaviours, and avoidance of public places and situations, causing marked impairment in daily life functioning" (Arora et al., 2020). Nursing students have adapted to the academic challenges during COVID-19 (Majrashi et al., 2021; Son et al., 2020). Many nursing students experienced moderate academic performance during the COVID-19 (Oducado & Estoque, 2021). Fears of contagion reflect feelings of apprehension about having or contracting COVID-19. Yang, Chen, & Chen (2021) suggests that threatening events-such as a global pandemic-trigger high-stress levels. Many nursing students experienced poor academic performance during the COVID-19 (De Los Santos et al., 2021; Majrashi et al., 2021; Oducado & Estoque, 2021; Son et al., (2020).

The COVID-19 pandemic is an immediate threat, it is unclear how long it will persist, and there are many unanswered questions regarding its impact. Several anecdotal reports by health care professionals note that the COVID-19 pandemic triggers individuals' anxiety and stress, particularly surrounding the uncertainties brought on by COVID-19 (Yang, Chen, & Chen, 2021). Nursing students indicated that fear and worry about their health has resulted in increased levels of discouragement about their future (De Los Santos et al., 2021; Hakime & Hatice, 2020; Majrashi et al., 2021; Medina Fernández, Carreño Moreno, Chaparro Díaz, et al., 2021; Oducado & Estoque, 2021; Son et al., 2020; Temiz, 2021). While other research may have looked into similar research topics, this research seeks to add the impact of fear of contracting COVID-19 on academic performance on student nurses. The data collected would answer the research questions and determine whether the fear of contracting COVID-19 impacted the student nurses' academic performance. Furthermore, 70% of undergraduate nursing students in Jamaica are negatively affected due to their fear of contracting COVID-19.

Method

A non-probability cross-sectional correlational research design was used to determine the research goal of this study. The data for this research was collected using a standardized questionnaire that consisted of sixteen closed-ended questions, seven of which were COVID-19 fear index questions adapted for the study (Ahorsu, Lin, Imani, Saffari, Griffiths, & Pakpour, 2020). The structured questionnaire is an investigative instrument that typically consists of a distinct set of questions or other specific types of prompts to collect information from a selected respondent (Ahorsu, et al., 2020; Winter, Riordan, Pakpour, Griffiths, et al., 2020). Concerning classification, questionnaires are both quantitative and qualitative methods, depending on the question type. Quantitative analysis methods work best when analyzing responses from closed-ended questions with multiple choice answer options, and they may typically involve pie charts, bar charts, and comparable percentages (Choudhury, 2021). The survey questionnaire distribution occurred dusing social media platforms (WhatsApp, FacebookMessenger) and Email via a link to Google Forms to the research population, student nurses in Jamaica, (n=510). The method used for collecting data was convenience sampling of nursing students across the various tertiary educational institutions in Jamaica.

The collection of data was from June2to June 21, 2021. Participants received instructions on the nature and purpose of the research. Undergraduate student nurses in Jamaica received an email message containing the link to the survey questionnaire and details of the research on the fear of contracting COVID-19 and its impact on their academic performance for completion. The questionnaire was confidential and maintained the respondent's anonymity. Retrieved respondent's data displayed in tables were analyzed by utilizing Google Form and IBM Statistical Packages for the Social Sciences (SPSS) for Windows 27.0. Data analysis occurred using frequencies and per cent, bivariate analysis (chi-square). A p-value of 5% =0.05 was used to determine statistical significance.

Operational Definitions

Undergraduate nursing students **-**An undergraduate nursing student is a university student or college student studying for their first degree. ("Undergraduate definition and meaning | Collins English Dictionary," 2021)

Fear-A feeling of anxiety concerning the outcome of something or the safety of someone ("FEAR | Definition of FEAR by Oxford Dictionary on Lexico.com also meaning of FEAR," 2021).

Coronavirus disease (COVID-19)-This is an infectious disease caused by a newly discovered coronavirus ("Coronavirus," 2021).

Academic performance-Academic performance measures student achievement across various academic subjects ("Academic performance-Ballotpedia," 2021).

Impact-The powerful effect that something has on somebody/something ("impact Oxford Advanced Learner's Dictionary," 2021).

Findings

A total of 510 respondents participated in the survey. The vast majority of respondents (84.5%) were females, and 15.5% were males. Majority of the respondents are age ranged from 18-25years (67.1%), 26-33 years (23.3%) 34-41 years (6.5%), 42-49 years (2.5%) and 50-57 years (0.6%) respectively. Table 1 depicts the detailed demographic characteristics of the sampled respondents.

Table 1.Demographic Characteristics of the Sampled Respondents, n=510

Details	% (n)
Gender	
Female	84.5 (431)
Male	15.5 (79)
Age Cohort	
18-25 year	67.1 (342)
26-33 years	23.3 (119)
34-41 years	6.5 (33)
42-49 years	2.5 (13)
50-57 years	0.6 (3)

Table 2 presents individual responses to the question, "Are you fearful of contracting COVID-19?" Of the 510 respondents, 68.8% (351) said no, and 31.2% (159) said yes. Respondents were also asked: "have you ever come in contact with a person known to have COVID-19? 46.7% (238) stated no, and the remaining 52.3% (272) stated yes. 60.4% (308) stated that they had been in contact with a person (s) they know to have COVID-19, while 53.3% said they did not. Additionally, if their answer to the previous question was yes, respondents were asked to determine how they felt about the situation. 9.5% (33) selected depressed, 8.0% (28) stated

neutral, 54.3% (189) were fearful that they might contract COVID-19, 16.5% (57) selected stress, 4.6% (16) concerned, and the remaining 0.9% (3) selected that they were cautious.

Table 2.COVID-19 Related Issues n=510

Details	% (n)
Are you fearful of contracting COVID-19?	
No	68.8 (351)
Yes	31.2 (159)
Have you ever come in contact with a person you know has COVID-19?	
No	46.7 (238)
Yes	53.3 (272)
Do you have a family, relative, friend, and or Coworker that contracted COVID-19?	
Yes	60.4 (308)
No	39.6 (202)
If your answer is yes to the previous question, please state how does that make you feel?	
Depressed	9.5 (33)
Neutral	8.0 (28)
Fearful that I may also contract COVID-19	54.3 (189)
Stressed	16.5 (57)
Concerned	4.6 (16)
Cautious	0.9 (3)

H_0: There is no statistical relationship between fear of contracting COVID-19 and the grade point average.

H_1: There is a statistical relationship between fear of contracting COVID-19 and the grade point average.

Table 3 presents a cross-tabulation between the fear scale and Grade Point Average (GPA) since the beginning of COVID-19. The findings reveal that there is a statistical association between the two aforementioned variables (x^2critical value =29.429 > x^2obtained value =27.488, P=0.014, degree of freedom =15). Hence, we reject the null hypothesis that states no statistical relationship between fear of contracting COVID-19 and the grade point average.

Table 3.A cross-tabulation between fear of Contracting COVID-19 and student nurses' GPA since the beginning of COVID-19

Details	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
	Grade Point Average (GPA)						
	2.5-2.9	3.0-3.1	3.2-3.3	3.4-3.5	3.6-3.7	3.8-3.9	
Fear Scale Category							Total
Low	11.3 (7)	8.5 (9)	16.5 (20)	13.6 (18)	11.7 (7)	0.0 (0)	12.2 (61)
Moderate	25.8 (16)	34.9 (37)	29.8 (36)	28.0 (37)	16.7 (10)	44.4 (8)	28.9 (144)
High	38.7 (24)	39.6% (42)	38.0 (46)	34.1 (45)	28.3 (17)	38.9 (7)	36.3 (181)
Very High	24.2 (15)	17.0 (18)	15.7 (19)	24.2 (32)	43.3 (26)	16.7% (3)	22.6 (113)

Table 4 presents responses from undergraduate student nurses who indicated whether they had experienced difficulty with studying since the onset of the COVID19 pandemic. Of the 510 respondents, 37.1% (189) selected no, and the remaining 62.9% (321) of respondents selected yes.

Table 4.Challenges with Studying n=510

Details	% (n)
Been experiencing difficulty studying since the onset of COVID-19	
No	37.1 (189)
Yes	62.9 (321)

Table 5 presents the COVID-19 fear scale that measures the fear level among undergraduate student nurses. Of the n=510 respondents' majority, 36.1% (184) had a high fear level, 22.2% (113) had a very high fear level, while 29.3% (149) of the respondents had a moderate fear level, and 12.4% (63) respondents had a low fear level.

Table 5.COVID-19 Fear Scale Categoryn=510

Details	% (n)
Fear level of Contracting COVID-19	
Low	12.4 (63)
Moderate	29.3 (149)
High	36.1 (184)
Very high	22.2 (113)

Table 6 depicts a comparison of the GPA of the students before and after COVID-19. The findings revealed that before COVID-19 29.1% (N=143) had a GPA 3.2-3.3 which reduced to 24.2% (N=121), 21.7% (N=107) had a GPA of 3.0-3.1 before COVID 19 which also decreased to 21.2% (10N=106). It also shows that 20.9% (N=103) had a GPA of 3.4-3.5 before COVID-19, but it had increased to 26.6 (N=133). 12.4% (N=61) of the respondents had a GPA of 3.6-3.7, which had decreased to 12.0% (N=60). 11.6% (N=57) of the respondents had a GPA ranging between 2.5-2.9, which increased 12.4% (N=62). Additionally, 4.3% (N=21) had a GPA of 3.8-3.9, which also showed a decrease to 3.6% (N=18) since the COVID-19 pandemic.

Table 6.Grade Point Average Before & After COVID-19 n=510

Details	% (n)
On average, overall GPA before the year of the onset of COVID-19.	
2.5-2.9	11.6 (57)
3.0-3.1	21.7 (107)
3.2-3.3	29.1 (143)
3.4-3.5	20.9 (103)
3.6-3.7	12.4 (61)
3.8-3.9	4.3 (21)

On average, overall GPA since the beginning of the COVID-19.	
2.5-2.9	12.4 (62)
3.0-3.1	21.2 (106)
3.2-3.3	24.2 (121)
3.4-3.5	26.6 (133)
3.6-3.7	12.0 (60)
3.8-3.9	3.6 (18)

Discussion

The challenges of the COVID-19 pandemic are multifaceted, and its effects have been a trigger of stress, anxiety, depression, and fear. The issue of the COVID-19 pandemic is of global concern since it has affected the lives of millions of people worldwide. However, the case of the fear of contracting COVID-19 or coronaphobia has been of particular significance. The educational sector of Jamaica needs to take heed due to the ramifications of the fear of contracting COVID-19 and the possible effects on the general performance and productivity of a nation?

There will likely be challenges for the education sector that will impact performance and productivity. Educational institutions and local governments should proactively calibrate initiatives to combat these gaps or challenges that may arrive. Though COVID-19 is a global health emergency, it also has socioeconomic and psychological ramifications. One research posits that "though fear is a common psychological outcome during pandemics, the COVID-19 pandemic is a continuously evolving disease outbreak," and there has been a rise in fear related to COVID-19 (Arora et al., 2020). Some researcher sargued that emotion such as fear can be a potential hindrance to proper or optimal cognitive functioning as "emotional arousal works as a sort of blinder to other neutral stimuli. One study showed that, instead of increasing widespread attention to an event, an emotionally arousing stimulus decreased attentional resources available for information processing and focused attention only on the arousal-eliciting stimulus (Cherry, 2020; Mukundan, 2021)."These findings support the current research question of this study that emotion such as fear of contracting COVID-19 among undergraduate student nurses in Jamaica influences their academic performance. In this study, a cross-tabulation was carried out between the student nurses' GPA and their measured fear levels to determine whether the research hypothesis could be accepted.

H_1: There is a statistical relationship between fear of contracting COVID-19 and the grade point average.

The findings revealed a statistical association between the two variables mentioned above (x^2critical value =29.429 > x^2obtained value =27.488, P=0.014, and a degree of freedom =15). Hence, the null hypothesis:

H_0: There is no statistical relationship between fear of contracting COVID-19 and the grade point average was rejected. To adequately analyze, measure, and contextualize this research, more

specifically, the academic performance of the undergraduate student nurses during the COVID-19 pandemic, the academic performance during and before the pandemic needed to be measured and analyzed.

Analysis of the academic performance via the GPA of the student nurses revealed that before COVID-19, 29.1% (N=143) had a GPA of 3.2-3.3, which reduced to 24.2% (N=121), 21.7% (N=107) had a GPA of 3.0-3.1 before COVID-19 which also decreased to 21.2% (N=106). It also showed that 20.9% (N=103) had a GPA of 3.4-3.5 before COVID-19, but it had increased to 26.6% (N=133). According to researchers, explanation of this increase is by the resilience variance from person to person; hence seeing an increase in performance as opposed to a decrease could be because of this factor of greater resilience coming into play even in the face of great odds (Kelvens, 1997; Bella, Yifat, Anat & Tova, 2020; Cherry, 2020). 12.4% (N=61) of the respondents had a GPA of 3.6-3.7, which had decreased to 12.0% (N=60). 11.6% (N=57) of the respondents had a GPA ranging between 2.5-2.9, which increased 12.4% (N=62). Additionally, 4.3% (N=21) had a GPA of 3.8-3.9, which also showed a decrease to 3.6% (N=18) since the COVID-19 pandemic. The findings give insight into the statistical relationship and effect of fear on the academic performance of the student nurses. Furthermore, the results provide a unique perspective to the sphere of research knowledge regarding the fear of contracting COVID-19 and its effect on academic performance.

In addition, this study also revealed that the majority, 58.3% (297) of the student nurses, had a high to very high fear level. Of the N=510 respondents' majority, 36.1% (184) had a high fear level, 22.2% (113) had a very high fear level, while 29.3% (149) of the respondents had a moderate fear level and 12.4% (63) of the respondents had a low fear level. The results give an insight into the psychological processing of the student nurses. Thus, shedding some light on why most student nurses, 62.9% (321), have experienced difficulty studying while the minority, 37.1% (189), did not experience this difficulty. A matter of importance for nursing educational institutions and the government is student nurses' psychological or mental health. Therefore, efforts must focus on helping to build the resilience and the faith of the student nurses' community. The findings of this study confirm the importance of this research.

Limitations

This study is not a representative sample of the general population. The research design was a non probability convenience sampling and was vulnerable to selection bias. Another challenge is the impact of other variables (e.g., other infectious diseases) that might affect student's fears. Sampling bias was minimized by: 1) the use of multiple social media platforms to increase the chances of randomization for the sample population; 2) collecting a large enough sample that was representative of the target population of interest; 3) and making inferences about the population sample based on the convenience.

Conclusion

The study findings concluded that the fear of contracting COVID-19 amongst undergraduate student nurses in Jamaica influences their academic performance. Hence, the productivity level of the undergraduate student nurses may be at risk of declining due to the adverse effects of the fear of contracting COVID-19. These effects can have untold implications both for the student as well as nursing educational institutions. Furthermore, the measured fear level also gave insight into the mental health or psychological conditioning of a significant number 58.3% (297) of student nurses in the student nurses' community with a high fear level.

To address these issues, educational institutions and government agencies must provide resources and support mechanisms for students. In addition, long-term initiatives need implementation in an ongoing effort to provide support as the COVId-19 pandemic continues to impact daily living. This research study sets the foundation for future researchers to explore this area of interest in other populations.

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