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Psychological first aid intervention: rescue from psychological distress and improving the pre-licensure nursing students’ resilience amidst COVID-19 crisis and beyond

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ABSTRACT

Background: The public health emergencies such as the COVID-19 pandemic resulted in mental and psychological ramifications on the healthcare professionals. The pre-licensure nursing students found themselves not only fighting against the baneful virus but also weak ego resilience. At this point, enriching the pre-licensure nursing students with psychological first aid (PFA) could help them to recover from the feeling of psychological distress and improve their resilience capacity to encounter any upcoming outbreaks.

Methods: A quasi-experimental two groups, a pre-post-test study was used in which sixty-four pre-licensure nursing students completed a baseline survey which revealed high levels of psychological distress and low resilience capacity due to the COVID-19 crisis. The study group engaged in the Psychological First-aid Intervention (PFA) at the end of the clinical practicum course period, while the comparison group received routine psychological support.

Results: A significant reduction in the psychological distress levels among students in the PFA group ($F_{(1,72)}=7.83$, $P = 0.001$). Likewise, significant improvements in the students’ resilience capacity level immediately after the intervention ($F_{(1,48)}=3.34$, $P = 0.019$) and during the two-month follow-up ($F_{(1,48)}=12.94$, $P = 0.001$). The implementation of PFA enhanced the pre-licensure nursing students’ psychological health status and resilience capacity levels after their clinical training amid the ambiance of the COVID-19 crisis.

Conclusion: The PFA effectively fostered the pre-licensure nursing students’ recovery from the COVID-19 related—psychological distress and improve their resilience capacity. The ap-
Introduction

The nursing clinical practicum course period is the main transition from academic education to a professional nursing career, and it is essential to enable new nursing professionals to apply academic knowledge in clinical practice, bridging the theory-practice gap among newly qualified professionals [1]. During this period, nursing students are exposed to various clinical settings and caring for patients with different diagnoses, and they cooperate with the health team members and carry out nursing procedures in line with the relevant ethical principles, to ensure their proper orientation to the professional life [33]. In the shadow of the COVID-19 pandemic and associated public health policy has fundamentally challenged health systems in all aspects, including changing the context of traditional clinical training. Pre-licensure nursing students found themselves in a tough and unpredictable academic as well as practice environment during their transition to practice during this period, in addition to being called upon for extraordinary service in caring for patients with COVID-19 and administering vaccination programs [38].

The COVID-19 pandemic itself as well as lockdowns and other intermitted restrictions in most countries worldwide caused severe psychological distress [28], particularly among healthcare professionals [17]. Many nursing students will carry this traumatic experience with them for an extended period, and some might develop post-traumatic stress disorder because of what they have experienced during these fateful moments (National Center for [30]). Pre-licensure nursing students have been exposed to bouts of severe stress in dealing with confirmed and suspected cases of COVID-19, along with poor health system readiness, such as woefully depleted personal protective equipment (PPE) in most health systems [36].

After prolonged periods of Pre-licensure nursing students’ exposure to extreme stress and fatigue, they are primed for mental strain, physical exhaustion, depression, burnout, and other negative psycho-social outcomes [3,14]. They may also face moral dilemmas regarding maintaining their own safety and providing care for these patients with a highly contagious infection despite the limited resources [32,38]. Beside, nurses or health care professionals might have concerns and fear-related to the transmission of COVID-19 infection to their families, having witnessed large numbers of their peers being infected, quarantined, or dying [14]. The psychological trauma of the pandemic renders nurses particularly vulnerable to developing depression, suicidal ideation, and difficulty recovering from feelings of psychological distress [24].

Profound psychological reactions reflect that future nurses face severe challenges to their psychological resilience [4,15], defined as “the individual’s ability to bounce back from an adverse event and have a relatively positive outcome may help in protecting the individual from negative perceptions of stress” [40]. A lack of resilience leaves an indelible impact on pre-licensure nursing students’ psychological wellness and the nursing care provided to patients. Manzano and Ayala [26] reported that nurses’ resilience capacity is a crucial protective factor against psychological exhaustion and supports them in coping with the profession’s mental and psychological hardship.

Scientific evidence endorses that resilience-focused intervention, based on the principles of cognitive-behavioral therapy (CBT), targets individuals’ internal protective factors at critical times, enabling them to adopt adaptive coping strategies that are conducive to supporting their resilience and positive mental health [43]. A meta-analysis showed the positive impact of the resilience-focused intervention on improving depressive symptoms immediately after the intervention, and at follow-up intervals of 6, 8, and 12 months [5]. Moreover, Dray et al. [9] demonstrated the benefits of resilience-focused interventions in reducing psychological distress and depressive and anxiety symptoms among adolescents. The study included a total of 57 trials from 5984 records, with 49 contributing to meta-analysis. The authors reported that resilience-focused interventions in all trials were more beneficial in reducing internalizing problems, externalizing problems, depressive symptoms, and general psychological distress compared to the control group.

Again, the public health emergencies such as the COVID-19 pandemic resulted in mental and psychological ramifications for healthcare professionals. They might find themselves working in the chaotic environment of disasters with a woeful depletion of resources. Even experienced nurses occasionally faced the perilous challenges of performing a simple task in these critical times [37]. At this point, enriching the healthcare professionals with psychological first aid (PFA) information could lessen their anxiety and stress levels while improving their durability [42]. Furthermore, Eweida et al. [14] recommended that psychological first aid intervention be provided for vulnerable pre-licensure nursing students to recover from the adverse psychological impact of the pandemic and enable them to excel in the nursing profession. Psychological first-aid intervention (PFA) is essential for those future nurses during this particularly vulnerable professional phase [6,25].

In the mid-twentieth century, 1-3 in the post-9/11 era, the concept of PFA was introduced. It has evolved to become the flagship early intervention programme for disaster survivors to mend their recovery from the immediate or short-term
aftermath of trauma. The PFA frameworks are proliferating and are underpinned on five essential principles: (1) safety, (2) calming, (3) hope, (4) self- and community efficacy, and (5) social connectedness [19].

Given the considerable developmental adversities, the PFA approach has arisen as a mainstay for the early psychological intervention of survivors of disasters and or those with posttraumatic stress disorder (PTSD) [35]. On the other side, the resilience-focused intervention targets building resilience or strengthening multiple protective factors that are conducive to supporting the development of resilience and positive mental health of individuals at risk for developing mental health problems [15].

The PFA is a humanitarian and supportive intervention offered to individuals who may suffer from a wide range of psychosocial impacts immediately post-disaster period [35,41]. Pre-licensure nursing students who attend PFA sessions can benefit by mitigating the cruel impacts of psychological distress experienced during traumatic events and improving their resilience capacity. It is particularly crucial to promote healthcare professionals’ resilience capacity during the COVID-19 pandemic to recover from the experienced psychological crises and developed resilience in readiness for future outbreaks [2].

Purpose

This study aimed to investigate the effect of the PFA on psychological distress and resilience capacity levels among pre-licensure nursing students amidst the COVID-19 crisis.

Research hypothesis

Pre-licensure nursing students who attend PFA exhibit lower COVID-19-related psychological distress levels and higher resilience capacity than those who receive routine psychological support.

Methodology

Design

A quasi-experimental, pre-posttest, two-group research design.

Setting

The study was conducted at Critical, Medical-Surgical, Obstetric, and Pediatric Care Units of Alexandria University Hospitals (27 units) during the period of the COVID-19 pandemic. Data collection was started from the end of January 2020 to the middle of October 2020.

Participants

A list of pre-licensure nursing students who were posted to the previously mentioned settings was obtained from the Internship Affairs Office \( n = 450 \). Initially, the researchers conducted a preliminary survey and sent the relevant link to the whole patch of the pre-licensure nursing students via their academic emails. The participants were invited to voluntary filled out the electronic form of the preliminary survey and rated the psychological distress and resilience capacity levels immediately after their clinical experience amid the ambiance of COVID-19 pandemic. The pre-licensure nursing students who demonstrated both high level of psychological distress and low resilience capacity as a result of their exposure to patients with COVID-19 during their internship period were included in the study. However, students who did not exposed to patients with COVID-19 during their internship period were excluded. Epi Info Program version 10 was used to estimate the sample size using the following parameters; population size of 86, confidence coefficient of 97%, expected frequency of 50%, and acceptable error of 10%. A convenience sampling of 64 pre-licensure nursing students was recruited. They were divided into two groups, a study and a control group, as illustrated in Fig. 1.

Instruments of data collection

The General Health Questionnaire (GHQ-12)

The General Health Questionnaire (GHQ-12) [18] comprises 12 self-reported items measuring the severity of psychological distress. The presence of symptoms is rated on a four-point Likert-type scale \( (0 = \text{not at all present}; 1 = \text{same as the usual present}; 2 = \text{rather more than the usual present}; 3 = \text{much more than the usual present}) \). The tool demonstrated high reliability, with a Cronbach’s alpha coefficient of 0.87. The total score ranges from 0-to 36, with higher scores representing higher levels of psychological distress. The students’ socio-demographic characteristics such as age, sex, and clinical practicum course duration were attached to this tool.
During study period, 86 intern-students were eligible & fulfilled the inclusion criteria

**Intervention Group** (n=43)
- Refused participation (n=2)
- Withdrawn from the study (n=10)
- Received routine psychological support + PFA (n=31)

**Comparison Group** (n=43)
- Refused participation (n=4)
- Withdrawn from the study (n=6)
- Received routine psychological support (n=33)

**Fig. 1.** Flow chart of participants’ recruitment process.

*Abridged Connor-Davidson Resilience Capacity Scale-10 (CD-RISC-10)*

The original CD-RISC scale [7] consists of 25 items to assess the resilience capacity; the CD-RISC-10 is an abridged 10-item version that reflects individuals’ ability to tolerate painful experiences. The ability to adapt to change tends to bounce back after hardship, whereby people can stay focused under pressure. The scale had high internal consistency (Cronbach’s alpha = 0.88) and showed adequate test-retest reliability, and convergent and divergent validity [7]. Responses were rated on a five-point Likert scale ranging from (0) not true at all to (4) true nearly all the time. The total score ranges from 0 to 40, with higher scores indicating higher resilience capacity.

*A pilot study*

A pilot study was carried out on 10% (9 participants) who were selected randomly from total participants to test the tool’s applicability, feasibility, and clarity. Those students who engaged in the pilot study were excluded from the actual study sample. The reliability of the GHQ-12 and CD-RISC-10 were tested by measuring the internal consistency of its items using the Cronbach alpha coefficient test. The two tools were reliable as $\alpha = 0.91$ for GHQ-12 and $\alpha = 0.89$ for CD-RISC-10.

**Study procedure**

*Initial assessment*

An approval from the Ethical Research Review Board of Faculty of Nursing, Alexandria University was obtained. After the permission to conduct the study, the researchers started with a preliminary survey. The researchers scheduled an online meeting for the eligible students who met the inclusion criteria and explained the aim of the study. Students who expressed their voluntary willingness to participate in the study were randomly assigned to PFA and comparison groups.

*RAPID psychological first aid model*

The PFA followed the path of the RAPID Psychological First Aid model of Johns Hopkins University [12]. The PFA content represents a simple structure that revolves around five core phases represented in the acronym RAPID: R, establishing rap-
port and reflective listening; A, assessment; P, prioritization; I, intervention; and D, disposition and follow-up. The program was translated into the Arabic language to be congruent with the Egyptian culture. The research team conducted the intervention at the end of the clinical practicum course period for the academic year 2020/2021. Students of the PFA group were divided into five subgroups, with approximately six students each. The program was delivered in 10 sessions, two times per week, with each session taking around one hour.

Session one started with establishing rapport and using reflective listening (R). This was done within an empathetic atmosphere that conveys caring, tolerance, and using genuine communication techniques, accompanied by verbal reassurance and a compassionate attitude. The assessment phase of session two implies a deep assessment of the participants’ reactions to traumatic experiences of caring for patients with COVID-19 infection in relation to the following dimensions: psychological (e.g., feelings of anxiety and fear of impending doom); cognitive (e.g., perception and judgment concerning the past, the present, and the future); behavioral (e.g., the experience of fatigue and lethargy, changing in eating habits and sleep patterns); social (e.g., interpersonal relationships with surroundings); and spiritual (e.g., the meaning of life).

In session three, the participants were asked to sort and prioritize their major psychological problems to determine the urgency of the supportive care. The appropriate psychological interventions were tailored based on the assessment and prioritization of the pre-licensure nursing students’ addressed needs. The intervention phase was covered through six sessions of psychological first-aid tactics. The interventions included empowering the studied participants by enriching them with information, practicing cognitive reframing, stress management, installing future orientation (hope), enlisting family and friends’ support, and delaying any life-altering decisions/changes. The cognitive reframing implies subthemes, including correcting the stress-inducing errors regarding the COVID-19 pandemic’s facts; disputing the illogical and catastrophic thinking; and finding the positive aspects, the hidden benefits, and lessons learned from the COVID-19 crisis. Stress management involved practicing relaxation techniques, such as meditation and diaphragmatic deep breathing exercises. With regard to involving the supportive system (like family and friends), the PFA stresses that mobilizing interpersonal resources, and ensuring that they were available and accessible, is beneficial for individuals in crisis. Finally, the researchers advocated a delay before making any important or life-changing decisions. The evaluation phase incorporated an immediate post-test after the PFA and a two-months follow-up assessment.

As for the comparison group, the researchers provided them with routine psychological support that mainly revolved around enhancing their self-compassion, practicing mindfulness exercises, and keeping them connected with their family and peers. Moreover, adopting a healthy lifestyle was encouraged, such as engaging in physical activity, eating a well-balanced diet, and sleeping well.

| Phases of the training program | General Objective | Session Actions or tactics |
|--------------------------------|------------------|--------------------------|
| **Phase one:** R: Rapport and Reflective Listening, (covered through one session) | Establishing rapport and using reflective listening. | - Being visible and available.  
- Maintain confidentiality.  
- Pay attention to students’ own emotional and physical reactions.  
- The researchers listen and focus on hearing what it is the students’ wants the authors to understand |
| **Phase Two:**  
Assessment phase (covered through one session) | Assessment of the participants’ reactions to traumatic experiences of caring for patients with COVID-19 infection. | 1. Emotional dimension  
The feelings of:  
- Worthlessness.  
- Helplessness.  
- Hopelessness.  
- Anger and irritability.  
2. Cognitive dimension  
The feelings of:  
- In relation to the past, the present and the future.  
- Judgment, Memory and concentration are poor.  
3. Behavioral dimension  
The feelings of:  
- Fatigue and lethargy.  
- Psychomotor retardation.  
- Withdrawn and seek social isolation.  
4. Spiritual dimension and meaning of life. |  
A Stabilizing patients’ Emotions.  
B Grounding technique.  
C Fostering Helpful Spirituality.  
D Practicing self-compassion exercises.  
E Self-soothing activities. e.g: Phone a friend, Make a nice meal or snack for yourself.  
F Practicing Mindfulness.  
G Instillation of empowerment and hope feelings.  
The researchers assess the participants’ abilities to function effectively without the researchers’ help, or without further intervention and conduct immediate post-test after the PFA and a two-months follow-up assessment. |
| **Phase Four:**  
Prioritization and Intervention Phase (covered through six sessions) | Remain Students’ Psychologically Safe | |
Ethical considerations

The Ethical Research Review Board approved the study of the Faculty. Online informed consent was obtained from each student who participated in the study. The participants gave their consent by filling out the questionnaire. Data confidentiality was assured. The participants were informed about their rights to decline or withdraw from the research study at any time. Research No: (NCT04822285).

Data analysis

SPSS version 23 was utilized for data analysis. Descriptive statistics included the number, percentage, mean, and standard deviation, used to describe the demographic characteristics, psychological distress, and resilience capacity. Kolmogorov-Smirnov test was used to check the normality of study variables. Analytical statistics included Fisher’s Exact, used to test the significance of psychological distress and resilience capacity levels before the intervention, immediately after it (baseline), and at two-months follow-up. The comparison between the two groups regarding the mean score of psychological distress and resilience capacity before, during, and two months after the PFA was done using the Mann–Whitney (Z) test. All of the statistical analyses were considered significant at $P < 0.05$.

Results

The results of the preliminary survey are illustrated in Fig. 2. It is clear that 97 out 207 intern-nursing students had high level of psychological distress during COVID-19 pandemic and 89 of them experience low resilience capacity.

Fig. 3 reveals that 80.0% of students in the intervention group and 87.9% of the comparison group were aged 24-26 years. Female students constituted 64.5% in the intervention group compared to 57.6% in the comparison group. Regarding the duration of the clinical practicum course, 67.7% of pre-licensure nursing students in the intervention group had five months of experience compared to 57.6% of the students in comparison one. No significant statistical differences between the two groups in relation to their age, gender and duration of internship (FET= 1.575, $P = 0.758$; FET= 2.055, $P = 0.633$ and FET= 1.873, $P = 0.631$, respectively).

The effect of the PFA on COVID-19-related psychological symptoms is shown in Table 1. Significant reductions in self-reported COVID-19 related feelings are evident comparing the immediately after and two-months follow-up as P-values for the intervention group in comparison to the control group for: depression (immediately after: 0.003, follow-up: 0.046); unhappiness (immediately after: 0.005, follow-up: <0.001); lack of ability to concentrate (immediately after: 0.009, follow-up: 0.008); enjoyment of day-to-day activities (immediately after: 0.021, follow-up: 0.001); and overcoming difficulties (immediately after: <0.001, follow-up:0.046).

Fig. 4 demonstrates the total mean scores of students for psychological distress. There was a significant reduction in the overall mean score of psychological distress after the implementation of the intervention among the PFA group ($28.45 \pm 0.40$, $17.77 \pm 0.96$, and $19.0 \pm 0.79$, respectively) compared to the comparison one ($28.48 \pm 0.35$, $24.27 \pm 0.45$, and $26.18 \pm 0.61$, respectively). The p-values were $Z_{MW}=-0.094$, $p = 0.903$, $Z_{MW}=-2.69$, $p = 0.007$, and $Z_{MW}=-3.26$, $p < 0.001$ for the three measurement periods.

Table 2 displays significant improvements in the students’ resilience capacity in terms of their ability to deal with whatever comes their way, and coping with stress can make them stronger ($P = 0.049$, and 0.034 immediately after the intervention and in the follow-up PFA; $P = 0.034$, and 0.045). Moreover, students believe in achieving goals even if there are
| Statement                          | Baseline |                     | Sig. | Immediately after |                     | Sig. | Follow-up |                     | Sig. |
|-----------------------------------|----------|---------------------|------|-------------------|---------------------|------|-----------|---------------------|------|
|                                   | Intervention group | Comparison group |      | Intervention group | Comparison group |      | Intervention group | Comparison group |      |
| Felt under strain                 | 1.68 ± 0.95 | 1.97 ± 0.95 | 0.216 | 1.65 ± 0.88 | 1.79 ± 0.96 | 0.493 | 1.35 ± 0.71 | 1.67 ± 0.96 | 0.139 |
| Felt depressed                     | 2.23 ± 1.12 | 1.94 ± 1.12 | 0.258 | 1.26 ± 0.77 | 2.12 ± 1.22 | 0.003** | 1.45 ± 0.85 | 1.94 ± 1.09 | 0.047* |
| Felt worthless                     | 2.26 ± 1.13 | 2.67 ± 0.65 | 0.188 | 1.74 ± 0.97 | 2.15 ± 1.09 | 0.049* | 1.39 ± 0.67 | 2.21 ± 1.08 | 0.001** |
| Not feeling happy                 | 2.26 ± 1.06 | 2.64 ± 0.70 | 0.149 | 1.48 ± 0.93 | 2.21 ± 1.02 | 0.005** | 1.29 ± 0.74 | 2.21 ± 0.96 | <0.001*** |
| Not enjoying day-to-day activities | 2.52 ± 0.85 | 2.76 ± 0.50 | 0.343 | 1.71 ± 0.94 | 2.27 ± 0.94 | 0.021* | 1.52 ± 0.81 | 2.24 ± 0.87 | 0.001* |
| Lost confidence                   | 2.45 ± 0.93 | 2.42 ± 0.83 | 0.703 | 1.68 ± 0.91 | 2.06 ± 1.12 | 0.135 | 1.87 ± 0.85 | 2.09 ± 1.13 | 0.282 |
| Could not overcome difficulties   | 2.71 ± 0.74 | 2.33 ± 0.96 | 0.048* | 1.29 ± 0.78 | 2.27 ± 1.10 | <0.001*** | 1.35 ± 0.84 | 1.91 ± 1.21 | 0.046* |
| Lost sleep                        | 2.58 ± 0.85 | 2.15 ± 1.09 | 0.064 | 1.48 ± 0.85 | 2.18 ± 1.01 | 0.004** | 1.52 ± 1.03 | 1.67 ± 1.22 | 0.592 |
| Not playing a useful role         | 1.97 ± 1.33 | 2.82 ± 0.47 | 0.006** | 1.58 ± 0.92 | 2.15 ± 1.15 | 0.032* | 1.68 ± 0.91 | 1.97 ± 1.21 | 0.262 |
| Could not make decisions          | 1.97 ± 1.25 | 2.30 ± 1.08 | 0.324 | 1.87 ± 0.99 | 2.12 ± 1.17 | 0.293 | 1.71 ± 0.86 | 1.94 ± 1.25 | 0.320 |
| Could not concentrate            | 2.97 ± 0.18 | 2.39 ± 1.00 | 0.054 | 1.71 ± 1.13 | 2.42 ± 0.90 | 0.009*** | 1.35 ± 1.17 | 2.18 ± 1.13 | 0.008** |
| Could not face problems           | 2.90 ± 0.54 | 2.06 ± 1.30 | 0.031* | 1.65 ± 1.23 | 2.42 ± 1.00 | 0.009*** | 1.29 ± 1.27 | 2.24 ± 1.15 | 0.064** |

ZMW: Mann Whitney Test *Significant at * P<0.05 **P<0.01 ***P<0.001
### Table 2
Comparison between Intern-Nursing Students’ Resilience Capacity Profile before, during, and after Psychological First-aid Intervention (PFA).

| Statement                                                                 | Baseline     | Sig.  | Immediately After   | Sig.  | Follow-up    | Sig.  |
|---------------------------------------------------------------------------|--------------|-------|---------------------|-------|--------------|-------|
|                                                                           | Intervention |       | Intervention        |       | Comparison   |       |
|                                                                           | group        |       | group               |       | group        |       |
| I am able to adapt when changes occur                                    | 0.84 ± 0.86  | 0.466 | 1.65 ± 0.88         | 0.015 | 1.45 ± 0.71  | 0.022 |
|                                                                           | 0.67 ± 0.74  |       | 0.79 ± 0.96         |       | 1.06 ± 1.09  |       |
| I can deal with whatever comes my way                                     | 0.65 ± 0.88  | 0.116 | 1.26 ± 0.77         | 0.040 | 1.45 ± 0.85  | 0.034 |
|                                                                           | 0.88 ± 0.74  |       | 0.73 ± 0.98         |       | 1.15 ± 1.12  |       |
| I try to see the humorous side of things when I am faced with problems   | 0.52 ± 1.06  | 0.748 | 1.74 ± 0.97         | 0.032 | 1.59 ± 0.67  | 0.04  |
| Having to cope with stress can make me stronger                           | 0.84 ± 0.86  | 0.466 | 1.48 ± 0.93         | 0.034 | 1.39 ± 0.74  | 0.045 |
|                                                                           | 0.67 ± 0.74  |       | 0.85 ± 1.00         |       | 0.88 ± 0.99  |       |
| I tend to bounce back after illness, injury, or other hardships           | 0.94 ± 1.12  | 0.796 | 1.71 ± 0.94         | 0.091 | 1.52 ± 0.81  | 0.11  |
|                                                                           | 0.97 ± 1.10  |       | 0.91 ± 1.10         |       | 1.52 ± 1.39  |       |
| I believe I can achieve my goals, even if there are obstacles             | 0.29 ± 0.46  | 0.108 | 1.68 ± 0.91         | 0.73  | 1.87 ± 0.85  | 0.04  |
|                                                                           | 0.61 ± 0.79  |       | 1.04                |       | 1.06 ± 1.37  |       |
| Under pressure, I stay focused and think clearly                          | 0.71 ± 0.69  | 0.526 | 1.29 ± 0.78         | 0.033 | 1.55 ± 0.84  | 0.035 |
|                                                                           | 0.67 ± 0.89  |       | 1.01               |       | 1.15 ± 1.25  |       |
| I am not easily discouraged by failure                                    | 1.06 ± 1.03  | 0.977 | 1.48 ± 0.85         | 0.002 | 1.52 ± 1.03  | 0.521 |
|                                                                           | 1.03 ± ± 0.95|       | 1.15 ± 1.09         |       | 1.36 ± 1.25  |       |
| I think of myself as a strong person when dealing with life’s challenges  | 0.32 ± 0.65  | 0.213 | 1.58 ± 0.92         | 0.001 | 1.68 ± 0.91  | 0.009 |
| and difficulties                                                          | 0.67 ± 1.14  |       | 0.73 ± 1.15         |       | 1.15 ± 1.44  |       |
| I am able to handle unpleasant or painful feelings like sadness, fear,  | 0.42 ± 0.56  | 0.546 | 1.87 ± 0.99         | 0.001 | 1.71 ± 0.86  | 0.120 |
| and anger                                                                 | 0.52 ± 0.62  |       | 0.82 ± 0.88         |       | 1.03 ± 1.10  |       |

Z\text{MW}^*: Mann Whitney Test *Significant at *P<0.05 **P<0.01 ***P<0.001
Fig. 3. Intern-nursing students' socio-demographic characteristics. FET: Fisher exact test *significant at $P \leq 0.05$.

Fig. 4. Total mean scores of students' psychological distress. The total score ranged from 0-to 36. A higher score represents a higher level of psychological distress, Z: Mann Whitney Test *Significant at $**P < 0.01$ $***P < 0.001$.

obstacles, and their abilities to deal with life's challenges and difficulties showed a significant improvement ($p < 0.001$) immediately after the intervention and in the follow-up PFA; $P = 0.040$ and 0.009 for both groups).

Fig. 5 demonstrates that on the baseline measurement, the overall mean scores were 7.12 ± 0.42 for the PFA group and 6.58 ± 0.58 for the comparison one, with no significant differences between both groups ($P = 0.787$). However, the intervention group's mean scores were significantly raised immediately after the PFA compared to the comparison group (12.94 ± 1.13 and 8.33 ± 0.77), ($P < 0.001$). At two-months follow-up, a slight decline in the resilience capacity among the students in the PFA group was observed among the intervention group at 20.58 ± 0.64, compared to 11.24 ± 0.96 for the comparison one, and the $p$-value was 0.003.

Discussion

The rapid proliferation of COVID-19 infection has resulted in an extraordinary global psychological health emergency, particularly among healthcare workers [3]. Therefore, this study demonstrated the promising effect of attending the PFA to
mitigate the devastating impact of the COVID-19 crisis on the pre-licensure nursing students’ psychological health status and improve their resilience capacity. Globally, these objectives were achieved by demonstrating an empathetic and compassionate attitude and adopting a package of maneuvers such as stress reduction techniques, cognitive reframing, hope installation, and the mobilization of the participants’ support system.

Our hypothesis related to reducing the psychological distress level among pre-licensure nursing students who attended the PFA was accepted. This finding could be partly attributed to the empathetic and compassionate attitudes paired with using reflective listening. This eventually would encourage the cathartic ventilation of the psychologically distressed pre-licensure nursing students throughout the entire PFA, as the participants would feel quite visible and their voices would be heard. Hence, they freely described their emotional suffering during the clinical practicum course period amidst the COVID-19 crisis. These positive ramifications can be considered in the same line with previous studies’ results, which asserted that respecting individuality, showing understanding, valuing concerns, and acknowledging the feelings of distress are essential for preserving the nurses’ psychological health during the pandemic [20,21]. In this sense, the research team accurately perceives and understands the pre-licensure student’s feelings on a deeper level and communicates that understanding back to the pre-licensure students. The researchers have committed to being visible and available and stand as an emotional mirror or as a reflection of the pre-licensure student’s negative facial expression. The student then explains why he/she does not appear to be happy. In the ensuing talk, the researchers leaned forward, maintain eye contact, and react to the pre-licensure student’s emotional concerns with both verbal and nonverbal ways of communication, exhibiting that they followed their talk and conveyed their emotional support toward the pre-licensure student’s suffering. The researchers then suggest alternative ways to pin down the student’s ongoing overwhelmed feeling and replace ‘cannot feel happy with ‘feel down’. In this extract, the researchers attempt to provide a more precise description of the student’s feelings of unhappiness related to the COVID-19 pandemic and thus seem to have more accurate knowledge about the contents of the student’s ongoing feelings.

It was hypothesized that practicing stress reduction techniques could cultivate the pre-licensure nursing students’ control over their own emotions. In this case, the PFA allows them to respond more rationally, rather than being hijacked by their automatic psychological responses. [8] (2020) reported that practicing breathing exercises can help create a space between rising psychological pressure and one’s reaction to it. This, in turn, detaches individuals from the stressful situations they find themselves in and relieves their psychological burden. Yu Liu et al. [23] claimed that deep breathing exercises could effectively de-escalate the body in response to a traumatic event. Such exercises stimulate the parasympathetic response and release endorphins that induce emotional calm and foster relaxation and positive feelings [39]. The World Health Organization [44] also reported that practicing stress reduction techniques during the pandemic was highly valuable in recovering the healthcare providers from sense of psychological trauma, and protecting their psychological safety.

The PFA also showed promise in improving the total mean scores of the resilience capacity of the pre-licensure nursing students. These findings could stem from PFA tactics providing them with mental filtration opportunities and enabling them to reframe their thoughts. This consequently enabled them to view the harsh reality of the COVID-19 pandemic from another perspective. For instance, the acceptance that the entire world is mutually fighting against a common enemy of COVID-19 and exploring its related pathological changes helped contextualize the problems they were facing. Developing the relevant therapeutic management protocols and pursuing the manufacturing of a vaccine could nurture an optimistic view toward the upcoming future [31]. The PFA tactics empowered the pre-licensure nursing students to be cognitively flexible and try to see any positive aspect in this adversity rather than focusing only on the negative ones. Moreover, acknowledging nurses’ sacrifices amidst the increased risk of contagion while being committed to allaying the sufferings of patients with COVID-19 infection and saving lives has proven positive impacts on nurses’ psychological recovery [16].

**Fig. 5.** Total mean scores of students’ resilience capacity before, during, and after the PFA. The total score ranged from 0 to 40, as the higher score indicates the higher resilience capacity, ZMW: Mann Whitney Test ‘Significant at **P < 0.01***P < 0.001.'
Courses of ten online PFA sessions strengthen participants’ resilience capacity through hope installation and positive outlooks. Thus, the PFA participants might have hopeful expectations that COVID-19 will eventually fade away and pass
[22,29]. The acquired skills and competencies developed during the PFA implementation were even retained, as shown by the two-month follow-up results, despite the expected slight declines. This finding reflects the effectiveness of the content and maneuvers of the PFA [34]. From another perspective, the PFA is devoted to enlisting the availability of the participants’ support system. This considerably enhances the mutual openness and allows the psychologically distressed students to recover from the lived COVID-19 crisis during the clinical practicum course period. Everly et al. [13] asserted that an interpersonal support system’s availability would be the single and most potent factor in cherishing the resilience of those affected by adversity and trauma.

**Practice implications**

Acknowledging the optimistic impact of the PFA on enhancing the psychological health status and resilience capacity among the pre-licensure nursing students, it is feasible to implement the PFA for other groups of healthcare providers especially those who are working in the frontline. Undoubtedly, such a vulnerable sector encounters unforeseen stressful situations every day [10]. The adequate psychological intervention requires well-trained PFA providers who possess advanced survival skills. Beside, delivering the appropriate, timely, actionable counsel that guarantee the optimal mental health and tailored psychosocial support required acknowledging the interconnected physical and psychological ramifications of the exceptional events [27]. Therefore, rescuing the health care providers with PFA intervention can help in alleviating the unfavorable psychological impact of health-related disasters, foster their psychological recovery, rebuild and affirm their resilience following the disaster period [11].

Nurses are indispensable health care providers who are actively involved in health-related disaster management [16]. As undertaken for a variety of catastrophic situations around the world in recent years, the Egyptian health care discipline should embed the prompt PFA intervention within the hospital policy and guidelines. Clearly, these policies must allocate responsibilities for core PFA actions to the health care providers at all levels. In accordance with the National Institute of Mental Health (NIMH) recommendations, reintegrating PFA into a multi-faceted disaster mental health response is urged. These includes validated assessments of disaster survivors, identification of those at high risk of developing psychopathology, and referrals for mental health care specialists [42].

**Limitations and strengths**

The study had limitations in considering a small sample size of pre-licensure nursing students, which is overcome with random assignments of cases. Providing the comparison group with the routine psychological support such as practicing self-compassion, and mindfulness exercises might be considered as a confounding factor. Beside, the short timeframe for follow-up outcome measures is only two months limits our ability to determine the longer-term impacts of the intervention. Despite this limitation, the present study magnets strength from the finding that displays the positive effect of the PFA on mitigating distress and enhancing resilience.

**Conclusion**

The Psychological First-aid Intervention effectively fostered the pre-licensure nursing students’ recovery from the COVID-19 related psychological distress and improves their resilience capacity. The RAPID model application is recommended to reduce stress and prevent burnout among novice and future nurses who show signs of psychological exhaustion.

**Declarations**

**Ethical approval and consent to participate**

Faculty of Nursing, Alexandria University Ethics committee provided ethical approval for this study. Participants in the current study consented to participate and to their data being used for research purposes only.

**Consent for publication**

Not Applicable.

**Availability of data and materials**

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.
Funding

Not Applicable.

Ethical approval

The Research Ethical Committee of the Faculty of Nursing approved the study.

Declaration of Competing Interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

CRediT authorship contribution statement

Rasha Salah Eweida: Investigation, Conceptualization, Methodology, Data curation, Writing – original draft, Writing – review & editing. Zohour Ibrahim Rashwan: Conceptualization, Formal analysis, Data curation, Writing – review & editing. Leena Mohammad Khonji: Writing – review & editing. Abdullah Abdulrahman Bin Shallhub: Writing – review & editing. Nashwa Ibrahim: Data curation, Writing – original draft, Writing – review & editing, Supervision.

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