

# Nurses' Competencies and Resilience vis-a-vis Online Education Experience and Nursing Residency Programs (NRPs) in China

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**Abstract:** This study investigated the online education of new graduate nurses in Chinese nurse residency programs. It explored their demographic profiles and experiences. Purposive sampling in Nanyang Medical College's affiliated hospitals ensured information-rich cases. Validated survey instruments guaranteed reliability, and the online Questionnaire Star App aided data collection. Findings indicate a predominant age group (21-25, 63.4%) and a historically female-dominated sector (90.5% female). In nurse residency programs, 72.3% are in the first year, aligning with a 2-year training period. Educationally, 21.0% attained higher degrees by 2018. In online learning, 34.1% participated for less than two months, and 27.8% for more than eight months, showcasing diverse engagement. Colaizzi's analysis revealed emergent themes: "Complexities" (explores challenges and benefits of online classes), "Communication" (scrutinizes informal interactions), and "Self Discipline" (focuses on self-control challenges, emphasizing support needs). Competence is consistently high, occasionally used, and indicating adaptability. Resilience components show nuanced adaptive patterns.

**Keywords:** Nurse Competencies, Nurse Resilience, Nursing Programs, and Online Education Experience

## I. Introduction

The evolution of online education since the 1990s, marked by the rise of learning management systems (LMSs), Massive Open Online Courses (MOOCs), and blended learning, has been overshadowed by face-to-face education. However, the COVID-19 pandemic forced a sudden shift to fully online education, presenting challenges like inappropriate learning environments. Nursing disciplines, reliant on practical experience, faced disruptions, impacting the preparedness of new graduate nurses. With a projected demand for 12.9 million nurses by 2035, there's a turnover risk among graduates due to role conflict and stress. This instability affects nursing teams, particularly in high-risk units. The study emphasizes the need to examine the consequences of online education on the work readiness and long-term success of the first post-COVID era nursing cohort. Current research gaps exist in exploring clinical readiness and the enduring effects of online education on new graduate nurses, especially in vocational education. The study surfaces the online education experience, knowledge, competence, and resilience of new graduate nurses, aiming to address these critical aspects for their career readiness.

Online education, a term coined in 1995 during the rise of LMSs, encompasses various terms like e-learning, blended learning, and digital learning (Singh & Thurman et al., 2019; Johnston, 2021). Common

features involve time, space, distance, interactivity, and technology use. Singh and Thurman define it as education delivered synchronously or asynchronously through the Internet, negating the need for physical coexistence (Singh & Thurman et al., 2019). Despite its evolution since the 1990s, concerns persist, including the lack of a traditional school atmosphere and direct teacher-student interaction (Hara & Kling, 2000; Kinshuk & Yang, 2003).

### **The evolution of online education**

MOOCs, emerging in 2008, gained momentum by 2012, breaking geographical barriers and offering global accessibility (Jordan & Goshtasbpour, 2022). However, quality concerns arose, leading to a gradual decline after 2014 (Shah, 2016). Blended learning, initially applied in corporate training, combines face-to-face and online approaches, gaining traction in higher education since 2003 (Sharma & Barrett, 2007; Kexiang, 2004). Overall, online education's impact on traditional learning methods, exemplified by MOOCs and blended learning, reflects both progress and challenges.

### **Challenges of online education during COVID-19**

The COVID-19 pandemic forced a global shift to online education, termed "emergency remote learning," posing challenges in various aspects (Daniel, 2020; UNESCO, 2020; Xie et al., 2019). In healthcare, especially nursing, the transition negatively impacted student engagement and preparedness for clinical placements (Bowser et al., 2022). Anxiety, exacerbated by COVID-19, hindered satisfaction and academic achievement (Kim & Park, 2021; Oducado & Estoque, 2021). The disruption left nursing graduates (2020–2023) at risk, entering high-risk units without proper transitions (Palese et al., 2022). Research gaps persist in understanding the long-term effects of online education on nursing graduates' career readiness and outcomes post-pandemic.

### **Nurse competence**

Competency research has historical roots, from Roman times to Taylor's assembly line standardization (Sandberg, 2000). McClelland's 1973 definition introduced the "Iceberg Model" (McClelland, 1986), and Boyatzis proposed the "Onion Model" in 1991 (Boyatzis, 1991). A universal "Competency Dictionary" emerged, including McClelland's, Hay's, and Spencer's (Maestro, 2006). In nursing, competency is defined by Benner (1984) and varies across models like AORN, Australian Nurses Association, and Lenburg's COPA model (Mailloux, 2011; Cashin et al., 2017; Lenburg et al., 2009). Chinese scholars, including Liu, Wang, and Qi, highlight integrated knowledge, skills, and attitudes in nursing (Liu, 2006; Wang, 2012). Gardner's model expands dimensions to professional practice and leadership (Gardner et al., 2006). Specialized models for oncology, operating room, and diabetes nurses offer nuanced perspectives (Calzone et al., 2002; Gillespie et al., 2009; Davis et al., 2008). Chinese nurse competency research, while nascent, includes models for clinical and infectious disease nurses (Zhang et al., 2001; Huang & Shang, 2022). However, clarity and specificity are lacking in these standards (Chen et al., 2023).

### **Evaluation tools for nurse competency**

Dr. Schwirian in the United States introduced the Six-Dimensional Scale of Nursing Behavior, evaluating critical care, planning, evaluation, teaching, collaboration, leadership, professional development, and communication (Schwirian, 1978). While widely recognized, it may lack sensitivity to differentiate among nurses with varying experience levels (Meretoja et al., 2004). Finland's Dr. Riitta Meretoja developed the Nurse Competence Scale (NCS) based on Benner's framework, with seven dimensions like helping, teaching, diagnostic, management, therapeutic interventions, quality assurance, and job role, featuring international adaptation and Cronbach's coefficients ranging from 0.79 to 0.91 (Meretoja et al., 2004; Dellai et al., 2009). American scholar Carter designed a competency evaluation tool emphasizing eight dimensions, evaluated by superiors, peers, and oneself, addressing nursing practice ability, clinical judgment, adaptability, cooperation, clinical counseling, systems thinking, professional ethics, and learning and development (Carter & Burnette,

2011). Chinese scholars led by Liu Ming created the Chinese Registered Nurse Core Competency Assessment Scale, with seven dimensions and 58 entries validated in Macao (Liu et al., 2007, 2009). Nurse competency, crucial for quality care and patient satisfaction, demands effective assessment tools, contributing to patient comfort and satisfaction with nursing care (Meretoja et al., 2004; Dellai et al., 2009; Carter & Burnette, 2011; Liu et al., 2007, 2009).

### **Nurse Resilience**

"Elasticity," rooted in the Latin "*resilire*", signifies an object's ability to regain its shape post-deformation (Hartmann et al., 2020). Resilience, integral in psychology and medicine, involves dynamic processes and individual-environment interactions (Seaborn et al., 2021). Nurses' resilience, shaped by self-efficacy, optimism, humor, self-care, and coping styles, is crucial for mitigating burnout (Cooper et al., 2020). Psychological resilience research highlights internal resources like hope, coping, and self-efficacy, while external factors such as peer support foster resilience (Hart et al., 2014; Leys et al., 2020; Laschinger et al., 2015). Recent research explores neurobiology, cognition, and behavior, enhancing resilience through interventions like resilience training (Badu et al., 2020; Babanataj et al., 2019; Meyer & Shatto, 2018).

Nurse resilience significantly impacts mental health, reducing anxiety, depression, and somatic symptoms, with low resilience correlating with adverse outcomes (Foster et al., 2019; Rodríguez-Hernández et al., 2021). Resilience mediates the stress-mental health relationship, mitigating occupational stress impact on well-being (Lara-Cabrera et al., 2021; Song et al., 2021). Resilience training for new graduate nurses enhances coping with workplace stress (Al-shawush et al., 2021). Nurse resilience reduces turnover, burnout, fostering engagement, success, and retention (Concilio et al., 2019; Kelly et al., 2019). Insufficient resilience correlates with decreased job satisfaction, errors, and resignations among new graduate nurses (Concilio et al., 2019). Understanding and measuring new nurse resilience are crucial during the COVID-19 pandemic, guiding improvements in nurse residency training, promoting psychological well-being, and ensuring quality patient care.

### **Nurse Residency Programs**

New graduate nurses, defined as those with two years of post-graduation experience, undergo Nurse Residency Programs (NRPs) to enhance clinical skills and adaptation to nursing roles (Han et al., 2022). NRPs vary globally, with the U.S. having a 12-month duration primarily in designated departments (Institute of Medicine Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine, 2011), the UK's six-12-month NRPs cycling between clinical units (Chappell & Richards, 2015), and China's two-year program in medical, surgical, critical care, and emergency departments (National Health and Family Planning Commission of the P.R.C., 2016). Evidence supports the NRPs' role in improving nurse retention, job satisfaction, competence, and confidence (Eckerson, 2018). The United States initiated NRPs in 2002, with evolving standards (Commission on Collegiate Nursing Education, 2021), while other countries emphasize professional competencies and adaptability (Sumikawa & Yamamoto-Mitani, 2021). China's NRP, launched in 2016, spans two years, incorporating theoretical and practical training (Cui, 2020).

### **Consequences of Nurse Residency Programs on Nurses' Career Development**

NRPs significantly decrease nurse turnover rates, reducing costs, and enhancing stability. Implementation at a general acute care hospital led to a 5% reduction in new nurse turnover in the first year (Africa, 2017). Another hospital reported a 3% turnover rate after NRPs, ensuring workforce stability (Pine & Tart, 2007). NRPs also elevate professional competence. A Chinese study found improved clinical nursing competence, enhanced skills, and expanded professional knowledge in NRP participants (Zheng, 2023). Continuous training results in comprehensive competence, broader vision, clearer self-perception, and increased professional confidence, aiding career development (Han, 2022). In China, one-on-one mentoring in NRPs offers organizational support, answering queries and providing moral encouragement (Han, 2022). However,

with healthcare changes and post-pandemic challenges, the effectiveness of China's seven-year-old NRP standards in addressing evolving nurse needs remains to be seen (Salmond & Echevarria, 2017; Chan et al., 2020).

### **Study Framework**

Constructivist theories, particularly Vygotsky's Zone of Proximal Development (ZPD) (Billings & Walqui, 2024) and scaffolding (Indeed Editorial Team, 2023), offer frameworks for nurturing nursing competencies and resilience through social interaction and tailored support. Vygotsky's ZPD suggests nurses evolve within developmental levels with support, aligning with nursing competence's multifaceted nature. Scaffolding in nursing education involves educators acting as mentors to bridge competency gaps. Resilience, vital for nurses under stress, intersects with constructivist theories, as scaffolding's supportive environment aligns with resilience's social support. New nurses' transformations parallel Vygotsky's ZPD, and resilience involves adapting to challenges, mirroring the ZPD's adaptability. Constructivist approaches recognize individual differences, addressing nurses' unique challenges. Tailored support in scaffolding promotes competency and resilience, aiding new nurses' transition to professional practice. Continuous learning, emphasized in constructivism, parallels nursing practice, supporting competence and resilience in adapting to healthcare changes.

### **Statement of the Problem**

The study sought to investigate the consequences of online education on the competence and resilience of new graduate nurses participating in nurse residency programs, addressing several key aspects. Firstly, it aimed to discern the demographic profile of new graduate nurses, considering factors such as age, gender, duration of participation in nurse residency programs, educational attainment, duration of online learning, and the actual clinical training period. Additionally, the research explored the experiences of new graduate nurses with online education. The study assessed the level of competence among new graduate nurses in various domains, including the helping role, teaching-coaching, diagnostic functions, managing functions, therapeutic interventions, ensuring quality, and work role. Furthermore, it evaluates the new graduate nurses' resilience levels, focusing on tenacity, strength, and optimism.

## **II. Methodology**

The research employed a mixed-methods approach, combining Husserl's phenomenology in the qualitative phase and descriptive correlational research in the quantitative segment. Purposeful sampling was chosen for its suitability in identifying information-rich cases, specifically newly graduated nurses in Nanyang Medical College's affiliated hospitals. A pre-survey, validating instrument reliability (NCS,  $\alpha = 0.86$ ; Resilience Scale,  $\alpha = 0.893$ ), involved 20 nurses from the First Affiliated Hospital of Nanyang Medical College to test the reliability of the questionnaire. Instruments included a demographic questionnaire, semi-structured interviews, and scales for competence and resilience. The survey instrument demonstrated good reliability and validity, ensuring robust data collection. The sample criteria for nurses participating in Nurse Residency Programs were carefully defined. The research utilized the online platform Questionnaire Star App for data collection, with appropriate ethical clearances. In the data collection, the researchers collected questionnaire data from 528 newly graduated nurses from the three affiliated hospitals of Nanyang Medical College and data from 12 interviews from the same group. Descriptive statistical analysis was applied to the quantitative data, while qualitative data underwent a comprehensive seven-step analysis using Colaizzi and Nvivo 12.0, ensuring accuracy. The research design prioritized participant feedback and thorough data collection, reflecting a rigorous and comprehensive exploration of the consequences of online education on new graduate nurses.

## **III. Results**

### **Demographic Data**

The data underscore a predominant age group of 21 to 25 (63.4%), signifying a significant demographic trend in China's nursing workforce (Lu et al., 2021). This concentration suggests a potential influx of new entrants, emphasizing the need to tailor educational programs for adaptability and learning preferences. The gender breakdown revealed a historical female-dominated sector (90.5% female), signaling potential gender-specific challenges. The concentration of nurse respondents (72.3%) in the first year of residency programs aligned with the two-year training period, highlighting the transformative effects of these programs on competence and resilience.

Li et al.'s (2021) investigation indicated a substantial increase in higher degree attainment among Chinese nurses, reaching 21.0% by 2018. This trend, particularly in hospital settings, reflects positive professionalization but raises challenges like time constraints. Recognizing educational levels informs impact assessment and program tailoring for diverse needs.

Regarding online learning, diverse engagement is evident, with 34.1% participating for less than two months and 27.8% for over eight months. Understanding the duration of online learning provides insights into nurses' temporal commitment, guiding the design of enhanced NRPs aligned with varied preferences. Insights into the distribution of nurse respondents based on the duration of clinical practice (46.0% within 3 to 6 months) are crucial for integrating online education seamlessly with clinical training in NRPs, fostering practical skills and resilience needed in China's healthcare landscape.

### **Experiences of the Participants with Online Education**

Employing Colaizzi's phenomenological analysis, the study condensed nurses' expressions into formulated meanings, yielding themes. Emergent Theme 1, "Complexities," explores online class challenges and benefits in China, examining specific learning outcomes and highlighting positive aspects. It unveils intricacies in virtual education, addressing advantages and challenges comprehensively. Theme 2, "Communication," scrutinizes nurses' experiences with informal interactions, feedback gaps, and communication scarcity, capturing nuances in dynamics. The research delves into informalities, feedback deficiencies, and communication limitations faced by Chinese nurses in virtual education. Theme 3, "Self Discipline," focuses on challenges in self-control and psychological well-being during online classes. It sheds light on struggles in maintaining effective self-discipline and addressing psychological concerns, emphasizing the necessity for support mechanisms in China's virtual learning experiences.

**Complexities.** The study investigated the intricacies of online education, shedding light on both positive outcomes and challenges faced by participants.

**Challenges of Online Classes.** Technological hurdles and distractions emerged as prominent issues, as participants grappled with Internet connectivity problems and disruptions:

Participants faced technological hurdles like internet connectivity issues and disruptions, emphasizing the need for effective solutions in online learning.

Focus was impeded by various distractions, encompassing both internal and external factors, wherein household noise and electronic devices played substantial roles as significant disruptors:

Distractions, both external and internal, hindered focus, with household noise and electronic devices acting as sources of disruption.

The unfavorable study environment at home resulted in diminished motivation and a lack of interest in online classes:

The lack of a conducive study atmosphere at home led to a decline in motivation and disinterest in online classes.

Inadequate supervision led to reduced self-discipline, procrastination, and difficulties in completing assignments, underscoring the importance of efficient monitoring:

Insufficient supervision resulted in decreased self-discipline, procrastination, and challenges in completing assignments, emphasizing the necessity of effective monitoring.

Prolonged use of screens raised worries about eye strain, emphasizing the need for approaches to enhance eye health in online education:

Extended screen time raised concerns about eye strain, prompting the need for strategies to promote eye health in online education.

Challenges in accessing vital equipment and limitations in virtual practical classes contributed to a perception of incompetence in nursing skills, underscoring the complexity of replicating hands-on experiences:

Perceived incompetence in nursing skills stemmed from challenges in accessing essential equipment and limitations in virtual practical classes, highlighting the difficulty of replicating hands-on experiences.

Challenges in aligning with instructional approaches were associated with a higher number of students in online classes, potential discrepancies in teaching models, and limitations in effectively conveying explanations:

Difficulties in aligning with instructional approaches reflected challenges related to the increased number of students in online classes, potential mismatches in teaching models, and limitations in conveying explanations effectively.

The study underscores the multifaceted nature of challenges in online education, stressing the importance of addressing these issues for enhanced effectiveness in virtual learning environments.

***Advantages of Online Classes.*** Online classes are transforming education, addressing learners' evolving needs. This research focuses on the positive aspects, highlighting flexibility, accessibility, and the globalized learning community. Participants emphasized online learning's accessibility and convenience, eliminating geographical barriers:

I think the advantage of online classes lies in that special period; we were not falling behind in theory learning, and the teachers were all there.

The only advantage of online classes lies in that if a student...doesn't learn well during classes, he can turn to other videos online to make up for the knowledge.

Online classes could be replayed, so I could review them during my free time.

The study accentuates the importance of the playback learning function, allowing learners to revisit and replay content, enhancing understanding:

The advantage is that we could replay the lessons and study on our own if we had any questions.

Through playback, we could complete our notes and better summarize what we had learned, which means, we could go through the knowledge in our mind.

Moreover, participants acknowledged efficient sharing of educational resources:

The teachers would provide some videos about the knowledge, or videos on how to use software.

Online classes, we could access many resources... If there was something we were interested in or didn't quite understand, we could search for related courses on that platform to listen to.

The research underscores participants' awareness and positive reception of the playback learning function, efficient sharing of resources, and their collective impact on enhancing the accessibility and dynamics of online education.

**Communication.** This study utilized Colaizzi's phenomenological analysis to delve into the communication dynamics experienced by nurses in China during online classes, focusing on informal interactions, feedback shortages, and broader communication challenges. The research is structured into two clusters: interpersonal communication and interference in communication.

**Interpersonal Communication.** In the realm of interpersonal communication, participants emphasized the advantages of one-on-one discussions with instructors:

It's a bit contradictory, but because the questions I ask are about the extended aspects, I can also ask the teacher privately about these. I'm more satisfied with this aspect.

In terms of communication, I think it was okay. Because on our App, we could connect. Communication-wise, there were no issues. Mainly, it depends on whether students are willing to take the initiative to contact teachers and ask questions... I am willing to ask questions.

Shared experiences contribute significantly to forming stronger bonds within the online learning community:

But I feel that even though we were not together, we have actually become closer to each other due to the special experience of the pandemic.

Discussing problems is quite active.

The communication with classmates was quite lively and open.

The adaptability of conversational messages in online classes is highlighted, reflecting shifts toward casual and familiar tones:

Because we were all familiar with each other, the conversation was more casual and not so formal.

I was usually shy to interact with teachers offline. Although my questions were often covered in the comment area, I was at least less reserved when interacting with teachers through texting.

However, participants expressed reluctance in seeking assistance during online classes, citing emotional and psychological barriers:

Things are different online. For example, if I don't know how to solve a question, when offline, I might just ask my classmates for help. But when online, I might be more inclined to try to solve it myself first, and to understand the question. But if it really doesn't work, I would call my classmates and ask for help.

I still feel that I cannot give timely feedback to the teacher about what I wanted to know. I just wanted to memorize it and didn't understand.

Due to low motivation for studying in the dorm, I hardly ever ask teachers for help with problems.

This study offers a nuanced exploration of interpersonal communication in virtual classes, showcasing the transformative potential of online education while uncovering the complex dynamics of reluctance faced by participants. Understanding and addressing these barriers are vital for creating a supportive and inclusive virtual learning environment.

**Communication Interference.** Within the realm of online education, the theme of interference in communication unveiled multifaceted challenges hindering effective participant engagement. Participants lamented the absence of feedback, identifying it as a critical barrier impacting the learning experience and potentially contributing to isolation:

Therefore, some questions would be ignored... when the online class ended, we had less contact with the teacher.

...basically no communication with the teachers.

Sometimes when I ask a question, the teacher responds briefly... not a lot of elaboration on the extended aspects.

The study emphasizes the transformative impact of this feedback gap, elucidating pervasive negative reactions among students and its consequential toll on mental health. Participants expressed concerns about diminished contact with teachers in the virtual realm compared to traditional settings, underscoring the limitation in interpersonal interaction.

Exploring further into interference in communication, participants reveal experiences of occasional contact during virtual classes, highlighting sporadic engagement and communication dynamics:



Communication was limited... there wasn't much communication.

It affected my communication with my teacher and classmates... much less communication.

...not much interaction. They keep teaching the points, which might feel a bit monotonous.

These insights add complexity to the interference theme, offering valuable perspectives on participant-teacher and participant-participant interactions. Participants expressed apprehensions about the diminishing level of interaction, marking a noticeable shift from vibrant traditional classrooms to a more lecture-oriented online format.

In the context of investigating interference in communication within online education, participants articulated diverse experiences, revealing challenges intrinsic to the digital classroom landscape. The theme centers around the sporadic nature of contact and communication, highlighting intricate dynamics participants face in navigating online learning:

...online classes are mostly about the teacher's lectures. After the lecture, we reviewed by ourselves, and there was little interaction with the teacher.

...online classes were mostly about the teacher's lectures... there was little interaction with the teacher.

Insights from Jonassen and Ward et al. underscore students' sentiments that online classes are perceived as inadequate, with difficulties in comprehension and learning being significant hurdles. Participants express apprehensions about the diminishing level of interaction, marking a noticeable shift from vibrant traditional classrooms to a more lecture-oriented online format. These insights contribute a layer of complexity to the interference theme, providing valuable perspectives on participant-teacher and participant-participant interactions, ultimately shaping the dynamics of online educational endeavors.

**Self-Discipline.** This thematic analysis investigated the challenges faced by nurses in China during online classes, focusing on self-discipline and psychological well-being.

**Motivational Deficits.** Motivational deficits, a sub-theme, delve into participants' struggles in sustaining motivation and self-discipline in virtual learning:

Feeling unsure about your own skills, having doubts about yourself.

Initially, I felt a lot of pressure... but I was also afraid of not meeting expectations.

The study emphasizes emotions like distress and demotivation as barriers to self-discipline:

Sometimes I thought about it, I didn't know these contents, and I couldn't get the correct guidance, so I just gave up on myself, right? Give up on yourself!

Building on motivational deficits, participants expressed perceptions of insufficient self-management:

The downside of online classes for us is that our self-discipline isn't very high.

...because of students' lack of self-discipline and low self-regulation, we started slacking off.

The research also highlights participants' struggles with self-discipline, multitasking, and distractions:

...we'd set an alarm, open the livestream at 8 AM, and then continue sleeping after placing the phone aside.

Well, online classes can be said to be boring... difficult to mobilize enthusiasm.

The findings revealed a nuanced understanding of motivational deficits and self-management challenges in online education, emphasizing emotional well-being and focus.

**Coping Mechanisms.** The study delved into participants' coping mechanisms and self-discipline strategies during online learning. Despite encountering motivational deficits, individuals showcased resilience:

I was a bit afraid, afraid of not doing well and causing issues. Then later, I try to learn more.

...teachers would ask us to do it ourselves with different ingredients, and to post a video online after finishing. By doing this, we could experience the underlying pleasure.

Psychological resilience is highlighted as a key coping mechanism, emphasizing participants' ability to bounce back and maintain a positive mindset:

...I tried to calm myself down and focus on what really matters.

I think it's closer to the conditions of real practice to prepare everything at home.

The research acknowledges the multifaceted nature of coping strategies, revealing diverse responses to the challenges of online education:

During class, because I was in the dormitory, it was quite relaxed, and various ways of attending classes were adopted.

I have my own time now to plan and direct my schedules in a manner I can control.

Participants valued the advantages of self-directed scheduling and leisure in managing their routines:

There times when we are offline, I try to rest then schedule my work after.

The schedules given are freeing but of course there's a need to change when it comes to planning activities, assignments, and my hobbies too.

This research provides nuanced insights into participants' resilience, emphasizing their adaptive responses and positive outcomes in the face of online learning challenges. The study underscores the importance of psychological resilience, diverse coping mechanisms, and the symbiotic relationship between self-directed scheduling, leisure, and effective self-management in enhancing self-discipline and overall well-being in the online learning environment.

**Nurses' Level of Competence during NRP**

The data unveiled nurses' competence, reflecting consistently high scores across various areas, with a mean interpretation of "Good." While competencies were deemed "Occasionally Used" on average, the reported frequency ranges from 76.14% to 95.86%, indicating substantial utilization. Nurses exhibited commendable proficiency, although these skills are not constantly applied, likely depending on situational demands or patient needs.

Table 1  
*Nurses' Competence Level*

Nurse Competence Summary	Mean	Std. Deviation	Mean Interpretation	Mean Frequency of using the Competency	Frequency Interpretation	% of Frequency of Use
<b>Helping Role</b>	62.64	12.73	<b>Good</b>	1.86	Occasionally Used	95.86
<b>Teaching-Coaching</b>	67.01	14.93	<b>Good</b>	1.99	Occasionally Used	94.92
<b>Diagnostic Functions</b>	65.21	13.978	<b>Good</b>	1.92	Occasionally Used	94.94
<b>Managing Situations</b>	65.56	14.419	<b>Good</b>	1.71	Occasionally Used	87.31
<b>Therapeutic Interventions</b>	64.40	15.773	<b>Good</b>	1.54	Occasionally Used	76.14
<b>Ensuring Quality</b>	67.94	13.279	<b>Good</b>	1.71	Occasionally Used	85.04
<b>Work Role</b>	66.92	14.850	<b>Good</b>	1.73	Occasionally Used	90.40
<b>Overall</b>	<b>65.67</b>	<b>14.28</b>	<b>Good</b>	<b>1.78</b>	<b>Occasionally Used</b>	<b>89.23</b>

Nursing Competence Scale

Establishing competency in 2008, the Australian Nurses Association, cited by Cashin et al. (2017), defines it as a blend of specialized knowledge, skills, attitudes, and values crucial for nursing excellence. The study affirmed nurses' commendable proficiency, emphasizing the multifaceted nature of their roles, extending beyond clinical tasks to encompass broader professional responsibilities. The findings provide a robust framework for understanding nurse competence within the complex healthcare landscape.

Aligning with Benner's perspective on nurse competency, the term "Occasionally Used" reveals a nuanced approach to skill application. Nurses demonstrate intermittent utilization, adapting competencies to diverse clinical scenarios, highlighting their dynamic and context-sensitive deployment. Participants noted interruptions in skill training and challenges in comprehending acquired knowledge, suggesting barriers to continuous competence. Despite occasional use, the relatively high frequency percentages (76.14% to 95.86%) underscore substantial and consistent application across reported competencies. One statement emphasizes nurses' adaptability to healthcare changes, indicating a strong foundational competence regularly deployed when needed.

### **Nurse Resilience Level during the NRP**

The research delved into the intricate dynamics of nurse resilience, providing a nuanced understanding of its three key components: Strength, Tenacity, and Optimism.

Strength emerges as a standout attribute among nurses, evident in the robust mean score of 2.30. This resilience factor aligns with Cooper et al.'s (2020) extensive study on nurses, emphasizing the nurses' commendable proficiency and composure in the face of challenges. As a participant articulated, "I was a bit afraid, afraid of not doing well and causing issues. Then later, I tr(ied) to learn more," showcasing the proactive learning approach as a manifestation of strength.

Similarly, a participant's experience with a creative assignment reflects the nurses' ability to find pleasure amid challenges: "...teachers would ask us to do it ourselves with different ingredients, and to post a video online after finishing. By doing this, we could experience the underlying pleasure."

Table 2  
*Nurses' Resilience Level*

<b>Nurse Resilience Summary</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Mean Interpretation</b>
<b>Tenacity</b>	1.84	0.82	Sometimes True
<b>Strength</b>	2.30	0.86	Often True
<b>Optimism</b>	1.94	0.91	Sometimes True

The components of Tenacity and Optimism show slightly lower mean scores of 1.84 and 1.94, respectively. However, the nuanced analysis contextualizes these scores, positioning them within the "Sometimes True" range on the Likert scale. This variability is reflective of nurses' adaptive resilience, as observed in a participant's statement, "Well, actually when I came to the hospital, I was quite nervous about the exam because I felt that I didn't have a comprehensive grasp of the relevant knowledge, but then I tried to calm myself down and focus on what really matters."

The facet of Tenacity mirrors nurses' perseverance and unwavering determination amid adversities, contributing to the complex landscape of resilience. Meanwhile, Optimism reflects a positive outlook and proactive approach in facing challenges. This aligns with Badu et al.'s (2020) insights into the multifaceted nature of self-efficacy and its implications for nurses, emphasizing the interconnectedness of positive thinking, emotional intelligence, and resilience. While Tenacity and Optimism may manifest at a slightly lower

frequency, their presence underscores the diverse and adaptive nature of nurse resilience. This comprehensive understanding of nurse resilience components can inform tailored interventions and support strategies, contributing to the overall well-being and effectiveness of the nursing profession.

#### **IV. Discussion**

The revealed competence of nurses, with consistently high scores in various areas despite being occasionally used, holds particular relevance in the context of COVID-19 and online learning. The Australian Nurses Association, established in 2008 and cited by Cashin et al. (2017), defines competence as a combination of specialized knowledge, skills, attitudes, and values essential for nursing excellence. This framework becomes especially pertinent in the face of the COVID-19 pandemic, where healthcare professionals, including nurses, have been confronted with unprecedented challenges and evolving demands.

The commendable proficiency exhibited by nurses, as highlighted in the study, aligns with the multifaceted nature of their roles, extending beyond clinical tasks to encompass broader professional responsibilities. In the context of COVID-19, nurses have been required to adapt rapidly to new protocols, technologies, and patient care approaches. The high competence scores indicate their ability to navigate and excel in this complex healthcare landscape, even when competencies are occasionally used.

Benner's perspective on nurse competency, which aligns with the "Occasionally Used" interpretation in the findings, underscores a nuanced approach to skill application. Nurses, adapting competencies to diverse clinical scenarios, showcase a dynamic and context-sensitive deployment of their skills. This adaptability is crucial in the current healthcare climate, where the challenges posed by the pandemic necessitate flexible and agile responses.

The intermittent utilization of competencies, as noted in the study, may also be attributed to interruptions in skill training and challenges in comprehending acquired knowledge. In the context of COVID-19, rapid updates, changing guidelines, and the influx of new information may contribute to these interruptions. The reported barriers to continuous competence underscore the importance of targeted training and educational strategies, especially in the context of online learning, to ensure that nurses remain well-equipped to address the evolving challenges posed by the pandemic.

Despite competencies being occasionally used, the study's findings highlight the substantial and consistent application of skills across reported competencies, with frequency percentages ranging from 76.14% to 95.86%. This suggests that, when needed, nurses demonstrate a strong foundational competence. This adaptability and consistent application of skills are vital components of resilience, especially in the face of a global health crisis like COVID-19. The study contributes valuable insights into how nurses' competence, as assessed through the lens of occasional use, aligns with and responds to the demands imposed by the ongoing challenges in healthcare.

The findings on nurse resilience, as elucidated in this research, hold significant implications for understanding and addressing the challenges posed by the COVID-19 pandemic, particularly in the context of online learning. The study identifies three key components of nurse resilience: Strength, Tenacity, and Optimism.

Strength emerges as a prominent attribute among nurses, with a robust mean score of 2.30. This aligns with Cooper et al.'s extensive study, emphasizing nurses' commendable proficiency and composure in the face of challenges. In the context of COVID-19, the proactive learning approach articulated by a participant reflects the manifestation of strength. The participant's statement, "I was a bit afraid, afraid of not doing well and

causing issues. Then later, I tr(ied) to learn more," highlights the adaptability and continuous learning exhibited by nurses, a crucial aspect of resilience in the dynamic healthcare landscape shaped by the pandemic.

The components of Tenacity and Optimism, while showing slightly lower mean scores, are contextualized within the "Sometimes True" range on the Likert scale. This variability is indicative of nurses' adaptive resilience, as observed in a participant's statement about overcoming nervousness and focusing on essential knowledge for exams. In the face of uncertainties and challenges brought forth by the pandemic, nurses' perseverance (Tenacity) and positive outlook (Optimism) play pivotal roles in navigating and thriving amid adversity.

The multifaceted nature of nurse resilience, encompassing Strength, Tenacity, and Optimism, resonates with Badu et al.'s insights into self-efficacy and its implications for nurses. The interconnectedness of positive thinking, emotional intelligence, and resilience becomes particularly relevant in the current healthcare landscape. Nurses' ability to find pleasure in creative assignments, as described in the study, mirrors the adaptive and positive approach encapsulated in the Optimism component.

The comprehensive understanding of nurse resilience components, as revealed in this research, can inform tailored interventions and support strategies. As the nursing profession grapples with the challenges posed by COVID-19 and adapts to online learning modalities, recognizing and fostering these resilience components becomes crucial. Strategies that promote continuous learning, adaptive perseverance, and positive outlooks can contribute to the overall well-being and effectiveness of nurses during these challenging times. The insights provided by this research, coupled with the cited literature, offer a nuanced perspective on nurse resilience and its relevance to the evolving landscape of healthcare, especially in the era of COVID-19.

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