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ORIGINAL RESEARCH

"A life without a supervisor is like a seed that never grows": Students' Experiences of Undergraduate Nursing Research Supervision

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Article Info	Abstract
	Background: Undergraduate research is an inquiry or investigation conducted by students who develop an original intellectual or creative contribution to the discipline. However, little is known within the Philippine context that explores undergraduate nursing research experience and supervision. **Purpose:** This study illustrated the students' lived experiences of undergraduate research supervision using transcendental phenomenology. **Methods:** This study made use of transcendental phenomenology. Thirty students enrolled full-time in a nursing research course during the academic year (AY) 2019-2020, and AY 2020-2021 were purposively sampled. These students completed their research projects as required for the nursing research course and were supervised by a mentor. Each participant underwent an in-depth one-on-one interview, of which the responses were transcribed and analyzed based on the modified Stevick-Colaizzi-Keen method. **Findings:** From the thirty-nine significant statements carefully reviewed and clustered into meaning units, three themes emerged, namely (a) re-capturing tripartite challenges in doing research, (b) re-cultivating quintessential requisites in doing research, and (c) re-envisioning the future ahead. These themes provided textural and structural descriptions that intuitively integrate into the essence of the lived experience of being supervised in undergraduate research. **Conclusion:** Undergraduate research supervision resonates with the mutual exchange of novel ideas in a dialogical encounter, collective learning, and participatory-in-action where sciencing and caring thinking is imbued to develop critical thinking, inquisitiveness, and caring intuitiveness.

1. Introduction

Undergraduate research is an inquiry or investigation conducted by students who develop an original intellectual or creative contribution to the discipline (Council on Undergraduate Research, 2012). Perrella et al. (2020) describe the nature of undergraduate research as research-tutored (i.e., *engaging in research discussions)*, research-based (i.e., *undertaking research and inquiry)*, research-led (i.e., *learning about current research in the discipline)*, and research-oriented (i.e., *developing research skills and techniques).* Undergraduate research is also recognized as an educational tool that contributes significantly to student learning (Mendoza & Golden, 2019). According to Severinsson (2015), undergraduate research supervision in nursing intensifies socialization and understanding of the disciplinary culture in nursing. However, the quality of experience among the supervised students is somehow dependent on the interactions, communications and supervisory styles that lead to mutual trust, respect and obligation

(Armstrong, 2004). Severinsson (2015) surmised that the most important part of the research supervision process was the research supervisory relationship, as well as learning about and developing new knowledge of the research process.

Multi-approaches were documented, including project-based learning (Si, 2020), interdisciplinary project design (Eydgahi, 2019), independent study, technical electives, and capstone project (Mueller et al., 2018), inter-institutional, community-engaged (Malotky et al., 2020), secondary data analysis, or literature-based projects (Malotky et al., 2020), undergraduate research fellow in clinical and translational research projects (Slattery et al., 2016; Vessey & DeMarco, 2008), intensive university-based summer research experience (Kain et al., 2014), participatory health research (de Jong et al., 2018), care innovation projects (Snoeren et al., 2016) or undergraduate research assistant program (Mitchell et al., 2020). These approaches explore a field of interest to advance the profession's knowledge, seek answers to practice-related issues, and translate evidence into practice through a systematic inquiry.

The American Association of Colleges of Nursing (AACN) acknowledges that "professional nursing practice is grounded in the translation of current evidence" (p. 16) from the start of baccalaureate education to facilitate students' understanding of research and its utility to nursing practice (American Association of Colleges of Nursing (AACN), 2008). Mailloux (2011) asserts that nursing envisions a research-driven practice committed to rigorous scientific inquiry to optimize population health and well-being. Graduate competencies at each level of nursing education are often revisited to ensure basic research integration into the curricular and instructional design and delivery. As a result, graduates are expected to apply research findings, understand the basic elements of evidence-based, research-based, or theory-based practice, collaborate with others to identify key research areas and develop actionable strategies for advancing the practice.

Similarly, in the Philippine context, graduates who completed the four-year outcomes- and typology-based Bachelor of Science in Nursing (BSN) program amalgamate nursing-focused professional courses embedded into didactic clinical practicum in various settings to become proficient in client care. Some courses apply the concepts of leadership and management that prepare the students to be future-ready managers across healthcare settings. This is also in consonance with other nursing schools across the globe to produce quality graduates equipped with adamant knowledge, attitudes, and skills in terms of nursing practice related concepts. Moreover, the BSN program integrates research into the curricular nomenclature not only as a specific course but also in all other nursing courses. In so doing, the students become more adept when it comes to foundational knowledge and application as a student and research-driven future healthcare professionals toward effective client care, leadership, management, and evidence-based practice. These are also evident in the outlines, syllabi and prospectus based on the recommended templates and framework for the baccalaureate program in nursing. In a more intricate process, during the early onset, students are taught and immerse to define, determine, and identify a problem anchored on their interest. Students are also able to plan the design and methodologies, collect data, analyze and interpret data findings, and disseminate them. Some studies mentioned about some factors related to the students, teachers and institutional that are considered as deterrents (Kostovich & Thurn, 2013; Piamjariyakul et al., 2021) to effective undergraduate research supervision or even toward the completion of the said scholarly pursuit. Same research explicate that if these deterrents when not addressed, students may feel demotivated, bombarded with academic stress, academic anxiety and academic burden leading to high student attrition rates.

In this regard, undergraduate research and the nature of supervision should be viewed as potent instrument that benefits students, faculty, and schools. Several studies show that involvement in research stimulates students' interest in future inquiries and the pursuit of graduate studies fulfills the growth of their chosen profession (Arellano et al., 2012; Campillan, 2019; Gacrama & Baptista, 2019; Taraban & Logue, 2012).

Research involvement has been considered a trademark as the Center of Excellence awarded to higher education institutions in the Philippines being recognized as having institutional reputation locally and internationally. Some colleges and universities explore innovative strategies to incorporate research into their programs at every level, focusing on how student scholarship can be further intensified. However, there is a lack of evidence in the body of literature exploring undergraduate research supervision experiences and finding the meaning and essences of that

experience. This becomes impetus in the conduct of this one of a kind undertaking apart from the challenges and issues that previous studies mentioned (Kostovich & Thurn, 2013; Piamjariyakul et al., 2021). Hence, this study came into existence to explore nursing students' lived experiences of undergraduate research supervision. Through this study, the results may shed light and offer a new array body of knowledge to improve, enhance the undergraduate research supervision.

2. Methods
2.1 Research design
This transcendental phenomenology study (Moustakas, 1994) explored the nursing students' lived experiences of undergraduate research supervision. The term 'transcendental' resonates a phenomenon viewed with a fresh eye and open mind whereas the meaning derived through the participants' consciousness after an in-depth evaluation of the phenomenon is the true reflection on how the participant view their world and how the world works. The derived meanings become the essence of the structures of the experience focusing on what is real and how *we know what we know* to allow the stories to be told from the participants' perspective—described as authentic and genuine. The specific strategy anchored into the method of analysis made the design distinct from other phenomenological approaches (Husserl, 2005; Moustakas, 1994; Skirke, 2022).

2.2 Setting and participants
The study was conducted in a registered nursing college with a Level III accreditation from the Philippine Association of Colleges and Universities Commission on Accreditation (PACUCOA), having a total population of 150 to 500 nursing students enrolled in part- and full-time status. In this study, a total of thirty students in a nursing baccalaureate program from the third year and fourth-year levels were purposively sampled. Students who completed their research projects in a selected private tertiary higher education institution enrolled full-time in the nursing research course, supervised by their qualified supervisors during the first and second semesters of Academic Years 2019-2020 and 2020-2021, were included in the study. Although this study was somewhat small regarding the study population, the expected number concurs in conducting a phenomenological study (i.e., 5 to 25 participants) (Polkinghorne, 1989).

Phenomenological samples do not usually have many participants, as the data collection process requires an in-depth study of human experience. However, such studies need enough participants to offer different experiences of the phenomenon being studied (Moustakas, 1994). Dworkin (2012) argue that phenomenon often centered on the how and why of a particular issue, process, situation, subculture, scene or set of social interactions. In-depth interview work is not as concerned with making generalizations to a larger population of interest and does not tend to rely on hypothesis testing but rather is more inductive and emergent in its process. Hence, the researchers, followed this suggestion in including thirty students who were qualified to be part of the in-depth interview to cover the diverse experiences that later were consolidated to understand better the meaning and essences of such experiences (Dworkin, 2012; Moustakas, 1994).

2.3 Data collection
After each student agreed and consented, in-depth face-to-face semi-structured interviews were conducted (Authors CT and AN). Central questions were: "What stands out in your experience as a student researcher or your desire to complete undergraduate research?", "What situations have typically influenced or affected your experiences?" All interviews were audio-recorded. Each participant was interviewed in English since all the students are proficient to respond in the said language during the interviews. There were two sets of interviews conducted. Each interview ran for about 30 to 45 minutes or a maximum of one hour in a designated room to provide a quality dialogue and create a relaxing and trusting atmosphere (Moustakas, 1994). The researchers who interviewed each participant also allocated another interview for any clarification specifically on the transcribed statements that were unclear. Each narrative was transcribed word-for-word by the authors (ST, MR, MN, CT, MNR), and was sent back to the participants to ensure accuracy and clarity in their responses. After the validation, transcribed data were uploaded in NVivo 12 Pro (NVivo, 2002), secured in a password-protected computer in a locked office, accessible only to the researchers. All transcriptions, including the informed consent forms and electronic transcripts, were kept confidential.

2.4 Data analysis

The Modified Stevick-Colaizzi-Keen method (Moustakas, 1994) guided the researchers in the data analysis (see Figure 1). The researchers underwent bracketing that allows the simultaneous flow of consciousness based on what is known to the researchers (epoche). Using a reflective journal, each researcher jotted down their feelings, expectations, and views about the phenomenon of interest before the actual data collection—this step aimed at focusing on the key informants' experiences with a fresh eye in a wide-open sense. Second, the researchers conducted the interviews and continuously immersed themselves in the narratives, reading and re-reading. All transcribed statements were given equal value. The researchers highlighted the significant statements while other irrelevant, repetitive, or overlapping statements were deleted (transcendental- phenomenological reduction). The remaining statements refer to the invariant horizon of the experience that is later clustered into themes (i.e., meaning units or themes). Fifth, the themes were then used to describe the 'what' (textural) and the 'how' (structural) of the students' experiences (imaginative variation). Each step was applied in every student transcription. Thick and dense accounts of the experience until the final themes were consolidated, leading to a textural-structural description that illustrates the meaning and essence of the experience to capture the whole phenomenon with verbatim examples (synthesis, universal description) (Moustakas, 1994). These specific strategies anchored into the method of analysis made the design distinct from other phenomenological approaches.
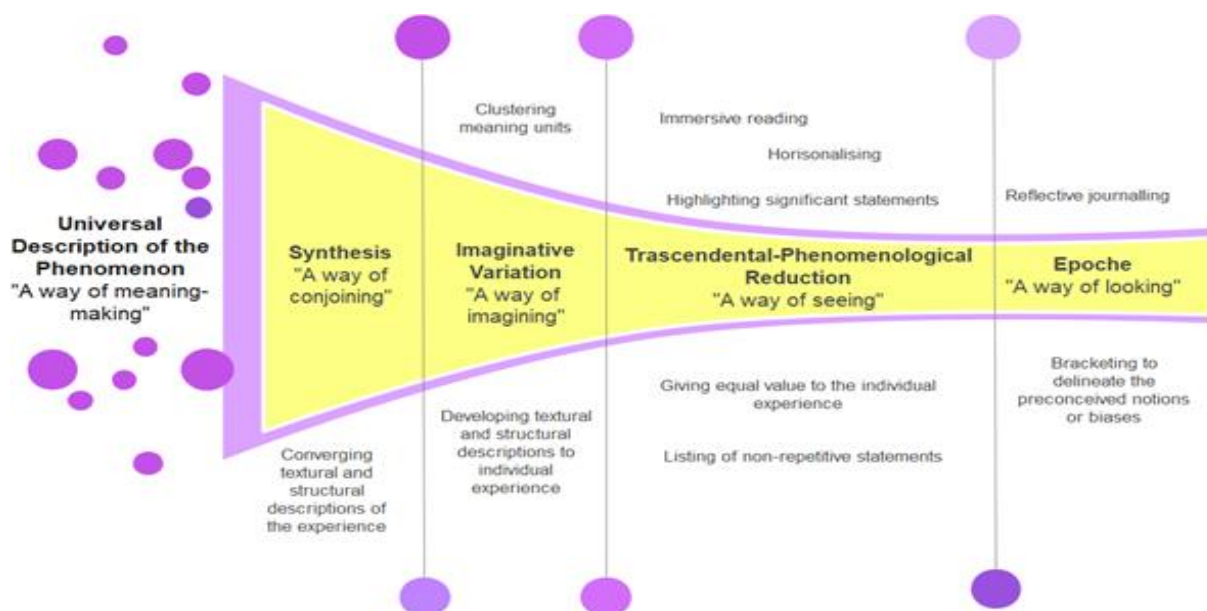
Figure 1. Modified Stevick-Colaizzi-Keen method

2.5 Rigor

The Rigor refers to the strength of the research design and the appropriateness of the method to answer the questions (Cypress, 2017). The choice of transcendental phenomenology fits well owing to the study design that illuminated the meaning and essence of students' experiences with a fresh eye and open mind. Bracketing was also performed to critically reflect on researchers' possible preconceived ideas and biases through journaling before data collection. Each student's responses were consolidated that yielded thick, full, dense, and saturated homogenous descriptions of students' experiences from a systematic triangulation, including in-depth interviews and face-to-face conversations from one to two weeks. An audit trail was performed by each member of team who followed incessantly based on Moustakas's suggested coding process by reviewing the raw data, transcribing the narratives, listening to each of the participant repeatedly to become familiar about the individual experiences and different perceptions. This resonates phenomenological process of epoche, by reading line-by-line while listening to the audio-recorded tape of each interview.

A second interview was conducted after the transcriptions of the narratives were performed to validate the raw data. Also, in the phenomenological reduction process. The researchers were receptive to every statement of the co-researcher's experience, granting each comment equal value. Statement that was reviewed by each researcher formed part of the horizontalization of the data where the statements that referred to the phenomenon investigated, were lifted out from the transcript and recorded on a separate piece of paper while the researchers reflected on the following questions: Does it contain a moment of the experience that is a necessary and sufficient constituent for understanding it? Is it possible to abstract and label it? (Moustakas, 1994, p. 12).

Th reduction process entails the invariant horizons, or meaning units, were gathered to form core themes for each of the participants in this study. The individual textual descriptions give what of the experience in a transcendental phenomenological study that conveys the unique meaning of the phenomenon investigated. After which, the composite textual descriptions were culled from the individual textual descriptions by reviewing the invariant meanings and themes of every co-researcher. The individual textural descriptions were synthesised so that a synopsis of the experiences could be created in the form of composite textural descriptions towards the amalgamation of the composite textural and structural descriptions that offer a whole meaning and form the essences of the experiences (Moustakas, 1994).

Finally, each member of the research team met for the final consolidation of the meaning and essences of the experiences culled from what they derived from each narrative that were transcribed, read line-by-line, and consolidated the commonalities, similarities, and differences. From this audit trail, the records are kept regarding what was done in an investigation. and member check to ensure that findings were based on key informants' responses instead of the researcher's preconceptions and biases. The themes derived from the responses were reviewed by each key informant (Creswell, 1998; Lincoln & Guba, 2000). This audit trail, helps the researchers to maintain and demonstrate reflexivity, improve the rigor and transparency of the transcendental phenomenology approach (Lincoln & Guba, 2000; Moustakas, 1994).

2.6 Ethical consideration

The research ethics committee reviewed and approved this study from an accredited private higher education academic institution (St. Dominic College of Asia [SDCA03302020]). Upon approval, the researchers discussed with the Dean, Registrar's Office, and designated course faculty about the study and requested the student list. Each eligible student identified as the key informant was given an invitation indicating the purpose of the study. The researchers explained voluntary participation to each student who may partially or completely withdraw from the study. The researchers protected the identity of all the key informants by using codes (e.g., Student Nurse ID Number: SN-ID01), and no other identifiable information was collected. During the data presentation, all data were aggregated and combined prior to its thorough analysis.

3. Results
3.1 Participants' profile characteristics

The results indicate that all participants belong to age groups of 26-30 (n=30, 100%), female with 66.7% as compared to the male with 33.3% (n=10). Moreover, in terms of academic status, a majority were enrolled full-time with 80% (n=26) as compared to those students who were part-time with 20% (n=6) and have completed (n=30) and passed their nursing research course (n=30).

3.2 Explicated meaning units or themes

This qualitative study facilitated the acquisition of data allowing the researchers to illuminate the essence by aggregating students' experiences of undergraduate research supervision. Thirty-nine significant statements were identified and clustered into meaning units or themes from the students' narratives. Each statement was given equal importance to understand the nature and meaning of the experience. This process, called horizonalization, allows rhythmical flow between the research participant and researcher.

Three major themes emerged, namely (a*) re-capturing tripartite challenges in doing research,* (b) *re-cultivating quintessential requisites in doing research, and* (c) *re-envisioning the future ahead—the Aha moment in doing research.* Each major theme consists of three subthemes.

Undergraduate research supervision offers an array of opportunities to amplify their involvement and engagement in any forms of scholarly inquiry that strengthens their level of competence when they become nurse clinicians. However, to facilitate the assimilation of undergraduate students' understanding on research, it is imperative to recapture the multipronged challenges that may have significant influence while the students are completing their research projects. Based on the students' narratives, there are challenges that hamper their continuance in the conduct of their research. These challenges could be related to the students, teachers, and the institutional factors.

3.2.1 Theme 1: Re-capturing tripartite challenges in doing research
The first theme illustrates the students' challenges (e.g., student, supervisor, and school).

Undergraduate research is very challenging. Imagine the process is like finding a needle in a haystack. Each step requires an output. There were also issues with each member of our group. We were fortunate to be supervised properly. Our supervisor helped us understand the step-by-step process we needed to know. But sometimes, she couldn't meet us due to other school functions that she needed to attend. Also, we need more resources like the electronic databases the school should provide. [SN-ID01]

3.2.1.1 Student factor
The students find it challenging to engage themselves because of the stories they heard from other students. Some stories brought fears, anxieties, or frustrations, especially for those students who recently started research projects. Some felt inferior because they believed doing research would be a stand-alone process without supervision.

I was scared because of what they said [doing research is toxic]. It was an anxiety-producing activity. It was my first time. I know [for myself] I am not smart. I felt I had nothing to offer my group, which made me more anxious. [SN- ID29]

Hearing other students, especially our seniors who completed their research projects, mention that it was scary because you must do it yourself. Also, I was a new student back then [. . .], and I had difficulty adjusting to the new environment and [be part] in a [new] group. [SN-ID30]

Some other students could not catch up with other course requirements. The innumerable activities required for submission caused anxiety, fear, and disengagement. There was also stranger anxiety, considered an adjustment burden.

[Teary eyes] I felt demotivated because of [hmm...] I could not catch up with my other subjects' requirements. Sometimes, I care less and am absent during group discussions because I have so much on my plate! While I was looking at every member of our group, I also felt their frustrations. [SN-ID13]

I felt deprived because some other subjects were much more toxic than expected. Our group wanted to focus on the research project. We just divided the tasks and met if time permits. [SN-ID01]

3.2.1.2 Supervisor factor
Another factor that surfaced from the narratives was the supervisors' unpreparedness during meetings and the students' insufficient feedback.

Sometimes, our supervisor was unprepared [perhaps] due to work-related. As a result, we often received insufficient feedback about our work. [SN- ID12]

Whenever the group wanted to meet our supervisor, we felt she wasn't prepared. She kept asking to send the file from time to time [but] in the end; she couldn't give good feedback. [SN-ID02]

Moreover, the students felt that traditional face-to-face was no longer effective during meetings. Some students preferred to have a web-based platform.

The traditional face-to-face meetings were not effective [or] unnecessary, given that we also have some other course requirements to finish. We can use several online platforms, including Facebook Messenger, Microsoft Teams, Zoom Meeting, or Google Meet. Nonetheless, we appreciate the time we spent with our supervisor. Gosh! We are now in a techy world, so we better find ways. [SN-ID04]

3.2.1.3 School factor

Students conveyed that the school should provide a more robust and comprehensive electronic database to extract relevant sources. Some students encountered limited resources during the literature review or finding studies to support their research projects.

Undergraduate research requires support from the school, especially reading resources. However, resources are limited. We visited some other nearby libraries and thanks [internet] for online resources that helped us harvest tons of information relevant to our study. [SN-ID04]

It was difficult to look for literature, either primary or secondary sources, because of the limited information we could get from the library. I know that most sources should be from reputable online databases. Our school needs this [badly]. [SN-ID25]

After the challenges have been identified, the next process is to identify various ways on how the quintessential elements in doing research may be cultivated. Those challenges that are reflected in the students' experiences can be addressed through an open dialogue (i.e., supervisor-student). By doing so, the students can regain their motivation and become more engaged, committed, and responsive until they have reached their momentum towards the completion of their undergraduate research. A constant and open dialogue elicits openness to learning-by-doing that resonates the learning process dynamics. Moreover, to cultivate the students' engagement in doing research, the learning environment must also be cultivated ensuring that it becomes a hub that invites learning assimilation.

3.2.2 Theme 2: Re-cultivating quintessential requisites in doing research

This themes consists of three sub-themes: re-enriching supervisor-student dialogue, re-weaving openness to learning-by-doing, re-harnessing supportive learning environment. Students felt a deep-seated psychological reward in the research project completion, apart from an appreciation for new knowledge. Students narrated:

A supervisor who helped with our journey in completing our research is [something] that I value most. More so, the process was welcoming. I felt appreciated for what I contributed to our group. [SN- ID01]

Having a great feeling when someone encourages you [our supervisor], you would not feel the pressure [but] instead, and you will enjoy every step until you complete it. The experience gave me a sense of wholeness because I [our group] may have contributed something worthy to nursing [...] future profession! [SN- ID21]

3.2.2.1 Re-enriching supervisor-student dialogue

Students emphasized the importance of the supervisor-student dialogue as reflected in the following transcripts:

Having a supervisor from the very start helped us better understand the process and address any issues we may face. I liked it most because every time we had a schedule with her, she always asked,' How can I assist my co-learners?' [SN- ID21]

3.2.2.2 Re-weaving openness to learning-by-doing
The hands-on experience boosts the students' morale from the activities that value their worth as students.

> *[Our] supervisor provided us with directions and monitored the progress of our paper. The words of encouragement helped us become more inspired as beginning researchers. We became more open to suggestions or even constructive criticisms. [SN- ID15]*

> *Our supervisor directs us but never commands what she wants for the paper. I felt she trusted us [our group], which was the most important part of being supervised. We learned while we were guided by doing all the relevant activities in completing our project. [SD-ID18]*

3.2.2.3 Re-harnessing supportive learning environment
A supportive learning environment becomes an ingredient of success in sustaining students' motivation

> *When I felt supported either by other group members or our supervisor, I became more engaged and motivated. [SN- ID05]*

> *In studying the first part of Nursing Research during our first semester, I thought it was easy when our professor discussed it. However, I realized it was not easy during the conceptualization and empirical phase. We were thankful to our supervisors and other faculty members for being willing to share their knowledge and support in all possible ways. [SN- ID29].*

Undergraduate research is more than an opportunity and should also be considered as a gateway where the students begin a new perspective looking at their future roles as nurse clinicians, nurse administrators or nurse researchers. The future of nursing is volatile, uncertain, complex, and ambiguous. In this regard, supervision opens a panoramic lens where the students appreciate more the relevance, significance and impact of research on their future practice.

3.2.3 Theme 3: Re-envisioning future—The AHA moment in doing research
Undergraduate research remains challenging to many students. However, students become motivated, involved, and empowered when they appreciate the relevance of doing research. They also realize that nursing practice is anchored on evidence, research, or theory, making them feel they need to be more practice-ready after completing their research.

> *After graduation, there will be no professors, clinical instructors, or supervisors. It will be my [own] battlefield to win. The experience made me realize that as a future nurse, doing research must be threaded into practice. Our supervisor was very eager to make us realize this for our future as nurses. [SN- ID30]*

> *Through this research experience, I am ready to be a nurse with a passion for knowledge and a commitment to improving my chosen vocation. If the hospital asks for a nurse researcher, I will be part of it [...that group] because our supervisor has taught me valuable lessons and a passion for researching. [SN-ID14]*

3.2.3.1 Re-living the purpose of the profession
Undeniably, undergraduate research also cultivates a student's sense of purpose in why they chose to be nurses.

> *[Hmmm] who knows, after completing this subject [nursing research] and our research project with our professor and supervisor's help, we would produce something worth publishing [...] something [that is] worth sharing. Our group [and I personally] felt like being reborn with a clearer purpose for why we chose to nurse. We are the future*

instruments to advance the practice to sustain its uniqueness as a profession and a vocation. [SN- ID20]

3.2.3.2 Re-imbibing sciencing nursing

Students must pass science courses (e.g., anatomy, chemistry, microbiology, physiology, and behavioral sciences (e.g., psychology and sociology). Understanding these core sciences is a sine qua non to nursing. Students felt the connection between those subjects and nursing, which help them understand more about nursing scientifically and holistically.

While reflecting on my experience towards the end of our project implementation, all other knowledge from our past courses made me realize that everything [all subjects, I mean] is integrated. I thought those subjects were not necessary [but later], and I fully realized they had something to offer, which made the process scientific and whole [SN-ID01]

I realized from my experience while doing our research—science and innovation are two interlocking words. People crave something new that could lead to change. As part of the research, science sets out something new and stimulates people's interest—we learn to innovate [and] we learn to integrate scientific and innovative ideas. Is there a word such as 'sciencing,' Sir? [or] Sciencing in Nursing? [SN- ID24]

Our future practice entails evidence-, research- or theory-based approaches. I realized this as our group from the time we were completing our literature review, and it opened my mind to different sources of information or worldviews [SD-ID30]

3.2.3.3 Re-thinking caring

Nursing is both a science and an art. When applied together, the science-art nexus is a force that makes nurses more efficient and effective in a very compassionate way. With this, undergraduate research in nursing must continue to highlight both domains while reinforcing awareness, dialogue, and understanding of caring-in-research or caring research in nursing. Students narrated the importance of caring in undergraduate research.

Our supervisor included the concept of caring from the start of our research project. It all started by asking what nursing is, what a nurse does, and how a nurse should think. I realized that I must strengthen my understanding of caring. Although it is a ubiquitous concept, as I read in other articles, caring makes nursing unique. Nurses' work is all about caring. Nurses should always think about caring and research caring to improve the caring process in all nursing situations. [SN- ID26]

Our group conducted a study on students' understanding of caring. We found that students have a different understanding of caring [different views or lens], but what was concluded in our study, caring is inherently manifested in all facets of nursing students' life [the way they think and act and how they perceive the world]. At first, I thought students [just] wanted to finish their degree and work abroad for higher-paying jobs, but I was wrong. Although I am not an expert, caring research should find its place in many schools. [SN-ID29]

### 3.3 The textural and structural descriptions

The themes were synthesized to illuminate both textural and structural descriptions. The textural description refers to the '*what'* of the experience (Moustakas, 1994). This study describes undergraduate research as "a challenging endeavor among the students—*like finding a needle in the haystack* [...]. *A life without a supervisor is like a seed that never grows"* [SN-ID01]. Students described it as *"a bridge that connects and reconnects the known and unknown"* [SN-ID30], *"shedding light on shadows"* [SN-ID19], or *"like a mountain summit"* [SN-ID12].

On the other hand, the structural description refers to 'how' feelings or thoughts are threaded into the experience. Undergraduate research epitomizes the "mutual exchange of novel and creative ideas essential in advancing our nursing knowledge" [SN- ID20] through "a dialogical process" [SN-ID13] between the supervisor and student. Also, it is described as an aid to

"*critically reflect on various nursing situations relevant to practice* [SN-ID16], "*a glue that strengthens science-art of nursing through participatory-in-action in doing research*" [SN-ID 18] and *illuminating caring as an essential element of nursing while doing research* [SN-ID01]".

3.4 The essence of the lived experience

Moustakas (1994) highlights that intuitive integration derived from the textural and structural description captures the essence attributed to the experience. Undergraduate research supervision resonates with the mutual exchange of novel ideas in a dialogical encounter, collective learning, and participatory-in-action where sciencing and caring thinking is imbued to develop critical inquisitiveness and caring intuitiveness where science and caring converge to advance the practice of nursing (Figure 2). Although the students described themselves as neophytes in research, the embodied supervisor-student dialogue taught them to be critically inquisitive and caring intuitive. Undergraduate research supervision enhances the students' research capacity to face a challenging real-life practice, advances their knowledge, builds a strong fulcrum in their practice, and articulates their inherent caring attributes towards patient care.
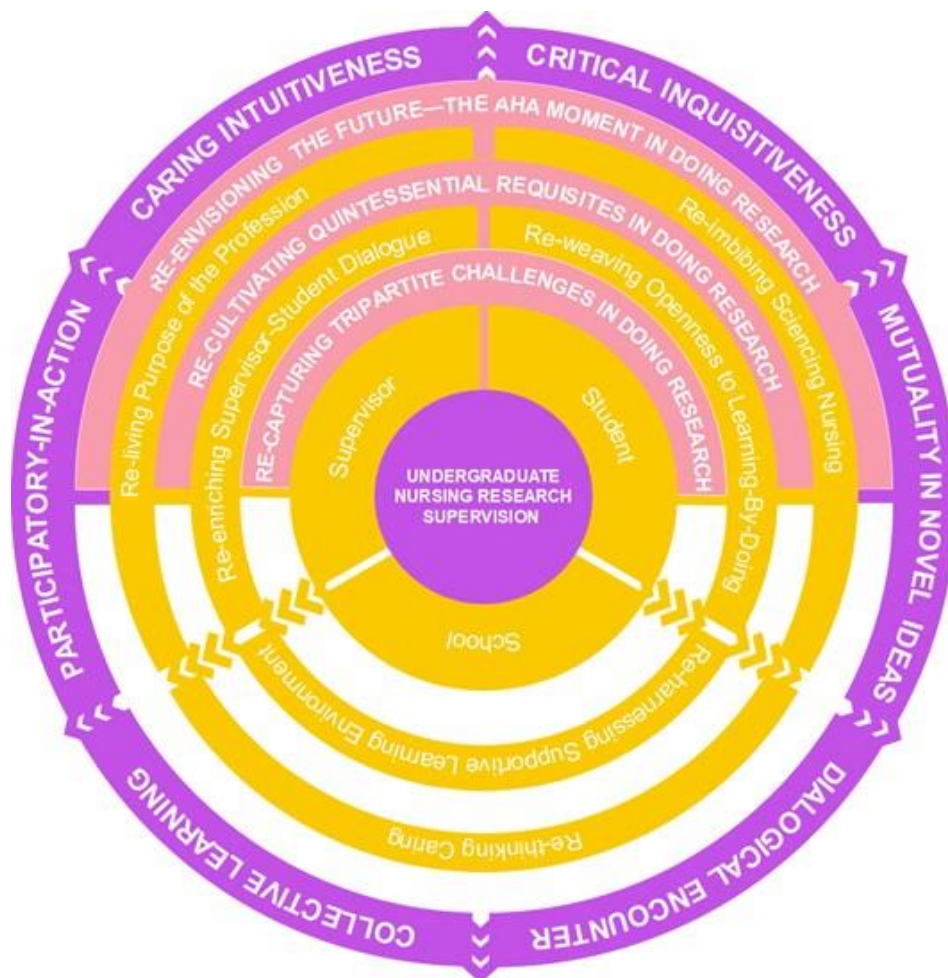
Figure 2. The undergraduate research supervision model derived from the students' lived experiences.

4. Discussion

Many studies defined effective supervision of undergraduate research from various academic fields (Eydgahi, 2019; Kain et al., 2014; Malotky et al., 2020; Mendoza & Golden, 2019; Tan, 2007; Vessey & DeMarco, 2008; Voelkel et al., 2018), but little is known about nursing (de Jong et al., 2018; Malinski, 2009; Slattery et al., 2016). This study is the first of its kind that explored the nursing students' lived experiences of being supervised with their research projects within the Philippine context. Based on consolidated students' narratives, undergraduate research

supervision resonates with a mutual exchange of novel ideas in a dialogical encounter, collective learning, and participatory action where sciencing and caring thinking is imbued to develop critical inquisitiveness and caring intuitiveness to advance the practice of nursing. This definition offers a fresh eye from the students' lens where science and caring converge. In other words, undergraduate nursing research must capture empirical knowledge and caring perspectives where supervision should be grounded.

Moreover, this study illustrates the three themes. The first theme—*re-capturing tripartite challenges in doing research* describes various issues students encountered while completing their research (e.g., student, supervisor, and school). Hearing about the past experiences of those who completed their projects conveys negative connotations for the student-related factors. Students told about the 'toxicity' associated with the research undertaking that led to anxiety, fear, or disengagement. Students may seek advice or help from others to hear both stories. Student organizations can be formed, such as a journal club that aims to support students who have difficulty adjusting to the demands of doing research. Also, self-help groups may boost students' confidence. The findings of Campillan (2019) supported our study findings. Students had challenges on time, the absence of research partners, and personal issues. These challenges may have been attributed to students' difficulties, such as research problem formulation, literature review writing, sampling methods, research instruments, transcriptions of interviews, video production, coordination, and plagiarism processing (Liou et al., 2013).

Another significant result described in this study was the overarching demands of doing research and overlapping student requirements in another course, including homework, paper presentation, and examinations. Students who engaged longer hours doing their homework in school experienced more academic stress, physical health problems, or lack of balance in their lives (Liou et al., 2013; Taraban & Logue, 2012). Undergraduate research can be offered during the fourth year of the baccalaureate program while completing their intensive clinical practicum. Since students are in clinical settings, they may become more adjusted and focused on doing research. Moreover, this approach can help them fully immerse themselves in client care and understand every nursing situation. Their research becomes more patient-focused and care-driven, which resonates with real-life practice.

In doing research, supervisors and schools should understand the sequential stages that students undergo in doing research. Tan (2007) described these undergraduate research stages. Firstly, the *Groping Stage,* where the students felt insecurities, fears, and other challenges at the start of the research endeavor. Secondly, during the *Developing Stage*, students had mixed experiences such as confusion, exhaustion, motivation, inspiration, nurture, frustration, and humanization. Thirdly, *Accomplishing Stage,* students experienced fulfillment with excitement and frustration. In this regard, supervision must also consider the psycho-emotive experiences of the students in every facet of doing research. Through storytelling, self-awareness or self-reflection can be initiated at the early and later stages. In so doing, it can encapsulate the wholeness of the students' experience.

On the other hand, supervisor-related factors surfaced from the transcripts (e.g., unpreparedness and insufficient feedback during advising. The ineffectiveness of traditional face-to-face meetings was also evident. These findings concur with one of the studies conducted at a private university in the Northern Philippines. Results indicate that most faculty have little knowledge in conceptualizing a research problem, study design, and authoring academic papers associated with mentoring (Gacrama & Baptista, 2019). Limeri et al. (2019) described negative mentoring (i.e., absenteeism, abuse of power, interpersonal mismatch, lack of career support, lack of psychosocial support, misaligned expectations, and unequal treatment). Other factors that led to dissatisfaction or disengagement include limited funding, faculty buy-in, inadequate student experience, unequal access to resources, varying cultures, and diverse practices (Perrella et al., 2020). Also, the negative experiences contributed to high attrition, withdrawal, and intent to leave the education institutions (Harrison, 2006; Liou et al., 2013).

With this, the supervisor and school should support their students by employing a centralized infrastructure with a wide range of opportunities for the supervisors and students—for instance, timely research capacity building to cultivate teaching-learning outcomes and enhance institutional reputation. Also, funding should be provided to financially constrained students since all research projects from start to end require out-of-pocket contributions (e.g., printing, communication, logistics, thesis panel incentives, food during the proposal, and final defense).

Another opportunity that can be provided is student involvement in participatory health research to develop critical awareness and understanding of real-life situations affecting nursing practice (e.g., professional care, education, or civil society) (de Jong et al., 2018).

Alarcon et al. (2019) added that students could be provided valuable research opportunities using interactive strategies such as follow-up lecture series, research seminars, and research meetings. Also, long-term projects may broaden students' knowledge of their coursework, understand how research groups operate, and enable active students to develop deeper linkages early with research professors and students. A simple structural change is to create a *dean's list* for students published in journals or presented at conferences every semester. Students who participated may earn academic credit in every publication and incentives. Alarcon et al. (2019) recommend *class deloading credit* to address time constraints, overlapping teaching workloads, and faculty shortage. The nursing education institutions in the Philippines can learn from other countries best practices. For instance, Boston College introduced the Undergraduate Research Fellow Program (UGRF) to help students develop a research skill set. Also, an undergraduate research assistantship may provide students with hands-on experience to appreciate research value (Mitchell et al., 2020). Alarcon et al. (2019) assert that an Overseas Research Mentor Program can be introduced to achieve two aims: student mentorship and a research partnership. In this approach, local and international faculty supervise students, which may help establish best practices in mentoring while building academic partnerships with international higher education institutions. Sethares and Chin (2020) recommend using innovative learning activities such as music or popular songs to complete qualitative analysis in a research course.

The second theme—*re-cultivating quintessential requisites in doing research* conveys the most salient ingredients of effective undergraduate supervision. Students appreciated the new knowledge they acquired while doing their research from being supervised. Supervision from an expert in the field is a proactive method of exploring new ideas that enhance dialogue. When sustained, supervision contributes to student development in pursuit of scholarly inquiries. Students must be recognized as co-researchers or co-partners, making the experience interesting, rewarding, and enjoyable (Davis & Jones, 2020; Mendoza & Golden, 2019; Voelkel et al., 2018). Such experience opens multiple possibilities and broader perspectives about real-world issues concerning the practice locally and internationally, where students become more open-minded and pursue their learning-by-doing. Moreover, an evidence-based and experiential supervision framework can be developed for a more supportive learning environment.

The third theme—*re-envisioning the future — the AHA moment in doing research*, articulates that undergraduate research instills preparation for what is ahead once they become professional registered nurses. Students involved in undergraduate research reported more significant enhancement of cognitive and personal skills, higher engagement, increased academic success, greater satisfaction with their education, and confirmation of future career plans (Perrella et al., 2020; Wheeler et al., 2008). Also, it allows the students to fully immerse in the multifaceted research processes and become more committed to evidence-, research- or theory-based practice as future nurse scientists (Mitchell et al., 2020). Moreover, students will approach the practice-related problems holistically, validate their assumptions, construct arguments supported with insights, present their thoughts logically, and invoke awareness of evidence-based practice (de Jong et al., 2018). These attributes describe *Sciencing Nursing,* where students integrate research evidence, enhance clinical expertise, and value patient preferences anchored on science threaded into the nursing practice.

Findings show from other sources that nursing education focuses on clinical psychomotor skills acquisition, limiting students' understanding of nurse scientists' vital role in advancing nursing practice (Burkhart & Hall, 2015; Mitchell et al., 2020). Although students are expected to be more skillful at providing safe, effective, efficient, and quality patient care, caring must also be imbued in every aspect of their practice. As a result, students will be fully equipped to balance empirical, personal, and esthetic knowledge unique to nursing. Supervisors and schools must emulate caring in educational practice, including undergraduate research supervision. This situation becomes critical because caring is a ubiquitous concept and defined in various health or caring professions. Still, caring remains unique and distinct to nursing (Boykin et al., 1994; Boykin & Schoenhofer, 2001; Tuppal et al., 2019). In this regard, students and their supervisors should explore topics on caring. Various methodological approaches can be taught, such as creative review and synthesis, philosophical inquiry, videography, video analysis, storytelling,

photovoice, feminist-driven approaches, critical-reflective lens, ethnotherapeutic empathy, caring inquiry, and phenomenological, among others. These approaches can intensify caring research that embodies human science and caring science perspectives (Lea & Watson, 1996; Malinski, 2009; Tuppal et al., 2019; Wolf et al., 2014).

Undeniably, undergraduate research is a promising journey for students, supervisors, and schools. Supervision is a life-changing process. They cultivated evidence-based inquiry, novelty creation, and caring intuitiveness when both resonated. For this reason, it is imperative to facilitate student engagement, involvement, and participation in research that does not focus on academic fulfillment but also as co-partners. Hence, the so-called borderless learning environment is achieved to the fullest and develops future-ready nurse scientists or caring scholars responsible and committed to advancing nursing practice, science-art nexus, and a more value-laden discipline.

5. Implications and limitations

The undergraduate supervision contributes to the cultivation and nurturance of the students. The baccalaureate program in nursing although offers wide array of knowledge, research has been integrated into the curricular nomenclature ensuring that each student values and will continue to value of knowledge development, knowledge management and knowledge synthesis. Although several studies have been conducted about undergraduate research supervision, there is a limited number of studies owing to the nursing education. Hence, this study provides new insights for the future of nursing education and future of nursing students.

The only limitation about this study was the locale. In the Philippines, almost 400 nursing schools offer baccalaureate nursing programs with varying classifications (i.e., public, private, and non-sectarian), ranking, or performance, which may elicit different students' experiences. However, to address this limitation, researchers ensured that the study meets certainty in the findings' generalizability, which is augmented by the high level of constancy in the carefully analyzed results. Through this approach, the researchers collected data highlighting the students' experiences and, in turn, gathered these experiences and generated generalized meanings. The high consistency of key informants' responses implies that experiences are consistent and relevant to other student undertakings.

6. Conclusion

The students' narratives highlighted a need to address student-, supervisor- and school-related factors that may significantly impact a successful undergraduate research experience. Effective supervision is facilitated through dialogical encounters, learning-by-doing, and a supportive learning environment. The so-called AHA moment imbues how the process cultivates deeper meaning about the nursing profession's purpose while recognizing scientific knowledge and caring intuitiveness. Hence, from the students' lived experiences, undergraduate research supervision resonates with the mutual exchange of novel ideas in a dialogical encounter, collective learning, and participatory action where sciencing and caring thinking is imbued to develop critical inquisitiveness and caring intuitiveness further.

Future studies with students enrolled in a nursing research course should describe and explore their experiences in each phase of the research process (i.e., conceptualization, planning, design, empirical, analytical, and dissemination). Both local and international students may be included from registered schools and colleges of nursing in the Philippines. Future studies will involve supervisors, course faculty members, and administrators. Lastly, a creative synthesis of the findings from qualitative studies may shed light on developing an emerging model, paradigm, or theory of undergraduate research supervision anchored on human science or caring science perspectives.

Author contribution

All authors contributed to the design and the analysis of the results and the manuscript's writing. CT and AN conducted the interviews. All authors reviewed and approved the final version of the manuscript.

Conflict of interest

There is no conflict of interest among authors.

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