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A Qualitative Study of Stressors in Problem-Based Learning Among First-Year Nursing Students

Aiyub Aiyub[1], Risaharti Risaharti[2], Sri Novitayani[1], Kartinazahri Kartinazahri[3], Puji Astuti [2,4]

[1] Department of Psychiatric and Mental Health Nursing, Nursing Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia
[2] Department of Nursing, Akademi Keperawatan Teungku Fakinah, Banda Aceh, Indonesia
[3] Department of Midwifery, Polytechnic Institute of Health of Aceh, Aceh, Indonesia
[4] Division of Institutional Affair and Information System, Lembaga Layanan Pendidikan Tinggi (LLDikti) Wilayah XIII Banda Aceh, Indonesia

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CORRESPONDING AUTHOR

***Aiyub Aiyub, email: aiyub@usk.ac.id**

ABSTRACT

Background: Problem-based learning actively engages students in real-world problem-solving while developing vital soft skills such as teamwork, communication, and interpersonal collaboration. However, the shift from teacher-centered learning in secondary school to student-centered learning, like PBL in nursing college, can be highly stressful for first-year nursing students as they adapt to this new educational model. Methods: The study employs a qualitative design. Data were gathered from 85 first-year nursing students through a paper-based questionnaire, and analysed using qualitative content analysis. The data were systematically examined to extract codes, categories, and themes aligned with the research objectives. Results: The study identified two major themes: (1) academic stressors—including challenges related to teaching materials, schedules, lecturers, and assignments; and (2) Non-academic stressors—involving social adjustment, financial difficulties, and family-related issues. Conclusion: First-year nursing students encounter both academic and non-academic stressors in problem-based learning, with infrastructural deficiencies and sociocultural barriers emerging as significant factors. Integrating stress and coping frameworks, offers a theoretical lens to examine how educational environments and cultural contexts influence student adaptation. Practically, institutions must improve facilities, establish culturally responsive support systems, and provide structured mentorship to enhance resilience and optimize learning outcomes among novice nursing students.

INTRODUCTION

Problem based-learning (PBL) is an instructional strategy grounded in constructivist philosophy, designed to promote active student engagement and foster meaningful learning experiences. Rather than passively receiving information, students actively construct knowledge by linking new concepts to prior experiences, thereby enhancing their ability to integrate theoretical understanding with practical problem-solving [1].

PBL cultivates essential competencies for nursing practice, including critical thinking, clinical reasoning, communication, and self-directed learning. The skills are crucial for making informed decisions in today's complex healthcare environments [2]. It also reflects the demands of modern healthcare by emphasizing collaboration, adaptability, and real-world problem-solving.

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PBL was widely adopted in health sciences education, particularly in nursing. PBL is for developing both academic and soft skills such as teamwork, innovation, independent learning, and collaborative decision-making. These competencies are critical not only for academic success but also for effective practice in dynamic clinical settings. In addition, PBL fosters reflective practice and adaptability, key attributes for professional growth and leadership in healthcare. In addition, PBL fosters reflective practice and adaptability, key attributes for professional growth and leadership in healthcare [3]–[6].

In a typical PBL setting, students work in small groups of 8–10 to analyze clinical scenarios or case-based problems collaboratively. They identify core concepts, establish learning objectives, and exchange knowledge to develop evidence-based solutions [6]. Within this approach, the lecturer's role shifts from content provider to learning facilitator—guiding discussion, fostering inquiry, and ensuring alignment with intended learning outcomes [7].

Despite its pedagogical strengths, implementing PBL poses notable challenges. Although widely endorsed for over five decades, its outcomes remain inconsistent, underscoring the need for ongoing evaluation. A key concern is its psychological impact on students, as the shift toward self-directed learning—where nearly half of PBL relies on independent and group study—can be a significant source of stress [6].

This transition is challenging for first-year nursing students (FYNS), who must adapt simultaneously to a new educational model that emphasizes autonomy and peer collaboration, as well as to university academic life, especially for those who the first time away from home. The dual shift from teacher-centered to student-centered learning and from dependence to independence can heighten anxiety, isolation, and academic pressure. These challenges are further intensified by the demands of developing new learning strategies, managing time effectively, and building social connections in an unfamiliar environment [8].

More broadly, first-year university students frequently face difficulties in adapting to academic demands [9]. In Belgium, 34.9% report mental health problems that impair performance [10]. In Portugal, 32.1% present with emotional disorders—exceeding rates in the general population—including 14.5% with anxiety and 6.4% with depressive disorders [11].

Extant research indicates that elevated stress levels adversely affect students' academic performance, motivation, and overall well-being [12], [13]. Prolonged exposure to stress may contribute to burnout, disengagement, and poor mental health —factors that not only hinder academic achievement but also impede the development of critical professional competencies.

Given these challenges, nursing education institutions must implement targeted support systems such as mental health services, peer mentoring, time management training, and academic advising. Equally important is the creation of psychologically safe learning environments that promote open communication and balanced academic workloads to support both student success and well-being [14], [15].

This study explores the stressors experienced by FYNS in the context of PBL implementation using a descriptive qualitative approach. While smaller qualitative samples often provide depth of insight, the use of a larger sample in this study enables the identification of broader themes and recurring patterns across diverse student experiences [16]–[18]. The findings contribute to a more comprehensive understanding of the PBL experience and offer evidence-based recommendations for optimizing its implementation in nursing education.

METHOD

Design

This study employed a descriptive qualitative design and utilized qualitative content analysis to examine students' written responses to open-ended questionnaire. The questionnaire responses were systematically analyzed to identify emerging themes grounded in the meanings conveyed through participants' narratives.

Sample

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This study involved 85 first-year nursing students from Universitas Syiah Kuala. Participants were selected through purposive sampling based on the following inclusion criteria: completion of at least six months of learning using the PBL model.

Data Collection

Data were collected using a paper-based questionnaire containing four open-ended questions. Although questionnaires in qualitative studies have drawbacks, such as limited depth, reduced participant expression, and possible misinterpretation, they also provide important benefits, including greater data variation, improved saturation, stronger validity, and access to broader, and more diverse populations. The questionnaire included the following inquiries:

Q1 : How would you describe your overall experience with the problem-based learning approach in nursing education?

Q2 : What challenges did you face when transitioning from traditional learning methods commonly used in senior high school to the problem-based learning approach in nursing faculty?

Q3 : How do you perceive the workload associated with problem-based learning, and in what ways has it influenced your academic performance, stress levels, or leaning experience?

Q4 : What are you experiences with group work in problem-based learning, and what challenges or stressors have you encountered while collaborating with peers?

Data were collected in two comfortable rooms, each supported by three final-year students as research assistants. Prior to data collection, the research assistants received comprehensive training on data collection techniques and ethical principles.

Data Analysis

The data were analyzed through qualitative content analysis. Questionnaire responses were repeatedly reviewed to identify essential meaning units relevant to the research theme. These units were then condensed, coded, and grouped into categories and themes. The analytical process followed the framework proposed by [19], ensuring methodological rigor and trustworthiness. This approach enabled a nuanced interpretation of students' experiences, highlighting both shared and individual stressors associated with the implementation of PBL.

The final data analysis was discussed in an author forum, where three of the five authors were nurses with over five years of experience as PBL facilitators, who offered valuable insights informed by their deep understanding of problem-based learning.

Ethical consideration

This study received ethical approval from the Research Ethics Committee of the Health Polytechnic, Ministry of Health, Aceh, Indonesia (Reference No: DP.04.03/12.7/003/2025). Participation was entirely voluntary, and written informed consent was obtained from all participants prior to data collection. The study was conducted in accordance with the ethical standards outlined in the Declaration of Helsinki and adhered strictly to all applicable institutional and national research ethics guidelines throughout its implementation.

RESULTS AND DISCUSSION

Results

Demographic characteristics

The majority of respondents were female (85.9%), with an average age between 18 and 21 years, corresponding to late adolescence and young adult, with a mean age of 19.1 (SD = 0.4) years. Most participants (62.4%) resided in boarding houses, reflecting a common living arrangement among students who relocate for higher education. In terms of parental income, 29.4 % of respondents came from families

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earning below the Indonesian National Minimum Wage (INMW), while 70.6 % reported family incomes above this threshold. These findings indicate that most participants came from relatively stable socioeconomic backgrounds. Detailed demographic characteristics are presented in Table 1.

Tabel 1. Demographic Characteristics of Participants

Demographic data	Mean ± SD / n (%)
Age	19.1 ± 0.496
Age group:	
Late adolescents (18-19 years old)	76 (89.4)
Young adult (20-24)	9 (10.6)
Gender:	
Male	12 (14.1)
Female	73 (85.9)
Residence:	
Living with family	20 (23.5)
Living with relative	9 (10.6)
Living in a boarding house	53 (62.4)
Living in a dormitory	3 (3.5)
Parent's income:	
< Indonesian National Minimum Wage (INMW)	25 (29.4)
≥ Indonesian National Minimum Wage (INMW)	60 (70.6)

Note: samples (n); standard deviation (SD); percentage (%)

Research findings

The data analysis identified two main stressors experienced by FYNS engaged in the PBL approach: academic stressors and non-academic stressors, as shown in **Table 2**.

Table 2 Qualitative content analysis

Codes	Categories	Themes
• Limited updates and lack of recommended references • Limited knowledge, skills, and access to facilities for searching online references • Lack of focus on learning materials and difficulty in mastering the content • Limited time to prepare learning materials for tutorial presentations	• Limited access to learning resources	Academic Stressors
• Tight learning schedule • Inconsistent learning schedule	• Time constraints	
• Lack of discipline • Being forced or pressured (Obtrusion) • Fast-paced lecturing that is difficult to understand	• Lecturer-related challenges	
• Excessive academic workload • Limited time availability	• Academic workload	
• Poor interpersonal communication • Difficulty adapting to new environments or situations • Unfair social treatment	• Social adjustment difficulties	Non-Academic Stressors
• High tuition fees • High living costs • Expensive academic expenses	• Financial pressures	
• Scholarship issues • Lack of family support • Family-related problems	• Family responsibilities and expectation	

The details explanation of research findings is provided in the following sections.

Academic stressors

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1. Limited access to learning resources

This study identified key academic stressors experienced by FYNS participating in the PBL approach. These stressors included difficulties in accessing essential learning resources, such as recommended references and freely available online materials, as well as limited access to necessary personal tools, including laptops and reliable internet connections. These barriers, combined with demanding academic schedules and extensive reading materials, contributed to significant time constraints. As a result, many students reported studying late into the night, which led to sleep disturbances, fatigue, and diminished concentration—factors that negatively impacted their performance in the PBL environment. Participants provided several statements that illustrated these challenges:

> "I dislike our learning system. My main challenge is finding literature in libraries and dealing with limited internet facilities and connection."

> " I often worked late into the night to complete assignments and prepare learning materials, which made me uncomfortable and unable to concentrate during lessons."

2. Academic workload and time constraints

Students also identified frequent assessments and a highly demanding schedule as prominent academic stressors within the PBL framework. The lack of sufficient time for rest, leisure, and social interaction contributed to psychological distress, reduced motivation, and learning fatigue. Moreover, inconsistencies in the academic timetable—such as sudden schedule changes and overlapping sessions—intensified these stressors, leaving students feeling overwhelmed and underprepared. Given that PBL relies heavily on active engagement and sustained attention, these factors significantly hindered students' learning experiences. The following statements further illustrate these concerns:

> " The rigorous PBL schedule, paired with the endless assessments, has left me feeling utterly exhausted and devoid of motivation."

> " I've had to give up both my social life and vacation time because of the demands of this learning system."

3. Lecturer-related challenges

Additionally, lecturers (tutors) were identified as a notable source of stress. Several respondents described experiences where tutors demonstrated poor time management, such as arriving late or canceling classes without prior notice. Others mentioned that some tutors enforced rigid expectations, requiring strict compliance with instructions and extensive reading assignments, often without acknowledging the challenges students were facing. Selected student statements reflecting these issues include:

> "We waited, only for the schedule to be canceled and changed without any prior notice. Students are expected to accept these changes without having the opportunity to voice their concerns."

> "Different lecturers have varied teaching styles. I dislike lecturers who insist on extensive reading materials, requiring proper and up-to-date references, such as recent journal articles."

Non-academic stressors

1. Social adjustment difficulties

Social adjustment emerged as a prominent non-academic stressor during the implementation of PBL. Some students reported difficulties in building interpersonal relationships due to limited communication skills, which led to feelings of loneliness and isolation. Additionally, interactions with senior students who were repeating the course were occasionally perceived as negative, adding to the stress experienced by participants. The following direct statements from participants reflect these concerns:

> "I struggle with interpersonal communication skills, which makes it challenging for me to form close friendships. This situation occasionally leaves me feeling sad."

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> "I struggle with adjusting to my study group, especially given the limited time available to complete group assignments. This situation has been quite stressful for me."

2. Financial pressures

Financial difficulties were also identified as a major stressor during PBL implementation. Key concerns included the burden of academic expenses (such as tuition fees and photocopying costs), high living costs, and limited financial support from families. Some participants faced additional responsibilities, such as contributing to their siblings' education expenses, which exacerbated their stress. Scholarship recipients expressed anxiety about maintaining their academic performance to retain their funding, adding to their psychological burden. Despite these challenges, many students demonstrated perseverance and a strong commitment to their studies. Illustrative participant quotes include:

> "Managing finances was challenging, as the cost of living in Banda Aceh is high, and the financial support from my family was severely limited. Nonetheless, I am determined to persevere and achieve success."

> "My education heavily relies on my scholarship, and without it, I wouldn't be able to continue my studies. This motivates me to work hard and maintain a strong academic performance, as I cannot afford to lose the scholarship due to poor results. The pressure of this situation has been incredibly stressful."

3. Family responsibilities and expectations

Family-related issues played a dual role—serving both as sources of support and stress. While emotional encouragement from family members often fostered academic motivation, restrictive behaviors, such as overprotectiveness, occasionally hindered participation in essential group activities. Several students also reported having to manage household responsibilities, which limited their available study time and contributed to fatigue. Selected quotes from participants include:

> " My parents didn't permit me to go out at night, even for group study sessions. This made me feel embarrassed and anxious, worrying that my friends might think I was intentionally avoiding contributing to our group work.".

> " I hope my family understands the challenges I face in my study program. It's stressful when they perceive me as lazy for not helping with household chores, while in reality, my demanding learning schedule requires me to put in extra hours to keep up."

In addition, some respondents faced cultural or familial expectations that contributed to emotional distress. This included pressure to marry or conflicts within the family, which often led to feelings of being overwhelmed and negatively impacted their academic focus and performance.

Discussion

PBL, originally developed for medical education, has since been widely adopted across various disciplines, including nursing. It emphasizes student-centered learning by encouraging learners to independently solve real-world problems. This approach fosters inquiry, collaboration, and critical reflection, with tutors acting as facilitators [20]. As higher education increasingly shifts toward competency-based models, PBL is recognized as a valuable method for cultivating theoretical knowledge, practical skills, and essential soft skills relevant to the evolving healthcare landscape [21].

In nursing education, the integration of cognitive, affective, and psychomotor domains is crucial. Research indicates that the PBL approach enhances student engagement and supports the development of essential soft skills such as teamwork, communication, information retrieval, and decision-making [7]. These competencies are vital for professional development, particularly in interdisciplinary and patient-centered care environments.

Academic Stressors: Structural Gaps and Cognitive Demands

A significant concern highlighted in the study was students' limited access to updated learning resources, a problem intensified by the digital divide—characterized by poor laptop availability, unstable internet

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connections, and inadequate library collections. These factors hinder students' ability to engage in independent learning. Similar challenges have been reported in developing countries such as South Africa, where institutional constraints negatively affect academic preparedness [22]. These findings underscore the urgent need for structural reforms and equitable resource distribution in the implementation of PBL, particularly within under-resourced institutions.

The study also identified cognitive load as a critical barrier to effective PBL engagement. The complex nature of PBL requires students to integrate theoretical and practical knowledge while developing higher-order thinking skills. This cognitive demand, compounded by tight and often inconsistent learning schedules, has been linked to poor sleep quality, fatigue, and diminished academic performance. Previous research has established that excessive cognitive load can contribute to absenteeism, reduced self-efficacy, and mental health challenges [22]–[24].

Furthermore, lecturers occupy a pivotal role in ensuring the successful implementation of PBL. However, their inability to adapt to the facilitator role—due to ineffective communication, lack of empathy, or authoritarian teaching styles—can undermine the learning environment. Effective facilitators should embody patience, emotional intelligence, and motivational competence, fostering student autonomy and intrinsic motivation [25]. Coercive language and rigid control can stifle curiosity and undermine students' sense of agency—both of which are essential to the philosophy of PBL. In contrast, affective engagement fosters positive emotions during the learning process, which in turn enhances students' concentration, participation, and academic performance [26].

Non-Academic Stressors: The Invisible Load

Non-academic stressors—such as difficulties in social adjustment, financial burdens, and family-related challenges—significantly affect students' well-being and academic success. The transition to university often introduces a competitive and unfamiliar social environment, which can lead to feelings of isolation, particularly among students with underdeveloped interpersonal skills. Anxiety and depression have become among the most common psychological issues facing university students, underscoring the urgent need for stronger institutional support systems [27].

Financial stress is another critical determinant of student well-being. The burden of tuition fees, living expenses, and limited access to scholarships leaves many students financially vulnerable. The fear of being unable to complete their education due to economic hardship is both widespread and justified [28]. This concern is especially pronounced among nursing students, who frequently come from middle- to lower-income backgrounds and may lack robust familial support networks.

This study highlights the intricate relationship between academic and non-academic stressors. Financial hardship can restrict access to digital tools necessary for engaging in PBL, while social isolation may hinder the collaborative learning essential to the PBL framework. Given this interconnection, institutional support must be holistic in nature. Student services—including mental health counseling, financial aid advising, and peer mentoring—should be integrated to address the multifaceted challenges students face.

Proactive institutional strategies are essential. Nurse educators, in particular, hold a moral and professional responsibility to provide not only academic guidance but also emotional support and empathy. Engaging families, clearly communicating academic expectations, and promoting a growth mindset are all key components of a relational approach that can significantly improve student outcome [29], [30].

Sustainable PBL Implementation

PBL is widely recognized for promoting critical thinking and lifelong learning. However, its effectiveness depends heavily on thoughtful and well-supported implementation. This study highlights the dual nature of stress academic and non-academic experienced by FYNS, drawing attention to both structural and emotional challenges they face. It advocates for a hybrid PBL model that retains the core strengths of traditional PBL while incorporating additional supports, such as curated learning resources, time management training, lecturer mentorship, and psychosocial services. Notably, variations of this model have already been implemented by institutions worldwide [5].

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The originality of this study lies in its interdisciplinary perspective, which integrates pedagogical theory, psychological resilience, and equity-based frameworks to examine PBL's impact on student well-being. Future research should explore the longitudinal outcomes of PBL, including its influence on clinical performance, the development of professional identity, and long-term mental health among nursing students. By aligning institutional strategies with both the cognitive and emotional needs of learners, nursing programs can leverage PBL not only as an instructional method but also as a catalyst for professional growth and personal development.

Theoretical implication and practice

Theoretically, this study advances understanding of student success by highlighting the inseparability of academic and non-academic stressors within the PBL framework. Effective PBL implementation requires addressing both structural inequalities and cognitive barriers. Structurally, institutions must improve access to digital tools, reliable internet, and adequate learning resources to ensure equitable participation. Cognitively, interventions such as workload regulation, supportive scheduling, and strategies to reduce unnecessary mental strain are essential to sustain engagement and enhance academic outcomes. The effectiveness of PBL also depends on lecturers' ability to adopt the facilitator role through affective engagement and supportive pedagogy; otherwise, rigid or authoritarian practices risk undermining its core principles. Practically, the study emphasizes the need for holistic institutional strategies—including financial support, mental health services, and relational pedagogy—to foster equitable and supportive learning environments for nursing students. Without such reforms, PBL is likely to remain compromised, particularly in resource-constrained settings, leading to increased stress and poorer academic performance.

Limitation

A limitation of qualitative study with larger samples is the reduced depth of analysis. Although broader samples help identify common themes, they may obscure nuanced, context-specific insights and require substantial time and resources to manage, potentially limiting interpretive richness.

CONCLUSION

While PBL offers substantial educational benefits, it also presents notable challenges, particularly for FYNS. This study identified two primary categories of stressors: academic—such as complex course content, demanding schedules, limited lecturer support, and group dynamics—and non-academic, including inadequate resources, financial hardship, lack of familial support, and poor living conditions. These stressors can significantly hinder both learning outcomes and overall academic performance. To address these challenges, universities must adopt a comprehensive support strategy. Key interventions include upgrading infrastructure, enhancing student support services, providing ongoing professional development for lecturers, and expanding access to financial aid. By creating a more supportive and resource-rich learning environment, institutions can improve the effectiveness of PBL and better support students' academic and personal development.

AUTHOR CONTRIBUTIONS

Aiyub Aiyub: Conceptualization, Data curation, Formal analysis, Funding acquisition, Methodology, Writing - original draft. Risaharti Risaharti: Visualization, Methodology, Reviewing and Editing. Sri Novitayani: Conceptualization, Investigatio, Supervision, Writing - review & editing. Kartinazahri Kartinazahri: Data Curation, Methodology, Validation. Puji Astuti: Conceptualization, Data Curration, Project Administration, Writing - Reviewing and Editing.

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