



Developing the Integration of Problem-Based Learning (PBL) into the Physical Education Curriculum to Enhance Students' Mental Resilience

Kadarisman^{1*}

¹ Department of Educational Management, Faculty of Education, Universitas Terbuka, Tangerang Selatan, Indonesia

Article Info

Received : 10 February 2026

Revised : 22 March 2026

Accepted : 18 April 2026

Keyword:

Physical Education;
Mental Resilience;
Curriculum;
High School Students

ABSTRACT

This study aims to analyze the development of Problem-Based Learning (PBL) integration into the physical education curriculum to enhance students' mental resilience. The study is motivated by increasing academic pressures, social challenges, and the need to strengthen students' mental health within the school environment. The study employed a qualitative approach with a case study design to understand the experiences of students and teachers in implementing problem-based learning in physical education. Data were collected through semi-structured interviews, participant observation, documentation, and student reflection journals. Research participants consisted of physical education teachers, high school students, and school administrators selected using purposive sampling. Data analysis was conducted using the Miles, Huberman, and Saldaña interactive model through the processes of data reduction, data presentation, and thematic conclusion drawing. The results of the study indicate that the integration of PBL is capable of enhancing students' ability to adapt to learning pressures, building social support and group solidarity, increasing self-confidence and emotional control, and transforming the meaning of physical education into a more reflective and contextual one. Furthermore, the implementation of PBL also encourages a transformation in the teacher's role from a center of learning to a facilitator of participatory learning. This study contributes to the development of physical education pedagogy based on social constructivism and experiential learning, and serves as a practical recommendation for schools in developing learning that supports students' mental health and character development.



© 2026 The authors. Published by PT. Global Teras Fana.

This is an open-access article under the Creative Commons Attribution-Share

Alike

(<https://creativecommons.org/licenses/by-sa/4.0/>)

*) Corresponding Author:

Kadarisman

Department of Educational Management, Faculty of Education, Universitas Terbuka, Tangerang Selatan, Indonesia

Email: kadarisman@ecampus.ut.ac.id

1. Introduction

Social changes, advancements in digital technology, and increasing academic pressures have created new challenges for students' mental health in various countries. These conditions have led educational institutions to begin prioritizing mental resilience as one of the key competencies of the 21st century. Resilience is not only understood as an individual's ability to withstand pressure but also as the ability to adapt, manage emotions, and solve problems constructively (Mudayat, 2026). Qiu et al. (2025) explain that physical activity has a significant association with increased psychological resilience in students. These findings are supported by

Liu et al. (2024), who demonstrate that physical activity can reduce students' levels of stress, anxiety, and depression. Additionally, Li et al. (2024) emphasize that physical education plays a crucial role in strengthening adolescents' mental health through active and participatory learning activities.

In the context of global education, physical education instruction is increasingly focused not only on developing motor skills but also on fostering students' social-emotional skills (Ramadan et al., 2025). Kang et al. (2024) explain that school-based sports can serve as a means to enhance students' holistic well-being, including their social and emotional adaptability. Research by Belaire et al. (2024) indicates that students with high engagement in physical activity tend to have better psychological well-being and resilience compared to those with low physical activity levels. Meanwhile, Han et al. (2025) found that physical activity also contributes to improved social adaptability and students' overall mental health. These findings indicate that physical education holds a strategic position in building students' mental resilience.

In the national context, challenges related to student mental health have become increasingly evident in the post-pandemic era and amid shifts in the learning system toward a more flexible, student-centered curriculum (Okilanda et al., 2024). Various phenomena in the field indicate that students often experience academic pressure, low motivation to learn, difficulties collaborating, and a weak ability to cope with failure. Wadi et al. (2024) explain that academic pressure is closely linked to increased anxiety and burnout among students. Preliminary observations in several schools also indicate that physical education instruction remains focused on conventional physical activities and has not yet fully integrated the development of students' social-emotional skills (Syaikhu et al., 2025). These conditions highlight the need for more reflective and contextual learning innovations in physical education.

One learning approach deemed relevant to address these needs is Problem-Based Learning (PBL). The problem-based learning model places students at the center of learning through the resolution of real-world problems, group discussions, decision-making, and reflection on learning experiences. PBL encourages students to develop critical thinking skills, interpersonal communication, collaboration, and the ability to adapt to complex situations. Zhang et al. (2024) explain that the integration of active pedagogical models in physical education can enhance student engagement and the quality of learning experiences. Boke et al. (2025) also found that cooperative learning in physical education has a positive impact on students' social skills and emotional resilience. Additionally, Martín-Rodríguez and Madrigal-Cerezo (2025) emphasize that innovative pedagogical approaches in physical education can enhance student engagement and meaningful learning.

Theoretically, the integration of PBL in physical education aligns with social constructivism, which emphasizes that knowledge is constructed through experience, social interaction, and reflection on real-world situations. Faella et al. (2025) explain that embodied learning allows students to construct learning meaning through physical activities and direct experiences. This perspective suggests that physical education serves not only as a means of physical development but also as a medium for character building, adaptability, and students' mental resilience. Latino et al. (2024) add that physical education supported by innovative pedagogical approaches can enhance students' physiological and cognitive well-being.

Although various studies have discussed innovative learning models in physical education, most research remains oriented toward quantitative approaches that emphasize student learning outcomes or physical performance (Febrianta et al., 2025). Studies on students' subjective experiences, the process of mental resilience formation, and the dynamics of PBL implementation in physical education are still relatively limited. Saiz-Gonzalez et al. (2024) explain that research on pedagogical models in physical education focuses more on students' motivation and basic psychological needs than on a deep exploration of their emotional experiences. Teutemacher et al. (2024) also emphasize that research on pedagogical approaches in physical education oriented

toward mental health still requires further development. Therefore, qualitative research is needed to understand the process of building students' mental resilience through problem-based learning experiences.

This research is important because physical education plays a strategic role in supporting the strengthening of students' character and psychological well-being. Allan et al. (2025) explain that experience-based and challenge-oriented learning activities can enhance adolescents' resilience and well-being post-pandemic. Peng et al. (2025) also found that physical activity influences students' self-efficacy through the mediation of psychological resilience. Thus, the development of integrating Problem-Based Learning into the physical education curriculum serves as a relevant pedagogical alternative to help students develop adaptive skills, emotional regulation, and sustained mental resilience.

Based on the above discussion, this study aims to analyze the development of integrating the Problem-Based Learning model into the physical education curriculum to enhance students' mental resilience. The research focus is directed toward students' learning experiences, teachers' implementation strategies, the process of building mental resilience, and the dynamics of problem-based learning in physical education. This study is expected to provide theoretical contributions to the development of constructivist-based physical education pedagogy and practical contributions for teachers, schools, and curriculum developers in creating learning that is more adaptive, participatory, and oriented toward students' mental health

2. Materials and Methods

This study employs a qualitative approach with a case study design. The case study approach was chosen because the research focuses on an in-depth exploration of the process of integrating Problem-Based Learning (PBL) into the physical education curriculum and how this process fosters students' mental resilience within the real-world context of school learning. Creswell and Poeth (2021) explain that qualitative research is effective for understanding social experiences, meanings, and interaction processes occurring within educational settings. This approach allows the researcher to gain a deep understanding of students' experiences, teachers' strategies, and the dynamics of problem-based learning in physical education.

The study was conducted during the odd semester of the 2025/2026 academic year at a high school that has implemented problem-based learning in its physical education curriculum. Research participants included physical education teachers, 11th-grade students, and the vice principal for curriculum. Participants were selected using purposive sampling, with criteria including teachers actively implementing PBL and students actively engaged in problem-based physical education learning. Snowball sampling was used to identify additional informants with relevant experience related to the research focus. Chye et al. (2024) explain that the use of purposive sampling in qualitative research helps researchers identify participants capable of providing in-depth information regarding the research phenomenon.

Data collection was conducted through semi-structured interviews, participant observation, and documentation. Interviews were conducted to explore students' experiences regarding learning challenges, self-adaptation strategies, social interactions, and the meaning of mental resilience while participating in problem-based physical education learning. Participant observation was conducted during the learning process to observe communication patterns, student engagement, and responses to problem-solving activities. Documentation included learning materials, instructional modules, student reflection journals, and school curriculum documents related to PBL implementation. explain that the experiential learning approach in PBL enables students to build more reflective and contextual learning experiences.

Data validity was ensured through source triangulation and method triangulation. Source triangulation was conducted by comparing data from interviews with teachers, students, and school officials. Method triangulation was conducted by comparing results from interviews,

observations, and documentation. Additionally, the researcher applied member checking by asking participants to review the interview transcripts to ensure the data aligns with their experiences. An audit trail was also used to ensure transparency in the research process, thereby enhancing the study's credibility and reliability. Lincoln and Guba (2021) explain that triangulation and member checking are crucial strategies for maintaining the validity of qualitative research.

Data analysis utilized the interactive model by Miles, Huberman, and Saldaña, which involves data reduction, data presentation, and drawing conclusions simultaneously. Interview and observation data were transcribed and then coded to identify key themes related to PBL implementation, students' learning experiences, and the development of mental resilience. Subsequently, the data were analyzed using a thematic analysis approach to identify patterns of meaning and interpretations regarding participants' experiences during the learning process. Miles et al. (2021) explain that thematic analysis in

3. Results and Discussions

Based on the analysis of data obtained through in-depth interviews, participatory observation, learning documentation, and student reflections, this study indicates that the integration of Problem-Based Learning (PBL) into physical education instruction has a significant impact on the development of students' mental resilience. In this study, mental resilience is not only defined as students' ability to endure difficult situations but also encompasses the ability to manage stress, build self-confidence, maintain motivation, develop emotional control, and adapt to social and academic challenges throughout the learning process. The thematic analysis yielded five interrelated main themes that collectively shape the overall pattern of students' learning experiences, namely: (1) the development of adaptive skills in response to learning pressures, (2) the formation of social support and group solidarity, (3) increased self-confidence and emotional control, (4) a shift in the meaning of physical education learning, and (5) the transformation of the teacher's role in problem-based learning.

The first theme indicates that the implementation of PBL in physical education encourages students to gradually develop the ability to adapt to learning pressures. In the problem-based learning process, students are confronted with various situations that demand quick thinking, decision-making, teamwork, and independent resolution of group conflicts. These situations create social and psychological pressures that were previously rare in conventional physical education. In the early stages of implementation, some students admitted to feeling afraid of failure, anxious when asked to lead a group, and worried about receiving negative evaluations from their peers. However, as the learning process progressed, students began to demonstrate changes in how they handled pressure. They no longer viewed challenges as threats but as part of the learning process that could help them grow mentally and socially.

This change was evident in the students' ability to manage their emotional responses when facing failure in games or minor conflicts within the group. One student explained that previously he tended to panic and give up easily when game strategies didn't go as planned, but after participating in several problem-based learning sessions, he became calmer and more accustomed to seeking solutions together with group members. This statement is reinforced by the following quote:

"Before, I used to panic easily when the game wasn't going well, but now I can stay calm and try to find solutions with my friends. I feel stronger when facing pressure." (Student E)

Another student also explained that the experience of leading a group helped them learn to overcome fear and build the courage to make decisions.

“At first, I was afraid my group would lose because I felt I couldn’t help my friends. But after a few sessions, I started to realize that what matters is the process of collaboration, not just winning or losing.” (Student A)

Observation results show that students began demonstrating improved ability to handle pressure as the learning process unfolded. At the start of PBL implementation, some students appeared easily frustrated and blamed one another when their group lost. However, as the learning process continued consistently, students grew accustomed to conducting group evaluations, discussing the causes of failure, and jointly developing new strategies. The physical education teacher also explained that students became more resilient in the face of pressure and more emotionally stable than before. According to the teacher, students no longer immediately gave up when facing difficulties but instead focused on finding alternative solutions and maintaining group motivation. These findings suggest that problem-solving experiences in physical education can serve as a medium for developing students’ coping strategies and psychological resilience through contextual and reflective hands-on experiences.

The second theme indicates that the implementation of PBL fosters stronger social support and group solidarity among students (Syaikhu et al., 2025b). Problem-based learning creates more intensive social interaction because students must collaborate to solve game challenges, develop group strategies, and collaboratively evaluate learning outcomes. This interaction leads students to communicate more frequently, support one another, and learn to understand the personalities of other group members. Most students reported feeling more comfortable participating in the learning process because the classroom atmosphere became more supportive and was no longer dominated by individual competition, as in previous learning experiences.

One student explained that their group was accustomed to helping members who struggled to understand the game strategy before the activity began.

“If a friend doesn’t understand the game strategy yet, we usually explain it first so they can join in and not feel left behind.” (Student B)

Another student also noted that problem-based learning brought classmates closer together because they had to collaborate continuously throughout the learning process.

“I’ve become closer to a friend I rarely talked to before because in our group we have to keep working together.” (Student F)

Observation results indicate that students’ communication patterns underwent significant changes during the implementation of PBL. At the start of the learning process, group discussions were still dominated by more active and confident students, while others tended to be passive and simply followed the group’s decisions. However, after a few sessions, students who were previously less active began to speak up and support their group members. The physical education teacher explained that students began to understand the importance of group solidarity and realized that the group’s success cannot be achieved without the involvement of all members. Documentation of students’ reflective notes also indicates that most students view problem-based learning as an experience that helps them learn to value others’ opinions, enhance empathy, and build a sense of social responsibility.

The third theme demonstrates that the integration of PBL into physical education contributes to increased student self-confidence and emotional regulation skills. Problem-based learning activities provide students with opportunities to share ideas, make decisions, try new strategies, and reflect on their learning experiences. This process helps students understand that mistakes are part of the learning process and not something to be feared. Most students reported becoming more confident in expressing their opinions and more willing to actively participate during the learning process.

One student explained:

“I usually stay quiet during group study, but in PE class I feel braver speaking up because all my friends join the discussion and support each other.” (Student C)

Another student also noted that problem-based learning helped them feel more confident in facing failure.

“I used to be afraid of making mistakes while playing because I worried my friends would scold me. Now I’m more confident because the teacher said mistakes are part of learning.” (Student G)

In addition to boosting self-confidence, the observation results also showed that students began to be able to control their emotions when facing minor conflicts within the group. In some game situations, students no longer immediately got angry or blamed group members when a strategy failed. Instead, students tried to discuss and evaluate the mistakes together. The physical education teacher explained that this change indicates the development of students’ emotional regulation during the learning process. According to the teacher, students have become more open to criticism, more patient in dealing with differing opinions, and better able to maintain emotional stability when facing peer pressure. These findings suggest that PBL functions not only as a cognitive learning model but also as a medium for the deeper development of students’ social-emotional skills.

The fourth theme highlights a shift in how students perceive physical education after the implementation of PBL. Before the introduction of problem-based learning, most students viewed physical education solely as routine physical activity focused on physical training and the acquisition of motor skills. However, after participating in problem-based learning, students began to understand that physical education is also connected to character development, social skills, self-control, and the ability to handle daily life challenges. Problem-based learning enables students to view sports activities as a medium for social learning that is relevant to their life experiences outside of school.

One student explained:

“Now I feel that physical education isn’t just about playing or physical exercise, but also about learning cooperation, thinking quickly, and solving problems.” (Student D)

Another student also shared:

“In this class, I learned patience, listening to my friends’ opinions, and thinking about how to solve problems without getting angry.” (Student H)

The results of the student reflection documentation show that most students began to connect their physical education learning experiences with their social lives outside of school. Students stated that the experience of working together in groups helped them understand the importance of communication, discipline, responsibility, and the ability to cope with social pressures in daily life. These findings indicate that PBL is capable of creating learning experiences that are more contextual, reflective, and meaningful, so that physical education is no longer understood merely as physical activity, but also as a space for character development and student mental health.

The final theme highlights a transformation in the teacher’s role within the problem-based physical education learning process. In PBL implementation, teachers no longer serve as the dominant center of the classroom but act as facilitators who help students explore solutions to the problems they face. Teachers ask more reflective questions, facilitate group discussions, and encourage students to discover problem-solving strategies independently. These changes make the learning process more participatory and provide students with greater opportunities to develop creativity, critical thinking skills, and independent learning.

A physical education teacher explained:

“I now focus more on guiding and prompting students to think for themselves rather than directly providing answers as I did before.” (Physical Education Teacher)

Nevertheless, teachers also acknowledge that implementing PBL requires greater pedagogical readiness and more complex classroom management skills compared to conventional teaching. Teachers must be able to maintain group dynamics, ensure all students are actively engaged, and create a psychologically safe learning environment so that students feel confident expressing their opinions and trying new strategies without fear of being criticized. These findings indicate that the success of PBL implementation is influenced not only by student readiness but also by the teacher's pedagogical competence in fostering a supportive, reflective, and collaborative learning environment.

4. Conclusions

This study demonstrates that the integration of Problem-Based Learning (PBL) into the physical education curriculum makes a significant contribution to the development of students' mental resilience. Through problem-based learning, students not only gain learning experiences focused on mastering physical skills but also develop the ability to adapt to stress, emotional control, self-confidence, teamwork skills, and the ability to solve problems collaboratively. The research results show that participatory, reflective, and contextual learning experiences can create a more supportive learning environment, allowing students to gradually build mental resilience through social interaction and direct experience. Additionally, this study found a shift in how students perceive physical education from merely physical activity to a means of character building, mental health strengthening, and the development of social-emotional competencies.

Theoretically, this study reinforces the perspectives of social constructivism and experiential learning, which emphasize the importance of direct experience and social interaction in the development of students' adaptive abilities. Practically, the research findings can serve as a reference for physical education teachers and curriculum developers in designing more innovative, humanistic, and student-centered learning experiences focused on strengthening students' mental health. The policy implications of this study highlight the importance of integrating problem-based learning approaches into the physical education curriculum as part of strengthening character education and student well-being in schools. Further research is recommended to expand studies across more diverse school contexts, involve different educational levels, and explore the integration of digital technology in problem-based physical education learning to broaden the understanding of students' mental resilience development in a more comprehensive manner.

References

- Allan, J. F., Doran, A., Jones, R., & Farrell, S. (2025). Building resilience and well-being for post-covid adolescents through outdoor adventure. *Journal of Adventure Education and Outdoor Learning*. <https://doi.org/10.1080/14729679.2024.2312920>
- Belaire, E., Mualla, F., Ball, L., Ma, I., Berkey, D., & Chen, W. (2024). Relationship of social-emotional learning, resilience, psychological well-being, and depressive symptoms with physical activity in school-aged children. *Children*, 11(8), 1032. <https://doi.org/10.3390/children11081032>
- Boke, H., Aygun, Y., Tufekci, S., & Yagin, F. H. (2025). Effects of cooperative learning on students' learning outcomes in physical education: A meta-analysis. *Frontiers in Psychology*, 16. <https://doi.org/10.3389/fpsyg.2025.1508808>
- Chye, S. M., Kok, Y. Y., Chen, Y. S., & Er, H. M. (2024). Building resilience among undergraduate health professions students: Identifying influencing factors. *BMC Medical Education*, 24(1). <https://doi.org/10.1186/s12909-024-06127-1>

- Creswell, J. W., & Poth, C. N. (2021). *Qualitative inquiry and research design: Choosing among five approaches* (5th ed.). Sage Publications.
- Faella, P., Digennaro, S., & Iannaccone, A. (2025). Educational practices in motion: A scoping review of embodied learning approaches in school. *Frontiers in Education*, 10. <https://doi.org/10.3389/feduc.2025.1568744>
- Faella, P., Digennaro, S., & Iannaccone, A. (2025). Educational practices in motion: A scoping review of embodied learning approaches in school. *Frontiers in Education*, 10. <https://doi.org/10.3389/feduc.2025.1568744>
- Febrianta, Y., Yuwono, P. H., Darodjat, D., Irawan, D., Putro, D. E., Ismoko, A. P., Dewangga, M. W., Amal, A. I., Nugraheni, I., Pratiwi, R. D. C., Muslim, A. H., Mudayat, M., Wijaya, H. H., Wilaksono, B., Amarseto, B., Kusworo, Y. A., Sirada, A., Firmansyah, M. W., Kurniawan, A., & Putro, W. A. S. (2025). The Effect of Plyometric Exercise on Leg Muscle Power, Kick Speed and Agility of Pencak Silat Athletes. *Balneo and PRM Research Journal*, No. 4, December 2025 (Vol 16). <https://doi.org/10.12680/balneo.2025.920>
- Han, X., Li, H., Xiao, C., Wang, W., Gao, K., Yan, S., & Niu, L. (2025). Physical activity enhances college students' mental health through social adaptability and exercise behavior chain mediation. *Scientific Reports*, 15. <https://doi.org/10.1038/s41598-025-07791-z>
- Kang, X., Meng, Q., & Su, C. H. (2024). School-based team sports as catalysts for holistic student wellness: A narrative review. *Behavioral Sciences*, 14(7), 528. <https://doi.org/10.3390/bs14070528>
- Latino, F., Romano, G., & Tafuri, F. (2024). Physical education teacher's continuing professional development affects the physiological and cognitive well-being of school-age children. *Education Sciences*, 14(11), 1199. <https://doi.org/10.3390/educsci14111199>
- Li, Z., Li, J., Kong, J., Wang, R., & Jiang, F. (2024). Adolescent mental health interventions: A narrative review of the positive effects of physical activity and implementation strategies. *Frontiers in Psychology*, 15. <https://doi.org/10.3389/fpsyg.2024.1433698>
- Lincoln, Y. S., & Guba, E. G. (2021). *Naturalistic inquiry*. Sage Publications.
- Lin, H., Zhu, Y., Liu, Q., & Li, S. (2024). The mediating effect of resilience between physical activity and mental health: A meta-analytic structural equation modeling approach. *Frontiers in Public Health*, 12. <https://doi.org/10.3389/fpubh.2024.1434624>
- Liu, M., Liu, H., Qin, Z., Tao, Y., Ye, W., & Liu, R. (2024). Effects of physical activity on depression, anxiety, and stress in college students: The chain-based mediating role of psychological resilience and coping styles. *Frontiers in Psychology*, 15. <https://doi.org/10.3389/fpsyg.2024.1396795>
- Martín-Rodríguez, A., & Madrigal-Cerezo, R. (2025). Technology-enhanced pedagogy in physical education: Bridging engagement, learning, and lifelong activity. *Education Sciences*, 15(4), 409. <https://doi.org/10.3390/educsci15040409>
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2021). *Qualitative data analysis: A methods sourcebook* (4th ed.). Sage Publications.
- Mudayat, M. (2026). Comments about the article “Associations between physical fitness and mental health outcomes in children and adolescents from a middle-income country: A cross-sectional study.” *Science & Sports*. <https://doi.org/10.1016/j.scispo.2026.01.004>
- Peng, B., Chen, W., Wang, H., & Yu, T. (2025). How does physical exercise influence self-efficacy in adolescents? A study based on the mediating role of psychological resilience. *BMC Psychology*, 13(1). <https://doi.org/10.1186/s40359-025-02529-y>
- Qiu, W., Huang, C., Xiao, H., Nie, Y., Ma, W., & Zhou, F. (2025). The correlation between physical activity and psychological resilience in young students: A systematic review and meta-analysis. *Frontiers in Psychology*, 16. <https://doi.org/10.3389/fpsyg.2025.1557347>
- Okilanda, A., Putri, S. A. R., Fajar, M., Febrian, M., Saputra, M., Tulyakul, S., Duwarah, T., Putra, A., Hasan, B., Mudayat, M., & Syaputri, W. (2024). Article RETRACTED due to manipulation by the authors Endurance training and its impact on physical health among university students. *Retos*, 59, 1092–1102. <https://doi.org/10.47197/retos.v59.107516>

- Ramadan, Sari, L. P., Hendrawan, D., Tarigan, G. N. B., Saparia, A., Bakar, A., Mudayat, Perdana, R. P., Sardiman, & Kuswoyo, D. D. (2025). Traditional Games and Motor Ability: Their Interaction in Enhancing Long Jump Performance in Elementary School Students. *Sportske Nauke i Zdravlje*, 15(2), 245–257. <https://doi.org/10.7251/SSH2502245R>
- Saiz-Gonzalez, P., Iglesias, D., & Fernandez-Rio, J. (2024). Can pedagogical models promote students' basic psychological needs in physical education? A systematic review and meta-analysis. *Quest*, 76(2), 155–170. <https://doi.org/10.1080/00336297.2024.2316146>
- Syaikh, A., Sagita, D. D., & Mudayat. (2025). From rivalry to synergy: Calibration of PBL and TBL for medical learning outcomes. *Journal of Taibah University Medical Sciences*, 20(6), 833–834. <https://doi.org/10.1016/j.jtumed.2025.11.003>
- Teutemacher, B., Sudeck, G., & Hapke, J. (2024). Pedagogical approaches to health-related physical education in the context of digitalisation: A scoping review. *Physical Education and Sport Pedagogy*. <https://doi.org/10.1080/17408989.2024.2352826>
- Wadi, M., Shorbagi, A., Shorbagi, S., & Taha, M. H. (2024). The impact of the Systematic Assessment for Resilience framework on students' resilience, anxiety, depression, burnout, and academic-related stress. *BMC Medical Education*, 24(1). <https://doi.org/10.1186/s12909-024-05444-9>
- Wang, Y., Fu, Y., Wu, X., Deng, H., Ruan, Y., & Liu, C. (2025). Integrating experiential learning theory with innovation and entrepreneurship education: A qualitative study on Chinese medical students. *BMC Medical Education*, 25(1). <https://doi.org/10.1186/s12909-025-07804-5>
- Zhang, J., Soh, K. G., Bai, X., Anuar, M. A. M., & Xiao, W. (2024). Optimizing learning outcomes in physical education: A comprehensive systematic review of hybrid pedagogical models integrated with the Sport Education Model. *PLOS ONE*, 19(10). <https://doi.org/10.1371/journal.pone.0311957>