

Research Article



Trauma-informed University Students and Sustainability Practices in Interprofessional Education Settings

دور التطبيقات المستدامة في التعليم المتداخل تجاه الصدمات النفسية لطلاب الجامعات

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Abstract

Universities are considered leaders in sustainability, but the psychological burdens of experience activate students. They can exist within a state of trauma themselves, at the same time, considering the emerging evidence and understanding of how expansive trauma can be in contributing to the well-being and development of students' learning, universities worldwide are becoming increasingly supportive and sensitive to trauma-informed care (TIC) approaches. Throughout the educational literature, TIC is also being specifically acknowledged and promoted as one of the principal supports for student well-being, participation, sustainable teaching, and better outcomes for academic success beyond widening participation. But how TIC is considered and delivered in practice is largely unexplored in relation to IPE, particularly in connection with sustainable learning environments and institutions of higher education. This research aims to investigate how TIC is delivered and contributes to student well-being in universities, specifically in the context of the Gulf Cooperation Council (GCC) countries, while exploring their connection to interprofessional education (IPE) and sustainable development objectives. This paper is grounded in broad and recent scholarship and situated in several theoretical models, including care ethics, cultural humility, and the cumulative risk model as frameworks, and argues for mutuality in TIC, IPE, and inclusive education to create resilient and equitable institutions. Based on qualitative integration, this paper explores barriers and opportunities within ICT-inspired education from a GCC countries' perspective, focusing on mental health challenges experienced by migrants and women; policy gaps, faculty preparedness, and lack of cultural capacity were also connected. It accentuates the intersection where individual notions of collective ecological responsibility intersect, emphasizing the following steps through curriculum-inclusive practices, building communities, and advocacy. This study addresses this gap in research by looking at how trauma-informed supports in IPE contexts support students, especially in fostering collaboration, independence, and applied academic sustainability in IPE contexts. The study finds a split yet interesting and promising space where collaborative interdisciplinary care, technology innovation, and policy could create a sustainable TIC-responsive learning space. The unique contribution of this research is bringing together trauma-informed principles with sustainability perspectives in IPE and making actionable recommendations to develop sustainable, resilient educational systems at the university. This study has concluded with a call for practical recommendations for higher education stakeholders to apply TIC values across their curriculum and institutional systems while promoting equity, empathy, and students' long-term success.

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المخلص

تعتبر الجامعات رائدة في مجال الاستدامة، و لكن الطلاب يتأثرون بالأعباء النفسية التي تسببها التجارب التي يمرون بها. إذ قد يعانون من صدمة نفسية، و في الوقت نفسه، بالنظر للأدلة الناشئة و فهم مدى تأثير الصدمة النفسية في المساهمة في رفاهية الطلاب و تطور تعلمهم؛ أصبحت الجامعات في جميع أنحاء العالم أكثر دعماً و حساسية تجاه نهج الرعاية المراعية للصدمة النفسية (ر.م.ص.ن). يتم الاعتراف ب (ر.م.ص.ن) في جميع الأبحاث التعليمية، و تعزيزها على وجه التحديد باعتبارها أحد الدعائم الرئيسية لرفاهية الطلاب و مشاركتهم و التعليم المستدام، وهي نتائج أفضل للنجاح الأكاديمي تتجاوز توسيع مشاركتهم. أما كيفية النظر للرعاية المراعية للصدمة و تقديمها في الممارسة العملية، فلم يتم استكشافها إلى حد كبير فيما يتعلق بالتعليم المتداخل بين المهن (ت.م.ب.م)، لا سيما فيما يتعلق ببيئات التعلم المستدامة و مؤسسات التعليم العالي. يهدف هذا البحث إلى دراسة كيفية تقديم الرعاية المراعية للصدمة و مساهمتها في رفاهية الطلاب في الجامعات، لا سيما في سياق دول مجلس التعاون الخليجي مع استكشاف إمكانية صلتها بالتعليم المتداخل بين المهن (ت.م.ب.م) و أهداف التنمية المستدامة.

تستند هذه الورقة العلمية إلى أبحاث واسعة و حديثة كما تستند إلى عدة نماذج نظرية، بما في ذلك أخلاقيات الرعاية و التواصل الثقافي و نموذج المخاطر التراكمية كأطر عمل، كما تناقش نقاط المشاركة والاتصال بين الرعاية المراعية للصدمة و التعليم المتداخل بين المهن و التعليم الشامل لإنشاء مؤسسات مرنة و منصفة. استناداً إلى التكامل النوعي: تستكشف هذه الورقة العلمية العوائق و الفرص في التعليم المستوحى من تكنولوجيا المعلومات والاتصالات من منظور دول مجلس التعاون الخليجي، تركزاً على التحديات الصحية العقلية التي يواجهها المقيمين و النساء؛ كما تم ربط الفجوات في السياسات، و استعداد أعضاء هيئة التدريس، و نقص القدرات الثقافية. كما تسلط الضوء على الاتصال بين المفاهيم الفردية للمسؤولية البيئية الجماعية، مع التركيز على الخطوات التالية من خلال الممارسات الشاملة للمناهج الدراسية، و بناء المجتمعات و الدعوة إلى دعم ذلك. إذ تتناول هذه الدراسة هذه الفجوة في البحث من خلال النظر في كيفية دعم الطلاب في سياقات التعليم المتداخل بين المهن من خلال الدعم الواعي/المراعي بالصدمة النفسية، خاصة فيما يتعلق بدعم تعزيز التعاون و الاستقلالية و الاستدامة الأكاديمية التطبيقية في سياقات التعليم المتداخل بين المهن. تجتهد الدراسة مساحة منقسمة و لكنها مثيرة للاهتمام و واعدة حيث يمكن للرعاية التعاونية متعددة التخصصات و الابتكار التكنولوجي و السياسات أن تخلق مساحة تعليمية مستدامة تستجيب لتكنولوجيا المعلومات و الاتصال. و تتمثل المساهمة الفريدة لهذا البحث في الجمع بين المبادئ المراعية للصدمة النفسية و منظورات الاستدامة في التعليم المتداخل بين المهن، و وضع توصيات قابلة للتنفيذ لتطوير أنظمة تعليمية مستدامة و مرنة في الجامعات. و قد اختتمت هذه الدراسة بدعوة إلى وضع توصيات عملية للمختصين في التعليم العالي لتطبيق قيم التعليم القائم على الرعاية المراعية للصدمة النفسية في مناهج الدراسة و الأنظمة المؤسسية مع تعزيز المساواة و التعاطف و نجاح الطلاب على المدى الطويل.

Keywords: Trauma-informed, Sustainable education, Higher education, Interprofessional education, GCC region, Qualitative analysis

الكلمات المفتاحية: الوعي بالصدمة، التعليم المستدام، التعليم العالي، التعليم المتداخل، منطقة مجلس التعاون الخليجي، التحليل النوعي

1. Introduction

There is increasing momentum to use trauma-informed care (TIC) as a key epistemology across the human services sectors, especially in the health and social work fields, and its application in universities as a context that is not less receptive to trauma's negative consequences is not as far along (Berger, 2019; Brown et al., 2020). TIC as a concept has great traction in the larger educational landscape, as campuses scuffle with rising concerns about student health and the impacts of trauma at the individual and systemic level (Cafaro et al., 2023). Trauma-informed practices are systems that incorporate an understanding of the effects of trauma and work to intentionally mitigate the possibility of re-traumatization through environments of safety, trust, collaboration, and empowerment (Carello & Butler, 2015; Henshaw,

2022). TIC is rooted within healthcare and human services, but its stance in post-secondary education is more emergent and essential, as the shifting challenges experienced by students across the globe oblige us to rethink our approach to learning and support through TIC (McClinton & Laurencin, 2020).

In the past few years, the effects of the COVID-19 pandemic, systemic disparities, migration, and localized conflict have multiplied student and vulnerable populations' exposure to trauma, heightening the urgency to consider mental well-being and inclusive practices on sustainability agendas (Wells, 2023). The global rise in psychological distress among university students induced by the COVID-19 pandemic, social–political dissent and displacement, and systemic inequities mandates a re-evaluation of how it can be applied in pedagogical contexts (Collin-Vézina et al., 2020; Henshaw, 2022). Trauma-informed practices recognize the endemic impact of trauma and place safety and trust, collaboration, empowerment, and cultural responsiveness at the forefront of learning and larger organizational integrity (Carello & Butler, 2015). Care for mental health in coexistence with inclusive learning contexts is not only imperative for students' academic success, but they also align with, and perhaps push us closer to, United Nations Sustainable Development Goal 4, inclusive and quality education for all (Alvarado et al., 2023; Shutaleva et al., 2023).

Mindful of all that, interprofessional education (IPE) can exemplify as a reciprocal approach, with structured, collaborative learning experiences fostering empathy, communication, and systems thinking, which are all integral to trauma-informed pedagogy (Khalili et al., 2023; van Diggele et al., 2020). IPE originated in a healthcare context, where students learn with, from, and about other professions to work collaboratively in practice to improve outcomes. When IPE is relevant to higher education (HE), it can facilitate cross-sector collaboration and institutional-level change that supports both TIC principles and sustainability goals (Iverson et al., 2018).

In the Gulf Cooperation Council (GCC) countries, including the United Arab Emirates, Saudi Arabia, and Qatar, there is developing recognition for the need to address the mental health challenges of students at universities, and specifically with respect to migrant and female students (Al Marzouqi et al., 2022; Jogia et al., 2024). Despite significant financial investments in HE infrastructure, most universities in the regions appear to have culturally informed, trauma-responsive models of student support (Salgado et al., 2024). Migrant students who are fleeing conflict-affected areas have been observed to have emotional distress due to cultural loss and identity crises; however, local females' experiences were predominantly academic (which were exacerbated by societal expectations), stress, and sleep-related problems (Alalalmeh et al., 2024; Smith & Nada, 2018). In response to that, these findings illustrate a need for trauma-responsive practices that are culturally sensitive to the region, in which the GCC region's HE institutions must develop inclusive and psychologically safe academic environments (Al Marzouqi et al., 2022; Kelly et al., 2016). Likewise, migrant students face multifaceted challenges such as loss of culture, historical trauma, and identity issues (Smith & Nada, 2018), while female students carry significant psychological and sleep stressors (Jogia et al., 2024). However, most educational institutions in the region lack supportive mental

health practices, trauma-oriented pedagogies, and organized policy infrastructures (Sheikh et al., 2019; Oliver Wyman, 2022). As the focus on sustainability as a philosophy in HE has increased, so too has the focus by institutions on mental well-being and inclusive education, the importance of inclusive and equitable quality education is evident in Sustainable Development Goal 4, which holds that educational sustainability is predicated on psychological and emotional resilience (UNESCO, 2024; Shutaleva et al., 2023). Developing a trauma-informed campus should not only be a reaction to the growing mental health crisis facing institutions of HE, but should also be an essential component of sustainable educational systems (Wells, 2023).

IPE creates a model for embedding trauma-informed principles into the culture of teaching and administration at universities by involving collective learning across students in different disciplines, usually with a health focus. IPE is traditionally used in clinical practice to enhance care, but it can also foster collaboration, empathy, and systems awareness in many pathways (Khalili et al., 2023; van Diggele et al., 2020). Moreover, the combination of TIC and IPE in particular (Wong et al., 2021) may establish the basis for a more equitable, resilient, and sustainable learning framework, particularly when considered alongside ethics of care (Baker & Naidoo, 2023) and cultural humility (Ranjbar et al., 2020).

The connection between TIC, the integration of IPE, and sustainability can serve as a way to transform education in the future for many universities in the GCC region. These universities can create safe learning environments for diverse students and advance long-term well-being by integrating TIC principles into policies, curricula, and professional development (Salgado et al., 2024). The practical application of the integrated model, however, requires a nuanced understanding of general theoretical models, local barriers, and variations in systemic barriers to change. Despite the potential for TIC and IPE, both trauma-informed practices and IPE face significant challenges in the GCC context, such as limited development opportunities for faculty, absence of policy frameworks, culturally embedded stigma against mental health issues, and under-resourcing of students' support systems (Elyamani & Hammoud, 2020; Salgado et al., 2024). Moreover, TIC (Cafaro et al., 2023) and IPE's long-term viability is compromised by poor leadership, lack of departmental coherence, and hierarchy (Bogossian et al., 2022; Wong et al., 2021).

This study focuses on the alignment of educational sustainability, IPE, and trauma-informed practices in HE, considering the context of universities in GCC countries. It examines current practices, identifies gaps in implementation, and provides concrete recommendations for developing resilient, student-centered institutions. The research is a critical review of literature on the subject, supported with regional case studies. It contributes to a growing body of literature that calls for safety, inclusion, and sustainability in education. This article considers institutionally developing TIC, IPE, and sustainability within HE, considering the GCC region's visions, existing institutional framework, and cultural characteristics. Based on empirical evidence, theoretical models, and recent case studies, we aim to provide a comprehensive overview of where these three areas may intersect and how universities in these regions can be supported in their transition to advance students' well-being, resilience, and success. We also reflect on potential

policies and institutional processes related to developing trauma-informed sustainability in HE, before concluding with limitations and suggested future study.

2. Literature Review

2.1. Foundational definitions for TIC in HE

TIC in education at the post-secondary level recognizes trauma, whether it is interpersonal trauma, childhood trauma, socio-political trauma, systemic oppression, loss, or displacement, that can impede an individual's cognitive, emotional, and behavioral functioning. Carello and Butler (2015) argue that educational settings must recognize that trauma is presumed to have a pervasive presence and need to respond by embedding systems that do not, in and of themselves, further traumatize individuals, but rather promote healing. TIC in post-secondary education is shaped by six principles: safety; trustworthiness; peer support; collaboration; empowerment; and cultural, historical, and gender responsiveness (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014).

After the COVID-19 pandemic, the conflict in different parts of the world, and the escalating mental health crisis of university students, calls for trauma-informed practice have intensified. Henshaw (2022) argues for a shift from reactive to proactive approaches in universities by integrating trauma-informed principles into their policies, curricula, pedagogies, and cultural practices. This shift recognizes the needed level of change and requires moving from a completely "learner"-based perspective of the student to examining a person's life in a holistic way that includes micro- and macro-structural challenges.

While there is increased interest in the concept of TIC, we are still in the early days of development and implementation. Thomas *et al.* (2019) and Yatchmenoff *et al.* (2017) assert that while TIC in public health and social care is well-known, there are no formal frameworks or measurable indicators in universities for the assessment of trauma-informed spaces, notably, the majority of literature is theoretical and philosophical in description, and offers little in the way of action. Wells (2023) and Brown *et al.* (2020) call for institutional-level models, such as the Trauma-Informed Medical Education (TIME) model, to create curriculum content and support systems that address student trauma as a holistic process. Opoku *et al.* (2023a and 2023b) developed the Teacher-Trauma-Management-Scale (TTMS) using the SHAMSA framework as a guide to create a curriculum for non-Western contexts.

2.2. Perspectives on learning, mental well-being, and sustainable development

Inclusive education and mental well-being are recognized globally as key foundations for sustainable educational development. The United Nations Sustainable Development Goal 4 focuses specifically on "inclusive and equitable quality education," and stipulates that all learning environments address the

learning needs of every student. This includes meeting needs related to trauma, disability, mental illness, and marginalization (Iriyani et al., 2025; UNESCO, 2024). According to Shutaleva *et al.* (2023), sustainable inclusion means that all learners must have physical access to education, be able to engage with adapted pedagogies, and experience social connectedness.

Mental health and academic well-being can be seen as interconnected elements, with the learning environment being a relevant contextual factor within universities, having the potential either to work for or against students' stressors. This proposition was supported by a study conducted by Tripon *et al.* (2023), which demonstrated that a high-quality learning environment was strongly linked to students' psychological well-being and that inclusive and participatory environments encouraged resilience in students' motivation to learn. Singh *et al.* (2024) supported this view by stating that the concepts of workplace sustainability, such as access to mental health resources and flexible work arrangements, were equally applicable to HE settings.

Accessible technological resources, including artificial-intelligence tutors, EEG-integrated e-learning systems, and immersive virtual or augmented learning experiences, have been able to offer a means for inclusive education for students with a disability and/or traumatic past (Alvarado et al., 2023; Haque et al., 2024). The advantage of the technology was that it enabled students to learn at their own pace and comfort, offering new ways to access participation and equity (Johnson, 1992).

The GCC region represents an important and unique case for collaboration and systemic approaches to mental health (Fadhil et al., 2022; Kheyfets et al., 2020). Al Marzouqi *et al.* (2022) and Salgado *et al.* (2024) report high levels of stress, anxiety, and depression among university students, and they note that migrant and female students may be at greater risk for these mental health issues. The inconsistency in mental health services, combined with the lack of culturally appropriate counseling programs, makes it harder to address these issues. Additionally, there are differences between genders: Emirati females may experience higher anxiety and poorer sleep quality compared to their male peers, which negatively impacts academic performance (Alalalmeh et al., 2024; Jogia et al., 2024).

2.3. The promise of IPE and its complexities

The World Health Organization has defined IPE as opportunities “when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes” (WHO, 2010). Although primarily developed for health education, IPE was expanded to serve as an instructional approach to facilitate interdisciplinary collaboration, respect, and shared responsibility. The scholarship of van Diggele *et al.* (2020) and Wong *et al.* (2021) suggests IPE develops teamwork, communication, and ethical sensitivity—skills that can and will be found in education, social services, and administration, which are required competencies for the modern professional.

IPE also offers educational opportunities in trauma-informed environments, and the combined project of TIC and IPE could potentially help build institutional environments founded on empathy, respect, and systemic perspective. Iverson *et al.* (2018) suggest that collaborative simulations and joint-case learning allow learners to practice trauma-informed communication and problem-solving, which reinforces one's personal and professional development; however, in practice, IPE is inconsistently applied.

Bogossian *et al.* (2022) outline barriers at micro (individual), meso (institutional), and macro (systemic) levels, including a lack of faculty development, inflexible curricula, cultural pushback, and insufficient policy support. In the GCC, there are additional barriers, including hierarchical professional structures, limited inter-professional role modeling, and disconnected systems of health education (Khoja *et al.*, 2017). Beyond these barriers, despite the GCC making significant technological advances in healthcare education, the ability to implement IPE principles is curtailed by a lack of investment in educational infrastructure and policy remit (Sheikh *et al.*, 2019). However, studies in GCC showed significant positive readiness among students and professionals to improve guidelines to implement IPE effectively in the curriculum (Katoue *et al.*, 2022; AlZaabi *et al.*, 2023; Yasin *et al.*, 2023; Al-Qalaf *et al.*, 2024; El-Awaisi *et al.*, 2024; Aladwani *et al.*, 2025)

2.4. Technology, digital platforms, and e-learning in TIC and IPE

Within education, the digital transformation has opened up new future possibilities for integrating TIC and IPE across various disciplines. E-learning platforms now provide scalable and efficient access to training modules on trauma-informed practices and interprofessional skills (Goldstein *et al.*, 2024). Digital simulations, serious games, and virtual case studies allow students to participate in emotionally sensitive scenarios without the risks of real-life situations, helping to build empathy and resilience. Additionally, emerging technologies such as EEG-enabled platforms can track students' stress and engagement in real-time, giving educators the ability to adjust their teaching as needed (Haque *et al.*, 2024). By bringing neuroscience methods into the pedagogical fold, the potential for trauma-sensitive teaching-learning that tracks student emotional cues is significant, while attention to technological equity should remain a priority, as students, particularly those from marginalized groups or conflict-affected areas, may experience overt or covert exclusion in digital space (Aladyshkin *et al.*, 2020; Navarro-Espinosa *et al.*, 2022).

2.5. Policy, ethics, and the institutionalization of trauma-informed education

Policy-level frameworks are critical to legitimizing and sustaining trauma-informed and interprofessional education. Trauma-informed education (TIE) and IPE initiatives are often limited to "programmatic" responses that rely on people and are susceptible to organizational drift, turnover in leadership, or changes in funding (Parameswaran *et al.*, 2023; van Diggele *et al.*, 2020). Parameswaran *et al.* (2023)

assert that trauma-informed "healing schools" require an ecological framework to integrate, inform, and legitimize TIE that aligns individual, institutional, and societally anchored pedagogies. Policy-level decisions affect faculty training requirements, institutional audits of curricula to examine trauma-informed pedagogies, and shared governance structures to articulate the importance of people who are represented through developments in policy decisions at national and regional levels.

The ethical framework of care ethics (Tronto, 2010) offers a fitting normative model for institutional policies in HE. Baker and Naidoo (2023) applied this framework when discussing HE and identified five key ethical elements: attentiveness, responsibility, competence, responsiveness, and trust. These elements, in relation to care ethics, can help shape and envision a comprehensive institutional policy model that includes trauma-informed educational practices. Such a model can serve as a foundation for culturally humble and culturally responsive support systems for marginalized students and learners: those who are refugees, first-generation learners, and international students. It is also vital that these policies align with wider institutional missions focused on sustainability (McClinton & Laurencin, 2020; Newton et al., 2023; Vindigni, 2023). Arbo and Benneworth (2007) discussed how universities are expected to contribute to regional economic growth, but should increasingly be viewed as incubators for social resilience and university justice. This perspective further affirms that TIE and IPE with sustainability as guiding ethical elements are not just supplementary but are central to the institution's role in society.

2.6. Sustainability challenges and pathways for integration

Sustainable pathways for the adoption of TIC and IPE in HE are contingent on overcoming challenges to operations, despite considerable support for the theoretical models. Some dependencies include variance in direction/leadership, funding availability, professional silos, and resistance to change (Kent et al., 2018; Salvia et al., 2020; Robey et al., 2021). Most IPE programs throughout education tend to assume prototypes that view IPE as emergent or spontaneous learning without a solid theoretical basis to support evidence-based design and clear understandings of IP education (Craddock et al., 2012). Bogossian *et al.* (2022) note that sustainability is valued as an external construct for IPE programs. The viability and permanency of IPE implementation are dependent upon defining, and embedding, positions into institutional infrastructure (IPE Coordinator role; Faculty Lead role), and obtaining commitments to the peer review processes occurring within core curricula.

A sustainable model initiative for embedding TIC and IPE knowledge and behaviors is lacking; however, it can be addressed using work-based learning instead of classroom experiential and knowledge-based learning (Lawlis et al., 2014). Kent *et al.* (2018) recommended that the relevance of the IPE experience and knowledge could be significant in allowing for integration of IPE into clinical rotations and professional practice contexts. The use of workplace reviews also seems plausible in locating TIE, that is, field

placements, mentorship programs, or service learning, for further future research to fill this knowledge gap.

2.7. Emerging models and future directions

We are just beginning to explore the intersection of TIE, IPE, and sustainability. Staff commitment to practicing leadership beliefs was clearly influenced by their foundational knowledge, their perception of leadership support, and their individual self-efficacy, similar to the factors that predict engagement opportunities in IPE (Khalili et al., 2023) and TIC (Robey et al., 2020). This kind of thoughtful framework suggests the possibility of a united effort to create shared implementation strategies for a TIC and IPE model in the future, as emerging and developing models should focus on the foundations of adaptable resources predicated on interdisciplinarity and institutional alignment (Iverson et al., 2018). Moksiki et al. (2022) proposed a dual curriculum approach to ESD in HE, based on the utilization of both existing course enrollment and additional standalone modules for ESD in HE. We want to achieve a wider reach in our degree programs while maintaining the capacity for department or discipline continuity in curriculum design. HE should also include institutions of practice, leverage research, and innovation hubs, as pilot projects with trauma-informed (Sundborg, 2019) or interprofessional pedestrian learning models, while also proposing a systematic evaluation for exemplifying new model outcomes for maintaining student well-being and academic success (van Diggele et al., 2020).

3. Methodology

3.1. Research design

This study uses a qualitative exploratory research design focused on document analysis and manual thematic content analysis. The topic at the intersection of TIC, IPE, and sustainability in HE raises complexities in both interpretation and engagement. The purpose of the research design is to create meaning through the interpretation and synthesis of findings presented in existing academic literature and institutional documents. The study employs a qualitative design to understand how these three frameworks intersect and are complexly articulated in theory and practice, specifically in the context of HE in the UAE and the GCC region.

Rather than gathering quantitative primary data for the study, document analysis is carried out using a preselected set of academic documents, which includes scholarly articles and reports, as well as institutional documents like strategic plans and policy documents. The selection was based on their relevance to the study's three main themes: trauma-informed practices, IPE, and educational sustainability.

3.2. Data analysis

The primary data for this study include academic publications and institutional documents obtained through searches in various literature sources, such as Google Scholar and similar platforms. To ensure the relevance, accessibility, and currency of insights, the search was limited to academic literature published in recent years. The key search terms included combinations of: "trauma-informed education," "interprofessional education," "inclusive learning," "student mental health," "higher education sustainability," and "GCC universities."

For analysis, scholarly sources were selected. This composition identified peer-reviewed journal articles and systematic reviews; conceptual frameworks and theoretical contributions; and institutional strategic documents and policy analyses relating to GCC HE.

Mendeley was used as a reference management tool to track, categorize, and review sources. We relied on Mendeley during a relatively short study phase; it enabled us to tag sources, which helped in organizing literature into themed categories. However, all analysis was performed manually without the aid of analytical software.

3.3. Data analysis: Manual thematic analysis

The study used Braun and Clarke's (2006) approach to conducting thematic analysis, and we employed a manual, iterative process to identify, review, and interpret themes emerging from the corpus of documents. We undertook to complete:

- (i) Familiarization: We read each text multiple times to develop a critical understanding of the content.
- (ii) Initial coding: At this stage, we highlighted phrases and paragraphs related to trauma-informed practice, IPE, and sustainability in education. We wrote code incidentally, using field notebooks and also utilizing Mendeley's annotation features.
- (iii) Theme development: We grouped codes into broader conceptual themes such as "mental well-being and inclusivity," "faculty engagement and leadership," "policy and institutional readiness," and "barriers and facilitators to IPE and TIC implementation."
- (iv) Theme refinement: We reviewed themes in terms of consistency and overlapping, and organized them into a coherent framework that responded to the aims of the study.
- (v) Interpretation and synthesis: When interpreting the themes, we considered their relations to one another and contextualized them in the literature in order to explore how we may relate TIC, IPE, and sustainability in HE settings, particularly with respect to GCC. The manual process of the analysis engaged closely with each text, allowing for a more nuanced understanding of assumptions, trends, and contradictions across documents.

3.4. Ethical considerations

Since the study relies solely on secondary data from published academic and institutional sources, it did not involve direct interaction and did not require formal ethical approval according to most institutional research ethics guidelines. However, ethical research principles were followed at all times.

Only publicly accessible ethical documents were selected for analysis. When interpreting regionally acquired data, cultural sensitivity was maintained while discussing trauma-related issues, mental health, and marginalized groups of students in GCC universities.

Additionally, the analytical process was conducted with academic integrity, ensuring that this synthesis is transparent, unbiased, and reliable since it is based on cited literature.

3.5. Theoretical framework

This study emerged from three relevant theoretical frameworks that intersect TIE, interprofessional collaboration, and sustainability:

3.5.1. Ethics of care framework (Tronto, 2010)

The ethics of care offers a moral, relational perspective that highlights attentiveness, responsibility, competence, responsiveness, and trust. In educational contexts, the ethics of care framework helps create trauma-informed environments that prioritize empathy, relational accountability, and support systems for all students (Baker & Naidoo, 2023).

3.5.2. Cultural humility (Ranjbar et al., 2020)

Cultural humility requires constant learning, critical self-reflection, and responsiveness from institutions. It acknowledges that cultural competence is not static and is particularly vital in HE when assessing mental health needs and supporting diverse student groups (e.g., migrants, women, and first-generation learners in the GCC), shaped by cultural values, realities, and trauma.

3.5.3. Cumulative risk assessment model (Linder & Sexton, 2011)

The cumulative risk assessment model was created for public health, which demonstrates how multiple and interconnected risk factors can affect well-being and outcomes. If we examine this model in HE, it allows us to consider how the factors influencing student trauma, the institution's structural conditions, and diversionary socio-political contexts interact and shape student experiences as a whole. This framework

supports the embedding of TIC into broader institutional reform processes that grapple with issues of equity and make sustainability explicit.

These frameworks provide layers of possibility for HE institutions to shift toward addressing the emotional, social, and academic needs of their students through sustainable, interprofessional, and trauma-informed approaches.

4. Results

The thematic analysis of the literature on TIC, IPE, and sustainability, as well as institutional documents, generated five distinct themes that point to how TIC, IPE, and sustainability were conceived and enacted in HE.

4.1. Inconsistency in the institutionalization of TIC practices

The literature shows a consistent finding of limited and uneven development of TIC frameworks in HE institutions in the UAE and GCC regions, especially in the GCC. Although awareness is growing regarding the impact of trauma on student engagement and performance, institutional responses remain mostly reactive, brief, fragmented, and often symbolic (Khoja et al., 2017; Al Marzouqi et al., 2022). As noted in the literature, many institutions consider TIC to be merely an ancillary initiative, rather than a core strategic priority (Wells, 2023).

Few universities have clearly articulated structured or systemic trauma-informed policies. For example, some institutions include statements on student mental health or wellness centers in their strategy; however, there is no clear integration of TIC principles related to safety, empowerment, or trust into curriculum, teaching strategies, or institutional policies (Wells, 2023). These studies also highlighted the overall lack of trauma-informed training and knowledge of pedagogical frameworks applicable to a student population from diverse cultural backgrounds (Thomas et al., 2019; Wells, 2023). Additionally, Alhalal and Alhalal (2025) found that there is a need to enhance trauma-informed care knowledge and its practical implementation among nurses.

This gap is quite evident in GCC universities, which focus on research productivity, global ranking standards, or expanded infrastructure with less exposure compared to TI and TIC research based on open-access databases search.

4.2. Mental health inequities and cultural gaps

A second key theme relates to the severity of mental health challenges faced by students and how socio-cultural factors influence the expression of these challenges, as well as institutional responses

to them (Salgado et al., 2024). High levels of stress, anxiety, and depression were noted in the GCC region, especially among female students and those from migrant and/or conflict-affected backgrounds (Alalalmeh et al., 2024; Al Marzouqi et al, 2022; Jogia et al, 2024; Smith & Nada, 2018).

While there is institutional recognition of the need, the mental health response of institutions was inadequate; many universities in the region lacked culturally competent mental health professionals, and students faced stigma when seeking psychological support (Elyamani & Hammoud, 2020). Limited knowledge of TIE among faculty and staff, as well as curricula that fail to consider the emotional ramifications of academic and social pressure, contributed to the challenge.

Furthermore, there is a movement within some institutions toward resilience-oriented programs and peer support initiatives, but these efforts tend to be discrete and lack coordinated strategic support. Additionally, the mismatch between student mental health needs and institutional readiness creates an urgent need for comprehensive and culturally informed TIC implementation (Goldstein et al., 2024; Yatchmenoff et al., 2017).

4.3. Fragmented IPE efforts

The analysis also identified fragmented or inconsistent approaches to embedding IPE into HE programs across the region. Some institutions have incorporated interdisciplinary or interprofessional courses or simulations in health-related faculties, but there was limited evidence of IPE being integrated into nonclinical programs (van Diggele et al., 2020). In addition, IPE initiatives tended to be project-based or pilot-based rather than embedded into a formal curriculum. Barriers to implementation included faculty unfamiliarity with IPE, practical challenges of course coordination across departments, and resistance from faculty due to existing academic silos (Bogossian et al., 2022; Lawlis et al., 2014). In the GCC region, even concrete cultural norms like hierarchical ranks and departmental boundaries can restrict examples of collaborative education practice.

However, there are a few promising examples from some universities, such as Qatar University, United Arab Emirates University, and American University of Sharjah, that have started to incorporate IPE-like simulations and workshops to cultivate empathy, communicate effectively, and advance ethical decision-making. While limited, these examples show the potential of IPE (Khalili et al., 2023; Lawlis et al., 2014) to establish trauma-informed and sustainable learning environments (Mcintyre et al., 2019).

4.4. Disparity between policy rhetoric and policy practice

While institutional and governmental policies may demonstrate commitment to inclusive and sustainable education through international policy frameworks such as the UN Sustainable Development Goals

(SDGs), our analysis of policy documents revealed a disconnection between the aspirational goals and the specifics of practice.

We observed that while many universities emphasized an inclusion and diversity agenda, both formal and informal curricula prevented staff from implementing trauma-informed approaches when designing student support services (Henshaw, 2022). Similarly, professional development opportunities for staff rarely included topics such as trauma, cultural humility, or inter-professional collaboration (Ranjbar et al., 2020).

In many documents, authors noted that technological innovation, infrastructure, and energy were aspects of sustainability but explicitly overlooked psychological safety and inclusion, as well as equity pedagogies—each of these elements being key aspects of sustainability in educational contexts (Berchin et al., 2021). This disjunction indicates sustainability is yet largely reflected through the limited lens of environmental or economic sustainability or some hybrid of educational policies, as against an integrated institutional lens that includes mental health, equity, and resilience as sub-elements of sustainability (Salgado et al., 2024).

4.5. New promise for integrating and improving education models

Although the limitations outlined above still exist, there is a strong momentum and solid intellectual foundation for developing a more integrated and sustainable model for HE.

Some key frameworks, such as TIME (Brown et al., 2020), ethics of care (Tronto, 2010), and multi-tiered systems of support (Berger, 2019), offer strategies for university adoption and campus use. Even though they employ different languages, all have emphasized faculty development, student authority, and control, and redesigned curricula to develop sustainable education.

A few universities from the GCC are even starting to implement these ideas. Documents related to universities in the UAE specifically mention pilot projects that integrate mental health awareness with skills training, resilience workshops, and peer-led initiatives (Alalalmeh et al., 2024; Ashour & Fatima, 2016). More broadly, cross-disciplinary relationships, both formal and informal, are starting to develop in fields such as public health, education, and social work, creating imaginative STEM learning experiences to some extent (Kayan-Fadlilmula et al., 2022).

These preliminary actions illustrate a meaningful opportunity to foster innovation within institutions. TIC and IPE align with the broader sustainability agenda, encouraging HE institutions to transition from mere symbols of transformational efforts to an integrated part of the academic mission that promotes societal change.

5. Discussion

The results of this research indicate a complex yet evolving landscape of HE institutions where there is a growing focus on TIC, IPE, and sustainability. This section will analyze the thematic findings using the frameworks of the ethics of care, cultural humility, and cumulative risk, while contextualizing the findings within the broader global conversations about educational transformation. The five themes of limited institutionalization of TIC, cultural and gendered inequities in student well-being, siloed IPE initiatives, policy-practice gaps, and emergent possibilities are further explored.

5.1. TIC as an ethical and structural necessity

The finding that TIC remains a standalone and symbolic practice in HE spaces is consistent with earlier literature indicating that while trauma-informed education is conceptually accepted, its implementation is weak (Carello & Butler, 2015; Henshaw, 2022). Institutions in the GCC largely continue to perceive trauma and mental health as a service issue, offering counselling and wellness programs but not integrating these values into the curriculum or other institutional processes.

This indicates a failure to fully realize the ethics of care. According to Tronto (2010), a caring institution must operate with attentiveness, responsibility, competence, responsiveness, and trustworthiness. Alongside these expectations outlined by Tronto, when we think about caring within a HE context, we would hope institutions not only acknowledge that students experience trauma, but also consider how to redesign their curricula, assessment models, and institutional policies to create opportunities for healing and capacity building in response to trauma. If such structural changes are absent, it appears that many universities still favor a performative, transactional model that prioritizes “metricizing” over student well-being.

Furthermore, the added complexities of cultural taboos around mental health in the GCC context also hinder open discussions about trauma (Alalalmeh et al., 2024; Al Marzouqi et al., 2022). Therefore, TIC must not be indiscriminately “imported” from Western institutions to be implemented in other contexts; instead, an Arab, Muslim-majority lens is necessary to consider the sociocultural implications when imagining TIC. Cultural humility, as advanced by Ranjbar et al. (2020), offers an important corrective to standardized practices. Its focus on self-reflection, recognizing professional power imbalances, and fostering purposeful partnerships and engagement with students, including those with marginalized or migrant backgrounds, is particularly relevant in Arab, Muslim-majority settings (Holland & Ford, 2020).

5.2. Mental health inequities and the ethics of responsiveness

This study demonstrates the high degree of variation in mental health experiences across student groups. Female and migrant students in the GCC report increased levels of anxiety, depression, and emotional distress. Although these trends parallel those globally, they are further exacerbated by the sociocultural context of the GCC and its historic past of conflict, migration, and loss of identity, for some groups (Jogia et al., 2024; Salgado et al., 2024; Smith & Nada, 2018).

The ethics of care calls for an institutional response that is attentive and competent, which means an expansion of counseling services, but also consideration of the pedagogical ramifications of trauma (Thomas et al., 2019). Faculty, for example, need training in how to develop courses that avoid cognitive overload, build psychological safety, and validate identity and resilience narratives. Although we know, for example, from the studies on TIC, that it has significant benefits in enhancing academic outcomes and retention (Cafaro et al., 2023), many GCC universities do not recognize trauma-informed teaching as essential; instead, the training is rare, optional, or largely absent.

Furthermore, institutions should also consider the impact of cumulative trauma and overlapping factors of pressure, isolation, and cultural disorientation on well-being. The cumulative risk paradigm (Linder & Sexton, 2011) provides a framework for understanding how intersecting factors can create compounded disadvantages for students. In our educational context, this indicates that trauma-supportive services are just as relevant as a universal design approach, rather than being limited to those with a documented clinical diagnosis, and should account for student diversity.

5.3. IPE as a driver for institutional change

IPE is gaining traction as a pedagogical strategy that emphasizes collaboration, collaborative interdependence, whole-systems thinking, and empathy (van Diggele et al., 2020; Iverson et al., 2018), all of which are more manageable within the trauma-informed and sustainable education framework (Wells, 2023). That said, there are challenges of limited use of IPE in the GCC, with interprofessional practice often confined to health sciences and rarely applied for intervention beyond the health sciences syllabus.

The extent of this limitation reflects structural limitations and the widely recognized fact that the cultural factors involved are significant. Structurally, institutional departments such as schools and faculties operate as independent units with incentives to maximize gains within their own academic programs and with cultural norms rooted in history that do not support cross-disciplinary initiatives. Culturally, IPE studies in HE institutions encounter power dynamics within universities and institutional hierarchies that discourage faculty from teaching and participating in collaborative educational activities (Lawlis et al., 2014).

5.4. Fragmentation of knowledge and learning opportunities is currently the result

The potential of interprofessional education (IPE) extends beyond health practices. The evidence presented here suggests that IPE may, in a broad educational sense, prepare students for complex real-world scenarios that require teamwork and diversity (Khalili et al., 2023; Silver & Leslie, 2017). By offering interprofessional courses—such as those in education, social work, and public health—students can engage with well-being case studies, collaboratively use policy and planning models, and apply culturally-based models for healthcare delivery (Tripon et al., 2023; Vindigni, 2023). Such frameworks would create opportunities for applied multidisciplinary education, helping to foster trauma-informed academic environments and promote sustainability through enhanced human capacity and social cohesion (Henshaw, 2022).

5.5. Sustainability: Moving from infrastructure to institutional culture

Another vital message in this research is the continuing disconnect between institutional rhetoric and institutional action regarding sustainability. Many universities claim to support the UN SDGs in their strategic plans and marketing materials but fail to implement sustainability as pedagogy, as part of campus culture, or in student services (Berchin et al., 2021).

This somewhat myopic understanding of sustainability, often limited to environmental initiatives or green infrastructure, overlooks the social and emotional aspects of educational ecosystems. If we are genuinely interested in sustainability in HE, we must foster learning environments that allow students and staff to flourish—and flourish means caring for one's mental health, addressing academic inequities, and using practices that enable learners to be included (Sundborg, 2019; Thomas et al., 2019; Tripon et al., 2023; van Diggele et al., 2020).

By connecting TIC and IPE to the sustainability discourse, universities can create more comprehensive models of sustainability. TIC affects retention and success, which are fundamental outcomes of sustainable education, while IPE fosters collaboration needed to address global complexity. If these elements are integrated, we could shift toward systems change instead of performative sustainability.

5.6. From fragmentation to integration: A vehicle for innovation

Despite the problems outlined above, there are signs of progress and potential; some institutions within the GCC are rolling out pilot projects, faculty members have developed independent initiatives, or interdisciplinary programs are emerging. While these initiatives are limited in scale, they represent a movement toward a greater understanding that sustainable, ethical, and student-centered learning is necessary (Alshammari et al., 2023; Fadhil et al., 2022; Kayan-Fadlelmula et al., 2022).

Overall, the three frameworks discussed in this piece (ethics of care, cultural humility, and cumulative risk) provide practical opportunities to move toward this new future, and all three frameworks are compatible with:

- Putting relationships at the center of the design of education;
- Recognizing intersecting vulnerabilities;
- Shared power and responsibilities across institutional roles; and
- Encouraging critical self-reflection and sensitivity to context.

These guidelines are crucial for the GCC sector, which has diverse student populations, rapid institutional growth, and sociocultural turbulence that demands reflection in educational leadership.

Moreover, faculty development may offer an even better opportunity for intervention. Teams of educators introducing and training educators in TIC, interdisciplinary, culturally responsive care create a ripple effect across institutions. What if education for TIC were part of onboarding for new faculty, included in a university teaching certification, or integrated into faculty development? These ideas could, to some extent, normalize these interventions, contributing to cultural change that leads to more sustainable learning in HE.

6. Conclusion

This study sought to understand the relatedness of TIC, IPE, and sustainability in HE, considering the unique culture and formation of institutions of higher learning in the GCC region. A thematic document review of recent academic literature and institutional documents found a mismatch between the increasing awareness of these frameworks and their operationalization into educational systems.

Despite the growing conversation about TIC and IPE globally, we found that implementation in HE institutions across the GCC is inconsistent and unstable. While some universities are adopting initiatives on mental health and interdisciplinary approaches to learning, many remain incoherent, shallow, and avoidant of sustainability. Most institutions still do not treat trauma and student well-being as integral to academic success and institutional resilience.

The study highlighted that mental health, intellectual, and service disparities—especially for migrant students and female students—are exacerbated by cultural stigma, limited mental health services, and a lack of faculty preparedness. While IPE aligns in theory with TIC and sustainability aspects, it remains very focused on clinical pedagogical contexts, with few experiences translating to preclinical or general education contexts. In addition, institutional documents may contain statements about inclusive, sustainable values; however, rarely does an institution implement structural changes, training, or policy alignments to address gaps within existing institutional bias.

However, we have identified a clear and emerging opportunity to move from rhetoric to action. By committing to TIC and IPE as part of a more expansive sustainability framework, a GCC-based HE institution could implement measures to create environments that are academically rigorous, emotionally safe, socially inclusive, and ethically sound.

6.1. Recommendations

Based on the findings and discussion, we recommend the following to policymakers, educational leaders, faculty members, and graduate researchers.

6.1.1. Institution-wide integration of trauma-informed practices

- Take a whole-institution approach to TIC that integrates trauma-informed principles throughout the curriculum, faculty development, student services, and institutional policy.
- Context-sensitive frameworks need to be developed that align with the sociocultural realities of institutions in the GCC, including local constructions of trauma, mental health, and help-seeking behavior.

6.1.2. Faculty development initiatives

- Engage in ongoing, structured professional learning focused on trauma-informed pedagogy, cultural humility, and inclusive pedagogy.
- Encourage interdisciplinary teaching and research aligned with TIC and IPE principles.

6.1.3. Mainstream IPE across disciplines

- Expand beyond health faculties by offering IPE modules to non-health disciplines such as education, the social sciences, business, and engineering.
- Create institutional spaces for collaborative learning, such as interprofessional simulation labs or shared field work.

6.1.4. Reframe sustainability in education

- Re-conceptualize sustainability in HE to include mental health, inclusive learning, and social resilience.

- Align with university strategic plans and quality assurance mechanisms such as SDG 4 (inclusive education) and SDG 3 (health and well-being).

6.1.5. Advocate for policies with participatory and student-centered approaches

- Involve students in policy development, curriculum renewal, and peer-driven well-being initiatives (particularly marginalized students).
- Utilize feedback loops and reflective spaces for students and staff to collaboratively explore trauma-informed practices.
- Encourage broader research and monitoring work on TIC and IPE regarding students' academic outcomes, mental health, and retention in HE.
- Foster the development of assessment tools for trauma-informed and inclusive practices and support institution-wide measures to define what constitutes trauma-informed and inclusive practice.

6.1.6. Develop a mental health infrastructure

- Improve accessibility to culturally competent counselling and reduce stigma through awareness efforts, mental health literacy initiatives, and student participation.
- Integrate mental health services into campus life instead of treating them as isolated offerings.

6.1.7. Foster regional collaboration

- Enable collaboration among GCC institutions through regional dialogue, shared research, and faculty development initiatives to scale effective practices.

6.2. Limitations

Despite the detailed conceptual and practical synthesis this study has accomplished, it is not without limitations: the review was restricted to documentary and literature sources, and therefore, may not reflect the experiences of students, faculty, or administrators.

The reliance on publicly available policy documents might have led to overlooking some internal initiatives or informal practices if they were not documented institutionally. While manual thematic analysis is rigorous, it involves some subjectivity, which could have affected the consistency of the thematic development. This research focused on the GCC, acknowledging that significant findings might be

relevant in similar educational contexts but are not universally applicable. Future research should include original empirical studies involving stakeholders through interviews, surveys, or participatory methods to verify and expand upon the insights presented here.

6.3. Practical implications

Integrating TIC, IPE, and sustainability into HE is much more than an academic or policy ambition—it represents a significant and actionable relevance to the everyday practices of universities. This is particularly relevant to the sociocultural and institutional realities within the GCC. Here, the practical implications from the study’s findings for potential application are outlined:

6.3.1. Curriculum design and pedagogical practice

- Faculty should be supported to redesign course materials in a trauma-informed way, including providing opportunities for psychological safety, flexible assessments, and recognizing variations in learning.
- Trauma-sensitive pedagogy can be integrated across different settings through various reflective activities, collaborative learning methods, and curricula that recognize students’ lived experiences.
- IPE can be put into practice through collaborative and interprofessional projects, group learning, and case simulations that prepare students for collaborative, culturally responsive practice.

6.3.2. Faculty development and capacity building

- Training in trauma-informed and IPE pedagogy should be embedded in the institution’s faculty induction and ongoing professional development plans.
- Creating communities of practice within and across departments would promote the sharing of practice and experiences, cultivate care in teaching, and build a collective commitment to inclusive education.
- Training should include cultural humility and inclusive communication strategies to meet the diverse backgrounds and needs of GCC student populations.

6.3.3. Student services and mental health support

- Counselling and wellness centers can be reformulated to reflect trauma-informed service delivery that prioritizes students’ safety, choice, and empowerment.

- Institutions can reimagine mental health services as more than just reactive solutions by integrating well-being into students' daily routines, such as wellness workshops, peer mentoring, and resilience plans.
- Approaches should be sensitive to language and culture and must be prioritized when working with students who are female and from a migrant or conflict-affected background.

6.3.4. Institutional policy and strategic planning

- Strategic plans and quality assurance frameworks should articulate institutional commitments to TIC and IPE with clear links to student success, diversity, and sustainability in long-term strategies.
- Policies must reinforce that academic affairs, student services, and administration collaborate within and across organizational boundaries to maintain coherence and support system-level implementation.
- Monitoring data systems can enhance the ongoing support of trauma-informed approaches to students' mental health and engagement.

6.3.5. Inclusive leadership and governance

- Leaders need to continually model care-based, inclusive values by clearly promoting trauma-informed actions and collaboration across departments.
- Leadership development for deans, heads of departments, and program coordinators should focus on trauma-informed leadership and inclusive decision-making.
- Those involved in forming an institutional committee reflecting TIC and IPE will be able to coordinate actions, oversee progress, and track development across their units.

6.3.6. Community engagement and regional collaboration

- Universities should expand their reach beyond their campus by engaging local stakeholders, such as healthcare organizations, NGOs, communities, and co-developing trauma-informed educational offerings.
- Collaboration with various other GCC institutions can foster innovations in the regional adaptation of IPE and TIC, providing the context to develop innovative learning, working, and collaborative environments.

- Universities should partner with bidders, regional accreditation agencies, and funding bodies to reformulate their approaches and responsibilities by institutionalizing inclusive and sustainable education metrics.

These practical implications have demonstrated possibilities, but a significant leap is needed to move from an abstract understanding to practical implementation that considers context and is based on the needs and desires of stakeholders. By taking action, HE institutions will help shift the culture around the students' current needs and long-term future as active citizens of the world.

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