

RESEARCH ARTICLE

Simulation-based therapeutic patient education in diabetes: The SIM-TPE model: Simulation in therapeutic patient education for diabetes**Yassine Errahali¹ ✉, Ikhlass Lakssir², Hamza Eljadi² and Azzelarab Meftah²**¹ Department of Endocrinology and Diabetology, Fifth Medical and Surgical Centre of the Royal Armed Forces, Errachidia; Faculty of Medicine and Pharmacy, Mohammed V University in Rabat, Rabat, Morocco.² Department of Endocrinology and Diabetology, Avicenne Military Hospital; Faculty of Medicine and Pharmacy of Marrakech, Cadi Ayyad University, Marrakech, Morocco.**Corresponding Author:** Yassine Errahali, MD; **E-mail:** yassine0388@gmail.com

ABSTRACT

Therapeutic patient education (TPE) is a core component of diabetes care. However, many programs remain organized around topic-based workshops in which information precedes action. Although this approach conveys useful knowledge, it does not always establish whether people with diabetes can mobilize that knowledge when faced with a real, unexpected, or complex situation. To review the potential contribution of simulation to TPE in diabetes and to propose a structured methodological framework, SIM-TPE Diabetes, in which the simulated problem situation becomes the basic pedagogical unit rather than a primarily didactic workshop. A targeted narrative review was conducted using international guidance on TPE and diabetes self-management education and support (DSMES), contemporary healthcare simulation standards, and key publications on patient-directed simulation, serious games, and experiential approaches in diabetes. The synthesis was used to develop a reproducible and adaptable educational framework. This was a narrative, not systematic, review; no formal meta-analysis or risk-of-bias assessment was undertaken. SIM-TPE Diabetes comprises seven steps: situation-centered educational assessment, selection of observable competencies, prebriefing, a simulated problem situation, structured debriefing, re-simulation, and transfer to daily life. The curriculum is organized around lived situations—such as hypoglycemia, unexpected hyperglycemia, interpretation of glucose data, eating, physical activity, treatment management, intercurrent illness, and complex real-life contexts—rather than around isolated topics. The DÉCLIC debriefing structure (Describe, Explore, Clarify, Link, Identify, Commit) is proposed as a simple patient-adapted framework. Simulation may bridge the gap between knowing and acting. SIM-TPE Diabetes shifts the educational focus from information delivery toward experience, reasoning, decision-making, and transfer. The model is intentionally feasible with low-technology resources; its comparative effectiveness, acceptability, reproducibility, and optimal implementation require prospective evaluation.

KEYWORDS

Diabetes; therapeutic patient education; simulation; self-management; experiential learning; debriefing.

ARTICLE INFORMATION

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1. Introduction

Diabetes requires people to make a continuous series of decisions, most of which occur far from the clinical setting. They must interpret glucose results, organize treatment, choose meals, anticipate physical activity, respond to hypoglycemia, cope with intercurrent illness, and adapt diabetes management to the constraints of everyday life. In this context, autonomy depends not only on the amount of information received but, more importantly, on the ability to mobilize that information at the right time and in a specific situation.

The World Health Organization describes TPE as a structured, person-centered learning process intended to support self-management of chronic conditions by building on patients' own resources and those of their environment (World Health Organization Regional Office for Europe, 2023). In diabetes, the national standards for DSMES similarly emphasize informed decision-making, problem-solving, self-care behaviors, and the confidence required to manage the condition in daily life (Davis et al., 2022). The American Diabetes Association (ADA) Standards of Care in Diabetes—2026 reinforce this orientation by recommending individualized, culturally and socially appropriate DSMES at key stages in the course of diabetes (American Diabetes Association Professional Practice Committee, 2026).

These goals invite us to move beyond the traditional question, “Does the patient know the correct answer?” toward a more clinically relevant question: “What does the person actually do when a decision must be made?” A person may accurately describe how to respond to hypoglycemia yet hesitate or act differently when a similar event occurs unexpectedly. Likewise, someone may understand general principles of healthy eating but struggle to apply them in a restaurant, at a family meal, or while traveling.

Simulation is particularly relevant at this interface between knowledge and action. It creates a protected learning space in which the patient can act, explain the reasoning behind an action, make errors without clinical consequences, reflect on what happened, and try again. This approach is consistent with experiential learning, in which concrete experience and reflective observation contribute to the development of practical competence (Kolb, 1984).

The proposal developed in this article goes beyond adding an occasional simulation session to an existing educational program. Instead, it uses the problem situation as the basic pedagogical unit and organizes the educational pathway around repeated cycles of simulation, debriefing, re-simulation, and transfer. We refer to this framework as SIM-TPE Diabetes.

2. objectives of the review

This narrative review has two objectives. First, it summarizes the conceptual rationale and available evidence supporting the use of simulation in TPE for people with diabetes. Second, it proposes a complete, reproducible, and adaptable pedagogical protocol in which simulation structures the educational program itself rather than serving as an additional workshop.

SIM-TPE Diabetes is not presented as an already validated method or as superior to all existing forms of TPE. It is a methodological model grounded in established educational principles, contemporary simulation standards, and the limited but growing literature on simulation in patient education. Its comparative added value must be established in future studies.

3. methodology of the narrative review

A targeted narrative literature review was undertaken to identify sources relevant to the construction of the model. The main domains were TPE and diabetes self-management support; healthcare simulation; simulation delivered directly to patients; debriefing; experiential learning; and digital or game-based approaches intended to increase engagement in self-management.

Searches prioritized PubMed/MEDLINE, institutional resources from the World Health Organization, the American Diabetes Association, and the International Nursing Association for Clinical Simulation and Learning (INACSL), as well as reference lists of relevant articles. Search concepts included diabetes, therapeutic patient education, patient education, self-management, DSMES, simulation, simulation-based education, debriefing, experiential learning, serious games, and gamification. International recommendations, expert consensus documents, studies specifically addressing simulation in TPE, and systematic reviews were prioritized.

The synthesis was deliberately narrative. Its purpose was to construct a conceptual and practical framework rather than to estimate a pooled intervention effect. Accordingly, the review did not use a systematic-review protocol, formal study-selection flow diagram, quantitative synthesis, or structured risk-of-bias assessment.

4. why move beyond the topic-based workshop model?

Conventional educational workshops have genuine value. They help organize information, facilitate group discussion, allow patients to compare experiences, and provide practical reference points. The issue is therefore not the workshop itself, but the fact that it may become the default pedagogical unit: one topic, one explanation, a few questions, an exercise, and a summary.

When used alone, this organization has four main limitations. First, it often prioritizes declarative knowledge: the patient explains what should be done without having to do it. Second, it separates diabetes into topics even though everyday life combines food, physical activity, medication, glucose monitoring, and social constraints. Third, the patient’s reasoning remains partly invisible: a correct answer does not reveal how that answer was reached. Finally, transfer to real life is usually expected rather than explicitly trained.

Simulation does not eliminate theoretical input; it changes its timing and function. Information is introduced when it becomes necessary to understand an experience, correct a line of reasoning, or consolidate a decision. The pedagogical sequence shifts from “explain, then apply” toward “experience, analyze, understand, and try again.”

4.1. two different pedagogical logics

Conventional educational workshop	SIM-TPE Diabetes
Content is the starting point	A lived problem situation is the starting point
The healthcare professional explains, then asks questions	The patient acts, then explains the reasoning behind the action
Topics are often addressed separately	Several dimensions can be integrated into the same situation
Errors are rapidly corrected	A safe error becomes material for learning

Conventional educational workshop	SIM-TPE Diabetes
Assessment focuses mainly on understanding	Assessment focuses on mobilization of observable competencies
Transfer to home is expected	Transfer is practiced, verbalized, and revisited at follow-up

Table 1. Schematic comparison of a conventional educational workshop and the SIM-TPE Diabetes model.

5. what does the literature contribute to simulation in TPE?

Healthcare simulation was developed primarily for the education of health professionals. Its principles can nevertheless be adapted when the learner is a patient, provided that the person's status, potential vulnerability, and the therapeutic purpose of education are explicitly considered. Penneçot et al. (2020) addressed this issue through a consensus process involving expert patients, TPE professionals, and simulation specialists. The group formulated 26 specific recommendations and concluded that simulation could add value to TPE, while emphasizing the need to adapt the setting, equipment, timing, objectives, and ethical safeguards to the patient-learner.

In diabetes, Pennecot et al. (2022) subsequently piloted a simulation sequence in insulin-treated adults who had completed a TPE program. The intervention combined prebriefing, simulation of a hypoglycemia-related situation, and group debriefing. Twenty-three patients participated; perceived usefulness and satisfaction were high, and no major organizational barrier was identified. The study primarily supports the feasibility and acceptability of simulation delivered directly to patients.

Another study involving 100 adults with type 2 diabetes combined simulation-based education and case management with usual diabetes self-management education. Improvements were reported in several self-care behaviors and glycemic outcomes in the intervention group (Ji et al., 2019). Interpretation should remain cautious because simulation was embedded within a multicomponent intervention and its independent effect could not be isolated.

Digital interventions incorporating game mechanisms represent another form of active learning. The systematic review by Ossenbrink et al. (2023) found potentially favorable signals for selected health behaviors and clinical outcomes, but also substantial heterogeneity and frequent methodological limitations. These findings support the broader concept of active, contextualized learning without establishing the superiority of any single format.

Finally, the Healthcare Simulation Standards of Best Practice® revised in 2025 provide a useful operational framework that includes measurable objectives, prebriefing, facilitation, professional integrity, and a planned debriefing process (INACSL Standards Committee, 2025a, 2025b, 2025c, 2025d). SIM-TPE Diabetes adopts these principles while adapting them to the needs of people living with chronic disease.

6. the core principle of SIM-TPE diabetes

The core principle is straightforward: every major educational need should, whenever appropriate, be reformulated as a situation in which the patient must make a decision or perform an action. The objective is no longer only that the patient "knows," but that the patient can "know how to act" in a concrete context.

For example, rather than announcing, "Today we are going to discuss hypoglycemia," the facilitator may propose: "You are at home. You feel shaky and very hungry. Your glucose meter reads 62 mg/dL (3.4 mmol/L). Show us what you would do." The theoretical content is not removed; it is mobilized during debriefing, when it can be linked to an action, a hesitation, or an underlying belief.

This change in starting point gives simulation a different function from that of a final exercise. It becomes the organizing structure of the educational program.

Proposed pedagogical cycle for SIM-TPE Diabetes

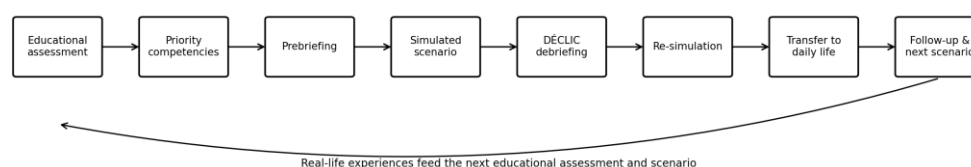


Figure 1. Proposed pedagogical cycle for SIM-TPE Diabetes. The pathway is iterative: real-life experiences feed the next educational assessment and subsequent scenarios.

7. the seven steps of the SIM-TPE diabetes model

7.1. step 1: situation-centered educational assessment

The program begins with an individualized educational assessment. It explores knowledge, treatment, glucose monitoring, food habits, physical activity, previously experienced difficulties, beliefs, personal resources, family or occupational constraints, health

literacy, and the patient's priorities. The objective is not to compile a list of "incorrect behaviors," but to identify situations in which the person wishes or needs to gain autonomy.

A useful question is: "In which situations related to your diabetes do you feel least confident?" Responses may involve hypoglycemia, eating away from home, exercise, acute illness, travel, a missed dose, or interpretation of continuous glucose monitoring (CGM) data. These situations become the raw material of the program.

7.2. step 2: convert needs into observable competencies

Objectives are written with action verbs. "Know about hypoglycemia" becomes "recognize a situation consistent with hypoglycemia and initiate an appropriate response." "Understand glucose monitoring" becomes "interpret a glucose result in context and decide whether action is required." "Know the principles of healthy eating" becomes "construct a reasonable meal choice from real-world options."

This wording facilitates both scenario design and formative assessment. A competency becomes visible because it is expressed through a decision, an action, or an explanation of reasoning.

7.3. step 3: prebriefing and psychological safety

Prebriefing prepares the patient for the simulation. INACSL standards define it as a period of preparation and briefing that clarifies the rules, content, and functioning of the simulation experience (INACSL Standards Committee, 2025b). In TPE, prebriefing also has a relational function: it should reduce the fear of being judged.

The facilitator may say: "We are going to recreate situations from everyday life. This is not an examination. We want to understand what you would do and why. You may think aloud. If something does not work, we will analyze it together."

The distinction between simulation and real medical prescription must be explicit. Glucose values, medication lists, CGM screens, and situations used in the scenario are fictitious or pedagogical. No real treatment change should be inferred from a scenario without validation by the clinical team.

7.4. step 4: simulated problem situation

The scenario should be brief, realistic, and focused on one or two priority competencies. A 5- to 15-minute micro-simulation is often sufficient. Technological sophistication is secondary. Scenario cards, a demonstration glucose meter, a fictitious CGM screenshot, food packaging, a training injection device, a simulated prescription, or photographs may be enough.

The key criterion is decisional fidelity: the situation should resemble a problem the patient could genuinely encounter and should require a meaningful choice. The facilitator observes without converting every hesitation into an immediate lecture. A safe error can remain visible long enough for its underlying logic to be explored during debriefing.

7.5. step 5: DÉCLIC debriefing

Debriefing is the core of the process. The 2025 simulation standards state that a simulation-based activity should include a planned process of debriefing, feedback, and/or guided reflection (INACSL Standards Committee, 2025c). For TPE, we propose a simple six-step structure called DÉCLIC. This framework is a methodological proposal by the authors and has not yet been validated as an assessment or debriefing instrument.

For an English-language audience, the original DÉCLIC mnemonic can be retained while using six operational verbs: Describe, Explore, Clarify, Link, Identify, and Commit.

Step	Example question	Educational purpose
D — Describe	"What happened?"	Reconstruct the situation without judgment.
É — Explore	"What were you thinking at that moment?"	Make reasoning, beliefs, and assumptions visible.
C — Clarify	"Why was this action appropriate or inappropriate in this situation?"	Connect the action with mechanisms and consequences.
L — Link	"Have you experienced something similar before?"	Link learning to personal experience.
I — Identify	"What is the main message you want to remember?"	Elicit a transferable principle.
C — Commit	"If this happens tomorrow, what will you do?"	Translate learning into a concrete real-life action.

Table 2. Proposed DÉCLIC debriefing structure adapted to therapeutic patient education.

Debriefing should not become a second lecture. The healthcare professional's role is first to elicit the patient's reasoning, understand it, reinforce effective strategies, and then correct what needs to be corrected. Information is provided selectively, at the point where it answers a question generated by the experience.

7.6. step 6: re-simulation

Re-simulation is a central component of the model. After debriefing, the patient encounters a similar but non-identical situation. This second attempt assesses whether the underlying principle has been understood beyond memorization of a single answer. An initial scenario may involve an unexpected glucose result after a meal, whereas the re-simulation presents an unusual result before planned physical activity.

The sequence therefore becomes: try, reflect, understand, adjust, and try again. It operationalizes the transition from information to competence.

7.7. step 7: transfer to daily life and follow-up

Before leaving the session, the patient is invited to answer three questions: "What have I learned?", "In what situation will this be useful to me?", and "What will I do concretely?" A realistic action goal is then formulated. At a later contact, the healthcare professional revisits situations that actually occurred: "Did you encounter a comparable problem? How did you manage it?"

Real life thus becomes an extension of the program and a source of subsequent scenarios. The model is cyclical rather than linear.

8. a complete curriculum organized around situations

SIM-TPE Diabetes replaces a sequence of isolated topics with families of situations. Each module integrates content that is often taught separately. Personalization remains essential: not every patient needs every scenario, and each scenario should be adapted to treatment, individualized glycemic goals, health literacy, and living context.

Module	Starting situation	Competencies mobilized	Simple materials
1. "My glucose result surprises me"	Hypoglycemia, elevated glucose, discordant reading, or unexpected CGM trend.	Recognize and interpret the situation; identify context; act according to the individualized plan; know when to seek help.	Glucose cards, demonstration meter, fictitious CGM screenshots.
2. "I manage my treatment"	Missed dose, schedule change, injectable device, or travel.	Organize and use treatment safely; handle devices correctly; recognize personal limits.	Simulated prescription, mock pill organizer, training injection device.
3. "I eat in real life"	Restaurant, family meal, buffet, grocery shopping, or snack.	Identify carbohydrate sources; reason about portions; integrate preferences, treatment, and context.	Photographs, food packages, menus.
4. "I am physically active"	Planned or unplanned walking, post-meal activity, or exercise with an unusual glucose value.	Anticipate; monitor; contextualize risk; apply the individualized plan.	Activity cards, schedules, simulated glucose results.
5. "I am ill"	Fever, reduced appetite, or unusual glucose readings.	Increase monitoring according to the care plan; maintain appropriate hydration; recognize warning signs; seek advice when needed.	Illness card, training thermometer, simulated results.
6. "I prevent complications"	Foot inspection, follow-up appointment, or a new abnormality.	Observe; recognize a situation requiring professional assessment; organize follow-up.	Foot model or photograph, follow-up calendar.
7. "My real life is complex"	Travel, work, celebrations, fasting when relevant, or a change in routine.	Integrate treatment, eating, activity, monitoring, and planning in a complex context.	Mock travel bag, schedule, menus, demonstration supplies.

Table 3. Example SIM-TPE Diabetes curriculum organized around lived situations rather than isolated topics.

9. worked example: transforming a "hypoglycemia workshop" into a SIM-TPE sequence

9.1. initial situation

The patient receives a scenario card: "You are at home. You feel shaky, sweaty, and very hungry. Your glucose meter reads 62 mg/dL (3.4 mmol/L), and your next meal is not imminent. Show us what you would do." The pedagogical version of the materials the patient might have at home is made available.

9.2. observation

The facilitator observes without expecting perfect performance: Does the patient identify the problem? Use the glucose information? Choose an action consistent with the individualized education and treatment plan? Plan to reassess the situation? Know when to seek help?

9.3. debriefing

The DÉCLIC debriefing explores perception of symptoms, interpretation of the glucose value, the rationale for the chosen action, previous experiences, and points of uncertainty. Management principles are then clarified and individualized. Safety messages are explicitly reviewed before the session ends.

9.4. re-simulation

A new situation is then proposed, using different symptoms, a different time of day, or planned physical activity. The objective is to determine whether the patient can transfer the principle to a new situation rather than mechanically reproduce a memorized response.

10. practical organization of a SIM-TPE program

The model can be used individually or in small groups. In group settings, four to six participants generally allow active participation while preserving sufficient time for debriefing. A 75- to 90-minute session can include two micro-simulations, debriefing, a re-simulation, and explicit transfer planning. Several sessions may be scheduled according to the priority competencies identified during the educational assessment.

Approximate time	Content
10 min	Welcome, objectives, and prebriefing.
10 min	First micro-simulation.
15 min	DÉCLIC debriefing.
10 min	Second micro-simulation.
15 min	Debriefing.
10 min	Re-simulation / scenario variation.
10 min	Group synthesis.
10 min	Individual transfer plan.

Table 4. Example organization of a 90-minute SIM-TPE session.

11. how can the entire group remain actively involved?

A potential limitation of group simulation is that one patient acts while the others merely watch. SIM-TPE therefore emphasizes parallel cognitive participation. While one participant engages in the scenario, the others receive an observation task: identify the information that guided the decision, detect a moment of hesitation, propose an alternative strategy, or specify when they would have sought help. Roles are then rotated.

When space and resources allow, several tabletop micro-simulations can be run in parallel. Each patient should ideally experience both learning positions: acting and observing/reflecting.

12. the healthcare professional's role changes

In a predominantly transmissive educational model, the healthcare professional is primarily the person who knows and explains. In SIM-TPE, the professional remains a content expert but also becomes a scenario designer, facilitator, observer, and debriefer. The role is not to allow a potentially dangerous misunderstanding to persist, but neither is it to interrupt every hesitation before it reveals a relevant belief or reasoning process.

The central question becomes less "Did the patient give the correct answer?" and more "What led the patient to this decision, and how can we help build a safer and more transferable strategy?" This role requires at least basic training in prebriefing, facilitation, and debriefing (INACSL Standards Committee, 2025a, 2025b, 2025c, 2025d).

13. assessment: keep it educational rather than exam-like

The program should not become an examination. Assessment is primarily formative: it helps the patient and the healthcare professional identify what is already mastered and what requires reinforcement. A cross-scenario grid can be used with three levels: achieved, developing, and needs reinforcement.

Observed competency	Achieved	Developing	Needs reinforcement
Identifies the main problem	☐	☐	☐
Uses the available information	☐	☐	☐
Explains the reasoning behind the decision	☐	☐	☐
Chooses an action consistent with the individualized care plan	☐	☐	☐
Recognizes personal limits and knows when to seek help	☐	☐	☐
Transfers the principle to a different situation	☐	☐	☐

Table 5. Example cross-scenario formative assessment grid.

This assessment can be supplemented by self-rated confidence, patient feedback, and review at follow-up of a situation actually encountered in daily life. HbA1c remains an important clinical outcome, but it should not be treated as the sole indicator of educational quality because it is influenced by many determinants beyond the educational intervention itself.

14. low-technology resources are often sufficient

One advantage of this approach is that it does not depend on a high-fidelity simulator. In many situations, a scenario card, a fictitious screenshot, a demonstration glucose meter, food packaging, a training injection device, or a simple schedule is sufficient. The element that must be faithful is not necessarily the technology; it is the decision demanded of the patient.

It is therefore useful to distinguish material fidelity from decisional fidelity. In TPE, decisional fidelity is often more important: the scenario should reproduce the information, uncertainties, and constraints that make a real-world decision difficult.

15. cultural, social, and linguistic adaptation

A scenario is realistic only if it resembles the patient's life. DSMES standards emphasize individualized and culturally appropriate education (American Diabetes Association Professional Practice Committee, 2026; Davis et al., 2022). Scenarios should therefore consider local eating patterns, language, health literacy, work schedules, family environment, access to technology, financial resources, and relevant social or religious practices.

The principle can be summarized as follows: standardize the pedagogical process, personalize the scenario. Prebriefing, debriefing structure, and safety requirements can remain stable, while scenario content is adapted to the individual.

16. psychological safety and ethical requirements

Simulation can expose an error or difficulty in front of others and may trigger embarrassment, anxiety, or a sense of failure. Psychological safety is therefore essential. The patient should know that the activity is not a judgment, may be stopped, and treats error as information for learning. Comparison between participants, deliberate failure induction, and unnecessarily anxiety-provoking scenarios should be avoided.

The consensus on simulation in TPE also emphasizes specific ethical safeguards (Penneçot et al., 2020). Programs should protect confidentiality, obtain consent to participate, clearly distinguish simulated situations from actual medical prescriptions, and correct before the end of the session any misunderstanding that could expose the patient to risk in daily life.

17. which situations are actually worth simulating?

Not everything needs to be simulated. Purely factual information may be conveyed more efficiently through explanation, written material, or a short video. Simulation is most relevant when the patient must make a decision, manage uncertainty, perform a technical task, integrate several factors, or communicate effectively.

A practical rule can guide teams: simulate decisions, not information. This principle prevents over-scenarization and keeps simulation focused on situations in which it offers genuine pedagogical added value.

18. the role of digital tools and serious games

Simulation can be conducted face to face, but its principles can also be transferred to digital formats: branching cases, virtual patients, interactive scenarios, simulated CGM trends, sequential smartphone decisions, or serious games. Reviews of game-component interventions in type 2 diabetes suggest possible benefits for physical activity, selected eating behaviors, health literacy, and some clinical outcomes, while also reporting substantial heterogeneity and considerable risk of bias (Ossenbrink et al., 2023).

Digital technology should therefore be viewed as a delivery medium rather than as the definition of simulation. A well-designed paper scenario followed by high-quality debriefing may be educationally richer than a sophisticated application without guided reflection.

19. quality indicators for a SIM-TPE program

Even outside a research protocol, a team can monitor simple quality indicators: participation and completion rates, competencies repeatedly rated as needing reinforcement, satisfaction, perceived psychological safety, perceived usefulness, reported transfer to daily life, actual session duration, adherence to prebriefing and debriefing, and new scenarios suggested by patients.

These indicators are intended to improve the program, not to rank patients. Patient experience is particularly valuable: a situation described by patients as frequent and difficult may become a more relevant future scenario than one designed exclusively by professionals.

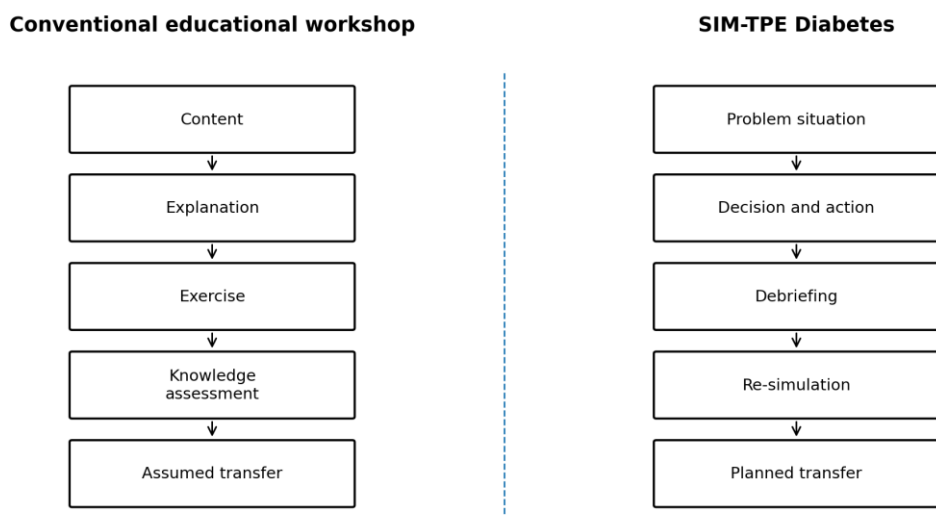


Figure 2. Proposed paradigm shift: from a content-centered workshop to a pathway centered on situation, action, reflection, and planned transfer.

20. potential strengths of the model

SIM-TPE Diabetes has several theoretical strengths. It positions the patient as an active learner, contextualizes knowledge, makes reasoning visible, allows learning from errors without clinical consequences, enables correction followed immediately by another attempt, and facilitates personalization. It is also compatible with limited-resource settings because educational quality depends more on scenario relevance and debriefing quality than on technological sophistication.

The model also creates pedagogical alignment: objectives, activities, and assessment use the same language of observable competence. If the objective is “to decide safely when confronted with an unexpected glucose value,” both learning and assessment focus on decision-making in context rather than recall of a lecture.

21. limitations and points of caution

This proposal has several limitations. First, the comparative effectiveness of a simulation-centered program versus well-designed conventional TPE has not been established. Evidence specific to people with diabetes remains limited (Ji et al., 2019; Penneçot et al., 2020; Pennecot et al., 2022). Second, debriefing is a professional skill that requires training; a relevant scenario followed by poor debriefing may lose much of its educational value.

Simulation may also make some participants uncomfortable, particularly in groups. Options to observe before participating, use small groups, and allow voluntary role selection should be available. Attempting to simulate every educational objective would also be counterproductive; some knowledge is more efficiently conveyed by other methods.

Finally, both the DÉCLIC framework and the overall SIM-TPE Diabetes architecture are proposed here as methodological tools. Their acceptability, reproducibility, impact on patient competencies, implementation burden, and cost should be studied before they can be considered standards of educational care.

22. research perspectives

Several questions require investigation: Which competencies benefit most from simulation? How much repetition is useful? Which patients prefer individual versus group formats? How long are acquired competencies retained? What is the most efficient way to train educators in debriefing? Which simulated scenarios are most likely to transfer to daily life?

Future work should also involve people with diabetes in scenario design. Their lived experience is likely to be the best source of authentic situations. After an initial phase assessing feasibility, acceptability, and pedagogical validity, comparative studies could evaluate the incremental value of simulation over structured conventional TPE without reducing outcome assessment to HbA1c alone.

23. conclusion

The ultimate goal of TPE in diabetes is not for the patient to recite a management rule, but to recognize a situation, reason through it, make a decision, act safely, and seek help when the limits of autonomy are reached. This is precisely the educational space that simulation can address.

SIM-TPE Diabetes therefore proposes a shift in the center of gravity of the educational program. Instead of a sequence of workshops in which content is the starting point, the pathway begins with a real-life problem situation. The patient acts, reasoning becomes visible, debriefing transforms experience into learning, re-simulation consolidates competence, and transfer is explicitly prepared.

The model does not require sophisticated technology. Its essential resources are realistic scenarios, professionals trained in facilitation and debriefing, a psychologically safe environment, and active patient participation. In this sense, simulation may become less an additional “innovative workshop” than a different way of organizing therapeutic education: starting from the patient’s life in order to strengthen the capacity to act.

Key messages

- TPE in diabetes should develop the capacity to act, not knowledge alone.
- Simulation is particularly relevant for decisions, unexpected events, uncertainty, and complex situations.
- In SIM-TPE Diabetes, the problem situation replaces the teaching topic as the basic pedagogical unit.
- Prebriefing, psychological safety, and structured debriefing are essential.
- Re-simulation turns correction into a new experience and supports transfer.
- Decisional fidelity is more important than technological sophistication.
- The pedagogical process can be standardized while scenarios are personalized to the clinical, cultural, social, and linguistic context.
- SIM-TPE Diabetes is a methodological proposal that now requires feasibility testing, validation, and comparative evaluation.

Statements and Declarations

Funding

This research received no external funding.

Conflicts of interest

The authors declare no conflict of interest.

Ethics statement

This narrative review and methodological proposal did not involve human participants, identifiable personal data, or original patient-level data. Ethics committee approval was therefore not required for the manuscript itself. Any future prospective evaluation of the SIM-TPE Diabetes program should follow applicable institutional and ethical requirements.

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Figure legends

Figure 1. Proposed pedagogical cycle for SIM-TPE Diabetes. The pathway is iterative: real-life experiences feed the next educational assessment and subsequent scenarios.

Figure 2. Proposed paradigm shift: from a content-centered workshop to a pathway centered on situation, action, reflection, and planned transfer.