



Chasing blood sugars: Metaphor, agency, and community knowledge in the *Juicebox Podcast*¹

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ABSTRACT

This paper examines how people with Type 1 Diabetes (T1D) use metaphor to construct agency, identity, and shared understanding within *The Juicebox Podcast*, an international platform for patient dialogue. It aims to show how figurative language mediates between data, emotion, and lived experience, transforming individual management into collective expertise. An embedded single-case study was conducted on 81 podcast episodes (≈ 953,000 words). The analysis combined Conceptual Metaphor Theory (Lakoff & Johnson, 1980), the Discourse Dynamics Approach (Cameron, 2003, 2011), and Critical Metaphor Analysis (Charteris-Black, 2004, 2011, 2018) to identify salient metaphors and explore their cognitive, pragmatic, and ideological functions. Recurring metaphors conceptualise T1D as mathematics, a journey, a machine or broken object, and a personified agent. These patterns reveal how participants negotiate control, responsibility, and relationality while resisting biomedical hierarchies. The conversational medium enables real-time metaphor negotiation, fostering empathy and peer learning. Metaphor emerges as both a cognitive tool and a social practice: it translates quantifiable data into meaningful experience, builds community knowledge, and reinforces patient agency. The study demonstrates the value of qualitative, discourse-based methods for understanding chronic-illness communication in digital contexts.

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1. Introduction

1.1. *Type 1 diabetes (T1D): Living between body and data*

Type 1 diabetes (T1D) is an autoimmune condition in which the body's immune system destroys insulin-producing beta cells in the pancreas, resulting in absolute insulin deficiency (World Health Organization, 2024). Without insulin, glucose cannot enter cells for energy, leading to chronic hyperglycaemia that damages nerves, blood vessels, and vital organs over time. Approximately eight million people worldwide live with T1D, and despite decades of research, its precise causes remain unclear, and no preventive intervention exists.

What distinguishes T1D from many other chronic conditions is its cognitive and emotional structure. As Mol (2008) shows in her study of T1D care, patients constantly move between the logic of care, based on lived bodily experience, and the logic of choice, which requires measurable self-management. Blood-glucose readings and bodily sensations often do not match, and serious hypoglycaemia can happen suddenly, so constant attention is needed.

Living with T1D, therefore, requires constant interpretation and decision-making. Patients and caregivers must turn body signals, numbers, emotions, and situations into coordinated actions. Each decision involves uncertainty: food, stress, and illness interact in unpredictable ways. Management thus requires far more than calculation; it demands emotional regulation, practical reasoning, and social support.

Because these processes are abstract, invisible, and temporally delayed, metaphor becomes indispensable for understanding and communication. As Lupton (2013) notes, self-tracking technologies promote the idea of the *quantified self*, but for people with T1D, tracking numbers is not a choice for self-improvement; it is necessary for survival. Patients must understand data without any direct bodily signals. Figurative language links experience and expression, making the unseen easier to understand and act upon. As Sontag (1978) argued, metaphor constitutes forms of thinking about and responding to illness. In T1D, metaphors do precisely this work: they translate data into meaning and meaning into action.

1.2. *The communication gap: From clinical discourse to patient communities*

Despite advances in clinical understanding, a persistent gap remains between what healthcare systems provide and what patients report needing. People with T1D consistently describe insufficient emotional, educational, and practical support (Richards et al., 2006). Public understanding also remains limited, while many still confuse Type 1 with Type 2 diabetes, and even clinicians sometimes struggle to keep pace with new technologies such as continuous glucose monitors and automated insulin delivery systems (Tanenbaum et al., 2017). This leaves patients in the paradoxical position of educating their own healthcare providers.

This gap reflects a divide between medical knowledge and patients' lived experience. Medical care values data and protocols, whereas patients depend on lived experience and adaptation that are crucial for everyday survival (Mol, 2008; Pols, 2012). People with

T1D cultivate what Arduser (2017) terms *embodied knowledge*, practical, relational expertise developed through experience, yet often undervalued within institutional medicine.

Digital communication has transformed this dynamic. Through online platforms, patients can share knowledge outside the usual medical system, forming what Fox et al. (2005) describe as *expert-patient* discourse. Participants in online health communities report increased knowledge, self-efficacy, and emotional support compared to those who rely solely on clinical interaction (van Uden-Kraan et al., 2008; Bartlett & Coulson, 2011). Telling personal stories has become a powerful way for patients to make sense of illness. Greenhalgh et al. (2005) show that narratives place abstract medical information in human and relational contexts, while Ziebland and Wyke (2012) demonstrate that such stories validate emotions, model coping strategies, and help people see themselves as part of a shared illness journey.

One of the most influential examples of such patient-generated knowledge is *The Juicebox Podcast*,² created by Scott Benner, the father of a child with T1D and author of the blog *Arden's Day*. Since 2015, Benner has hosted over 1,000 unscripted conversations with patients, caregivers, and clinicians, reaching millions of listeners worldwide. The podcast's hybrid character, neither purely clinical nor purely social, makes it an ideal site for discourse analysis. Its discussions merge technical advice with personal reflection, emotional support with critical questioning of medical authority, reflecting what Wenger (1998) calls a *community of practice*, a group where learning occurs through participation and gradual mastery of shared language.

Podcasts provide unique opportunities for studying how people create meaning. Their spontaneous, dialogic, and extended format (typically 45–90 minutes) allows participants to collaboratively negotiate ideas. As Berry (2015) notes, podcasts blur boundaries between private and public, between personal storytelling and mediated performance. For chronic illness communities, this hybridity enables an ongoing, co-constructed negotiation of knowledge. In the case of *Juicebox*, biomedical facts are continuously recontextualised through lived experience and transformed into practical, accessible strategies for everyday life. As Weingart (2002) observes, once scientific knowledge enters public domains, it becomes subject to social reinterpretation and negotiation. Analysing how *Juicebox* listeners and guests collectively build and circulate understanding offers insight into how patient expertise functions in the digital age.

1.3. Metaphor in chronic illness discourse

Although medical discourse is often viewed as literal and objective, its conceptual foundations are profoundly metaphorical (Reisfield & Wilson, 2004). Figurative language shapes how illness is understood, narrated, and emotionally managed (Semino et al., 2018). As Sontag (1978) argued, metaphors of illness are not ornamental; they constitute ways of thinking and acting.

² <https://www.juiceboxpodcast.com/#gsc.tab=0>.

Conceptual Metaphor Theory (CMT) (Lakoff & Johnson, 1980; Kövecses, 2015) explains how abstract domains are structured through mappings from more concrete, embodied ones. Cameron's (1999, 2003) Discourse Dynamics Approach adds an interactional dimension, showing how speakers negotiate and transform metaphors in conversation. Charteris-Black's (2004, 2011) Critical Metaphor Analysis (CMA) foregrounds power and ideology, asking whose interests metaphors serve and what assumptions they naturalise.

Metaphor studies in chronic illness highlight how figurative framing shapes both perception and practice. Semino et al. (2018) and Liu et al. (2024) showed that in cancer discourse, metaphors such as JOURNEY, BATTLE, and BURDEN structure relationships to illness, agency, and treatment decisions. Crucially, patients do not passively adopt such metaphors but actively reflect on and modify them (Semino et al. 2018). More recent research continues to expand this focus, emphasising the emotional and interpersonal dimensions of metaphor use. Semino et al. (2018) demonstrate how metaphor mediates affective stance and empathy in patient narratives, while Semino and Demjén (2016) highlight variability and agency in patients' metaphor choices. Beyond illness-specific contexts, metaphorical framing can shape risk perception and trust in health communication more broadly (Ervás et al., 2022), emphasising the continuing relevance of figurative language for public understanding of health and disease.

Despite growing attention to medical metaphor, patient-generated T1D discourse remains underexplored. While studies have analysed clinical and media language (Bivins, 2007; Harrington, 2012), few have examined metaphor in informal, naturalistic conversation where patients speak freely. Yet these spaces reveal how figurative language operates at the ground level of sense-making, shaping both individual cognition and collective understanding.

Stubbs (2001: 18) explains that evaluative meanings spread within discourse communities through repeated language use, as recurring metaphors gain shared emotional and ideological force. In a patient community like *The Juicebox Podcast*, personal metaphors can turn into shared expressions that signal belonging and capture complex experiences (Lave & Wenger, 1991). Analysing these patterns, therefore, illuminates how the community constructs and sustains shared frameworks of meaning through figurative language.

1.4. Research gap and case study approach

While scholars increasingly recognise that language and metaphor influence T1D management and self-perception (Dickinson et al., 2017), studies of patient-generated metaphors in extended peer conversation remain scarce. Research has concentrated on acute illness narratives (e.g., cancer) or on media discourse (Reisfield & Wilson, 2004; Semino et al., 2018), overlooking conversational genres such as podcasts, which allow metaphors to emerge naturally and collaboratively.

The Juicebox Podcast represents what Patton (1990) describes as an information-rich case, where the phenomenon of interest, patient meaning-making through metaphor, appears vividly and repeatedly. Such strategically chosen cases, as Flyvbjerg (2006)

notes, allow for in-depth understanding and contribute to broader theoretical insights. Its hybrid discursive character blends biomedical information with experiential reflection, technical discussion with emotional support, and patient autonomy with respect for clinical expertise (Berry, 2015). This mix reflects the daily work of care—bridging clinical rules and real life, measured data and felt experience. Analysing metaphor in this space reveals how patients navigate tensions that strictly clinical discourse often hides.

Methodologically, the study adopts an embedded single-case design (Yin, 2018), examining multiple levels of analysis: individual metaphorical expressions, recurring patterns across episodes, speaker negotiations, and larger metaphor clusters that indicate systematic framing. This design captures both cognitive structure and interactional dynamics, integrating insights from CMT, the Discourse Dynamics Approach, and CMA.

1.5. Research questions

Building on the theoretical and contextual background outlined above, this case study investigates metaphor as a multifunctional resource in patient discourse, simultaneously cognitive, communicative, and ideological. Specifically, it addresses the following interrelated research questions:

1. What recurrent metaphorical patterns emerge in *The Juicebox Podcast*'s construction of T1D experience, and what communicative and cognitive functions do these metaphors serve within the community?
2. How do speakers work together to shape metaphors for managing T1D, and what does this show about the tension between medical knowledge and lived experience?
3. What forms of ideological work do recurrent metaphors perform, particularly in relation to the construction of agency, responsibility, and patient expertise in digital health communication?

2. Methodology

2.1. Research design

This study adopts a qualitative case study design (Stake, 1995; Yin, 2018) to investigate metaphorical framing in *The Juicebox Podcast*. Case study research focuses on deep, contextual understanding rather than broad generalisation, seeking to capture how meaning is made in real-life situations (Flyvbjerg, 2006).

An embedded single-case design (Yin, 2018) was employed, encompassing multiple units of analysis: individual metaphorical expressions, recurrent linguistic patterns, collaborative negotiations, and systematic mappings across the corpus. This multilevel approach enables examination of both cognitive structures and interactional dynamics.

The research integrates three complementary frameworks.

1. Conceptual Metaphor Theory (CMT) (Lakoff & Johnson, 1980; Kövecses, 2015) provides the foundation for identifying source–target mappings and analysing metaphor as a cognitive mechanism.

2. Cameron’s Discourse Dynamics Approach (1999, 2003) allows analysis of how metaphors are co-constructed and transformed through interaction.

3. Critical Metaphor Analysis (CMA) (Charteris-Black, 2004, 2011, 2018) foregrounds ideological and evaluative dimensions, asking whose interests specific framings serve and what power relations they naturalise.

This approach allows the study to consider thinking, communication, and ideology simultaneously. It supports a comprehensive interpretation of how figurative language operates in a social context, aligning with recent multimethod approaches in health discourse analysis (Hine, 2015; Semino et al. 2018).

2.2. Corpus description

The corpus comprises transcripts of 81 consecutive episodes of *The Juicebox Podcast* (October 11, 2022–March 20, 2023), totalling approximately 952,666 words. Episodes, typically 45–90 minutes long, feature unscripted conversations between the host Scott Benner and a range of participants: adults with T1D, parents of children with T1D, and occasionally healthcare professionals. Conversations blend personal narrative, practical management strategies, emotional reflection, and technical discussion.

Consecutive sampling over six months ensured the corpus represented typical thematic and stylistic variation, from new diagnoses, long-term management, to parental adaptation, without bias toward particular topics or outcomes.

Transcripts were obtained via automated transcription available on the podcast website³, then reviewed and corrected manually for accuracy. Special attention was given to T1D terminology to distinguish metaphorical from technical usage. For example, terms such as *control*, *stable*, and *manage* were cross-checked for contextual metaphorical function rather than assumed as literal medical descriptors.

2.3. Metaphor identification

Metaphorical expressions were identified using the Metaphor Identification Procedure (MIP) developed by the Pragglejaz Group (2007). Each lexical unit was compared to its more basic, concrete meaning as defined in the *Cambridge Online Dictionary*⁴; when the contextual meaning contrasted with but could be understood through comparison to this basic meaning, the expression was marked as metaphorical.

The author conducted all metaphor identification. The process was iterative and reflexive:

³ <https://www.juiceboxpodcast.com/episodes>.

⁴ <https://dictionary.cambridge.org/>.

- An initial review of about 20% of the data set created early categories and noted unclear cases in analytic notes.
- A second, systematic review applied refined criteria across the full corpus.

Each example was analysed within its discursive context (5–10 surrounding utterances) to capture function and interactional negotiation, following Cameron and Low (1999). This ensured that metaphors were interpreted in relation to the situational and emotional tone of the exchange rather than isolated at the word level.

2.4. Corpus analysis tools

Following identification, the corpus was imported into *Sketch Engine* (Kilgariff et al., 2014) for organisational and discovery purposes. The platform's keyword and collocation tools helped identify repeated word groups that showed consistent metaphor patterns.

Each expression was tagged with a preliminary source-domain category (e.g., MATHEMATICS, OBJECT, JOURNEY, PERSON, WAR). These categories were refined as new patterns emerged. Expressions with similar underlying meanings were grouped as possible conceptual metaphors.

Concordance lines for each metaphor type were exported and examined to explore language use, patterns, and functions. The analysis focused on how metaphors were used, discussed, or challenged in conversation, highlighting interaction rather than frequency.

3. Conceptual metaphor analysis

Once metaphorical expressions were grouped, analysis proceeded to the conceptual level. Recurrent patterns appearing across multiple episodes and speakers, and realised through diverse linguistic forms (Table 1), were treated as evidence of underlying conceptual metaphors (Lakoff & Johnson, 1980; Charteris-Black, 2018).

For each conceptual metaphor, four dimensions were examined:

1. Cognitive structure – the mapping between source and target domains.
2. Linguistic realisation – lexical and syntactic forms used to express the metaphor.
3. Interactional function – how speakers used metaphors to explain, persuade, or connect.
4. Ideological work – how metaphors distributed agency, expressed values, or legitimised norms of responsibility and care.

This framework integrates cognitive and critical perspectives, showing not only *what* metaphors appear but *what they do* in the social negotiation of meaning.

Table 1: Summary of dominant conceptual metaphors and approximate frequencies in the corpus.

Conceptual Metaphor	Frequency (Occurrences)	Key Lexical Indicators
T1D MANAGEMENT IS MATHEMATICS	801	<i>number, ratio, algorithm, equation</i>
BLOOD GLUCOSE IS A (BROKEN) OBJECT	176	<i>dropp, fall, crash, tool</i>
T1D IS A JOURNEY	92	<i>journey, path, navigate, lane</i>
REMISSION IS HONEYMOON	74	<i>honeymoon, coming out of honeymoon</i>
PERSONIFICATION	~70	<i>insulin acts, blood sugar chases, T1D rules</i>
T1D IS WAR/STRUGGLE	~40	<i>fight, attack, combat</i>
T1D IS A GAME/SPORT	~25	<i>game, play, juggling</i>
T1D IS AN EXPERIMENT	~20	<i>experiment, test, try different approaches</i>

3.1. T1D MANAGEMENT IS MATHEMATICS

Although the metaphor T1D MANAGEMENT IS MATHEMATICS has not been identified under this specific label in previous research, it draws on well-established orientational and ontological mappings in the CMT literature. In particular, it elaborates the basic QUALITY IS QUANTITY metaphors (Lakoff & Johnson, 1980; Goatly, 2007; Imamović, 2015), extending quantitative reasoning into an experiential frame in which patients conceptualise everyday management work as *doing the math*.

The conceptual metaphor T1D MANAGEMENT IS MATHEMATICS structures understanding of T1D care as a process of calculation, prediction, and problem-solving. This was the most frequent pattern in the corpus, appearing 801 times across the analysed episodes. Recurrent lexical items include *number* (269), *algorithm* (189), *ratio* (112), *math* (87), *variable* (62), *graph* (54), *line* (32), *calculate* (19), and *equation* (8).

Not all numerical or algorithmic terminology in T1D discourse is automatically metaphorical. Following the MIP, lexical units were treated as metaphorical only when their contextual meaning relied on a different source domain than their basic meaning. Thus, while terms such as *algorithm* or *carb ratio* can be literal descriptors of diabetes technology, the examples discussed here become metaphorical when speakers use mathematical concepts (e.g., *correctness*, *graphing*, *prediction lines*, *decision-making*) to structure their experience of managing the condition. Each example below contains a lexical unit whose contextual meaning relies on the semantic domain of mathematics rather than on its basic, literal meaning in the domain of bodily experience.

- (1) *My blood sugar is 133. Is that right? Do I have to do something about this? Should I even take my medicine? It looks like it's a number where it's supposed to be.*

Numbers become the primary evaluative framework for assessing bodily states. The question *is that right?* treats blood glucose as a correct or incorrect answer rather than a changing physiological variable. Metaphoricity arises because the speaker assesses a physiological state using the accuracy schema of mathematics (*right/wrong answer*),

projecting evaluative practices from the source domain of calculation onto the target domain of bodily experience.

- (2) *With the algorithm, I've had to learn to take a step back, let it do its job, and relinquish a little control.*

Automated insulin systems are conceptualised as mathematical decision-makers. The phrase *relinquish control* implies that trust must shift from human to computational calculation. The speaker treats the algorithm not simply as code (literal meaning), but as an agent that performs cognitive labour – a mathematical decision-maker. The contextual meaning, therefore, exceeds the technical sense and relies on the source domain of autonomous problem-solving.

- (3) *So the carb ratio is still an important part of making that prediction line.*

The insulin-to-carbohydrate ratio is a mathematical relationship between food intake and insulin dosing. It becomes a predictive variable for future blood-glucose trajectories. The speaker employs a geometric entity (*line*) as a model for physiological change, importing the mathematical practices of plotting into the domain of bodily forecasting.

- (4) *I think basal testing needs to be better explained when we talk about insulin pumping, because there are a lot of variables – from a woman's standpoint, it could be that it's not the right time of the month for basal testing.*

Here, *variables* frame physiological factors such as hormonal cycles, stress, or illness as inputs in an ongoing equation. The metaphor extends mathematical thinking to embodied unpredictability.

- (5) *All the stress of living with diabetes – the effort, the planning, the calculating, the inevitable failures – can be too much for people and they get so drained that they want to give up.*

The verb *calculating* appears next to emotional words, showing how number-focused thinking connects to feelings of exhaustion. The metaphor thus exposes the affective cost of constant numerical reasoning.

- (6) *I just want to know why I need this much insulin and how to adjust it with a math equation.*

This expresses a desire for a clear, formula-based answer, a belief that the right equation might resolve uncertainty, even though mathematics cannot fully do that.

- (7) *My example of how powerful the doctor's suggestion or non-suggestion can be is that I was speaking with a woman in her forties who had had diabetes for 25 years. I looked at her graph; she was distraught. And I said, "You just need more insulin?"*

The *graph* translates temporal bodily fluctuations into geometric representation. Reading *her graph* becomes a diagnostic act, suggesting that visual data can reveal mathematical solutions. The speaker interprets a physiological process as if it were a mathematical object that yields a clear computational solution. The geometric line is used not merely to display glucose data but to represent diagnostic reasoning, projecting mathematical problem-solving onto medical judgment.

- (8) *So the carb ratio is still an important part of making that prediction line.*

The *prediction line* on a glucose monitor shows expected future blood-sugar levels as geometric projections. Management becomes anticipatory calculation, predicting where *the line* will go.

This mathematical framing performs essential cognitive work. It transforms the invisible and unpredictable processes of glucose regulation into concrete, manipulable problems. As Lakoff and Johnson (1980) demonstrate, metaphors structure not just speech but perception and action. Mapping T1D management onto mathematics enables people to organise complexity: blood glucose becomes measurable; insulin doses become computable ratios; bodily responses become variables; and management strategies become algorithms open to refinement.

This metaphor directly addresses what Mol (2008) terms the tension between embodied sensation and quantified control. Mathematical thinking provides a sense of control when bodily intuition is not enough. Research connecting numeracy to blood-sugar control (Rothman et al., 2004; Cavanaugh et al., 2008) suggests that mathematical framing is a practical adaptation, not just a figure of speech.

Visual elements such as *graphs* and *prediction lines* can extend the mathematics metaphor by encouraging users to interpret physiological change through the spatial logic of geometry (Pols, 2012; Lupton, 2013). While graphs themselves are literal technological representations, the metaphorical meaning emerges in the interpretation: blood glucose values are understood as rising or falling lines, and these visual trajectories reveal what action should be taken. This mapping transforms temporal bodily fluctuations into a spatial path, projecting mathematical principles of slope, directionality, and trend prediction onto the management of a physiological process.

By conceptualising control as a visual line that can be *followed*, *corrected*, or *flattened*, patients draw on the source domain of geometry to make sense of bodily states, which is where the metaphoricity lies.

Within the podcast community, mathematical talk also performs key interactional functions. Sharing precise numerical details (e.g., *my ratio is 1:10*, *my basal is 0.5 units per hour*) signals competence and membership. This numerical shorthand conveys complex experiences quickly, as community members instantly understand what the numbers mean. In Wenger's (1998) terms, this kind of talk enables legitimate peripheral participation: newcomers use mathematical language to fit the community's ways of knowing, while experienced members show expertise through more complex numerical reasoning.

At the same time, speakers often use humour and irony to soften this rigid metaphor, showing that they are aware of its limits. Phrases like *I let go* illustrate release from the pressure of perfect calculation. This awareness of metaphors, the ability to think critically about them, shows what Cameron (2003) describes as *metaphor in use*, a dynamic social process.

The MATHEMATICS metaphor also carries ideological weight. It frames the patient as a technician or data handler, reflecting the idea that being healthy means being efficient and self-disciplined (Mol, 2008; Lupton, 2013). When management *fails*, math-based

thinking suggests the person made a mistake or lacked information, instead of recognising wider issues like poor healthcare access or expensive devices.

This framing also values certain types of expertise over others. Those comfortable with numbers and technology are perceived as *good patients*, while others risk being seen as *non-compliant* or *careless* (Dickinson et al., 2017). The metaphor, therefore, naturalises communal inequities as personal failings. It promotes the ideal of a rational, data-focused patient, sidelining those who rely more on intuition or emotion.

Furthermore, the emphasis on numbers can erase the emotional dimension of chronic illness. When glucose is *just a number*, fatigue, fear, or frustration may be dismissed as irrelevant. As example (5) shows, the daily mental math of care leads to burnout, but mathematical language offers no way to express it. The idealised rational calculator obscures the reality that T1D management is both a cognitive and emotional effort (Pols, 2012).

Finally, the concept that *the math* will work if done right creates tension when the body's variability resists calculation. As examples (4) and (6) show, uncontrollable *variables* weaken the idea of precise control. This gap can lead to self-blame, reinforcing the idea that patients are solely responsible (Charteris-Black, 2018).

Despite these constraints, speakers display a clear awareness of the metaphor's limitations. They explicitly discuss *variables*, acknowledge *burnout*, and question the idea that an equation can capture life's unpredictability. In doing so, they demonstrate what Semino et al. (2018) describe as active negotiation of metaphorical repertoires, using the frame practically while keeping a critical distance. Mathematical framing, in this sense, becomes both a tool for sense-making and a site of resistance: it shapes experience but also invites change.

3.2. BLOOD GLUCOSE IS A (BROKEN) OBJECT

Ontological metaphors attribute physical or material qualities to abstract processes, allowing speakers to conceptualise and manipulate them more easily (Lakoff & Johnson, 1980: 25–32; Kövecses, 2006: 128). In *The Juicebox Podcast*, the metaphor BLOOD GLUCOSE IS AN OBJECT frames regulation as the manipulation, movement, and repair of a tangible thing.

This metaphor appeared 176 times in the corpus, primarily through lexemes such as *drop* (62), *fall* (46), *tool* (45), and *crash* (23). These encode dynamics of motion, control, and repair, making invisible physiological change perceptible and actionable.

3.2.1. BLOOD GLUCOSE IS A FALLING OBJECT

Goatly (2007) shows that conventional metaphors often emerge from lexeme clusters, groups of related verbs that share semantic features across a domain. In the case of verticality, verbs such as *rise*, *fall*, *drop*, *crash*, *plunge* form a cluster that supports orientational metaphors like MORE IS UP and LESS IS DOWN. The verbs used in this dataset draw on this same cluster, but the speakers extend them further to construe blood glucose as a physical object obeying gravity, not just a numerical decrease.

- (9) *And you don't really know... sometimes it feels magical that your blood sugar is dropping and falling.*

The speaker portrays blood glucose as obeying gravity rather than will. The repetition of *dropping* and *falling* intensifies the sense of involuntary descent, something happening *to* the body rather than *within* it.

- (10) *She spiked to 180... then felt a fall rate alert – she was crashing.*

Here, vertical motion vocabulary signals danger both ways, since rising and falling mean losing stability. *Crashing* evokes violent, uncontrolled impact. Unlike the typical GOOD IS UP/BAD IS DOWN schema (Lakoff & Johnson, 1980), T1D discourse complicates this orientation. Both *spikes* (hyperglycaemia) and *crashes* (hypoglycaemia) represent dangerous breaks from balance.

- (11) *You can't ignore a blood sugar that's falling – it could be falling quickly.*

The urgency mirrors the danger of a physical object in free fall. The metaphor communicates speed and risk: *falling quickly* signals acute hypoglycaemia requiring immediate intervention.

- (12) *I had this sense of security that if I were to randomly drop from 500 to 25...*

This example conveys the catastrophic potential of uncontrolled descent. The phrase *drop from 500 to 25* traces a trajectory from extreme hyperglycaemia to severe hypoglycaemia. The ironic *sense of security* stresses the terror of such uncontrollable speed.

A clear grammatical pattern appears where speakers merge self and blood glucose, erasing the line between person and measurement:

- (13) *I just started going really low.*

Rather than say *my blood glucose was low*, the speaker says *I was low*. This merging of self and measurement reflects what Langacker (1993) terms a reference-point construction and can also be understood as conceptual metonymy, where BLOOD GLUCOSE STANDS FOR THE SELF (Radden & Kövecses, 1999; Barcelona, 2003). In this discourse, *being low* sums up bodily feelings, emotions, and management difficulties. Such shorthand enables efficient communication within the community, where members share an embodied understanding of what *being low means*. Mol (2008: 34-50) argues that quantification in T1D care tends to frame experience as calculable, undermining relational and emotional dimensions. Within the community, however, this identification performs crucial social work, signalling empathy, belonging, and the need for immediate support. Thus, the construction operates both as a constraint (reducing self to a number) and a resource (facilitating fast, affective communication).

The FALLING OBJECT pattern draws not only on metaphor but also on metonymy, since speakers frequently use the person to stand for their blood glucose level (e.g., *I'm dropping, she's crashing*). This PERSON FOR PHYSIOLOGICAL STATE metonymy establishes the referential ground on which the metaphor operates. Once the referent has shifted from the individual to their glucose level, the verbs *drop*, *fall*, and *crash* introduce a metaphorical projection: the physiological process is construed as a physical object moving downward through space under the force of gravity.

Thus, the utterance *I'm dropping fast* simultaneously performs metonymy (the person stands for their glucose) and metaphor (the glucose is conceptualised as a falling object). As Gibbs (2017) notes, embodied metaphors map kinesthetic sensations onto language, allowing speakers to express direction, acceleration, and loss of control in a single phrase, far more efficiently than literal formulations such as *my blood glucose is decreasing by 2 mg/dL per minute*.

Similarly, terms like *crash* dramatise danger through fast movement, implying violent collision and immediate threat. This framing matches the temporal pressure of real-time T1D management, where seconds matter. In this sense, the motion frame is both semantically and pragmatically optimal.

3.2.2. BLOOD GLUCOSE AS MALFUNCTIONING, and MANAGEMENT AS REPAIR WORK

The second group of object-related expressions conceptualises blood glucose as malfunctioning, unstable, or prone to failure, drawing on the basic physical meaning of objects that *break*, *won't hold*, or *won't stay up*. Across the corpus, speakers describe glycaemic instability with verbs such as *crashed*, *broke*, *failed*, *fell apart*, *wouldn't hold*, or *wouldn't stay up*. These terms treat glucose not as a smooth biological variable but as a fragile or unreliable component whose behaviour can suddenly deteriorate. The metaphor does not concern the human body as a whole; it rather frames glucose behaviour itself as faulty or structurally unstable, something that stops *working* as expected.

(14) *You described working hard but having no success – because I didn't have the right tools.*

(15) *You've been given these tools and guidelines to use.*

(16) *If you don't have the tools or know the steps to take... it creates a third problem.*

In these examples, *tools* operate metaphorically as symbols of knowledge, strategies, and emotional or practical resources. They belong to a related REPAIR/MAINTENANCE metaphor, in which mapping T1D is conceptualised as technical labour requiring skill and equipment (Mol, 2008; Pols, 2012). Clinicians appear as providers of tools and instructions, while patients are framed as technicians responsible for applying them. This framing highlights the continuous work involved in T1D and suggests that successful management is a matter of procedural mastery. Although these examples do not describe blood glucose as broken, they reveal the *repair and maintenance work* patients undertake when blood glucose behaves unpredictably. In this way, tool-based language highlights the labour that accompanies episodes in which blood glucose appears to *fail*, and, therefore, sits alongside, rather than as evidence of, the BROKEN OBJECT metaphor.

Lacking tools, in this sense, produces further problems, not because blood glucose is broken, but because the patients lack the resources expected in a technical task. Responsibility becomes individualised: instability is framed as a matter of insufficient equipment or training rather than the inherent biological variability of T1D.

(17) *I don't think I had the tools to cope with that.*

Here, *tools* extend to emotional and mental resources. Coping is framed as having or lacking the appropriate implement, reinforcing the sense that T1D requires continuous technical and emotional maintenance.

Elsewhere in the corpus, however, speakers explicitly describe blood glucose as if it were a malfunctioning object, using verbs of physical failure to express sudden loss of control (*it crashed, it wouldn't hold, it broke again*). These expressions ground the BROKEN OBJECT metaphor. They project the sensorimotor logic of mechanical breakdown onto glycaemic behaviour: when blood glucose *won't hold*, it behaves like an object that cannot stay in place; when it *breaks*, it stops responding to ordinary corrective measures; when it *crashes*, it behaves like something that has fallen violently apart. This mapping renders instability concrete and allows speakers to communicate both urgency and frustration.

Mechanistic framing also carries ideological implications. When blood glucose is conceptualised as something that should *hold, stay up, or work*, variability comes to resemble malfunction. This supports an ideal of stability as the norm and instability as deviance. Combined with tool-based language, the metaphor may individualise responsibility: if patients are equipped with *tools*, ongoing instability can appear to result from incorrect use rather than from systemic or biological constraints (Tannenbaum et al., 2017).

At the same time, the promise of repair offers a form of agency. If blood glucose is broken, it can, in theory, be fixed through adjustment, technique, or persistence. This can empower patients by framing management problems as solvable, yet it can also generate frustration when the condition resists technical mastery (Pols, 2012). The metaphor is, therefore, simultaneously reassuring and limiting.

MOTION and OBJECT metaphors interact dynamically in this discourse. Words such as *drop, fall, and crash* dramatise instability, while *tools* and *fixing* imply the need for restoration. Together they form a cycle of breakdown and repair that mirrors the day-to-day experience of T1D: periods of instability followed by rapid corrective action. This cycle can heighten vigilance, reinforcing the sense of continuous upkeep.

Speakers nonetheless demonstrate awareness of the limits of this mechanical framing. Acknowledgements that *crashes happen even with the right tools* reveal recognition that control is partial and that metabolic variability exceeds technical logic. Such reflexivity aligns with Semino et al. (2018) who show that patient communities use metaphor creatively while remaining critically conscious of its boundaries.

Finally, OBJECT metaphors render blood glucose tangible and communicable, enabling concise expression of instability, urgency, and effort. Yet they also simplify complexity, foregrounding the labour of keeping glucose *working* while backgrounding emotional, social, and structural dimensions of care. Like all powerful metaphors, they illuminate experience even as they narrow it, offering a workable but partial model of life with T1D.

3.3. T1D IS A JOURNEY

The JOURNEY metaphor is pervasive in health and illness discourse, where living with chronic conditions is conceptualised as travelling a path that must be navigated and endured (Reisfield & Wilson, 2004; Semino et al., 2018). In T1D talk, this frame extends the broader schema LIFE IS A JOURNEY (Lakoff & Johnson, 1980), depicting T1D management as a continuous route marked by obstacles, decisions, and guidance. The metaphor

appeared 92 times in the corpus through lexemes such as *journey* (28), *path* (29), *navigate* (26), and *lane* (9).

- (18) *My son Davis was diagnosed with Type 1 diabetes in January 2022... So we're nearly a year into our diabetes journey. But because of you, Scott, and the Juicebox Podcast, we've really gotten a handle on things quickly.*

T1D becomes a route with temporal markers (*a year into*) and a sense of movement along a path. The phrase *gotten a handle on things* introduces a second metaphorical layer, the CONTROL IS HANDLE metaphor. As Lakoff and Johnson (1980) and Kövecses (2010) note, English commonly conceptualises control or mastery as physically gripping or holding an object (e.g., *get a grip, grasp the situation, take hold of, lose your grip*). In this example, *having a handle* metaphorically frames the early stages of T1D management as gaining manual control over an initially unwieldy or unfamiliar process. Within the JOURNEY frame, the podcast functions as a guide that helps travellers not only *move forward* but also *take hold* of the situation more securely.

- (19) *It can seem difficult. It can feel like your life is ending. But there's a way through. You just need to know the path to take – and I think this podcast can help you see that path and light your journey.*

A way through suggests that obstacles can be overcome with the right path, while *light your journey* presents guidance as illumination, revealing the way forward. The podcast thus acts as a map, showing possible paths through uncertainty.

- (20) *I don't know where to turn or who to talk to. Maybe my grandma had it, my dad had it... I saw how they navigated it – it was never really talked about. So I guess I'll just go about and maybe eat a salad every day, because that's better, right?*

Here, *navigate* highlights active control and decision-making rather than mere endurance. Yet the speaker's uncertainty (*where to turn, I guess*) reveals navigation without maps, movement through uncharted terrain guided by incomplete memories of others' routes.

- (21) *The way I describe it to people is when you're driving in a lane, and there's a line on your right, a line on your left, if you start to slowly drift towards the line, you don't quickly yank the wheel back the other way, you just sort of bring it back just ever so slightly to come back into toe again, right?*

The automotive *lane* variant specifies journey as rule-governed travel requiring measured course corrections. *Drift* suggests gradual deviation rather than crisis, advocating gentle adjustment instead of abrupt reaction. The lane boundaries stand for the target glucose range, framing management as remaining within permissible limits.

The JOURNEY metaphor supplies a temporal and narrative framework for experiences that lack clear endpoints. Unlike acute illness, which has treatment trajectories and closure, T1D entails ongoing negotiation (Mol, 2008). The journey frame imposes coherence: diagnosis becomes *departure*, learning becomes *navigation*, community support becomes *guidance*, and improved control becomes *progress*. This framing turns ongoing management into purposeful progress, offering relief by turning stagnation into movement.

The metaphor also situates individuals within social and temporal landscapes. New-comers appear as travellers at the outset; experienced members become guides; and the community itself becomes fellow travellers (Frank, 2013). The spatial model validates diversity: *your journey* and *my journey* may differ, but are both legitimate, recognising varied management styles and rejecting one-size-fits-all norms.

However, journey framing carries ideological implications. It implies directionality and progress, movement toward improvement or mastery. In example (19), the *way through* suggests that obstacles are temporary and conquerable, potentially downplaying the chronic nature of T1D. Positive progress can motivate, but it can also create pressure to show improvement or see setbacks as personal failures.

The metaphor also distributes agency asymmetrically. Travellers are portrayed as autonomous decision-makers, those who *navigate*, *choose paths*, or *find ways through* (Arduser, 2017). Yet this framing hides structural limits on care, like insurance, income, and healthcare systems, that shape which paths are possible. When someone *gets lost* or *takes a wrong turn*, it suggests personal error instead of poor system support. As Charteris-Black (2018) notes, metaphors often naturalise power relations by concealing their material origins.

Expressions such as *gotten handle on things*, in example (18), similarly evoke the CONTROL IS HANDLE metaphor. They imply the achievement of control, stability, or mastery, the sense of finally being able to *grip* or *manage* T1D. Sweetser (1990) and Johnson (1987) observe that metaphors of GRASPING or HOLDING often encode agency, competence, and cognitive control. Yet T1D's biological variability means that such a grasp is always provisional. As Pols (2012) argues, today's mastery may give way to tomorrow's unpredictability. Within the journey frame, *getting a handle* suggests reaching a temporary plateau or moment of stability, even though the path ahead remains shifting and uncertain.

Example (21)'s *lane* metaphor introduces a disciplinary dimension. Lanes are spaces governed by boundaries and rules. *Drifting* becomes deviation; *steering back* signifies correction and self-discipline. This frames management as rule-following within accepted limits. Continuous glucose monitoring functions as lane surveillance and insulin adjustment as micro-steering. Within this frame, freedom means staying within boundaries, not escaping them, which Lupton (2013) describes as *self-tracking as care*.

While this imagery provides practical guidance, it also embeds certain expectations: good patients remain *in lane*, alert, and self-correcting. The metaphor thus combines empowerment with control, autonomy with conformity.

Speakers often display reflexive awareness of the metaphor's limitations. References to navigation *without being talked about* (example 20) acknowledge that paths are not always visible or reliable. The tentative *I guess I'll just go about* conveys wandering and uncertainty rather than purposeful travel. Such expressions challenge the metaphor's assumption that correct paths always exist or that success depends solely on choosing them.

Patients, therefore, employ journey language strategically, as a resource for orientation and solidarity, not as a literal model of experience. They draw on its narrative comfort while recognising its incompleteness. As Semino et al. (2018) note, chronic-illness

metaphors are most beneficial when held lightly, used for meaning-making, but open to revision. The *Juicebox* speakers show this balanced view: they see their condition as a shared journey, knowing the road never really ends.

3.4 REMISSION IS A HONEYMOON

In medical terms, *remission* refers to a temporary decrease in insulin requirements following diagnosis. In T1D, this *honeymoon period* denotes partial restoration of endogenous insulin production, experienced by roughly 80 percent of newly diagnosed children and adolescents (Podolakova et al., 2023).

The conceptual metaphor REMISSION IS A HONEYMOON frames this interval as a brief, idealised period between diagnosis and long-term management. It relies on the familiar idea of the honeymoon as a brief, carefree phase that must end. This metaphor appeared 74 times in the corpus.

- (22) *The doctor's just guarding against a honeymoon situation – where you don't need very much insulin at first.*

The physician anticipates remission as a temporary state requiring caution. *Guarding against* implies that the honeymoon can be deceptive, creating false expectations of lasting stability.

- (23) *When we thought we were coming out of honeymoon, we started having a lot of struggles.*

Coming out of honeymoon signals a shift from relative ease to new challenges. The phrase conveys the end of remission as leaving a protected phase and entering a harsher reality, where *struggles* intensify as remission fades.

- (24) *We were honeymooning for about a year and a half – two baseball seasons where we didn't really worry about things.*

The verb *honeymooning* turns a medical phase into a lived experience marked by less anxiety (*didn't really worry*). The temporal anchor (*two baseball seasons*) situates the event in lived rather than clinical time.

- (25) *I honeymooned I'm pretty sure for about two years.*

The first-person *I honeymooned* can be read as a conceptual metonymy, where THE SELF STANDS FOR THE BODILY PROCESS (EXPERIENCER FOR EXPERIENCE) (Radden & Kövecses, 1999; Barcelona, 2003; Littlemore, 2015). The agentive grammar turns a biological state into an action, an AGENT FOR STATE (AGENT FOR ACTION) metonymy (Panther & Thornburg, 2000), shifting agency from the pancreas to the patient (cf. Halliday, 2014).

The HONEYMOON metaphor gives remission a clear timeline, turning a brief physiological fluctuation into a recognisable narrative phase. While partial remission describes biochemical change, honeymoon provides a cultural story of beginning, peak, and end. It helps patients and families anticipate loss rather than experience it as a sudden disruption, framing early ease as real but temporary, an emotional bridge to long-term adjustment.

Within the T1D community, honeymoon functions as shorthand for a specific disease stage. Saying *we're still honeymooning* efficiently signals lower insulin needs and greater

stability. This shared term, what Semino (2008) calls a framing device, translates complex medical information into simple, socially meaningful cues. Its familiarity allows speakers to adapt clinical language into everyday emotionally resonant talk.

At the same time, the metaphor carries ideological implications. It imposes narrative order on an unpredictable condition, idealising the post-diagnosis period as a romantic interlude even when families face fear and upheaval. This framing normalises struggle as the default state of T1D management, reinforcing what Charteris-Black (2018) calls the power of metaphor to naturalise worldviews.

Variation further complicates the frame. The honeymoon may last weeks or years (examples 24-25), yet the singular phrase implies uniform experience. Those with brief or absent honeymoons may feel deficient, while others face disbelief. The term's romantic roots add gendered and cultural tones. Coming from marriage traditions, the honeymoon feels out of place in paediatric contexts. Its persistence shows how metaphors endure simply because they feel natural.

Speakers nonetheless use honeymoon flexibly, reshaping medical terms into everyday verbs (*we were honeymooning, I honeymooned*). This creativity signals ownership of terminology as the community reshapes clinical discourse for emotional and relational purposes. Such adaptation exemplifies what Semino (2008) and Cameron and Maslen (2010) call *metaphor negotiation*, the modification of professional language to express lived experience.

Ultimately, the REMISSION IS A HONEYMOON metaphor succeeds because it makes a complex transition comprehensible and emotionally manageable, yet its familiarity also hides variation and discomfort. It both connects and constrains, shaping how remission is understood and felt.

3.5. Personification

In Conceptual Metaphor Theory (CMT), personification represents a fundamental ontological process through which individuals conceptualise abstract or non-human entities in terms of human qualities, intentions, and behaviours. Lakoff and Johnson (1980) describe it as a mental process where human traits are mapped onto abstract ideas, helping people understand complex processes as if they were human.

As Kövecses (2002: 35) observes, personification is universally productive because human experience offers the most immediate and accessible framework for interpreting abstract phenomena. Yet, as Dorst (2011: 114) notes, its systematic empirical identification remains challenging, given its contextual and often subtle nature.

In the *Juicebox Podcast* corpus, personification animates physiological and biochemical processes, granting them agency, autonomy, and emotion. Most notably, insulin, blood glucose, and T1D itself are conceptualised as *person*, cooperative, resistant, unpredictable, or even antagonistic.

3.5.1. INSULIN IS A PERSON

Here, *insulin sensitivity* becomes an entity that moves independently, requiring pursuit. *Chasing* portrays it as a moving, hard-to-catch agent, highlighting the struggle to keep up with bodily changes.

(26) *We used to make settings changes multiple times a week – I was constantly chasing his insulin sensitivity.*

(27) *Don't get behind, because when you start chasing blood sugars, it takes a special kind of ninja level to crush a high and get it stable again.*

Blood glucose acquires mobility and resistance. The verbs *chasing* and *crush* turn glucose into an opponent that resists control, requiring exceptional skill (*ninja level*) to manage.

(28) *During that three-to-five-hour active insulin time, you can see its action – the way it was meant to be.*

Here, *active insulin* is framed as an autonomous agent fulfilling its purpose. *The way it was meant to be* attributes intention and design, as though insulin possesses its own will or goal.

(29) *Like it just right, you just start to, you know, when I see a drifting blood sugar, nowhere near a bolus, I don't think overfeeding the insulin, I just think, oh, the basal looks heavy.*

Feeding the insulin personifies insulin as a hungry entity requiring nourishment, while *drifting blood sugar* implies self-directed motion. The phrase, *basal looks heavy*, suggests a bodily perception, treating insulin as if it has physical weight and presence.

3.5.2. T1D IS A PERSON

T1D or *blood glucose* becomes an active aggressor that *messes you up*, attributing hostile agency to the condition. The disease acts upon patients rather than being a neutral physiological process.

(30) *It messes you up as a human being, right? If it's too low, it messes you up as a human being your blood sugar the same way.*

(31) *But I'm not letting it rule.*

Here, T1D is a would-be ruler that must be resisted. The metaphor frames patient-disease relations as a power struggle, where self-management entails rebellion against domination.

(32) *I don't think anybody gets through this unscathed.*

T1D becomes an adversary capable of inflicting wounds. The term *unscathed* evokes combat imagery, suggesting continual confrontation.

(33) *And I asked her, I was like, Tory, does diabetes hold you back?*

T1D is given the power to limit or restrict action. *Hold you back* portrays it as a physical force capable of restraint, casting patients as struggling against limitations imposed by an external agent.

In T1D discourse, personification turns bodily processes into independent agents, creating distance between self and body. When insulin sensitivity must be *chased*, patients appear to manage an unruly system rather than fail at control. This distancing can protect self-esteem, framing difficulties as struggles with external forces instead of personal faults (Gibbs, 2005).

Personification also translates complex biochemical processes into familiar social scenes. Agents have goals and moods; they cooperate, resist, or act unpredictably. Expressions like *blood sugar drifts*, *insulin works*, or *T1D holds you back* turn clinical management into a social drama with characters and actions, making experience more coherent and relatable (Gibbs, 2017). Phrases such as *the insulin's active* or *my sugars are chasing* condense physiological states into shared community shorthand, signalling competence and belonging.

At the same time, personification redistributes agency. When T1D *rules* or *holds you back*, the disease becomes the actor and the patient reactive. When insulin or blood sugar must be *chased*, *fed*, or *crushed*, patients seem perpetually in pursuit of bodies that resist control. Such metaphors can shift blame from patient to process, reducing guilt but limiting reflection (Mol, 2008). Adversarial personifications like *messes you up* or *holds you back* echo the broader ILLNESS-AS-ENEMY frame. As Semino (2008) notes, depicting disease as an aggressor can empower some while burdening others with expectations of heroic endurance. Similarly, military undertones in *unscathed* or *rule* cast management as continual battle, normalising struggle as the default stance toward one's body (Reisfield & Wilson, 2004).

Attributing intention, as in the way it was meant to be, encourages purpose-based thinking that oversimplifies biology. Insulin's action is mechanical, not purposeful. Yet personification persists because it makes impersonal processes easier to grasp and narrate (Pols, 2012). Speakers in *The Juicebox Podcast* use it strategically, mainly in storytelling or explanation, switching back to biomedical language when precision is needed. This shows that personification functions as a communicative tool, not a literal belief.

This flexible, reflective use aligns with Cameron and Maslen's (2010) view of metaphor as a dynamic discourse strategy: speakers adapt figurative language to clarify, connect, and express emotion. In this corpus, personification humanises data without collapsing science into superstition, adding humour, empathy, and control to a domain ruled by numbers.

Ultimately, personification shapes both understanding and identity. It turns molecular processes into human interactions, encouraging empathy with one's own body, yet it also reinforces imbalance, placing patients in cycles of pursuit and endurance. Figurative language in chronic illness thus both empowers and constrains, a dual tension central to patient meaning-making.

3.6. Other T1D conceptualisations

Beyond the primary metaphorical patterns examined above, several additional conceptualisations appear less frequently yet remain significant for understanding how speakers frame the lived experience of T1D. These include WAR AND STRUGGLE, GAME AND

SPORT, and EXPERIMENT metaphors. Each provides unique ways of thinking and communicating, along with specific emotional and ideological effects.

3.6.1. WAR AND STRUGGLE

Military metaphors appear widely in health discourse across different cultures and diseases (Lakoff & Johnson, 1980; Sontag, 1978, 1989; Reisfield & Wilson, 2004). In T1D communication, such metaphors appear in two main configurations: direct combat (e.g., *attack, fight*) and sustained conflict (e.g., *battle, combat*).

(34) *Like if I see it spiking fast like that, I attack it aggressively with insulin.*

Here, *attack* frames hyperglycaemia as an enemy to defeat. *Aggressively* intensifies the BATTLE frame, positioning insulin as a weapon used tactically against a hostile enemy.

(35) *We're fighting that system, fighting the highs.*

The repeated idea of fighting highlights ongoing struggle, suggesting chronic warfare rather than isolated battles. Blood glucose and medical systems become enemies on several fronts.

(36) *You have to fight it, you have to be aggressive about blood sugar correction.*

The phrase *have to* makes fighting seem mandatory. Those who do not *fight* may appear passive or careless, echoing the moral ideal of bravery found in heroic stories.

War metaphors validate the intensity of effort that T1D management involves. Calling management *fighting* recognises the constant effort it requires and can empower patients to show agency and resilience (Harrington, 2012; Semino et al., 2018). Yet this framing turns management into a moral issue: if T1D is a battle, patients become soldiers judged by their discipline and success. This implies that courage and aggression are virtues, and fatigue or resignation becomes a moral failure.

Moreover, war implies an endpoint and the chance of victory, ideas that do not fit a lifelong, incurable disease (Sontag, 1989). This creates an unrealistic demand for constant battle, leading to cycles of motivation and guilt. War imagery also glorifies aggression and quick fixes (*attack the spike*) over long-term care and self-compassion (Mol, 2008).

Speakers use WAR metaphors selectively, mainly in moments of crisis, to highlight effort and urgency rather than to describe daily management.

3.6.2. GAME AND SPORT

GAME AND SPORTS metaphors frame T1D management as a rule-based challenge that requires skill, strategy, and practice. They focus on mastery, learning, and achievement rather than conflict.

(37) *It's like playing a game where the rules keep changing.*

This phrase recognises unpredictability but keeps a playful tone. Management is seen as a skill that can be learned, even as the rules keep changing.

(38) *Once you figure out the rules of the game, you can play it better.*

Here, the *rules of the game* represent the implicit principles of management. The metaphor highlights skill development, i.e., improvement through experience and experimentation.

(39) *It's a juggling act – trying to balance everything.*

Juggling suggests coordination, timing, and balance. It acknowledges the task's complexity but implies that skill comes with practice.

Game metaphors offer an adaptive cognitive frame. By likening T1D to play, they normalise challenge and redefine frustration as part of skill acquisition rather than personal inadequacy (Nie et al., 2016). This framing emphasises agency and learning: unlike in war (where one reacts) or in journeys (where the path is given), games invite strategic participation: players test moves, learn, and improve (Lakoff & Johnson, 1980).

The game frame also accommodates variability: *rules keep changing* validates continual adjustment, portraying uncertainty as an intrinsic feature of play rather than a flaw in performance.

However, this metaphor has risks. It can downplay suffering, since games are voluntary, limited, and non-lethal, unlike the serious reality of T1D management. It also individualises responsibility: successful players are skilful, unsuccessful ones *play badly*. This framing can hide systemic inequality, differences in access to technology, education, or emotional resources. It can also create pressure to perform, encouraging comparisons and dividing the community into *good* and *bad* players.

Thus, while game metaphors encourage optimism and persistence, they risk romanticising self-discipline and masking structural constraints.

3.6.3. EXPERIMENT

Scientific EXPERIMENT metaphors conceptualise T1D management as hypothesis-testing, emphasising observation, iteration, and learning through feedback.

(40) *It's constant experimentation – trying different approaches to see what works.*

Here, management aligns with the scientific method: forming hypotheses, testing interventions, and interpreting outcomes. This framing legitimises trial and error as methodological rather than as evidence of incompetence.

(41) *I treat it like an experiment – if this doesn't work, we'll try something else.*

Scientific framing normalises failure as data rather than defeat. *If this doesn't work* becomes a step in a process of systematic exploration.

The EXPERIMENT metaphor highlights rationality, curiosity, and learning. It transforms the patient into an *investigator*, reinforcing the *expert patient* identity (Pols, 2012). By likening management to science, it recognises personal experience as valid knowledge.

The metaphor also reduces emotional burden: scientists expect uncertainty, so *not knowing* becomes acceptable. It treats unpredictability as part of discovery, not as failure, reflecting Lakoff and Johnson's (1980) view of metaphor as a tool for reasoning.

Yet this frame has limits. It can over-intellectualise experience, downplaying emotion and embodiment. Experiments need time, tools, and safety, resources that not everyone has. It also suggests that T1D's variability can be fully understood through testing, though it often resists such control (Mol, 2008). While mentally empowering, the metaphor can create unrealistic expectations of mastery and certainty.

Taken together, these lower-frequency metaphors, WAR, GAME, and EXPERIMENT, expand the metaphorical ecology of T1D discourse. Each offers distinct cognitive features:

- *War* emphasises urgency, struggle, and heroism;
- *Game* highlights learning, agency, and resilience;
- *Experiment* foregrounds rational inquiry and adaptation.

At the same time, each entails specific ideological implications: moralising effort (war), individualising responsibility (game), or idealising rational control (experiment). Speakers navigate these frames flexibly, drawing on whichever metaphor best fits a given context or emotional need.

The podcast format itself crucially shapes how metaphors are produced and interpreted. Spoken interaction allows meanings to evolve collaboratively in real time: speakers test, extend, and sometimes reject figurative framings in response to others' experiences. Unlike written narratives or clinical documentation, podcast talk captures hesitation, laughter, and affective tone, revealing the emotional labour of metaphor use. This dialogic immediacy highlights metaphor not as a fixed linguistic choice but as a dynamic process of negotiation through which community members co-construct understanding and reinforce a shared sense of agency.

This diversity of figurative repertoires demonstrates that metaphor in patient discourse is not a fixed schema but a dynamic interpretive toolkit, enabling individuals to construct meaning, negotiate identity, and manage emotion within the demanding realities of life with T1D.

4. Conclusion

This study analysed metaphorical framing in *The Juicebox Podcast* to explore how a patient-generated community constructs shared understandings of T1D through figurative language. Across 952,666 words from 81 episodes, five dominant conceptual metaphors were identified: T1D MANAGEMENT IS MATHEMATICS, BLOOD GLUCOSE IS AN OBJECT, T1D IS A JOURNEY, REMISSION IS HONEYMOON, and PERSONIFICATION, alongside additional patterns of WAR/STRUGGLE, GAME/SPORT, and EXPERIMENT.

These metaphors act at once as thinking tools, communication strategies, and ideological frames, shaping how patients understand their condition, connect with others, and assert agency in chronic illness. The MATHEMATICS metaphor does not function simply as a numerical description but as an experiential mapping grounded in orientational schemas such as QUALITY IS QUANTITY and LESS/MORE (Lakoff & Johnson, 1980; Goatly, 2007; Imamović, 2015). Speakers draw on mathematical concepts, such as correct answers, variables, prediction lines, ratios, and algorithms, to structure the interpretive

work of T1D care. Metaphoricity emerges when evaluative or computational reasoning is projected onto bodily states, enabling patients to conceptualise uncertainty as a problem that can be modelled, tested, or optimised. This framing allows participants to articulate complexity, assert competence, and align embodied unpredictability with practices of reasoning and calculation.

Taken together, these metaphors form a community lexicon that enables efficient knowledge sharing and emotional validation. The podcast exemplifies Wenger's (1998) *community of practice*, where metaphor signals competence and belonging. Speakers flexibly adapt biomedical language, translating it into accessible discourse that bridges quantified data and lived experience (Mol, 2008; Pols, 2012). This reflexivity shows that patients are not passive users of medical metaphors but active interpreters, negotiating between clinical logic and embodied expertise.

Each metaphor, however, carries ideological implications. MATHEMATICS, MALFUNCTION, and REPAIR framings can individualise responsibility by casting successful management as a matter of calculation, optimisation, and technical competence, aligning with neoliberal health ideals that valorise self-discipline, constant adjustment, and technological proficiency (Lupton, 2013). TOOL metaphors in particular foreground procedural mastery, implying that instability results from lacking the *right tools* rather than from the inherent variability of T1D. WAR metaphors valorise perseverance but risk moralising failure (Sontag, 1989), while GAME and EXPERIMENT framings emphasise adaptability yet may obscure inequality in resources (Mol, 2008; Pols, 2012; Nie et al., 2016). The community's critical awareness of these tensions: acknowledging variables, emotional labour, and systemic constraints, demonstrates sophisticated metaphorical agency rather than naïve adoption (Charteris-Black, 2018; Semino et al., 2018).

Methodologically, this study extends metaphor analysis to naturalistic, dialogic patient discourse, complementing previous research on written narratives (Semino et al., 2018). It highlights how metaphor operates dynamically in conversation, revealing collective processes of framing, negotiation, and empathy. While limited by its single-case design and focus on English-language material, the findings invite comparative work across cultures and media to trace how different illness communities mobilise metaphor in everyday sense-making.

Practically, these results underscore the value of metaphor awareness in healthcare communication. Attending to patients' figurative expressions can reveal cognitive and emotional dimensions invisible in clinical data. Recognising that managing T1D involves both *calculation* and *meaning-making* may foster more empathetic and collaborative care.

Ultimately, metaphor in this community is not rhetorical embellishment but a cognitive and social necessity. It allows speakers to transform abstraction into action, isolation into dialogue, and chronic uncertainty into shared understanding. Through metaphor, patients turn the relentless labour of T1D management into a collective practice of reasoning, resilience, and linguistic creativity, a testament to how figurative thought sustains life in the midst of complexity.

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