



Transdiagnostic assessment of temporal experience (TATE) a tool for assessing abnormal time experiences

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Abstract

Currently, anomalous lived temporality is not included in the main diagnostic criteria or standard symptom checklists. In this article, we present the Transdiagnostic Assessment of Temporal Experience (TATE), a structured interview that can be used by researchers and clinicians without a comprehensive phenomenological background to explore abnormal time experiences in persons with abnormal mental conditions regardless of their diagnosis. When extensive data gathered by this scale are available, it will be possible to delineate well-defined anomalous lived temporality profiles for each psychopathological disorder. This instrument may also prove useful for clinicians by providing a more refined assessment of relevant psychopathological symptoms (for instance, the differentiation of different types of delusions according to their temporal profile) and an in-depth understanding of the patient's abnormal behaviour (e.g., impulsivity or social withdrawal) as related to specific types of time experience. In the first part of the article, we provide a brief overview of the phenomenological concept of temporality, including pre-phenomenal and phenomenal time, synthesis, conation and synchronization, and of abnormal time experiences in persons affected by psychopathological conditions. In the following part, we describe the basic structure of the interview that comprises seven categories corresponding to the abnormal features of lived temporality: anomalies of synchrony, of time structure, of implicit time flow, of explicit time flow, and anomalous experiences of the past, the present and the future. The paper also includes a section on administration and scoring of the TATE scale, the complete interview and a Likert table for quantifying the frequency, intensity and interference with daily life of the phenomena explored.

Keywords Abnormal time experiences · Assessment · Lived time · Phenomenology · Phenotyping · Rating scale

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1 Introduction

Temporality, or lived time, is a basic feature of human experience. In everyday life, we find ourselves directed toward a more or less determinate future, moving away from a gradually fading past. When we listen to a melody, we can't help but to tacitly anticipate the next note to come while the preceding note lingers in our consciousness. When we dance with a partner or play football with a friend, we synchronize with their movements. Most of us have no trouble planning a trip weeks or months in advance. And we often recall moments from our past with relative ease. But these features of lived time can't be taken for granted. Like so many other aspects of our experience—embodied, spatial, intersubjective, and so on—they are susceptible to disturbance or disruption, especially in psychopathological conditions.

Several researchers suggest that temporality is often disturbed in psychopathological states, with different disturbances characteristic of different kinds of disorders (Binswanger, 1960; Kimura, 1992; Minkowski, 1933; Straus, 1947; von Gebattel, 1928). Lived time may be disturbed across various conditions, including schizophrenia spectrum disorders (Minkowski, 1933; Kimura, 1992; Gallagher, 2000; Vogeley & Kupke, 2007; Arzy et al., 2011; Fuchs, 2007a, 2013a, b; Bowden, 2013; Sass & Pienkos, 2013a, b; Stanghellini et al., 2016; Giersch & Mishara, 2017; Sass, 2019; Vogel et al., 2019), depressive disorders (von Gebattel, 1928; Straus, 1928, 1947; Minkowski, 1933; Binswanger, 1933, 1960; Bech, 1975; Kimura, 1992; Kobayashi, 1998; van Beek et al., 2011; Ratcliffe, 2012; Sass & Pienkos, 2013a, b; Borda, 2016; Stanghellini et al., 2016; Moskalewicz, 2018a, b; Vogel et al., 2018; Fuchs, 2001, 2013a, 2014, 2019a), mania (Alonso-Fernandez, 1982; Binswanger, 1964; Gruber et al., 2012; Fuchs, 2014; Bowden, 2013; Moskalewicz & Schwartz, 2020), obsessive-compulsive disorder (Bürgy, 2005; Doerr-Zegers, 2018; Fuchs, 2019b; Janet, 1919; Straus, 1948; Summerfeldt, 2004; von Gebattel, 1928, 1938), borderline personality disorder (Pazzagli and Rossi, 2000; Fuchs, 2007b; Stanghellini & Rosfort, 2013a, b; Rossi Monti & D'Agostino, 2014; Stanghellini & Mancini, 2019a), dark triad (Moraga et al., 2017), eating disorders (Garcia et al., 2017; Stanghellini & Mancini, 2019b), anxiety (Boniwell & Zimbardo, 2003; Nolen-Hoeksema et al., 2008; Åström et al., 2014; Miloyan et al., 2016; Williams & Carel, 2018; Åström et al., 2018; Aho, 2020;), addictions (Kemp, 2020; Messas, 2014), phobias (Doerr-Zegers, 2000; Tipples, 2015), and post-traumatic stress disorder (Stocker, 2020).

Contemporary research also suggests that differentiating temporal disturbances found across psychopathological conditions may be useful for subtyping or reclassifying disorders (e.g., Fernandez, 2019a, b; Fuchs, 2013a; Northoff, 2014; Ratcliffe, 2012; Sass et al., 2017). Some research also attempts to link phenomenological data on abnormal time experience with neural alterations (see, e.g., Northoff, 2019).

There are some psychological tools for researching time perception, such as Cottle's tests (Cottle, 1976) or the Zimbardo Time Perspective Inventory (Zimbardo & Boyd, 1999). However, these were not developed to analyze abnormal temporal experience. Phenomenological psychopathological tools, on the other hand, are typically developed only for a specific category of disorder (see, e.g., Ratcliffe's depression questionnaire; Ratcliffe, 2014) or some specific aspect of temporal experience,

such as temporal experiences of selfhood (see, e.g., Examination of Anomalous World Experience and Examination of Anomalous Self Experience scales; Parnas et al., 2005; Sass et al., 2017). In short, the currently available tools are not comprehensive.

For these reasons, empirical research on abnormal time experiences (ATE) is still in a preliminary stage, notwithstanding in-depth anecdotal findings and theoretical conceptualizations in the field of clinical phenomenology. This article provides the first fully phenomenological tool to facilitate large-scale empirical investigations of ATE in persons with abnormal mental conditions regardless of the diagnosis: The Transdiagnostic Assessment of Temporal Experience (TATE), a structured interview for clinicians and researchers. This instrument is meant to be used without nosographical constraints. By gathering data of ATE across different psychopathological populations, researchers and clinicians may be able to establish which ATE are typical of different psychopathological disorders. The results of studies conducted with TATE may help delineate the specific profile of different psychopathological pheno-phenotypes, that is, experiential phenotypes of psychopathological conditions (Stanghellini & Rossi, 2014). Capturing the subtle nuances of the kind of ATE characteristic of each patient can help clinicians understand what it is like for that patient to inhabit her life-world.

Section one of the article provides a brief overview of the phenomenological concept of lived time. It focuses on the structure of temporality and its various components that may be disrupted in psychopathological conditions. Section two introduces and summarizes the TATE scale. Section three outlines how to administer and score it. Finally, section four provides the full interview guide, including instructions for interviewees.

2 Time consciousness: basic concepts

In this section, we describe some basic concepts related to temporality, building on phenomenological studies. This is not, however, a comprehensive phenomenological account of temporality. Rather, we confine ourselves to those aspects of temporality that are relevant for the correct understanding and use of the interview we present here.

Pre-phenomenal and phenomenal time Temporality is lived through but not necessarily the object of conscious experience (Straus, 1947; Scheler, 1973; Tatosian, 1981). We therefore distinguish “pre-phenomenal” or “implicit” time from “phenomenal” (Northoff & Stanghellini, 2016) or “explicit” time (Fuchs, 2005a, b; 2013a). Ordinarily, time is not the object of experience. Rather, I experience *through* time. When I prepare a meal, write an email, or go for a walk, my attention is absorbed in the task at hand. Even if I prepare a meal to avoid buying lunch later that day or write a note to clarify a point I made in a meeting yesterday, the future or past aren’t the explicit objects of my experience. Rather, the future and past are implicated in the task that I find myself in the midst of. They shape the sense or

meaning of my current activity, even though I don't reflect upon them. If someone were to ask why I'm making lunch before I've had my breakfast, I would, of course, be able to explain that I want to avoid buying lunch later that day. But this kind of reflective act pulls me out of my everyday absorption in which time is lived as pre-phenomenal or implicit. Time, in this sense, constitutes one of the background conditions for experience.

However, as the reflective example illustrates, there are also experiences in which I do take time itself as an object. In some cases, I may do this purposefully; I may look at the clock on my way out the door or check my stopwatch while out for a run. In other cases, the explicit sense of time may be thrust upon me; when I hear a knock at my office door, I may be jolted out of my absorption in my book and suddenly remember that I have a student arriving at noon. In still other cases, I may turn my attention to temporally located events, reflecting on a vacation I took with a friend last year or on the deadline, only days away, for an upcoming project. It's normal that in certain situations we feel that time is slowing down, as if what we are doing will never end or—on the contrary—we feel that time is running faster than usual. We've all had the experience of time dragging during a boring lecture or feeling that hours went by in mere minutes when lost in conversation with a friend. As phenomenologists argue, these differences in flow aren't always reducible to a failure to accurately estimate temporal duration. From the phenomenological standpoint, lived time cannot be measured in terms of objective temporal duration. I may, for example, underestimate time in quantitative units, but have no sense of acceleration or deceleration or indeed any structural disturbances. On the other hand, I may have a sense of acceleration when the flow is faster, yet still accurately estimate when some event will occur in the near future (Moskalewicz and Schwartz, 2020). These differences in flow may also stand in various relations to different affective states. My life may, for instance, feel heavily burdened by the past without experiencing deceleration of temporal flow. It's therefore helpful to distinguish the dimension of flow from experiences of duration, sequence, or tempo, since some specific disturbances may affect one of these aspects of temporal experience without affecting the others. All of these experiences bring time to the forefront of awareness, so that I experience time phenomenally or explicitly. Such experiences may focus on clock or calendar time—i.e., on time as measurable and discrete—but this isn't always the case.

Both implicit and explicit time are susceptible to psychopathological disturbances. However, such disturbances may also make the distinction more difficult to draw. When implicit time becomes disturbed, it may motivate us to reflect upon it, thus making it an object of experience. Yet the implicit level continues to function, even if in a disturbed or altered mode.

The phenomenal or explicit experiences of time are often available to our everyday reflective awareness, so interviewees may find it intuitive to answer questions about these experiences of past, present, and future, as well as temporal flow. It may be more difficult, however, for both the interviewer and interviewee to orient themselves toward the implicit or pre-phenomenal aspects of time. To clarify this level of temporal experience, we outline some of the core features of implicit or pre-phenomenal time that may become disturbed in psychopathological conditions.

The difference between “implicit” and “explicit” time (or “pre-phenomenal” and “phenomenal” time) is influenced by the classical studies of Husserl (1912–1915), Heidegger (1927), and Merleau-Ponty (1962) and others. And it is a key conceptual distinction in contemporary phenomenological psychopathology. We therefore rely on the distinction so that the results of interviews conducted with the TATE can be easily compared with recent phenomenological studies that may be more theoretical or speculative.

The implicit structure of temporality: synthesis and conation At an implicit structural level, time consciousness has a threefold structure consisting of protention (i.e., tacit anticipation of what is about to come), retention (i.e., tacit retaining of what has just passed), and presentation (i.e., the immediate present, which is stretched between the protention and retention) (Gallagher & Zahavi, 2012; Thompson, 2007; Zahavi, 2003, 2005). Time is never experienced as a series of now-points that we then stitch together into a temporal flow. Rather, the experienced present always has a width or depth (Gallagher & Zahavi, 2012); what we may refer to as an experience of the immediate present necessarily incorporates some (often vague) anticipation of what is to come and a retention of what has just passed. As time flows, our presentations become retentions and our protentions become presentations. For example, when listening to a melody, I tacitly anticipate the next note, then experience this note in the present, and then briefly retain it as it passes. This retention then determines the next note that I anticipate, and so on. There’s an important sense in which my experience of any particular note—*how* I experience the note—is necessarily shaped by the notes that I simultaneously anticipate and retain; all of this constitutes my experience of the present.

It’s important to remember that this all happens tacitly or implicitly. It’s a form of what Husserl (1912–1915) calls “passive synthesis.” When I listen to a melody, I do not actively predict that a specific note will be played next. In fact, only when my tacit anticipation is unfulfilled (e.g., because a different note is played) do I realize that I had any anticipation in the first place. Moreover, our protentions or tacit anticipations aren’t entirely determinate. When I see a glass fall off a table, there’s a spectrum of possible outcomes that will more or less fulfill my tacit anticipations. The glass may land undamaged, it may sustain a small crack, or it may shatter into a dozen pieces. All of these are within my implicit cone of possibilities and each one can fulfill my expectations.

This temporal synthesis of protention, retention, and presentation also plays a role in our experience of objects as continuous and permanent. As I walk around my friend’s house, I have a tacit anticipation of what it will look like from the other side. If I’ve never been to his house before, then this anticipation will be indeterminate; my anticipation may be fulfilled by a wide variety of experiences. If, however, I’ve been to his house countless times, then I’ll have a fairly definite anticipation, which may be easily unfulfilled or exploded (e.g., if he installed a new deck or redid the landscaping in his back yard).

Because temporal synthesis plays a fundamental role in the constitution of both self and world, disturbances of temporal experience can manifest in a wide variety of ways. Anomalies of implicit synthesis include, for instance, fragmentation of

time, which may occur in schizophrenia. I may, for instance experience objects as if they suddenly came into being or aren't the same objects I saw here a second before, despite the fact that they look indistinguishable.

At the level of implicit flow, there is also “conation”. Derived from the Latin *conatus* (effort, drive), conation refers to the basic “energetic momentum” (Fuchs, 2013a) of mental life which can be expressed by concepts such as striving, urge, or *élan*. Through conation, we move toward the implicit range of possibilities spread out before us. We don't simply anticipate later events. We always experience them with some kind of affective charge (see, e.g., Svenaeus, 2007); I may move forward with the affective pull of eager anticipation, turn away through fear or dread, or be dragged along in boredom or indifference. But, in addition to these normal variations in conative pull or momentum, there are also more dramatic alterations that might occur in various psychopathological conditions. In a depressive episode, for instance, I may feel that I cannot move toward possibilities or fulfill them; they may appear as empty possibilities that I could never achieve or arrive at. I may also experience temporary lock of time flow or abnormalities of time rhythm (slowing alternated with accelerating time speed).

Synchronization Finally, in everyday life, I may feel that I'm more or less in sync with those around me. We make our way through life at the same pace, easily engaging in the back and forth of conversation, matching each other's pace when walking to lunch, and so on. Synchronization is the capacity to pre-reflexively or reflexively coordinate my tempo with that of others. The bedrock of synchronization is a pre-reflexive spontaneous receptivity enabling me to feel attuned to a given place or relationship. First and foremost, I am attuned to the world and other persons through my emotional feelings as attunement is also the capacity to spontaneously orchestrate my emotions according to the other's emotions and adjust to it—a modulation of the emotional field between myself and the other. Synchronization as inter-temporality is thus linked to inter-emotionality. Inter-temporality and inter-emotionality are grounded in corporeality as a form of inter-corporeality (Fuchs, 2019a, b, c).

There are, of course, cases where we also find ourselves out of sync with others. For example, when learning a new dance with a partner, we may find ourselves out of step and need to consciously remind ourselves when to move forward or backward until we've developed the habits and motor skills of a more seamless engagement. Such moments of desynchronization are normal and, while sometimes jarring, tend to be resolved quickly. However, there are also more severe cases of desynchronization that occur in various psychopathological conditions (Fuchs, 2001). In a manic episode, I may feel that everyone else speaks too slowly, moves too slowly, thinks too slowly. I feel miles ahead of them. I have no patience for their easy pace. In other disorders, I may feel like I'm left behind. The world goes on without me and I can't keep up. I may also have basic cognitive problems with temporal orientation in clock and calendar time, which are necessary tools of social synchronization.

3 The Transdiagnostic Assessment of Temporal Experience (TATE)

The TATE framework is designed to facilitate its understanding and administration by researchers and clinicians without a comprehensive phenomenological background. TATE comprehends 7 categories or groups of items, corresponding to the features of lived temporality introduced above. In what follows, we provide a detailed discussion of each category.

Anomalies of synchrony (items 1.a – 1.c) comprises three sub-categories that concern synchronization between self and world. These include anomalies at the intersection of self and world (or self and others) as well as anomalies of structure and flow—the cognitive disorientation in clock time being of primary relevance. If temporal experience disintegrates in this respect, we may be disoriented in clock and calendar time, may have the feeling that events happening around ourselves have lost their synchronicity and temporal connectedness, or feel desynchronized from other people and from the world.

Anomalies of time structure (items 2.a – 2.c) comprises three sub-categories that concern the anomalies of implicit temporal structure of retention, primal impression, and protention that nevertheless leave marks on phenomenal time. Changes of implicit temporal structure affect the order of lived experience at a very basic level.

Anomalies of implicit time flow (items 3.a – 3.f) comprises six sub-categories that concern conation or the implicit temporal flow. Changes at this level affect the tempo of lived experience which can be slower or faster, display a general arrhythmia or come to momentary blockages.

The groups of items 2 and 3 are meant to capture pre-phenomenal temporality when it comes to the foreground in those conditions in which it breaks down, inducing bewildering experiences: time may appear strange or uncanny, incoherent or absurd; what is usually the implicit/tacit background of our experience becomes strangely evident and may even become the explicit content of experience. The phenomena grouped here may be quasi-ineffable or challenge the linguistic capacity of the person.

Passive synthesis and conation usually remain tacit, unless they are disrupted. Some patients may be astonished by the peculiarity of these sensations and are therefore unable to report them to the interviewer. For this reason, we need to provide an instrument to capture these strange phenomena via specific prompts that may help to elicit the interviewees' capacity of linguistic expression and also the corresponding clear-cut operational definition of each phenomenon.

Anomalies of explicit time flow (items 4.a – 4.c) comprises three sub-categories that concern the explicit temporal flow and therefore temporal becoming. The sub-categories cover anomalies in the directionality of time, including its reversal and circularity. All sub-categories point to the explicit sense of the lack of temporal progression in terms of earlier and later. Also the rupture of explicit time flow, taken for granted by everyone, may capture patients' attention who may report strange or uncanny lived experiences.

Anomalous experiences of the past, the present and the future (items 5–7) comprehend 27 sub-categories aiming to evaluate a series of anomalous experiences that reflect specific standpoints towards temporal instances, represented by the past, present and future.

These sub-categories assess narrative or biographical temporality; these items cover several nuances of anomalous lived temporality that subtends specific clinical conditions, ranging from mood disorder to post-traumatic stress disorder. There are many possible changes at this level and they can easily be consciously perceived. The past can be lived and remembered in a primarily negative or a nostalgic mode. We may voluntarily go back in time to re-examine what has happened. Some events of our past may seem completely unrelated to us as if they were not part of our lives. We may search for a momentary ecstasy in the present. We may imagine the future as an almost inexhaustible source of possibilities or have a sense that it is predetermined. We may have the belief that there is no future for us, or we may feel the need to plan it meticulously. We may be afraid that the future will only bring a sea of troubles and never opportunities and positive changes or feel that something unpleasant might happen out of blue that will destroy all that we have constructed.

TATE is designed to evaluate abnormal experiences of temporality without any reference to specific psychopathological conditions or nosographical categories. Currently, anomalous lived temporality is not included in the main diagnostic criteria or standard symptom checklists: we suggest that when extensive data are available, it will be possible to delineate well-defined "anomalous lived temporality profiles" for each psychopathological disorder. This instrument may also prove useful for clinicians by providing a more refined assessment of relevant psychopathological symptoms (for instance, the differentiation of different types of delusions according to their temporal profile) and an in-depth understanding of the patient's abnormal behaviour (e.g., impulsivity or social withdrawal) as related to specific types of time experience. As follows, the complete framework of the scale.

1. **Anomalies of synchrony**

- 1.a Desynchronization with objective time (orientation in time)
- 1.b Desynchronization of worldly events
- 1.c Desynchronization between ourselves and the world

2. **Anomalies of time structure**

- 2.a Jerky progression (disarticulation)
- 2.b Irruption
- 2.c Deja vecu

3. **Anomalies of implicit time flow**

- 3.a Acceleration
- 3.b Deceleration
- 3.c Arrhythmia
- 3.d Stagnation
- 3.e Urge to action
- 3.f 3.f Time stop

4. **Anomalies of explicit time flow**

- 4.a Circularity

- 4.b Time reversal
- 4.c Leap forward

5. Anomalous experience of the past

- 5.a Negative view of the past
- 5.b Nostalgia
- 5.c Over-reflection about the past
- 5.d Biographical disintegration
- 5.e Biographical depersonalization
- 5.f Reviving the past

6. Anomalous experience of the present

- 6.a Hedonism
- 6.b Fatalism
- 6.c Multi-possibility of the present
- 6.d Incompleteness
- 6.e Procrastination
- 6.f Urgency
- 6.g Search for Immediacy
- 6.h Inconsistency of the present
- 6.i Search for momentary ecstasy
- 6.j Racing against time
- 6.k Falling from the sky
- 6.l Search for repetitiveness
- 6.m Boring arrangement of time
- 6.n Tenseness

7. Anomalous experience of the future

- 7.a Over-confidence toward the future
- 7.b No future horizon
- 7.c Hyper-planning of the future
- 7.d Negative view of the future
- 7.e Premonition
- 7.f Fear of the sudden happening of the unpleasant
- 7.g Looking for revenge

4 Administration and scoring of TATE scale

TATE is a structured interview and no formal training is required although it is advised to have a basic phenomenological background (handbooks and manuals available include, e.g., Stanghellini & Mancini, 2017; Stanghellini and Mancini, 2019a, b).

The interviewer will read to the interviewee the *General Information to the Interviewees* section and use the prompts to facilitate the interviewee's understanding of the content of each item. Each item's operational definition should also be read during the interview. If the interviewee is uncertain about one prompt of a given item, please proceed to the further prompts. If you obtain an affirmative response, then proceed to assess the severity, skipping the remaining prompts.

To assess the *severity* of ATE, we provide a table that includes three aspects: intensity, frequency, and the impairment of everyday activities. The interviewer should retrain the maximum score reached in each dimension. For example, if a specific item is scored 5 for intensity, 4 for frequency and 3 for impairment, the interviewer should retain the maximum score reached, that is, 5.

TATE assesses ATE that took place during the *last month*. The interviewer will explain that their interest is not about the way the interviewee employs his/her time, but that they are interested in knowing how time is *experienced*, or how he/she lives the flow of time independently from what he/she is doing.

The whole interview requires about one hour to complete.

The interview, according to specific clinical or research needs, can be administered as a whole or for single items: for example, a research project can be aimed at studying the phenomenon of synchrony or the implicit temporal experience; on the other hand, in clinical settings, it may be relevant to evaluate the patient's point of view towards his/her past, present or future.

5 TATE Transdiagnostic Assessment of Temporal Experience Structured interview

5.1 General information to the interviewees

We would like to understand your experience of time. Rather than ask about your interests or habits, we want to know about how you live time, that is, how time flows in your life. Usually, time has a well-defined *direction*: from the present moment to the future, time always goes on. The *speed* of time may change depending on what we are doing: if we watch a boring movie, time seems to flow slowly; on the contrary, if we have a day full of interesting things to do, time passes in a heartbeat.

Time is continuous, it organizes everything and never stops. Everything that happens is arranged in time. We live in the *present* while we are engaged with work, family, leisure, friendship, etc. We remember the *past*, for instance important events of our lives; we know well what has happened to us and manage, more or less, to put these events in the right temporal order; as in a story, the present events are lived as the consequence of past events. We also feel that the present unfolds into the *future*, although we don't know what the future will hold.

Many things may affect our experience of time, for instance our hopes and fears, our expectations about the future, or memories of the past. All this is normal and happens to each of us. Sometimes, however, time seems to play some tricks.

Please try to answer the following questions. We're interested to know if something like this has happened to you *in the last month*. If any of the experiences listed below have occurred for you, then we're also interested in *how often they occur*, *how intense they are*, and *how much they interfere* with your daily life (the interviewer will use the Likert scale below).

Can you tell us how frequent it is, how intense it is and how much it interferes with your daily activities?

1 It never happens	1 I don't feel it at all	1 It does not interfere with what I do
2 Rarely	2 It's very mild	2 Slight interference, I almost don't notice it
3 Sometimes	3 It's mild but it's there	3 Slight interference but I can still manage with everyday activities
4 Quite often	4 It's pretty strong	4 It starts to interfere with my everyday activities
5 Very often	5 It's strong	5 It interferes much with most of my everyday activities
6 Nearly always	6 It's very strong	6 It interferes very much with almost all my everyday activities
7 It's always like this	7 It's unbearably strong	7 It interferes extremely with all my everyday activities

1. ANOMALIES OF SYNCHRONY

1.a Desynchronization with objective time (Orientation in time).

Some people find themselves disoriented in time and losing their grip on the measure of years, months, weeks, days, or hours. Does something like that happen to you?

Do you often check the calendar or your watch to know exactly what month or day it is?

Does it happen that you forget your age and find it difficult to tell or calculate it?

1.b Desynchronization of worldly events.

Time flows for us and others at about the same speed. In some cases, however, we may have the strange feeling that events, objects, and people move without any kind of coordination as if everyone and everything goes on its own. Does something like that happen to you?

Does it seem to you that something in the way things happen has lost its coordination, for instance the way people move or talk has become incongruous and strange?

Does it seem to you that things that should happen together happen on their own, for instance that people in the street stand or move one unrelated to the other, as if each one were going on their own without any relationship with the others?

1.c Desynchronization between ourselves and the world.

Time flows for us and others at about the same speed. In some cases, however, we may have the strange feeling that, for us, time moves at a different speed from

that of others. In this case we feel ourselves to move ahead of or fall behind other people, or to be out of sync with events of everyday life. For example, we may find it difficult to cross a road because we aren't coordinated with oncoming traffic. Does something like that happen to you?

Do you feel like you're out of sync with other people, for instance that others are thinking and moving like snails compared to you or vice versa?

Do you feel like you've lost touch with others and the world around you because everything seems to be going at a different speed than your own?

2. ANOMALIES OF TIME STRUCTURE

2.a Jerky progression (disarticulation).

Sometimes we may have the strange feeling that time is jerky, that it stops and then re-starts again, so things and people appear as a series of disarticulated images or snapshots. Does something like that happen to you?

Does it feel that everything is like a collection of distinct moments?

Do you feel that things and people are moving intermittently without any continuity?

2.b Irruption.

Sometimes we may have the strange feeling that the flow of time is interrupted by something sudden or extraneous. Does something like that happen to you?

Does it ever feel like time is suddenly interrupted by something odd?

Does it feel like something extraneous suddenly breaks in?

2.c Deja vecu.

Sometimes we may have the strange impression that we have already seen places, experienced events, or met people that are actually completely new. Does something like that happen to you?

Do you feel like you've already been in places you see for the first time?

Do you happen to meet people you feel you met already in the past, or that you have already experienced events or situations that are actually new to you?

3. ANOMALIES OF IMPLICIT TIME FLOW

3.a Acceleration.

Sometimes the flow of time may feel accelerated without an apparent explanation or that everything runs unusually quickly. Does something like that happen to you?

Does it feel like everything flows quicker, faster than expected?

Do you feel like things are happening at great speed?

3.b. Deceleration

Sometimes we feel that time is slowing down without any immediate reason, as if what we are doing will never end. Does something like that happen to you?

Do you feel that hours or days last much longer than usual?

Do you feel hours drag on one after the other with unbearable slowness?

3.c Arrhythmia.

Sometimes we may feel that time suddenly slows down and then suddenly it speeds up, as if time were losing its normal rhythm. Does something like that happen to you?

Do you feel that time flows inconsistently, that at certain moments it flows faster and then slower with no apparent reason?

Do you feel disoriented by the flowing of time that seems to change its pace and speed?

3.d Stagnation.

Sometimes we may feel that everything has stopped within us and that time no longer passes. Does something like that happen to you?

Do you feel like you've lost the impulse to act and are resigned to being unable to do anything?

Do you feel like you have lost the sense of time passing?

4.e Urge to action.

Sometimes we feel animated by a strong impulse to action, by an intense energy that everything seems within reach. Does something like that happen to you?

Do you have the feeling that the time has finally come to act, to get busy because you feel stronger than ever before?

Do you feel like you are finally able to break down all the obstacles that stand between you and your ambitions?

3.f Time stop.

Sometimes we may feel that time, without any apparent explanation, stops abruptly and suddenly or after a progressive slowing down. Does something like that happen to you?

Do you feel that time is stuck forever and that everything around and inside you doesn't flow any longer?

Does it feel like everything is completely still and not moving ahead anymore?

4. ANOMALIES OF EXPLICIT TIME FLOW

4.a Circularity.

Sometimes we may have the strange feeling that time turns on itself in a sort of vicious circle, as if it were spinning around a roundabout. Does something like that happen to you?

Do you feel like you are inescapably engaged in something repetitive that always returns back to itself like a spiral?

Does it feel like you're doing the same thing all the time, always starting over without time moving forward?

4.b Time reversal.

Sometimes we may have the strange feeling that the direction of time is completely reversed, that time is going backwards. Does something like that happen to you?

Do you feel like you're doing things you've already done as if you're going back in time?

Do you feel that the things around you are going back to their starting point?

4.c Leap forward.

Sometimes we may strangely feel that we are abruptly projected into the future or skipped an interval of time, as if time has suddenly jumped ahead. Does something like that happen to you?

Does it feel like time does not flow in a continuous way and you all of sudden jump into the future?

Do you happen to suddenly feel ahead of other people or of the events around you?

5. ANOMALOUS EXPERIENCE OF THE PAST

5.a Negative view of the past.

Everyone has some bad memories but some people feel that, on balance, there is a lot of negative in their life. Do you feel something like that?

Do you feel unable to put the adversities of past years out of your mind?

Do you feel that all the previous mistakes or wrong decisions continue to have an effect on your present life?

5.b Nostalgia.

Some people always think back to past moments as if they belong to a kind of golden age, in contrast to what happens in the present. Does something like that happen to you?

Do you feel nostalgic for bygone times?

Do you feel as if the good part of your life is now over?

5.c Over-reflection about the past.

Some people spend a lot of time reconsidering past event, reflecting continuously on what it is gone.

Does something like that happen to you?

Do you have a strong tendency to analyze your life history?

Do you continually reconsider and re-examine any past event?

5.d Biographical disintegration.

In some cases, one may have the feeling that the most important life events are disconnected, as if the thread that keeps them together were missing. Does something like that happen to you?

Do you feel that the choices, activities, jobs, and interests that you have experienced throughout your life are unrelated to each other, as if they were about different people?

Does it seem to you that the most important events of your past have happened a little at random, as if there were no history that connects them?

5.e Biographical depersonalization.

Some events of our past may seem completely unrelated to us or feel as if they were part of a fictional story. Does something like that happen to you?

Does it seem that something in your life isn't about you, as if it happened to another person?

Does it seem that some event or situation in which you were involved in the past now sounds false, as if it were an invented tale?

5.f Reviving the past.

Some people may relive events from the past as if they were spontaneously reemerging (not actively remembered) and as if they were happening right now. Does something like that happen to you?

Do you feel that events of the past re-emerge today with the same force as when they happened?

Does it seem that you relive them with the same intensity as if the past were not past?

6. ANOMALOUS EXPERIENCE OF THE PRESENT

6.a Hedonism.

Some people always need something very pleasurable and intense in order to feel alive. Does something like that happen to you too?

Do you prefer to get joy, satisfaction and pleasure right now, putting aside all the risks it entails?

Do you need to put excitement in every day and live each day as if it were the last?

6.b Fatalism.

Some people believe they are unable to actively manage their activities, being completely passive in the face of upcoming events. Do you feel something like this?

Do you think that things will go as they go and that there is no point in trying to change them?

Do you feel that fate determines a large part of your life?

6.c Multi-possibility of the present.

Some people feel a great energy and a great confidence in themselves, as if they had the capacity to accomplish a thousand things. Does something like that happen to you?

Do you feel like you have a lot of opportunities at your fingertips?

Do you have the feeling that you can accomplish a huge number of tasks here and now?

6.d Incompleteness.

Some people are afraid to complete the activities they are engaged in because they need to check and recheck them. Does something like that happen to you?

Are you afraid that what you are doing may contain something wrong and would you rather check it once again?

Do you think everything can be done better and would you rather keep your tasks open with the aim of improving them in the future?

6.e Procrastination.

Some people show a tendency to avoid their duties and to entrust them to the future. Does something like that happen to you?

Do you have the tendency to procrastinate whenever something is uncomfortable, unpleasant or difficult?

Do you feel there is always enough time to perform something extraordinary or difficult?

6.f Urgency.

Some people need to immediately complete all the tasks they are involved in because waiting is too stressful for them. Does something like that happen to you?

Do you have the tendency to immediately complete all your activities because if you let something pass away you will be continuously engaged in thinking about it?

Are you afraid that if you don't solve all the issues right away, things could go wrong?

6.g Search for Immediacy.

Some people are disinterested in long-term plans since they believe that life is made up of everything that is going on right now. Does something like that happen to you?

Do you feel like you frequently change friends, partners, interests, jobs, pleasure or something like these?

Do you feel that each moment of your life possesses its own feature, distinct from the other ones?

6.h Inconsistency of the present.

Some people sometimes feel they have lost the thread that links what is going on 'now' with what has happened before; life feels like a chaos of apparently unrelated experiences. Does something like that happen to you?

Does it seem that things are happening at random, without there being a common thread that binds everything?

Do you feel that what you are living in the present is inconsistent, as if there were no center in your experiences?

6.i Search for momentary ecstasy

Some people desire something very special and intense to make them feel like they're out of their everyday routine. Does something like that happen to you?

Do you look for something really exciting, enough to make you go beyond your everyday routine?

Do you need unusually strong and intense sensations in order to truly feel alive?

6.j Racing against time.

Some people often feel that they do not have enough time, that their life is a race against the clock to be able to do everything they have to do. Does something like that happen to you?

Do you feel like you are helplessly lagging behind your commitments?

Do you often check your watch to know exactly how much time has elapsed and how much time you still have to do what you're doing?

6.k Falling from the sky.

Some people are so absorbed in themselves that they are surprised at whatever happens. Does something like that happen to you?

Does it seem that everything is a surprise for you?

Do you happen to be amazed by what is happening to you because you would not have anticipated it?

6.l Search for repetitiveness.

Some people are fond of their habits and little inclined to novelty and change. Does something like that happen to you?

Do you feel that any change could make you uncertain or even be a danger or a threat for you?

Are you afraid to change the way you've organized your everyday life because things could be worse?

6.m Boring arrangement of time.

Some people, when they have nothing to do, feel that the hours never go by. Does something like that happen to you?

Are your days devoid of real interest and never seem to go by?

Do you feel the hours of the day are a bit sticky and slow?

6.n Tenseness.

Some people feel a fire burning within them that can speed up or slow down the hours. Does something like that happen to you?

Do you feel a great impatience inside you so much that it changes the course of time?

Do you feel a tension inside you that changes the course of the hours?

7. ANOMALOUS EXPERIENCE OF THE FUTURE

7.a Over-confidence toward the future.

Some people see the future as an almost infinite source of possibilities, novelties, and opportunities, ready to be grasped on the fly. Does something like that happen to you?

Does it seem that the future is a mine of events and situations that should not be missed?

Do you feel you are full of confidence for what's to come?

7.b No future horizon.

Some people have the feeling of being close to the end and that there is no future at all for them. Does something like that happen to you?

Do you happen to feel that the game is over for you, that there's no chance for new desires, hopes, or projects for you anymore?

Does it seem to you that anything important that could happen has happened already?

7.c Hyper-planning of the future.

The future is yet to come but some people try to define detailed plans and projects that are extended to different areas of personal activity. Does something like that happen to you?

Do you try to prevent problems and unforeseen events with detailed organization?

Do you feel that without good organization for the future you would feel uncomfortable?

7.d Negative view of the future.

Some people are particularly concerned about what might happen and they are afraid that the future will only bring a sea of troubles and unpleasant events. Does something like that happen to you?

Do you happen to be afraid that life's things and affairs will only get worse?

Do you have the feeling that something very negative can all of a sudden happen?

7.e Premonition.

Some people live with a sense of expectation that something extraordinary is about to happen, which is unrelated to their current facts or circumstances Does something like that happen to you?

Do you feel like you are about to have the revelation of a special mission to perform, or a particular task to carry out, which happens to only a few people or no one else but you?

Does it seem to you that something really special is about to be accomplished that nobody has yet noticed, affecting everyone but specifically concerning you?

7.f Fear of the sudden happening of the unpleasant.

Some people are always on guard as if at any moment, suddenly, something very bad could happen in the immediate future. Does something like this happen to you?

Do you often feel that something unpleasant might happen out of the blue? When you receive an e-mail or a phone call, are you afraid it's bad news?

7.g Looking for revenge.

Some people feel they have been wronged and they are looking for a moment to seek justice for themselves. Does something like that happen to you?

Do you feel so angry about what is happening so that you look for an opportunity to retaliate?

Are you waiting for the right opportunity to show everyone that you are much better than what others think?

6 Conclusion

Lived time may be disturbed across various conditions. Yet, at the moment anomalous lived temporality is not included in the main diagnostic criteria and in standard symptom checklists. In this paper, we presented the Transdiagnostic Assessment of Temporal Experience (TATE)—a structured interview that can be used by researchers and clinicians without a comprehensive phenomenological background. Its purpose is to explore abnormal time experiences in persons with different forms of abnormal mental conditions regardless of their diagnosis in order to delineate well-defined anomalous lived temporality profiles for each psychopathological life-world. Capturing the subtle nuances of the kind of abnormal time experiences can help understand what it is like for that person to inhabit her life-world.

Declarations

Conflicts of interest The authors declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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