EXPLORING TRAJECTORIES AND PREDICTORS OF PERCEIVED SESSION SPEED IN PSYCHODYNAMIC PSYCHOTHERAPY: A MULTILEVEL ANALYSIS OF CLIENT AND THERAPIST PERSPECTIVES

A THESIS SUBMITTED TO
THE INSTITUTE OF GRADUATE PROGRAMS
OF
İSTANBUL BİLGİ UNIVERSITY

AYŞE SENA ÖZEKİNCİ

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF ARTS
IN
CLINICAL PSYCHOLOGY

2025

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Date of Approval: 6/20/2025

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ABSTRACT

This study investigated how both clients and therapists perceive the speed of therapy sessions in psychodynamic psychotherapy, how these perceptions evolve over time, and which factors influence them. Using multilevel modeling, data from 1640 sessions conducted with 71 clients and 21 therapists were analyzed to explore trajectories and predictors at the client, therapist, and session levels. Clients' perception of session speed followed a U-shaped course: fast at the beginning, slower in the middle, and fast again towards the end. Therapists showed two distinct patterns: one group followed a reverse bell (U-shaped) curve, while the other displayed a bell-shaped pattern. At the individual level, clients' age, sex, type of diagnosis, application reason, and pre-treatment symptom levels did not show significant effects. Similarly, at the therapist level, most of the fixed variables were found to have no effect; only some pre-treatment symptoms were found to have significant effects in interaction with the process. At the session level, sessions were experienced as faster when clients reported positive emotions, and slower when they reported negative or aversive feelings. For therapists, feelings of relief and surprise were associated with faster sessions, while anger led to a sense of deceleration. Clients' expressions of sadness were also associated with therapists perceiving the session as faster. Finally, although therapists and clients tended to report similar perceptions of session speed within the same session, the therapist's perception of the previous session did not predict the client's perception in the following session, and vice versa. Findings are discussed in relation to time perception and psychotherapy, with clinical implications and directions for future research.

Keywords: Perceived Session Speed; Time Perception; Emotions; Psychodynamic Psychotherapy; Multilevel Analysis

ÖZ

Bu çalışma, psikodinamik psikoterapi sürecinde hem danışanların hem de terapistlerin seansların hızını nasıl algıladıklarını, bu algıların zaman içinde nasıl değiştiğini ve hangi faktörlerden etkilendiğini incelemiştir. Çok düzeyli modelleme kullanılarak, 71 danışan ve 21 terapist ile gerçekleştirilen 1640 seanstan elde edilen veriler, danışan, terapist ve seans düzeylerinde seyrin ve yordayıcıların incelenmesi amacıyla analiz edilmiştir. Danışanların seans hızı algısı zaman içinde U şeklinde bir seyir izlemiştir: sürecin başında hızlı, ortasında daha yavaş ve sonunda yeniden hızlı olarak deneyimlenmiştir. Terapistler ise iki farklı desen sergilemiştir: bir grup ters çan eğrisi (U-şekilli) bir seyir izlerken, diğer grup çan eğrisi şeklinde bir desen göstermiştir. Bireysel düzeyde, danışanların yaşı, cinsiyeti, tanı türü, başvuru nedeni ve tedavi öncesi semptom düzeyleri anlamlı bir etki göstermemiştir. Benzer şekilde, terapist düzeyinde sabit değişkenlerin çoğu etkisiz bulunmuş; yalnızca bazı tedavi öncesi semptomların süreçle etkileşim halinde anlamlı etkileri tespit edilmiştir. Seans düzeyinde, danışanlar pozitif duygular bildirdiğinde seanslar daha hızlı deneyimlenmiş; negatif ya da aversif duygular bildirildiğinde ise daha yavaş algılanmıştır. Terapistler için rahatlama ve şaşkınlık duyguları daha hızlı geçen seanslarla ilişkiliyken, öfke daha yavaş bir zaman algısıyla ilişkilendirilmiştir. Ayrıca, danışanın ifade ettiği üzüntü duygusu da terapistin seansı daha hızlı algılamasıyla ilişkilendirilmiştir. Son olarak, aynı seansta terapist ve danışan genellikle benzer seans hızı algıları bildirmiş olsalar da, terapistin bir önceki seansa dair algısı danışanın bir sonraki seans algısını, ya da tersi yönde, yordamamıştır. Bulgular, zaman algısı ve psikoterapi bağlamında tartışılmış; klinik çıkarımlar ve gelecekteki araştırmalar için öneriler sunulmuştur.

Anahtar Kelimeler: Algılanan Seans Hızı; Zaman Algısı; Duygular; Psikodinamik Terapi; Çok Düzeyli Modelleme

ACKNOWLEDGMENTS

I would like to express my heartfelt gratitude to my advisor, Assoc. Prof. Dr. Alev Çavdar, for her invaluable support and contributions throughout the entire thesis process. From the earliest stages of developing this study, her insight and guidance have been indispensable. Working with her and having the opportunity to learn from her during my master's education has been truly meaningful. Her steady presence and encouragement played a significant role in helping me maintain both my motivation and belief in this work.

I would also like to sincerely thank Assist. Prof. Dr. Taner Yılmaz for his contributions both as a jury member and as my supervisor during the clinical training process. His support and guidance have greatly enriched my learning throughout this program. I am also grateful to Assist. Prof. Dr. Yudit Namer for kindly accepting to be part of my jury member and for her support.

One of the most valuable things this master's journey has given me is the deep and lasting friendship I've built with Elif Yaren Güleroğlu, Simge Köse, and Zeynep Gülbağ. The unconditional support, joy, and encouragement I received from them, especially in difficult moments, meant more than words can express. Without their presence, many parts of this process would have been much harder to navigate.

I also want to thank Esra Akça and Sinem Kılıç, for making especially the internship period more enjoyable and full of laughter. It was always comforting to know they were there whenever I needed anything, whether practical help or simply a friendly presence.

Finally, I would like to thank my family for their unwavering and unconditional support throughout my life.

Additionally, I would like to thank TÜBİTAK BİDEB for financially supporting my graduate studies through the 2210-A National Graduate Scholarship Program.

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1. INTRODUCTION

Time has been one of the oldest fields of endeavor in human history. Cycles such as the succession of days, the rising and setting of the sun, the beginning and ending of an event, and the birth and growth of a human being are among the most fundamental experiences that reveal the inevitable progression of time. The decrees of time are often unchangeable: day transitions to darkness; disease or catastrophe occurs; we all confront mortality (Schoen, 2019). However, the experiential quality of time is not limited to its objective functioning. The duration of an event, whether it spans seconds, hours, or a lifetime, is evaluated based on its perceived duration, sometimes feeling eternal and at other times fleeting (Wittmann, 2009). Nonetheless, the interpretations we derive from experience, whether long or short, are shaped by our sense of conformity or dissonance and our willingness to confront the demands of time.

The measurability of time is a concept that has been central to the physical sciences and classical mechanics, where time is a homogeneous and constant construct that flows independently of the outside world (Münster, 2022; Whitrow, 1988). However, a fixed period of time, such as ten minutes, can sometimes feel as long as an hour and sometimes as short as a few minutes, depending on the context, the emotions felt, and the level of attention (Droit-Volet & Wearden, 2016). Researchers interested in time perception often use duration judgment tasks to measure this experience. However, it is worth investigating not only how accurately the elapsed time is estimated but also how this time is felt. In some cases, time is perceived as a "frozen" or 'fleeting' experience, while in other cases, it can create a feeling of "flowing like water" (Flaherty, 1999; Wittmann & van Wassenhove, 2009).

The emergence of subjective time perception experiences, which we frequently encounter in daily life, within the context of psychotherapy processes where intense emotions are experienced remains an under-researched area. So much so that by the end of certain sessions, clients may be unaware of how the fixed 45-50 minutes has elapsed, whereas other sessions might feel like an endless, drawn-out experience. Yet, each session occurs

within the same objective time frame. Nevertheless, these sessions, each with equal length and a predetermined structure, can lead to markedly different time experiences for the client or therapist; some sessions may pass swiftly, while others may become an experience where time feels stagnant and heavy (Coşkun, 2023; Hartocollis, 2003; Loewenberg, 2015).

When the scientific studies conducted in this context are examined, it becomes evident that research on the evaluation of time perception is largely carried out in laboratory environments and through experimental manipulations. Most of these studies focused on measuring differences in time perception by varying factors such as attention level, emotional arousal, and cognitive load (Droit-Volet & Wearden, 2016; Sackett et al., 2010). However, some research has been conducted in more naturalistic settings, aiming to understand the experience of time in the context of everyday life (Liu et al., 2024). Nevertheless, research exploring the experiential quality of time in the context of psychotherapy is quite limited. In Frederickson's (1988) study, which is one of the only known examples in this field, clients were asked to estimate the time elapsed by the 40th minute of the session; these estimates were then compared with the temporal orientation of the session content. The findings revealed that sessions focused on the past were perceived as longer, while those focused on the present or future were seen as shorter. However, this approach is limited as it concentrates on the temporal dimensions of the themes in the session content rather than the phenomenological experiences of the direct felt flow of time.

This study aims to examine both clients' and therapists' subjective perception of time in psychodynamic psychotherapy sessions, especially their evaluations of whether the session passes quickly or slowly, and the factors affecting this perception. Psychodynamic therapy, within its fixed and structured framework, offers a field of experience in which unconscious processes are intensely experienced and linear temporality is sometimes suspended. Although the structure of the session is objectively fixed, internal experiences during the session can significantly differentiate perceptions of the flow of time. Moreover, this is not limited to the client. Although the therapist is obliged to observe both the external timing and the internal rhythm of the client, some

sessions may pass by for him/her in a flash, while others may drag on as if they will never end (Coşkun, 2023; Hartocollis, 2003). In this context, the aim of this study is to make in-depth sense of this bidirectional subjective experience of time in the therapeutic process and to reveal which individual or session-specific factors shape this experience.

In the following sections, psychological and cognitive processes influencing time perception will be examined in light of the literature, followed by an evaluation of the meaning of time and its positioning within the session within a psychoanalytic framework. Finally, the subjective perceptions of time reported by both clients and therapists at the end of the session will be analyzed using a multilevel modeling approach, and the relationship between time perception and individual and session-specific variables will be examined using multilevel models. The findings will be discussed in terms of the relationship between the speed of time transition and intra-session emotion, different aspects of therapist and client experiences, and the interaction of time perception with possible transference relationships. In this respect, the study aims to make a unique contribution by considering time in therapy not only as a structural phenomenon but also as an experiential and relationship-based phenomenon.

2. LITERATURE REVIEW

2.1. Time

In this study, emphasizing that time is a subjective experience, the definitions of the concept of time in different disciplines will be discussed first. Next, cognitive models related to the perception of time and approaches that explain the impact of emotions on the experience of time will be examined. Then, the conceptualization of time in psychoanalytic theory will be discussed, along with how time is experienced in the psychotherapy process, in line with this theoretical background. This framework aims to understand the subjective experience of time, which is the focus of the study, in a multi-layered manner.

2.1.1. What is time?

The concept of time has been a subject of interest in various disciplines throughout history, including philosophy, physics, psychology, and literature (Joannidis, 2005; Oestreicher, 2012; Stadter, 2012). Time is both a measurable dimension of nature and a structure at the center of human experience; due to this multidimensional and abstract nature, different disciplines have approached this concept from various angles. The diversity of these approaches reflects a broader cultural and historical variability; different cultures and historical periods have interpreted the concept of time in ways that align with their specific worldviews and lived realities (Whitrow, 1988). Time, therefore, resists a singular definition and instead appears as a concept shped by cultural, historical, and individual contexts.

One of the earliest examples of philosophical thought on time belongs to Saint Augustine. Augustine argued that time is both a divine creation and a phenomenon inherent in human consciousness (Hernandez, 2016). The past is something that no longer exists but continues to live on in the mind through memories; the future, on the other hand, is a reality that does not yet exist but is mentally anticipated. According to him, these three

aspects of time—past, present, and future—only come into existence through the mind. This approach reveals that time is more related to consciousness than to physical events. Augustine said that what he measured was not the past itself, but a trace that remained fixed in memory (Hernandez, 2016). This shows that the temporal measurement of the past is actually based on its representation in memory.

All human cultures respond to the experiential nature of time in three ways: they have organized their actions according to time, developed tools such as clocks and calendars to measure time, and created linguistic systems to express meanings related to time (Klein, 2009). All of these cultural and experiential structures reveal that the perception of time is shaped not only individually but also socially constructed.

Ancient philosophy also attempted to characterize the essence of time. Aristotle argues that time is related to motion and can be defined by the concepts of “before” and “after.” According to him, time is the number of motions, but he emphasizes that this number is a measurement that takes place in the mind (Klein, 2009; Oestreicher, 2012). Stadter (2012) emphasizes Aristotle's connection between time and change, stating that time is necessary to understand change.

In the physical sciences, however, time is treated as a more measurable and objective dimension. Münster (2022) states that the question of the nature of time is essentially a philosophical question. In this context, he quotes Wittgenstein: “Time is not the name of an object.” This approach implies that time is not a fixed, observable entity, but rather a linguistic and conceptual structure. Kant, on the other hand, defines time as a pure intuition that precedes experience; according to him, time is the precondition of all perception. However, this a priori definition fails to explain why different cultures and individuals perceive time in different ways (Whitrow, 1988).

Historically, the concept of time has evolved from a singular structure to a multiple form. Oestreicher (2012) states that until the 17th century, there was no clear distinction between the three different dimensions of time: mathematical abstract time, physically measurable time, and duration experienced in consciousness. This distinction has made it possible to understand the objective and subjective aspects of time more clearly.

The measurability of time is one of the cornerstones of classical physics. Isaac Newton argued that time is an “absolute, real, and mathematical” entity. According to him, real time flows ‘equally’ in its own nature, independent of any external factors, and this structure is also referred to as “duration” (Klein, 2009; Münster, 2022). However, this absolute time cannot be directly experienced; humans can only measure time indirectly through motion. Therefore, Newton accepts that it is not time itself that is measured, but rather its manifestations, durations. This distinction maintains the measurability of physical time while also bringing a more complex philosophical debate about the nature of time to the forefront. Einstein, however, challenged this understanding of absolute time with his theory of relativity, showing that time can vary depending on the observer's state of motion and the gravitational field in which they are located (Klein, 2009; Scott, 2006). This theory revealed that time is not fixed but contextual, opening up the understanding of objective time to question.

One of the important thinkers who focused on the immeasurable aspect of time is Henri Bergson. He distinguishes time from “homogeneous time,” which can be understood through mathematical measurements, and argues that real time is a flow experienced continuously in our consciousness (Scott, 2006) .According to him, time is not a series of disconnected moments, but an experience of duration (durée) that continues uninterrupted in consciousness. Masler (1973) supports this view, describing Bergson's definition of time as “not a line made up of disconnected moments, but a flow with internal unity.” Martin Heidegger also does not view time as merely a measurable structure. According to him, time measured by a clock is far from representing the human experience of time. According to Heidegger, the “now” moment is pleasure, and time is essentially one of the building blocks of human existence (Heidegger, 1996). Measurable time is only an expression of cyclical repetitions; existential time, on the other hand, is shaped by the individual's orientation toward themselves, expectations, and memories.

Psychoanalytic and phenomenological approaches, on the other hand, address a more internal dimension of time. Loewenberg (2015) argues that time is not a fixed framework but a dynamic experience shaped by the individual's internal experience. Freud, on the other hand, argued that unconscious processes are not influenced by the flow of

chronological time, i.e., they are “timeless” (Abraham, 1976; Stadter, 2012). This brings us to a conceptual distinction that captures the dual nature of time: choronos and kairos (Joannidis, 2005). Choronos, is often conceptualized as a linear, measurable and external succession. In this view, time is defined by clocks, calendars and sequential events. However, some philosophical and psychoanalytic approaches emphasize another, non-contradictory but structurally different dimension to this objective form of time. This second kind of time is called kairos and is more related to subjective experience, intentions, meanings and emotional processes (Joannidis, 2005). According to this view, time is not only an external framework but also a structure that is organized in the human mind and gives meaning to experience. Kairos refers to an intensely personal form of time in which past, present and future are not separated by fixed boundaries, but rather intertwined. This kind of understanding of time manifests itself in the holistic flow of narratives, memories and expectations. For this reason, time should not be treated as a singular structure, but as a multi-layered concept that operates on multiple planes and has both objective and subjective aspects. This temporal dimension beyond chronos plays a fundamental role in making sense of one's own existence and experience (Joannidis, 2005).

These views demonstrate that time is not merely a physical variable but a multi-layered structure shaped by emotions, unconscious processes, and personal history.

2.1.2. Subjective and Objective Time

The "sense of time" stands out among our senses since time itself is immaterial (Wittmann & Wassenhove, 2009). Although it is not possible to physically point to a "duration object" like a table or a sound source, one may nevertheless feel the passage of time when waiting for something to finish or begin, and in more subtle ways when playing an instrument or listening to music. Human self-awareness engenders an intrinsic perception of time, encompassing duration; consequently, time, rather than space, serves as the primary medium through which individuals navigate life and pursue meaning (Heidegger, 1927 as cited in Buetow, 2004).

"Physical time" or "objective time" are terms used to describe time that is measured by clocks (Münster, 2022). However, there is also "phenomenological time," sometimes known as "subjective time," which is the period of time that we perceive to be evaporating in our unique experiences. Phenomenological time may seem to move more quickly or more slowly than physical time, depending on our current state of being. Based on an intersubjective consensus on the significance of clocks, an abstraction of subjective time produces objective time. Kernberg (2008) discusses the difference between objective and subjective time, stating that objective time is a scientific concept that can be measured in intervals, whereas subjective time is irregular, changeable, and influenced by numerous psychological factors.

Objective, or physical, time always has a constant flow rate (Choi et al., 2021; Zuzanek, 2024). The approximate duration can be calculated when traveling a certain distance at a certain speed. However, when this duration increases or decreases, the perception that time is passing quickly or slowly may arise due to the journey taking longer or shorter than expected. Objective time is constant for everyone and does not change according to specific factors, while subjective time is influenced by psychological factors. Bergson refers to this difference as “lived time” or “la duree” and states that it is influenced by individuals' internal processes (Zuzanek, 2024). Similarly with Joannidis (2005), Oestreicher (2012) distinguishes between Chronos, the uniform, measurable time of physics, and Tempus, the subjective and elastic experience of time shaped by emotional and cognitive states. While Chronos remains constant and independent of human perception, Tempus reflects the variability of lived experience, illustrating how psychological time often diverges from physical time. The subjective perception of time passing can be influenced by changes in external stimuli as well as an individual's emotional and cognitive state, but objective time typically advances linearly and in stable units (Mioni et al., 2020). In sum, while objective time progresses uniformly, subjective time is deeply intertwined with individual experience. Its perception is shaped by a complex interplay of cognitive, emotional, and contextual factors. The next section will examine how psychological research has approached this multifaceted phenomenon, highlighting the major influences on how time is perceived.

2.2. Time Perception

Time perception refers to the subjective experience of time and the individual's interpretation of event duration, constituting a fundamental component of psychological experience (Fontes et al., 2015; Sackett et al., 2010). In contrast to our eyes and ears, which have sensory cortices for detecting light and sound, our bodies do not have a sensory organ for measuring time, even though we undoubtedly have a feeling of it (Mioni et al., 2020). The perception of time results from the aggregation of stimuli linked to cognitive processes and environmental changes, involving a complex neural mechanism that can be influenced by emotional state, attention level, memory, and various diseases (Fontes et al., 2015).

Two distinct experiences can be referenced in the context of time perception (Sucala et al., 2010). The initial task entails assessing the duration of an event, specifically addressing the inquiry, “What was the length of this event?” The second aims to address the inquiry, "Did time elapse quickly or slowly?" Duration estimate determines the length of expired time, whereas passage of time judgment assesses the velocity of time's progression rather than the interval's length.

In studies examining time perception, two separate types of measurements are commonly used: duration judgment and subjective passage of time. Passage of time judgment (PoTJ) is a subjective evaluation of the speed at which time appears to pass in a given moment or context (Droit-Volet & Wearden, 2016). Unlike duration judgments (DJ), PoTJ assesses an individual's subjective experience of time's flow—for instance, the feeling of time "dragging" or "flying by"—instead of measuring the actual interval between two events. Individuals typically assess the speed of time passage using Likert-type self-report scales after completing a particular task or activity. On the other hand, in duration estimation, the individual is expected to estimate how long a certain time interval lasts. Judgments of the passage of time demonstrate a more phenomenological, metacognitive awareness of temporal flow, whereas duration judgments are based on the amount of temporal information processed, typically modeled by internal clock mechanisms such as scalar expectancy theory (Gibbon et al., 1984).

Temporal bisection task, which was first used in animal experiments in time perception studies, has started to be used frequently on human participants over time (Wearden 1991). In the first stage of the task, reference durations are introduced to the participants. For example, 400 m s for short duration and 1600 ms for long duration. As a result of this task, data such as whether the participants perceive time as longer or shorter than it actually is and their sensitivity to determining time are obtained (Droit-Volet & Meck, 2007). Other methods used in duration judgment studies are the verbal estimation task and the interval production task (Droit-Volet & Wearden, 2016). It is generally used to measure how psychological factors affect people's time perception. These two concepts should not be confused. Some studies have shown that there is no direct relationship between a person's perception of time passing quickly (high PoTJ) and estimating the duration as shorter or longer than it actually is (DJ). Wearden, O'Donoghue, Ogden and Montgomery (2014) showed in an experiment that although participants stated that time passed quickly during the same activity, this experience was not reflected in their duration estimates. In a daily life-based study conducted by Droit-Volet and Wearden (2016), it was shown that these two concepts are independent of each other. Although PoTJ and DJ measurements were collected simultaneously, no statistically significant relationship was found between them. In addition, it was found that some variables that affect the perception of time passing quickly or slowly—such as the current emotional state and the level of attention given to the current activity—only predicted PoTJ, but did not affect DJ. These findings show that PoTJ is based more on subjective experience, while DJ is based on cognitive estimation processes, and that time perception is too multidimensional to be explained by a single mechanism.

In studies conducted in this field, time perception, which is tried to be understood with different methods, changes with the interaction of many cognitive, emotional, developmental and clinical factors. While cognitive models focus on internal timing mechanisms and attentional processes, phenomenological and affective approaches emphasize the subjective nature of experience and the role of emotions. Developmental changes across the lifespan and clinical conditions such as depression or personality disorders further complicate the experience of time. Each of these dimensions will be discussed in turn in the following sections.

2.2.1. Cognitive Models of Time Perception

In an effort to measure how people estimate durations, cognitive models have been used to study time perception in great detail. Research in this area has focused on short-term events that last between milliseconds and a few seconds, and has investigated experimentally measurable time judgments (Grondin, 2010). The nature of time, which cannot be directly perceived by a sense organ, suggests that this concept is represented indirectly through cognitive processes. For this reason, theoretical models of time perception have generally attempted to explain the interaction of cognitive processes such as neural signal processing, attention and memory.

Among them, the internal clock model remains one of the most popular models. This widely recognized model proposes a pacemaker that generates temporal signals and an accumulator that gathers these signals (Allman et al., 2014; Buhusi & Meck, 2005). The pacemaker consistently produces signals at regular intervals, which are collected by the accumulator. These accumulated signals are then compared to a criterion duration stored in memory, enabling the subjective evaluation of time. An increased number of signals corresponds to the perception of longer durations, whereas a reduced number of signals leads to the perception of shorter durations. Distortions in time perception are attributed to interruptions, increases, or decreases in the frequency or speed of these signals, which serve as the fundamental units of the internal clock mechanism.

An alternative explanation for variations in perceived time is provided by the switch model (Gibbon et al., 1984). A switch regulates the connection between the pacemaker and the accumulator. Under normal conditions, the switch remains closed, allowing signals to pass freely from the pacemaker to the accumulator. However, various internal and external factors can cause the switch to open, preventing signals from reaching the accumulator. Arousal and attention play a significant role in modulating this switch.

The attentional gate model, based on the internal clock model, was developed by Zakay and Block (1995), who argued that the evaluation of time is directly related to the extent to which the individual allocates attention to temporal information. According to this model, the signals produced by the pacemaker must pass through a gate to reach the

accumulator; the level of openness of this gate depends on the extent to which the individual directs his/her attention to temporal stimuli. Limited cognitive resources necessitate a trade-off between temporal and non-temporal processes during information processing. When attention is allocated to non-temporal information, fewer signals are accumulated, resulting in the perception of shorter durations (Zakay & Block, 1995). Conversely, focusing attention on temporal information increases the number of accumulated signals, thus lengthening the perceived duration of events. In a study investigating the subjective speed of time passage (Martinelli & Droit-Volet, 2022), it was found that as task difficulty increases, time is evaluated as passing faster. In this case, the difficulty of the task distracted attention away from temporal information, so that time seemed to pass faster than it actually did.

Physical and environmental contexts also modulate time perception. Conditions such as darkness, cold, or isolation, particularly in the absence of temporal cues like clocks, can lead to significant distortions in the experience of duration (Whitrow, 1988). These findings align with cognitive models, particularly those emphasizing the role of attention and environmental inputs in maintaining the accuracy of internal clock mechanisms (Zakay & Block, 1995).

Attentional processes are not the only cognitive explanations for time perception; arousal also affects how time is perceived. According to arousal-based models, an individual's arousal level affects the pacemaker's internal clock system production rate (Droit-Volet & Wearden, 2002). This model suggests that the pacemaker operates more quickly and generates more signals during high arousal states. When there are more of these signals, the accumulator receives more signals overall, giving the impression that more time has passed than has actually happened. As a result, time seems to have been extended. Ornstein (1969) criticized attention-based internal clock models of time perception and proposed the “storage-size model” in which he emphasized the role of memory rather than attentional processes. According to this model, if more stimuli are stored in memory during an experience or if these stimuli are encoded in a more complex way, the space occupied in memory expands and this leads to the perception of a longer duration. In other

words, the length of time depends on how much or how complex information is stored in memory.

Time perception is also related to working memory capacity. Research shows that individuals with high working memory capacity perceive time more accurately (Roy et al., 2012). However, when the amount or complexity of information exceeds working memory capacity, as is often the case with emotionally salient or significant experiences, individuals may struggle to accurately estimate durations. The most significant memories often last beyond the capacity of working memory, causing individuals to frequently struggle with estimating the duration of events (Sackett et al., 2010).

Overall, these theories indicate that time perception is not governed by a singular process but rather arises from the interplay of attention, arousal, and memory systems.

2.2.2. Phenomenological Perspectives on Subjective Time Experience

Among the approaches that argue that time perception should be considered not only with cognitive mechanisms but also in an intertwined manner with subjective experiences such as affect and attention, Glicksohn's (2001) phenomenological perspective is noteworthy. Criticizing the classical internal clock and cognitive timer models, Glicksohn (2001) argues that these approaches fail to adequately explain the experiential nature of time. According to him, time perception is directly related to the individual's attention directed inward or outward, level of arousal, and emotional involvement in the experience.

In states of low arousal and inward attention—for example, in meditation, intense melancholy, or inner pain experiences—time passes more slowly, and in some cases, a feeling of "timelessness" may even occur. Glicksohn (2001) defines this experience as "a moment full of information that fits into a single extended frame." Accordingly, the flow of time changes depending on the individual's "degree of immersion in experience"; in

some individuals, time is experienced as gaps that feel like endless or as fragmented moments.

When people say that “time flies” or “time drags on,” they are not referring to physical speed but rather to a subjective comparison. Even expressions such as “time slowing down” in physics are defined relative to another reference point (Tanaka & Yotsumoto, 2017). The feeling that time is passing quickly or slowly always relies on a comparison with a “normal” or “expected” time experience. Psychologically, people only perceive time as passing quickly or slowly by comparing it to their own familiar time experiences. This demonstrates that subjective passage of time is not absolute but rather a subjective construct that varies according to expectations.

This relativity becomes especially apparent when engaging in meaningful or pleasurable activities—time seems to “disappear.” Conversely, when attention is focused directly on time, such as when watching a clock, it appears to move more slowly (Whitrow, 1988). While time passes quickly in good moments, painful experiences may have the opposite effect. Re-experiencing the trauma, due to echoing unconscious processes, the long-term consequence of this condition results in a "time stood still" character that lessens the experience of time, particularly after the traumatic incident (Kernberg, 20088). For instance, following a significant earthquake, survivors may articulate terror by stating that the shaking continued for minutes and appeared interminable, although it actually lasted only seconds (Karaaslan & Amado, 2021). Kernberg (2008) further notes that when the investment in relationships and activities is meaningful and nourishing, the time spent may be experienced as passing quickly. While this experience enriches the overall experience of life and prolongs the feeling of the time spent, when this investment is not made and meaningful commitment and interaction are not established, the experience may be seen as short and unproductive.

In everyday contexts, the perception of time can also become distorted during moments of pain, fear, anticipation, or alienation. Flaherty (1999) categorized these experiences, in which time is subjectively extended, under the heading of "protracted duration" and provided many qualitative examples. For example, one participant described his experience at the dentist as follows: "The dentist spent about 25–30 minutes working on me, but it seemed like hours." (Flaherty, 1999, p. 44). Similarly, another person who witnessed an armed attack described time slowing down as "I was not afraid. Everything moved in slow motion." (Flaherty, 1999, p. 55). It seems that the perception of time can be distorted not only in moments of crisis but also in ordinary but distressing experiences. An exaggerated perception of time experienced during a fever is an example of this: "I felt as though I'd been in bed for four or five hours. Actually, it had been only about an hour and a half." (Flaherty, 1999, p. 45). These narratives show that the subjective flow of time is shaped not only by the internal physiological clock but also by the person's emotional involvement and cognitive focus in the experience.

2.2.3. Affective and Motivational Influences on Subjective Time Perception

Affective moods and other internal and external elements (Gable et al., 2022) and contexts (Droit-Volet et al., 2013) influence subjective time perception. There is often a discrepancy between the physical duration of an event and its subjective experience. For example, the perception of an hour spent productively doing multiple tasks is vastly different from an hour spent idly. Our feelings about an event, whether it is something we want or do not want to happen, and even some external stimuli, can influence the perception of an event's subjective duration (Klein, 2009).

The valence of emotional states is one of the most extensively researched emotional factors influencing time perception. Valence refers to an individual's evaluation of an

emotional state, ranging from positive to negative (Gable et al., 2022). Valence-based models of time perception suggest that positive emotions lead to be perceived as passing more quickly, whereas negative emotions cause time to be perceived as passing more slowly. For instance, studies by Droit-Volet and Wearden (2016, 2017) showed that when participants felt happy, they perceived time as passing faster, and when they felt sad, they expressed that time seemed to pass slowly (Droit-Volet & Wearden, 2016; Droit-Volet et al., 2017). These findings have been consistent across age groups, suggesting a robust effect of emotional valence on subjective time. Similarly, in another study, to investigate the effect of emotional valence, when participants were asked how time passed (from very slow to very fast) by watching videos with positive, negative, and neutral emotional content (Martinelli & Droit-Volet, 2022), positive emotions gave the feeling that time passed quickly, while negative emotions gave the feeling that time passed slowly.

Droit-Volet and Wearden (2016) found that emotional states such as happiness and sadness, as well as attentional involvement in continuous activities, significantly influenced subjective passage of time evaluations (PoTJs) through an experience sampling technique conducted over five days with 40 real-time alerts per participant. Across both young and older adult populations, higher levels of happiness were noticeably associated with quicker passage of time judgments. Conversely, increased sadness correlated with a perceived slowdown of time; during sad periods, time appeared to drag. Notably, they found no correlation between PoTJs and conventional duration judgment tasks, including time production and verbal estimation. These findings emphasize that the experience of time flow is more closely related to affective and attentional processes than to internal clock mechanisms, providing strong empirical evidence for the theoretical dissociation between the passage of time and duration estimation. Research points out that subjective time dilation doesn't always mean a sense of time dragging, and time contraction doesn't necessarily mean time is passing quickly.

Liu et al. (2024) used experience sampling and diary methods to examine the predictors of passage of time judgments (PoTJs) in everyday life. According to their findings, the perceived speed of time over shorter time intervals (i.e., the previous 30 minutes) was significantly predicted by emotional valence and arousal. Importantly, cognitive factors such as alertness, attention to time, and time expectation also contributed to within-day PoTJs. In contrast, when participants evaluated the passage of time over the course of the entire day (of-the-day PoTJ), only time expectation and arousal remained significant predictors.

In addition to emotional states, attentional focus has also been examined within the same empirical frameworks that investigate emotional influences on time perception. For instance, studies by Droit-Volet and Wearden (2016) and Liu et al. (2024), which primarily explored the role of affect, also included measures of attentional involvement. Their findings suggest that emotional and attentional factors are not isolated mechanisms; rather, they tend to operate in tandem, influencing the subjective passage of time in complementary ways. This overlap indicates that individuals' engagement with a task, both affectively and cognitively, can shape their temporal experience.

There are also studies in the literature suggesting that time perception may influence emotional evaluations (Sackett et al., 2010). In the study conducted by Sackett et al. (2010), researchers tested how subjective time perception may influence individuals' emotional evaluations of their experiences. In a series of experiments, participants' perceptions of time passing quickly or slowly were experimentally manipulated, and their evaluations of the activities they experienced were then measured. The findings showed that participants who perceived time as passing more quickly evaluated the activities they experienced as more enjoyable, less unpleasant, or more satisfying. Additionally, this effect was found to be grounded in individuals' common belief that "time flies when you're having fun," and weakened when alternative explanations were presented. Sackett

and colleagues' (2010) study made an important contribution to the literature by showing that time perception can function not only as a result of experience but also as a determinant in the emotional interpretation of experiences. Their findings illustrate the reverse direction—how time perception can shape emotional responses. This supports a bidirectional relationship between affect and time perception, despite most empirical studies emphasizing only one direction.

However, researchers have also pointed out that valence alone cannot fully account for the complexity of time experience. Emotions such as sadness can, in some cases, make time feel faster rather than slower, particularly when they are accompanied by a strong sense of purpose or agency (Gable et al., 2022). In response to such inconsistencies, Gable et al. (2022) proposed the Motivational Dimensional Model of Time Perception, which focuses on the motivational direction of emotions rather than their valence. In their model, called the Motivational Dimensional Model of Time Perception, categorizes emotions can elicit approach motivation and others can elicit withdrawal motivation. The former drives an organism toward a desired outcome, whereas the latter drives it away from an unpleasant stimulus. For instance, disgust is associated with withdrawal motivation, while anger is associated with approach motivation. Depending on situational and dispositional factors, sadness can elicit either approach tendencies or withdrawal tendencies. Gable and colleagues (2022) assert that approach motivation accelerates time perception, whereas withdrawal motivation slows it down, irrespective of the emotional valence.

Empirical studies support this model. Gable, Neal and Pool (2016) conducted a series of experiments on how the motivational aspect of negative emotions affects time perception. They asked participants to watch a sad movie and rate how time passed on a scale (1 = very slow, 7 = very fast), the valence of the emotion they felt while watching the movie (1 = positive, 9 = negative), and the motivational aspects of this emotion (1 = move toward, 9 = move away). As a result, they found that those who watched the sad movie

perceived time as passing faster than those who watched the neutral movie, and their motivation score was closer to approach motivation. In the same study, participants were shown images containing high disgust, low disgust, and neutral images to test how time was perceived in emotions with high distancing motivation, and a temporal bisection task was applied. As a result of this experiment, Gable and colleagues (2016) found that images containing high disgust caused time to be perceived longer. In addition to these findings, another experiment in the same study investigated how time perception changes in relation to the motivational aspect of anger. Participants were divided into two groups; one group was asked to write about an experience in which they were able to take action against an unfair situation (approach motivation), and the other group was asked to write about an experience in which they remained passive in the face of injustice (withdrawal motivation). After the writing task, all participants were shown an anger-inducing movie and their time perception was assessed. The findings showed that participants who experienced anger with approach motivation perceived time as passing more quickly. This supports the hypothesis that approach orientation accelerates time perception. However, no significant correlation was found between motivational orientation, as measured by self-report, and time perception. This suggests that participants may struggle to assess the motivational tendency they experienced with insight.

Although this section has focused primarily on emotional and attentional influences, these mechanisms should not be considered in isolation from cognitive models. In fact, many of the experiments cited here, such as those involving task engagement, arousal, and attentional shifts, also provide support for attentional gate or working memory models. This convergence highlights that cognitive, affective, and motivational theories of time perception are not mutually exclusive but rather interdependent and overlapping.

2.2.4. Subjective Time Across the Lifespan: Developmental and Aging-Related Perspectives

Throughout life, individuals' subjective perceptions of time undergo gradual yet discernible changes. Age is a factor that is investigated in the evaluation of how, how fast or slow time deteriorates. Kernberg (2008) discusses various changes in people's perception of time throughout life, as well as the experiences of time as a child, such as time passing slowly due to the richness and novelty of their experiences, characterized by a sense of boundless endlessness. In early childhood, children experience the passage of time not in terms of hours or days, but only in terms of their internal rhythms - physical and emotional impulses such as hunger, the desire to play, lack of sleep (Bonaparte, 1940). For the child, time does not yet exist as an "outside" reality, but as a timeless, continuous state of "now". Therefore, the passage of time is not recognized or measured; the experience is continuous. However, as the child's perception of objects in the external world develops, time begins to be recognized as an external structure. The temporal limitations imposed by clocks, days and social order become a new reality for the child. Beginning to understand the "language" of clocks and calendars is both a developmental progression and a process of establishing a relationship with time. This transition represents the individual's transition from inner timelessness to social time. This transformation in relation to time is not only a cognitive skill, but also an emotional and existential restructuring, as the child must now live in harmony not only with the rhythm of his or her own desires, but also with the time structure of the external world.

On the other hand, with increasing responsibilities, routines and focus on goal-oriented progress towards the future with age, the dates in the past seem to shorten, but now they are experienced as moving rapidly. This perception of time passing more and more rapidly intensifies with age (Whitrow, 1988; Kernberg, 2008). Paradoxically, however, some descriptions also suggest that time can feel heavier and slower as one gets older, especially in emotionally burdened or monotonous contexts. Empirical findings are mixed. Some of the studies conducted in this field have found that older people evaluate time as if it had passed shorter than younger people for a longer period of time, such as the last 10 years, in retrospective time perception among different age groups (Wittmann

& Lehnhoff, 2005; Friedman & Janssen, 2010). However, no significant differences were found in their evaluations of time in shorter terms (such as the last week or month). A study examining the passage of time in the present found no significant difference between young and old individuals (Droit-Volet & Wearden, 2016). Taken together, these findings suggest that age alone does not account for variations in subjective time perception. Instead, a complex interplay of factors—including emotional states, daily experiences, cognitive engagement, and personality traits—shapes the way time is experienced across the lifespan.

2.2.5. Clinical Conditions and Subjective Time Experience

Considering the influence of emotions on the subjective experience of time, mood disorders, particularly depression, have been a frequently studied clinical topic. Depressed individuals often report feeling that time slows down or even stops (Ratcliffe, 2012). However, this subjective sense of slowing does not always align with performance on objective tasks such as time estimation. Droit-Volet and Wearden (2016) claim that although depressed individuals do not exhibit impairment in their ability to judge the duration of objective stimuli, they often report a significant slowing of time. This indicates that time perception is influenced not only by cognitive mechanisms but also by emotional processes.

Thönes and Oberfeld (2015), in a meta-analysis of 16 studies on depression and time perception, found that depressed individuals reported that time passed more slowly. In contrast, the same individuals did not differ significantly from healthy individuals in tasks such as time estimation, production, reproduction and time discrimination. This dissociation suggests that impaired time perception is a subjective and affective experience rather than an internal clock mechanism malfunction.

Similarly, in a study with both depressed and manic individuals, Bschor et al. (2004) found that depressed individuals perceived the flow of time as significantly slower, but both groups overestimated time in objective time tasks (especially in estimating long durations). This finding indicates that the effect of depression on subjective time flow

operates through different mechanisms than time estimation. In a study conducted with a group of clinically depressed people (Choi et al., 2021), participants were shown videos at different valance (positive-negative) and (high-low) levels to induce emotions and examine the difference between their perception of time. As a result of the study, it was found that people with depression perceived time passing more slowly than healthy people, especially in the negative valance and low arousal states. In a study (Mioni et al., 2020) investigating the subjective perception of the flow of time in individuals diagnosed with borderline personality disorder—where affect regulation difficulties are common and the core symptoms include intense, volatile negative emotions and dysfunctional regulation strategies—participants reported that time generally passed more slowly compared to the control group.

Although personality disorders are not directly examined in this chapter, it can be observed that the flow of time is disrupted in individuals with this disorder, which is characterized by intense affective fluctuations. These findings suggest that the perception of time in clinical patterns is not only about accurately estimating duration, but also a subjective experience shaped by the individual's emotional and motivational state.

2.3. Time in Psychoanalytic Approach

Psychoanalytic theory and therapeutic approaches based on this theory treat time not only as an external criterion or framework, but also as a fundamental dimension in which psychic experience is structured. In this context, time can be analyzed at three levels in psychoanalytic approach: theoretical, structural, and experiential. At the theoretical level, time and timelessness are explained through basic concepts such as the timelessness of the unconscious, Nachträglichkeit, repetition compulsion, and temporal regression. These concepts suggest that psychic processes may operate circularly or synchronously rather than conforming to a linear flow of time. At the structural level, elements such as the continuity of the analytic framework and the consistency of session timing and duration make time an organizing element of the therapeutic process. At the experiential level, for the client and therapist, time is experienced subjectively in transference and countertransference relations, in the reliving of the past in the present, and in the

formation of fantasies about the future. In this section, the concept of time in psychoanalytic theory will be examined, followed by a discussion of its role within the clinical structure, and finally, an exploration of its experience during the analytic process.

2.3.1. Psychoanalytic Understanding of Time

Psychoanalysis suggests that time is not merely an objective concept but a subjective experience deeply influenced by a person's inner world (Druck, 2019; Hinton, 2015; Kernberg, 2008;). Rather than just a straightforward progression from past to future, time can also be caught, repeated, or fragmented within an individual's unconscious framework. In psychoanalysis, time is defined as "le temps humain"; that is, time that enters human life directly and immediately and is experienced as personal, unique, and subjective (Loewenberg, 2015). Psychoanalytic time, as experienced, carries a subjective relativity, which operates as a personal time that is unevenly distributed, irregular, and inhomogeneous. Loewenberg explains this understanding of time through Thomas Mann's character Hans Castorp as follows: "But after all, time isn't actual. When it seems long to you, then it is long; when it seems short, why, then it is short. But how long, or how short, it actually is, that nobody knows" (Mann, 1924, p. 66 as cited in Loewenberg, 2015, p.772).

Time, in the psychoanalytic sense, is not a structure imposed by external reality, but an internal order that arises from the nature of consciousness (Abraham, 1976). Time perception is not solely dependent on mental processes; it is a highly variable experience that can be influenced by many factors, including age, physiological state, emotional intensity, and even chemical stimuli. Abraham (1976) notes that time is not yet developmentally structured in childhood, while in old age, the feeling that time is passing quickly becomes dominant. Additionally, under extreme conditions such as sensory deprivation or the use of psychoactive substances, time may be perceived as either expanded or compressed; this suggests that time is not an external construct but rather a subjective one.

According to Freud (1915), unconscious processes are not connected to a temporal system; that is, they are unaffected by the passage of time and do not distinguish between the past and the present. One manifestation of this is that time in dreams does not progress according to external reality; seconds feel like hours (Bergler & Róheim, 1946). The capacity to recognize the passage of time and to locate experiences between the past and the present is a product of secondary processes that emerge only with the development of the ego. Therefore, an awareness of an event, such as being able to say that was in the past and this is now, is typical of a time-conscious ego, not of an unconscious that operates without time (Freud, 1915).

Freud's concept of Nachträglichkeit most clearly reveals the non-linear nature of the psychoanalytic conception of time. According to this understanding, the traumatic meaning of a past event is only acquired through a later experience (Freud, 1895 as cited in Eickhoff, 2006). Instead of passively storing the past, memory reconstructs it through present experiences, so that the past is not fixed but variable and reconfigurable. In this understanding, memory is not a passive archive but a dynamic structure that is reshaped by the present (Seligman, 2016). Thus, the trauma becomes “truly” traumatic not only at the time of its occurrence, but also with the impact of a later event. Loewenberg (2015) explains this as a repressed experience in the past becoming emotionally viable only when triggered by a new event. This understanding forms the basis of Freud's views on childhood traumas: The first experience is recorded at the unconscious level, but a second event years later makes that first experience meaningful, emotionally processable, and thus the past event takes on meaning in the present. Nachträglichkeit therefore shows that temporality in psychoanalytic theory works in a bidirectional and circular way.

This theoretical structure explains not only how the past is represented, but also how time works in the therapeutic process. Seligman (2016) states that when the analyst is able to place and make sense of the patient's expression in time, “a gesture can become a communication” and this contributes to the expansion of the experience of time. If this endeavor fails, what is expressed remains just “noise”. In the therapeutic relationship, the analyst's accompaniment of the client's past and present experiences that have not yet been fully articulated is a contemporary re-staging of the process of Nachträglichkeit.

Schoen (2019) emphasizes that time is not only a boundary in the therapeutic framework, but a condition for the production of meaning: Structures such as session duration, frequency and intervals are not only limitations on time, but also provide a ground on which effects can occur. This shows that time in psychoanalytic work is both a technical tool and a dynamic content.

In the psychoanalytic process, the client's mental experience of time is not limited to the present moment; the mind often turns to the past or the future. The technique of free association makes it possible for the client to navigate through different layers of time (Hartocollis, 2003). However, in some cases this freedom can also bring with it a sense of timelessness. The analyst's directive to "say whatever comes to your mind" may lead the client into a space of emptiness where images of the past, fictions of the future or the flow of time are not felt. Such experiences stem from the inherently open-ended and deferred nature of psychoanalysis. In particular, the lack of a clear direction or outcome increases temporal uncertainty. Thus, analysis becomes a space where time both expands and sometimes disappears (Hartocollis, 2003).

Freud's concept of "repetition compulsion" (1926 as cited in McLaughlin, 1995) refers to an internal dynamic that interrupts the linear progression of time. According to this concept, the individual tends to reenact past and often traumatic experiences over and over again without realizing it. This is a form of resistance observed especially at the level of the id, and Freud explains this with the conservative tendency against change inherent in drives (Freud, 1926 as cited in McLaughlin, 1995). In terms of the concept of time, such repetitions make it difficult for the individual to "leave the past behind". Thus, time ceases to be a line flowing forward; past and present become intertwined. Especially in the psychoanalytic process, this is seen as the client reliving past experiences in present relationships and transference. The "repetition compulsion" therefore creates a state of temporal closure in which the past unconsciously occupies the present (McLaughlin, 1995). This mechanism also leads to denial of the passage of time. According to Kernberg (2008), such pathological repetition intensifies one's sense of lived time and prevents the normal integration of new experiences. This prevents the accumulation of new satisfying

experiences and creates an experience in which time is frozen. The person lives with the feeling that nothing changes.

According to Freud, an unbearable experience of the past is not only remembered but can invade the present and become relived (Seligman, 2016). In posttraumatic experiences, the person cannot feel that the event is in the past; the past and the present blend together. This is evident in symptoms and transference: symptoms conceal the past while repeating it, while transference unknowingly carries it into the present (Seligman, 2016). Thus, instead of integrating in a healthy way, the impact of the past suffocates the present and blocks the future.

In the therapeutic process, the patient is psychologically regressed to an earlier level of development. As Pulver (1995) states, with this regression, conflicting motives from earlier periods are reactivated. Especially in the case of temporal regression, the contents that the individual thinks or copes with in his/her mature periods are replaced by the thoughts he/she had in earlier stages of development. In other words, the individual begins to make sense of the internal situations and relationships they experience according to the more primitive thoughts of childhood. This perspective reveals the relationship between regression and the concept of time in psychoanalytic therapy: Temporal regression is when frozen, unresolved experiences from the past begin to shape the psychological reality of the present. This causes the past to seep into the present.

This theoretical aspect of time is embodied in clinical practice through specific frameworks. Session duration, frequency, interval and start and end points function not only as technical regulations but also as temporal structures that enable meaning production and analytic functioning. Therefore, the next section will discuss how time is structured in the psychoanalytic framework and the clinical function of this framework.

2.3.2. Time and the Analytic Frame

According to Jordan and Marshall (2010), the framework of psychotherapy pertains to the ethical and professional behavior of the psychotherapist and helps to ensure the therapeutic endeavor is safe for both the client and the therapist. The therapeutic frame

denotes a structured set of guidelines that defines the context for establishing a therapeutic relationship, as mutually agreed upon by the therapist and the patient (Coşkun, 2023). This framework, with its regular beginnings and endings, functions as a containment boundary that both limits the work and shapes its content. The continuity and repetitive nature of the sessions reinforces the patient's sense of trust while also re-activating past experiences of beginnings, separations and continuity. Yariv (1999) states that this framework "forms an outer skin, or psychic envelope as Anzieu (1990) defines it, for the interactions taking place inside" (p. 39), supports the processing of inner experiences, the structuring of emotions, and the development of self/non-self distinctions. The order itself allows for the gradual reflection of dispersed or overflowing emotions over time.

One of the fundamental paradoxes in psychoanalytic practice is that the therapist and the analysand agree upon the duration of sessions in advance. This duration is based on a standard time frame of 45 or 50 minutes, measured according to the public calendar and standardized clock time (Loewenberg, 2015). Thus, psychoanalysis functions within a dual temporal reality: the externally measured, objective session duration and the internal, subjective experience of time shaped by unconscious processes. The psychoanalytic therapeutic framework is intricately connected to time: the interval before the beginning of analysis, the age of the individual undergoing analysis, the length of analytical sessions, the timing of interpretations, and the overall duration of therapy (Abraham, 1976) . There are early and late patients; some patients refuse to accept that the session has concluded, fearing that departing may signify the termination of a relationship regarded as premature.

The patient is encouraged to engage in free association, liberating themselves from the constraints of time to experience timeless states within the structured duration, regularity, and frequency of the session (Stadter, 2012). Free association triggers unconscious processes, causing the client to mentally jump back and forth between the past and the future, which may significantly alter the patient’s perception of time (Hartocollis, 2003).

The analyst monitors the patient's internal state while simultaneously tracking time (Druck, 2019). Although it is assumed that the analyst and the analysand exist within the same temporal framework during the psychoanalytic process, the time they experience is

actually quite different (Hartocollis, 2003). The client's temporal experience is shaped by internal conflicts and regression, while the analyst, although accompanying the client, is positioned at a different level of temporality. Ogden (2004) argues that the holding environment offered by the mother to the baby has not only a physical but also a temporal dimension. According to him, the baby is vulnerable to the otherness of humanly constructed time (calendars, clocks, feeding intervals, etc.); the mother's softening of this "otherness of time" is vital for the continuity of the baby's self. Similarly, in the therapeutic relationship, the therapist is both the time-keeper as part of the frame - providing a secure boundary by adhering to the start and end time of the session - and attuned to the temporal experience of the client, accompanying her inner rhythm and flow of emotions. The time-limited nature of therapy, especially in moments of high regressive or transference intensity, can evoke feelings of separation or incompleteness in the client, so the therapist's time management is not only a technical but also a sensory responsibility.

Therapists' daily routines are often dictated by time; adhering to session schedules, managing clients' punctuality or tardiness, monitoring the remaining session duration, and assessing the remaining treatment time are perpetually prioritized in short-term treatments or during the termination phase (Stadter, 2012). The therapist may have difficulty managing tensions regarding time when working with a client and may fall into one of two extreme positions (Foehl, 2019). On the one hand, the therapist may become wholly absorbed in the client's subjective, timeless, and transitional experience, ignoring the objective reality and boundaries of time (such as the length of the session). On the other hand, the therapist may focus too much on the external demands of time, losing sight of the sense of time expanding or compressing in the client's experience. This can lead to either making the therapeutic process feel less real and grounded, or undermining the emotional depth necessary for analytic work.

Consequently, although the analytic framework provides a regular and repetitive structure of time, the experience of time within this structure may differ for the therapist and the client. The next section will discuss how time within this framework is subjectively experienced during the clinical encounter.

2.3.3. Subjective Experience of Time in the Clinical Encounter

In psychoanalytic clinical practice, the flow of time is primarily a subjective experience; sessions may feel either fleeting or interminably slow. Analysands often express this perception with remarks like, "Today went by so quickly," or "It just wouldn't end," or by anxiously asking, "Are we out of time?" (Loewenberg, 2015). From a psychoanalytic perspective, time perception is profoundly personal, shaped by developmental stage, emotional state, and the psychic configuration of the individual (Seligman, 2016). Whether in states of boredom or engagement, pain or pleasure, neurosis or psychosis, time may be perceived as expanded, contracted, fast, or slow.

Although both analyst and analysand inhabit the same objective time frame, their lived experience of time often diverges (Abraham, 1976). The client's temporal experience is shaped by unconscious conflicts and regressions, while the analyst, though present, maintains a different temporal stance. In this context, unconscious fantasies of halting time may emerge as defenses against separation or loss. In early psychic structures, such fantasies may reflect omnipotent attempts to control reality by stopping time altogether (Bergler & Róheim, 1946). The analyst, on the other hand, holds and regulates the temporal space of the session, attending not just to its duration but to how time expands, contracts, or freezes (Abraham, 1976).

Patients may experience certain intervals as endless or void-like. For the therapist, however, these gaps can signify meaningful pauses within a broader therapeutic rhythm (Yariv, 1999). Even with the same client, session durations may feel inconsistent: some pass swiftly, others drag on (Karippai, 2015). This suggests that the therapist’s perception of time is co-constructed and relational. Temporal experience is accessed through the rhythm and pacing of emotional states in the session (Yariv, 1999). Some emotional experiences unfold too quickly to be processed; others move with such aversive slowness that time seems suspended; still others evoke timelessness through their affective intensity.

Stadter (2012) illustrates how philosophical questions like “Does time really exist?” manifest in clinical work. He identifies two forms of temporal experience: time-near and

time-far. Time-near involves chronological awareness and use of external markers (e.g., clocks). Time-far lacks clear boundaries and unfolds cyclically, as in dreams or transferential enactments. These time-far dynamics, often intensified in transference and countertransference, help explain why session time can feel compressed or extended (Hartocollis, 2003).

Strong emotions can disrupt temporal perception; intense feelings may seem eternal. Individuals who rigidly maintain a static self-image may find it difficult to conceive of personal change over time (Masler, 1973). According to Kernberg (2008), time perception in narcissistic pathologies is deeply entwined with internal object relations and defenses. Denial of time may result in a frozen therapeutic space where transformation is obstructed. Similarly, some neurotic patients defend against loss and change by retreating into omnipotent fantasies that deny temporal progression (Bergler & Róheim, 1946).

Kernberg (2008) also argues that repetition compulsion serves as a temporal defense. Clients caught in compulsive repetition may evoke a sense of temporal standstill, leading the therapist to feel that time is not progressing. Leikert (2023) describes a case where the client's rapid topic shifts created a sense of spinning in circles. By gently redirecting attention to bodily sensations the therapist slowed the tempo, enabling deeper emotional access. Time, previously fragmented, became expansive and embodied.

A qualitative thesis by Coşkun (2023) highlights that psychodynamic therapists experience time as relational and subjective. Difficult sessions often felt slower, while fulfilling moments felt quicker. Therapists reported that fear and anxiety elongated time, while stimulating content compressed it. Many noted a perception of accelerating time with age. Variations in perceived session speed were linked to client characteristics, transference intensity, resistance processing, and session content. For instance, time felt slower when transference was blocked or the therapist felt bored. In trauma work, time was sometimes perceived as frozen, as in moments of extreme emotional intensity.

Altogether, these observations support the notion that time in the clinical encounter is not linear but contingent upon emotional and relational dynamics, making temporality a crucial element of the therapeutic process.

2.4. Current Study

This study focuses on examining the subjective nature of time perception in the psychodynamic psychotherapy process. Specifically, based on the perceived session speed assessments reported by therapists and clients at the end of each session, this study investigates the course of this perception over time, the individual and session-level affective factors influencing it, and the reciprocal relationships between therapist–client perceptions using a multi-level modeling approach. In naturalistic process studies, such as the therapy process, there may be high variance across process lengths, as in this study. Likewise, in longitudinal studies where the number of sessions or time points varies across participants, multilevel modeling is considered a robust statistical approach that accommodates unbalanced data and allows for the inclusion of all cases with at least two observations (Snijders & Bosker, 2012).

Although the duration of the session is fixed, both clients' and therapists' subjective assessments of whether the session passed quickly or slowly vary, suggesting that time is experienced as an internal rather than an objective experience.

This study aims to fill an important gap in the literature by focusing on the concept of subjective passage of time, particularly in the context of the therapeutic process. Although studies on the relationship between time perception and psychological processes are increasing, research on how this concept is experienced in the context of psychotherapy, especially as a unique experience in each session, is quite limited. In the present study, data obtained from end-of-session questionnaires were evaluated through multi-level analyses to assess how this perception is reflected in the therapeutic process.

3. METHOD

3.1. Participants and Processes

The sample was selected from the previously collected data of a naturalistic process-outcome research project on psychodynamic psychotherapy involving adult clients at İstanbul Bilgi University outpatient clinic. The data included numerous pre-therapy, process, and post-therapy measures collected over 4 years. For this study, clients for whom session speed data was incomplete were excluded. Additionally, since the objective of this study was to investigate the trends observed throughout the therapy process, only clients who participated in a minimum of eight sessions were included. Consequently, the final sample comprises data from 1640 sessions, involving 71 clients and 21 therapists. The total number of sessions per client ranged from 8 to 44 (M = 23.1, SD = 10.5). The duration of all sessions was 45 minutes.

The ages of the clients ranged from 18 to 42, with a mean of. 25.41 (SD = 5.78). The majority of the clients were cisgender women (78.87%), and the rest were cisgender men (21.13%). Regarding their level of education, 57.7% of the clients were university students, 31% were university graduates, and 11.3% were high school graduates.

Most of the clients mentioned their reason for application as Mood (26.76%), Relational Issues (23.94%) or Anxiety (22.54%). The remaining clients reported either issues that could be categorized as other (12.68%), Trauma (2.82%), or an intent to gain insight without a specific concern (11.27%). The majority of the clients were classified as having no diagnosis (85.18%), while 13.41% were diagnosed with episodic disorders, and 1.40% were diagnosed with personality disorders. The mean pre-treatment symptom levels of clients, as assessed by the three indices of the Brief Symptom Inventory, were as follows: 1.44 (SD = 0.62) for the Global Severity Index (GSI), 34.28 (SD = 9.15) for the Positive Symptom Total (PST), and 2.18 (SD = 0.56) for the Positive Symptom Distress Index (PSDI).

The therapists' ages ranged from 23 to 44 years, with a mean age of 27.90 (SD = 6.20). Of the therapists, 19 (90.48%) were female and 2 (9.52%) were male. The number of client participants per therapist ranged from 1 to 11, with a mean of 6.10 (SD = 2.55). The mean pre-treatment symptom levels of therapists, as assessed by the three indices of the Brief Symptom Inventory, were as follows: 0.50 (SD = 0.32) for the Global Severity Index (GSI), 19.24 (SD = 9.27) for the Positive Symptom Total (PST), and 1.32 (SD = 0.33) for the Positive Symptom Distress Index (PSDI). All therapist participants were studying in a clinical psychology graduate program offering psychodynamically oriented adult psychotherapy training, and at the time of the research, they were in the second year of the program and were in the internship process. Before participating in the research, they had received similar theoretical training on clinical interviewing and psychotherapy processes and had gone through the same supervision processes.

3.2. Instruments

As part of the protocol of the main study in which the data used in this study were collected, both clients and therapists completed pre- and post-therapy instrument packets at the beginning and end of the therapy process. In addition, after each session, both parties completed Session Form. Within the scope of this study, the question on perceived session speed from the Session Form, the emotion ratings from the Session Evaluation Scale – Emotions Form, the Brief Symptom Inventory (BSI) from the pre-therapy package, and demographic and clinical information obtained from the clinic’s database were used.

3.2.1. Session Form

These forms were completed by the client and therapist at the end of each session to evaluate how the session went and the emotions experienced during it. The Session Evaluation Scale-Adjectives Form (SEQ-AF) is a self-report scale developed by Stiles (1980) and adapted to Turkish by Uluç and colleagues (2019). The original form includes 12 adjectives that assess the session's experience rated on a 7-point bipolar scale (e.g., 1

= Easy; 7 = Difficult). An additional item regarding the perceived speed of the session was formulated in alignment with these adjectives by the advisor of the current study, who served as the PI of the naturalistic process-outcome research project from which the data was selected. The item required to evaluate each session from 1 = Slow to 7 = Fast; constituting the main measure of the current study.

The second part of the Session Evaluation Scale was developed by Stiles (1980) as an Emotions Form. In the naturalistic process-outcome research project, a revised version of the Emotions Form was used (Cavdar, 2022). The final list of 12 emotions included (happiness, sadness, fear, anger, surprise, contempt, disgust, guilt, relief, envy, jealousy) were selected based on foundational literature about fundamental emotions as well as psychodynamic diagnosis and formulation. A Principal Components Analysis (PCA) was employed for data reduction purposes, to condense the twelve emotion variables into a smaller number of composite groups without assuming any underlying latent constructs (Cavdar, n.d.). A 3 component solution explained approximately 60% of the variance. Negative Emotions components was composed of Sadness, Anger, Anxiety, Guilt, Shame, Negative Surprise (for Clients: $\alpha = .76$, for Therapists: $\alpha = .83$); Positive Emotions component was composed of Happiness and Relief (for Clients: $\alpha = .70$, for Therapists: $\alpha = .88$); Aversive Emotions component was composed of Envy, Jealousy, Disgust, Contempt, and Fear (for Clients: $\alpha = .81$, for Therapists: $\alpha = .82$. Since Anxiety as an emotion and the Negative – Positive Surprise differentiation was utilized only after the 3rd cycle of data collection, these emotions were excluded when calculating component scores for this study.

3.2.2. Brief Symptom Inventory (BSI)

As part of the pre-therapy data collection package, participants filled out Brief Symptom Inventory. Brief Symptom Inventory (BSI; Derogatis, 1992), adapted into Turkish by Şahin and Durak (1994), was used to assess the pre-treatment symptom levels of participants. The Turkish version of the BSI includes five sub-scales: Depression, Anxiety, Negative Self, Somatization, and Hostility, with the reliability of these sub-

scales ranging from .75 to .87 (Şahin & Durak, 1994). The scale also includes three index scores: the Global Severity Index (GSI), the Positive Symptom Total (PST), and the Positive Symptom Distress Index (PSDI), which serve as broad indicators of symptom severity. The BSI was administered using a 53-item self-report format, where participants rated their symptoms on a scale from 0 (not at all) to 4 (very much), with higher scores indicating higher symptom levels. The Turkish version has demonstrated strong validity, supported by correlations with other established measures and extreme group comparisons (Şahin & Durak, 1994). In this study, pre-treatment levels of the BSI were considered, both as client-level and therapist-level predictors. The pre-treatment index scores (GSI, PST, PSDI) were analyzed to assess symptom severity, with the assumption that these scores could influence the session speed from both the client's and the therapist's perspectives.

3.2.3. Demographic and Clinical Information

The clinic's database was used to collect demographic information about clients and therapists, specifically regarding age, gender, and educational attainment, as well as data related to the processes involved. The categorization of DSM diagnoses (including no diagnosis, personality disorders, and episodic diagnoses) was conducted broadly due to the limited number of clients receiving a diagnosis. Furthermore, the reasons for clients' applications (including mood disorders, relational issues, anxiety, academic or occupational concerns, trauma, attainment of insight, and other reasons) were incorporated into the analyses as predictors at the client level in this study.

3.3. Procedure

The data used in this study were derived from previously collected data of a naturalistic process-outcome research project at the clinic between September 2016 and September 2020. During this project, clients and therapists who provided consent were asked to complete pre-treatment and post-treatment survey packages, as well as session evaluation forms. These survey packages typically included self-report questionnaires assessing

symptoms, mentalization, and expectations from psychotherapy. The Brief Symptom Inventory index scores from the pre-treatment package were utilized for this study. Session and Emotion Evaluation Forms were completed immediately after each session, with both the client and the therapist filling them out separately. Throughout the process, both parties remained blind to each other's evaluations. Demographic information of the clients, including age and sex, along with process-related data such as termination type, were retrieved from the clinic's client database. This data was collected by the administrative assistant, who was unaware of the specific details before the analysis.

3.4. Data Analysis

All statistical analyses were conducted using R (version 4.4.2), primarily utilizing the lme4, lmerTest, and performance packages for multilevel modeling, and IBM SPSS Statistics (version 29) for descriptive statistics.

The analytic strategy followed a stepwise and theory-driven approach. In line with the nested data structure (sessions nested within clients, and clients nested within therapists), multilevel linear modeling was used to examine perceived session speed ratings from both clients and therapists.

As a first step, unconditional (intercept-only) models were fitted to estimate how much variance in perceived session speed could be attributed to the session, client, and therapist levels. Intraclass correlation coefficients (ICCs) were computed to guide the decision of including random effects and to justify the multilevel structure. These analyses showed substantial between-client and between-therapist variance, leading to the inclusion of both client-level and therapist-level predictors, as well as random intercepts and slopes where appropriate.

To address the first research question, which examined the temporal trajectory of perceived session speed, unconditional growth models were tested, with session number (and its quadratic term) entered as fixed and random effects.

For the second research question, which investigated the factors influencing perceived session speed, multilevel linear regression models were estimated separately for client-

rated and therapist-rated outcomes. Predictor variables were entered in groups (e.g., client-level, therapist-level, and session-level), and model selection was based on theoretical relevance and statistical fit.

To answer the third research question, which explored the relationship between client and therapist perceptions of session speed, concurrent and cross-lagged multilevel models were estimated, accounting for the nested structure and autoregressive effects.

4. RESULTS

To account for the hierarchical structure of the data, multilevel modeling (MLM) was employed, with sessions nested within clients and clients nested within therapists. Initially, longitudinal unconditional models were tested to examine both linear and quadratic patterns in session speed, allowing for random intercept and slope variation across both clients and therapists. However, in models that included random slopes, low variance and high correlation led to errors in the analysis. As a result, likelihood ratio tests (LRT) were conducted to determine the most appropriate model. Based on these tests, the final model selected strikes a balance between complexity and stability, while addressing the issues identified in earlier models. In therapist-rated session speed models, visual inspection of individual trajectories revealed marked heterogeneity in temporal patterns. To account for this variability, clients were classified into two groups—Bell-shaped and Reverse Bell-shaped—based on the sign of their quadratic trend. All subsequent therapist-rated analyses were then conducted separately for these groups. The models used for analysis are explained below.

Intraclass Correlation Coefficients (ICCs) were calculated based on null models — defined as unconditional linear mixed-effects models with random intercepts for clients and therapists but no fixed predictors—to assess the proportion of variance in perceived session speed attributable to differences among clients and therapists. For client-rated session speed, it was found that approximately 39.3% of the variance is due to between-client differences, while 6.7% is attributed to therapist-level differences and the remaining 54.0% to within-client (session-level) variance. In contrast, for therapist-rated session speed**,** 17.7% of the variance was due to differences between therapists, 13.3% to differences between clients, and 69.0% to residual variance.

In terms of predictor analyses, client-level predictors (age, sex, application reason, pre-treatment symptom level, and diagnosis) and therapist-level predictors (age, sex, pre-treatment symptom level) were tested in separate models for both client-rated and therapist-rated session speed. Following this, session-level predictors, including Negative

Emotions, Positive Emotions, and Aversive Emotions were included to examine the effects of emotional experiences during the sessions on perceived session speed. Finally, to examine the relationship between client and therapist perceptions of session speed, simultaneous, autoregressive, and cross-lagged analyses were performed.

4.1. Trajectories of Perceived Session Speed Throughout the Therapeutic Process

In order to illustrate how perceived session speed evolves throughout the therapeutic process, the findings about speed trajectories will be presented in two subsections: for the client-rated session speed and the therapist-rated session speed, respectively.

4.1.1. Trajectory of Client-Rated Session Speed

Initially, longitudinal unconditional models were tested to examine both linear and quadratic patterns in session speed, allowing for random intercept and slope variation across clients and only random intercept for therapists. Equation (4.1) presents the first model used to investigate the linear and quadratic trajectory of client-rated session speed throughout the therapeutic process:

$$PS\_Speed_{sct} = \beta_0 + \beta_1 \cdot Session_{sct} + \beta_2 \cdot Session_{sct}^2 + u_{0c} + u_{1c} \cdot Session_{sct} + u_{2c} \cdot Session_{sct}^2 + v_{0t} + \varepsilon_{sct} \quad (4.1)$$

In this model, results for the fixed effects model showed that the linear effect of the number of sessions was negative and significant (b = -0.03885, p = 0.00838), while the quadratic effect was positive and significant (b = 0.0009962, p = 0.01052). These findings support a U-shaped curve indicating that clients perceive the speed of sessions as gradually slower early in the therapy process, but faster again in later stages. However, this model suffered from convergence problems. In addition, the variance of the random slope defined for Session² was found to be quite low (Var = 0.0000025) and its correlation with the constant term in the model was -0.96 (r = -0.96). This suggests that the model was overparameterized and some parameters were not sufficiently supported by the data.

The model was simplified by removing the random slope for Session² at the client level. The resulting model, shown in (4.2), retained random slopes for Session at the client level while including a random intercept for therapists only.

$$PS\_Speed_{sct} = \beta_0 + \beta_1 \cdot Session_{sct} + \beta_2 \cdot Session_{sct}^2 + u_{0c} + u_{1c} \cdot Session_{sct} + v_{0t} + \varepsilon_{sct} \quad (4.2)$$

The results for the fixed effects in this simplified model showed that the linear effect of the number of sessions was negative and significant (b = -0.0388, p = 0.000902), while the quadratic effect was positive and significant (b = 0.001012, p = 0.003240). It was found that simplifying the model did not lead to any change in the trajectory, and the model ran smoothly without any convergence issues. As a result, likelihood ratio tests (LRT) were conducted to determine the most appropriate model. The more complex model showed a significantly better fit in the likelihood ratio test $\chi^2(3) = 11.16$, p = .011. However due to convergence problems, the simpler model was preferred, as it was technically more stable and interpretable.

The first session of each process was coded as 0, such that the intercept reflects the perceived speed at the beginning of therapy. For clarity of representation, the same multilevel model is also expressed in its hierarchical form below (see Equation 4.3), which explicitly separates fixed and random effects across sessions (Level 1), clients (Level 2), and therapists (Level 3).

Level 1:

$$PS\_Speed_{sct} = \beta_{0c} + \beta_{1c} \cdot Session_{sct} + \beta_2 \cdot Session_{sct}^2 + \varepsilon_{sct}$$

Level 2:

$$\beta_{0c} = \gamma_{00} + u_{0c} \qquad \beta_{1c} = \gamma_{10} + u_{1c} \qquad \beta_2 = \gamma_{20}$$

Level 3:

$$\gamma_{00} = \delta_{000} + v_{0t}$$

Mixed Model:

$$PS\_Speed_{sct} = \delta_{000} + \gamma_{10} \cdot Session_{sct} + \gamma_{20} \cdot Session_{sct}^2 + u_{0c} + u_{1c} \cdot Session_{sct} + v_{0t} + \varepsilon_{sct} \quad (4.3)$$

Table 4.1. presents the findings of the analysis. The intercept was 5.656 over 7, indicating a generally high level of session speed in the sample.

Table 4.1. Client-Rated Session Speed Predicted By Linear and Quadratic Terms For Session

Effect	Estimate	SE	95% CI		p
			LL	UL	
Fixed Effects					
Intercept (γ_{00})	5.656	0.182	5.291	6.021	<.001
Session (γ_{10})	-0.0388	0.0116	-0.0616	-0.0160	<.001
Session^2 (γ_{20})	0.001012	0.0003427	0.00034	0.00168	<.001
	SD		95% CI		
			LL	UL	
Random Effects					
Level-3 (Therapist)					
Intercept	0.483		0.00	0.88	
Level-2 (Client):					
Intercept [var(U_{0c})]	1.0343		0.820	1.317	
Session [var(U_{1c})]	0.0305		0.0174	0.044	
Level 1:					
Residual [var(R_{sc})]	1.20895		1.166	1.253	

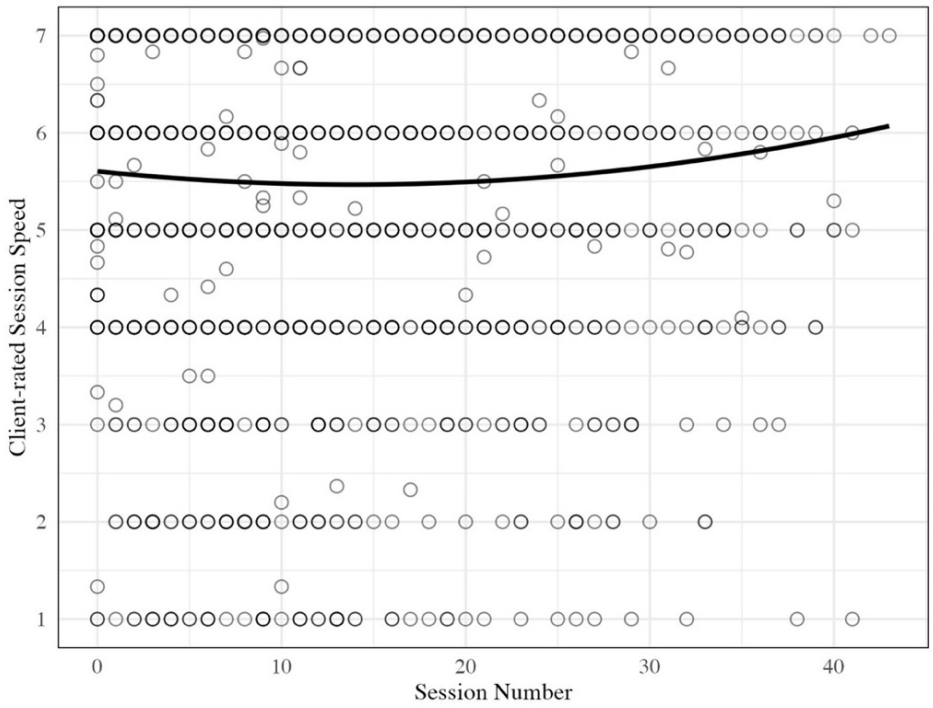
Note. Confidence intervals were estimated using the profile likelihood method. LL = lower limit; UL = upper limit of the 95% confidence interval. The 95% confidence interval for the therapist-level intercept standard deviation included zero (LL = 0.000), suggesting that between-therapist variability may be minimal or not reliably estimated in the current sample.

A significant variance was observed at the client level, with a substantial portion of the variance in session speed attributed to individual differences among clients. Specifically,

the variance of the random intercept was substantial (Var = 1.07), indicating marked differences in perceived session speed at the beginning of therapy. In contrast, the variance of the random slope for session number was small (Var = 0.00093, *SD* = 0.0306), suggesting that clients exhibited relatively similar patterns of change in session speed over time.

The significant positive quadratic effect indicates that, while session speed initially decreased, it began to rise again in later sessions, forming a modest U-shaped trajectory over time. Figure 4.1. illustrates the quadratic pattern in client-rated session speed, whereby ratings slightly decreased during the early sessions and increased again toward the later stages of therapy. This visual trend aligns with the significant positive quadratic time effect found in the model.

Figure 4.1. Scatterplot of Client-Rated Session Speed and Number of the Session With the Quadratic Trendline



The intercept – slope correlations of -0.335 for Session and 0.251 for Session² suggest that as the initial level of session speed for a client gets higher, the linear trend of initial decrease becomes less steep, while the curvilinearity (quadratic effect) becomes more pronounced, as marked by a slightly sharper increase in session speed as therapy progresses. The slight decrease and subsequent increase observed with increasing number of sessions explained approximately 0.5% of the variance in client-rated session rate when considered on a fixed-effects basis only ($R^2_m = .005$).

4.1.2. Trajectory of Therapist-Rated Session Speed

To examine how therapists perceived session speed over time, an initial multilevel model was tested with both linear and quadratic time effects, allowing random slopes at the client and therapist levels. However, this model encountered convergence issues, suggesting that some parameters were not well supported by the data. As a result, the model was simplified by including only a random slope for session at both levels. A likelihood ratio test indicated that adding a random slope for the quadratic term did not significantly improve model fit, $\chi^2(6) = 8.14$, $p = .228$; therefore, the simpler model was retained.

Despite the adequacy of the simplified model, visual inspection of individual trajectories revealed substantial heterogeneity in the shape of therapist-rated session speed curves. To better account for this variability, a two-group classification was applied based on the direction of the quadratic coefficient from individual-level models. Processes with a negative coefficient were categorized as showing a bell-shaped trajectory ($n = 29$), while those with a positive coefficient were classified as reverse bell-shaped ($n = 42$). Exploratory logistic regressions were conducted to identify any therapist- or client-level characteristics that might predict trajectory group membership. However, none of the measures included in this study significantly distinguished between the patterns. Therefore, all subsequent therapist-rated session speed analyses were conducted separately for the bell-shaped and reverse bell-shaped groups.

Equation (4.4) represents the individual-level regression model used for classifying the curvature direction of therapist-rated session speed.

$$PS\_Speed_{sct} = \beta_0 + \beta_1 \cdot Session_{sct} + \beta_2 \cdot Session_{sct}^2 + \varepsilon_{sct} \quad (4.4)$$

In addition to estimating the direction of session speed trajectories, model fit quality was evaluated by comparing linear and quadratic regressions for each client. For this purpose, both a linear model (with session number as the sole predictor) and a quadratic model (including the squared session term) were fitted to therapist-rated session speed data. The coefficient of determination (R^2) was computed for both models, and the model with the higher R^2 was considered the best-fitting trajectory for that client. In all cases, the quadratic model provided a better fit, and therefore it was used as the basis for classification.

4.1.2.1. Bell-Shaped Trajectory of Therapist-Rated Session Speed

Based on the results of individual-level quadratic regression analyses, 29 therapeutic processes (comprising a total of 669 sessions) were classified as exhibiting a bell-shaped trajectory in therapist-rated session speed. To model the temporal pattern of perceived session speed within this subgroup, a multilevel model was estimated. The model included fixed effects for session number (linear time) and its squared term (quadratic time), a random intercept and a random slope for session at the client level, and a random intercept at the therapist level to account for baseline differences across therapists.

A random slope was not included at the therapist level, as therapists in this group were already selected based on their shared trend pattern (i.e., bell-shaped trajectories), and adding additional slope variance across therapists would have been redundant and may have led to overfitting or convergence issues. The equation for the model are presented below.

$$PS\_Speed_{sct}^{Th} = \beta_0 + \beta_1 \cdot Session_{sct} + \beta_2 \cdot Session_{sct}^2 + u_{0c} + u_{1c} \cdot Session_{sct} + v_{0t} + \varepsilon_{sct} \quad (4.5)$$

The results of this model are presented in Table 4.2. The analysis focused on therapist-rated session speed within the bell-shaped group and revealed a significant curvilinear pattern over time. While the linear time effect did not reach statistical significance, the

significant negative quadratic term indicated that therapists perceived session speed as increasing during the initial sessions and then declining later in the therapeutic process, consistent with a bell-shaped trajectory.

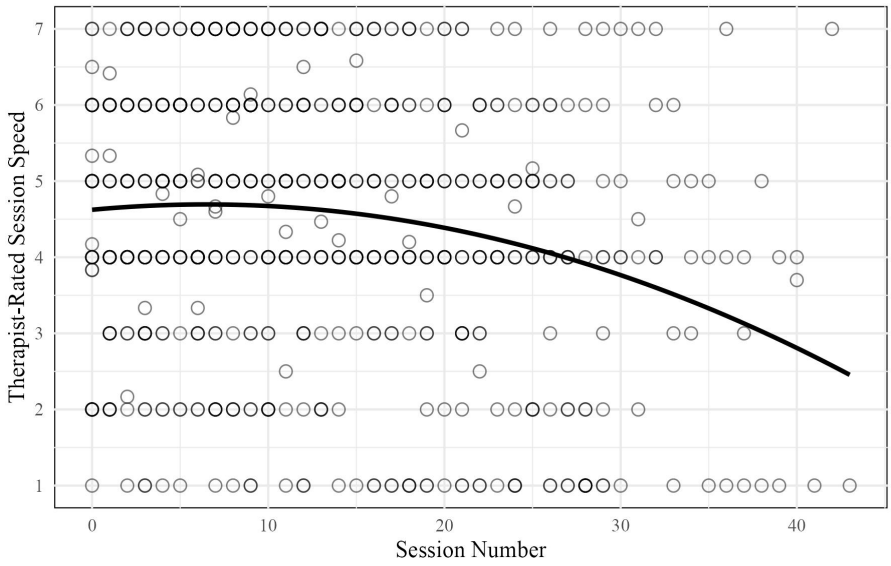
Table 4.2. Therapist-Rated Session Speed Predicted By Linear and Quadratic Terms For Session (Bell-Shaped Group)

Effect	Estimate	SE	95% CI		p
			LL	UL	
Fixed Effects					
Intercept (γ_{00})	4.633	0.2362	4.167	5.107	<.0001
Session (γ_{10})	0.03197	0.02174	-0.01066	0.07443	.14346
Session^2 (γ_{20})	-0.0018	0.0006	-0.00308	-0.0005	.006
	SD		95% CI		
			LL	UL	
Random Effects					
Level-3 (Therapist)					
Intercept [var(v_{0t})]	0.629		0.00	1.0538	
Level-2 (Client):					
Intercept [var($U_{0c)}$]	0.6584		0.2799	1.065	
Session [var($U_{1c)}$]	0.0505		0.0279	0.0761	
Level 1:					
Residual [var(R_{sct})]	1.3451		1.2725	1.4232	

Note. Confidence intervals were estimated using the profile likelihood method. LL = lower limit; UL = upper limit of the 95% confidence interval. The 95% confidence interval for the therapist-level intercept standard deviation included zero (LL = 0.000), suggesting that between-therapist variability may be minimal or not reliably estimated in the current sample.

The Figure 4.2. illustrates a non-linear trajectory in which therapist-rated session speed appears to slightly increase in the early sessions and then gradually decreases over time. This pattern supports the quadratic model tested in the main analysis.

Figure 4.2. Scatterplot of Therapist-Rated Session Speed And Number of the Session With the Quadratic Trendline (Bell-Shaped Group)



4.1.2.2. Reverse Bell-Shaped Trajectory of Therapist-Rated Session Speed

Based on the results of individual-level quadratic regression analyses, 42 therapeutic processes (comprising a total of 971 sessions) were classified as exhibiting a reverse bell-shaped trajectory in therapist-rated session speed. To model the temporal pattern of perceived session speed within this subgroup, a multilevel model was estimated. The model included fixed effects for session number (linear time) and its squared term (quadratic time), a random intercept and a random slope for session at the client level, and a random intercept at the therapist level to account for baseline differences across therapists. The results of this model are presented in Table 4.3.

Table 4.3. Therapist-Rated Session Speed Predicted By Linear and Quadratic Terms For Session (Reverse Bell-Shaped Group)

Effect	Estimate	SE	95% CI		p
			LL	UL	
Fixed Effects					
Intercept (γ_{00})	4.872	0.2506	4.369	5.369	<.001
Session (γ_{10})	-0.0787	0.01678	-0.1114	-0.0458	<.001
Session^2 (γ_{20})	0.0021	0.00047	0.0011	0.003	<.001
	SD		95% CI		
			LL	UL	
Random Effects					
Level-3(Therapist)					
Intercept [var(v_{0t})]	0.881		0.410	1.353	
Level-2 (Client):					
Intercept [var(U_{0c})]	0.622		0.363	0.962	
Session [var(U_{1c})]	0.0423		0.022	0.0688	
Level 1:					
Residual [var(R_{sct})]	1.293		1.234	1.356	

Note. 95% confidence intervals (CIs) for fixed and random effect estimates were computed using the profile likelihood method. *LL* and *UL* denote the lower and upper limits of the confidence interval, respectively. *SE* refers to the standard error for fixed effects, and *SD* refers to the standard deviation for random effects. All p-values are two-tailed.

The analysis focused on therapist-rated session speed within the reverse bell-shaped group and revealed a significant curvilinear pattern over time. Both the linear and quadratic time effects were statistically significant, showing that therapists perceived session speed as initially decreasing and then increasing again in later sessions. This U-shaped trend indicates that therapists in this group observed a slowing of session speed

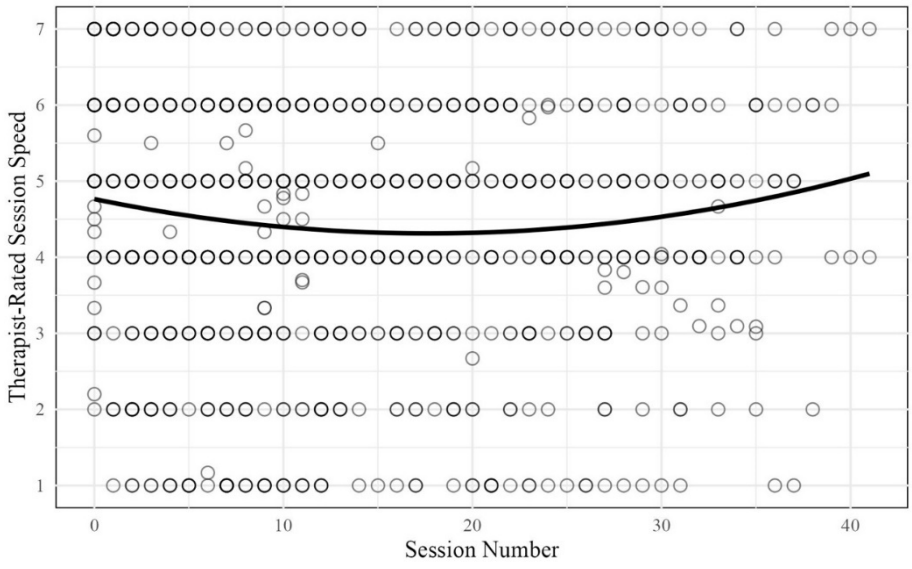
during the earlier stages of therapy, followed by a gradual acceleration as the therapeutic process progressed.

Random effect estimates showed substantial between-client variability in both the intercept and the linear slope, suggesting that therapists perceived differences not only in clients' initial session speed but also in how that speed changed over time. The negative correlation between the client-level intercept and slope (r = –.43) indicates that higher initial speed was associated with a flatter trajectory, whereas clients with lower initial speed showed more marked increases as therapy progressed.

At the therapist level, there was considerable variability in baseline ratings of session speed, as indicated by the relatively high standard deviation of the random intercept. This suggests that therapists differed in their general tendency to rate sessions as faster or slower. The residual variability remained high, reflecting notable within-person fluctuations in perceived session speed not accounted for by the model.

Figure 4.3 illustrates the curvilinear trajectory, as consistent with the quadratic model tested above , suggesting that therapists perceived sessions as slowing down in the middle phase of treatment before regaining speed in later sessions.

Figure 4.3. Scatterplot of Therapist-Rated Session Speed and Number of the Session With the Quadratic Trendline (Reverse Bell-Shaped Group)



4.2. Predictors of Perceived Session Speed and Its Trajectory

This section presents the results regarding the predictors of perceived session speed and its trajectory, from both the client and therapist perspectives. Session-invariant predictors were first evaluated. At the client level, each predictor—age, sex, application reason, pre-treatment symptom level (measured by the Global Severity Index, Positive Symptom Total, and Positive Symptom Distress Index), and diagnosis—was tested individually. At the therapist level, the predictors included age, sex, and pre-treatment symptom level, measured by the same indices.

Following this, session-variant predictors were assessed, focusing on emotional experiences reported after each session. These included both client- and therapist-rated affective states, grouped into three categories: Positive Emotions (happiness, relief), Negative Emotions (sadness, anger, guilt, shame), and Aversive Emotions (jealousy, envy, disgust, contempt, fear). Emotional predictors were analyzed both as grouped valence categories and as individual emotions, in order to identify specific emotion dynamics that may contribute to perceived session speed and its change over the course of therapy.

4.2.1. Predicting Client-Rated Session Speed and Its Trajectory by Session-Invariant Client and Therapist Characteristics

To further explore the significant Level 2 and Level 3 random effects that account for client-dependent and therapist-dependent unexplained variance, as reported above, and to examine the influence of client-level and therapist-level predictors on session speed perception, a series of multilevel models (MLM) were constructed. These models included fixed effects for time (Session and Session^2), and each client-level predictor (Age, Sex, Application Reason, Pre-treatment Symptom Level, Diagnosis) and therapist-level predictor (Age, Sex, Pre-treatment Symptom Level) was tested separately, with cross-level interactions included. The intercept and the linear slope of Session were allowed to vary across clients, while a random intercept was included at the therapist level.

The MLM equation is shown below with Diagnosis as an example of a session-invariant client-level predictor (s = session; c = client; t = therapist):

Level 1 (Session-level): $PS\_Speed_{sct} = \beta_{0c} + \beta_{1c}*Session_{sct} + \beta_2*Session_{sct}^2 + R_{sct}$

Level 2 (Client-level): $\beta_{0c} = \gamma_{00} + \gamma_{01}*Diagnosis_c + U_{0c}$; $\beta_{1c} = \gamma_{10} + \gamma_{11}*Diagnosis_c + U_{1c}$; $\beta_2 = \gamma_{20} + \gamma_{21}*Diagnosis_c$

Level 3 (Therapist-level): $\gamma_{00} = \delta_{000} + v_{0t}$

Mixed Model:

$PS\_Speed_{sct} = \delta_{000} + \gamma_{01}*Diagnosis_c + \delta_{100}*Session_{sct} + \gamma_{11}*Diagnosis_c*Session_{sct} + \delta_{200}*Session_{sct}^2 + \gamma_{21}*Diagnosis_c*Session_{sct}^2 + v_{0t} + U_{0c} + U_{1c}*Session_{sct} + R_{sct}$

(4.6)

The MLM equation is shown below with pre-treatment Positive Symptom Total (PST) as an example of a session-invariant therapist-level predictor (s = session; c = client; t = therapist). Therapist-level effects were modeled as fixed, with only a random intercept specified. Intercepts and linear slopes were allowed to vary across clients.

Level 1 (Session-level): $PS\_Speed_{sct} = \beta_{0c} + \beta_{1c}*Session_{sct} + \beta_2*Session_{sct}^2 + R_{sct}$

Level 2 (Client-level): $\beta_{0c} = \gamma_{00t} + U_{0c}$; $\beta_{1c} = \gamma_{10t} + U_{1c}$; $\beta_2 = \gamma_{20t}$

Level 3 (Therapist-level): $\gamma_{00} = \delta_{000} + \delta_{001}*PST_t + v_{0t}$; $\gamma_{10t} = \delta_{100} + \delta_{101}*PST_t$; $\gamma_{20t} = \delta_{200} + \delta_{201}*PST_t$

Mixed Model:

$PS\_Speed_{sct} = \delta_{000} + \delta_{001}*PST_t + \delta_{100}*Session_{sct} + \delta_{101}*PST_t*Session_{sct} + \delta_{200}*Session_{sct}^2 + \delta_{201}*PST_t*Session_{sct}^2 + v_{0t} + U_{0c} + U_{1c}*Session_{sct} + R_{sct}$

(4.7)

The findings of the MLM analyses for the client-level predictors are presented in Table 4.4.a. and for the therapist-level predictors in Table 4.4.b.

Table 4.4a. Fixed Effects Coefficients of Time-Invariant Client-Level Variables Predicting Client-Rated Session Speed

	Coefficient (SE)	t-value	p
Client-Level Predictors			
Sex(γ01)	0.069 (0.372)	0.185	0.854
Session: Sex (γ11)	0.030 (0.029)	1.046	0.296
Session²: Sex (γ21)	-0.00077 (0.00085)	-0.906	0.365
Age (γ01)	-0.044 (0.026)	-1.711	0.091
Session×Age (γ11)	0.0029 (0.0021)	1.407	0.160
Session²×Age (γ21)	-0.000041 (0.000066)	-0.629	0.530
Diagnosis (γ01)	-1.023 (1.027)	-0.996	0.321
Session×Diagnosis (γ11)	0.0024 (0.281)	0.008	0.993
Session²×Diagnosis (γ21)	0.0447 (0.0337)	1.325	0.186
Application Reason (γ01)	-0.001 (0.021)	-0.0372	0.9703
Session×Application Reason (γ11)	-0.0004 (0.002)	-0.2499	0.8027
Session²×Application Reason (γ21)	0.000 (0.000)	0.4359	0.6630
GSI(γ01)	0.186 (0.241)	0.771	0.443
Session×GSI(γ11)	0.0061 (0.020)	0.303	0.762
Session²×GSI(γ21)	-0.00025 (0.00059)	-0.421	0.674
PST(γ01)	0.013 (0.016)	0.793	0.430
Session×PST(γ11)	0.0005 (0.0013)	0.391	0.696
Session²×PST(γ21)	-0.0000084 (0.000037)	-0.230	0.818
PSDI(γ01)	0.117 (0.265)	0.440	0.661
Session×PSDI(γ11)	0.018 (0.021)	0.872	0.384
Session²×PSDI(γ21)	-0.00079 (0.00061)	-1.304	0.193

Factors including client sex, age, diagnosis, and application reason did not provide a statistically significant difference in client-rated session speed ($p > .05$).

Among the therapist-level factors, only a few interactions concerning the therapist's pre-treatment symptom levels were deemed significant. The interaction between the therapist's pre-treatment symptom severity, as measured by the BSI Global Severity Index (GSI), and the quadratic session term was found to be significant (b = -0.00185, p < .05). This indicates that clients working with therapists displaying elevated symptom levels regarded the speed of the sessions as more curvilinear with time. Additionally, the therapist's pre-treatment Positive Symptom Total (PST) score showed significant interactions with both the linear (b = 0.00237, p < .05) and quadratic (b = -0.000078, p < .05) session terms, indicating a more complex pattern in how session client-rated speed evolved over time when therapists exhibited elevated initial symptom counts.

Table 4.4b. Fixed Effects Coefficients of Time-Invariant Therapist-Level Variables Predicting Client-Rated Session Speed

	Coefficient (SE)	t-value	p
Therapist-Level Predictors			
Sex (γ01)	0.008 (0.853)	0.010	0.992
Session×Sex (γ11)	0.074 (0.122)	0.608	0.543
Session²×Sex (γ21)	-0.007 (0.007)	-1.062	0.288
Age(γ01)	0.003 (0.029)	0.105	0.917
Session×Age(γ11)	0.0002 (0.002)	0.113	0.910
Session²×Age(γ21)	-0.00004 (0.00005)	-0.812	0.417
GSI(γ01)	-0.144 (0.524)	-0.275	0.788
Session×GSI(γ11)	0.052 (0.028)	1.893	0.059
Session²×GSI(γ21)	-0.00185 (0.00078)	-2.389	0.017
PST(γ01)	-0.018 (0.019)	-0.945	0.358
Session×PST(γ11)	0.0024 (0.0011)	2.163	0.031
Session²×PST(γ21)	-0.000078 (0.00003)	-2.471	0.014
PSDI(γ01)	0.509 (0.483)	1.053	0.315
Session×PSDI(γ11)	0.030 (0.026)	1.123	0.262
Session²×PSDI(γ21)	-0.00127 (0.00074)	-1.719	0.086

4.2.2. Predicting Client-Rated Session Speed and Its Trajectory by Session-Variant Emotions of Clients and Therapists

In this section, session-level predictors of Negative, Positive, and Aversive Emotions were tested. Both client emotional ratings and therapist emotional ratings were tested separately with respect to their effect on client-rated session speed in the analyses. The main effects of each emotion variable on session rate, as well as their interactions with time (Session and Session^2), were evaluated. The model permitted the linear effects of baseline and time to vary randomly among clients, with only the random intercept specified at the therapist level. The analyses were intended to clarify the impact of session-specific emotional experiences on session speed and the evolution of this relationship throughout the therapeutic intervention.

This method enabled the assessment of each predictor's effects on session rate in isolation rather than through a single combined model incorporating all emotional variables at once. This reduced the potential impact of overlap or variance sharing on the results stemming from correlations among predictors. This modeling preference seeks to yield simpler and more interpretable results by enabling the independent assessment of predictor variables' effects in isolation (Gelman & Hill, 2006; Snijders & Bosker, 2012).

The results indicate that only client-reported emotions were significant predictors (see Table 4.5). The analysis demonstrates that client emotions during the session are significant predictors of session speed. The results indicate that sessions characterized by Positive Emotions were perceived as faster by the client, whereas those associated with Negative or Aversive emotions were perceived as slow. The findings indicate that emotionally difficult sessions may feel prolonged, while sessions characterized by a sense of ease or emotional uplift may feel like they pass more quickly.

Notably, therapist-rated emotions did not significantly predict client-rated session speed, nor did any of the session-by-emotion interaction terms, indicating that clients' momentary emotional experiences play a more central role in shaping their temporal perception of sessions than therapists' affective states.

Table 4.5. Fixed Effects Coefficients of Session-Variant Emotion Predictors (Therapist- And Client-Rated) Predicting Client-Rated Session Speed

Session-level Predictors	Coefficient (SE)	t-value	p
Client Aversive Emotion (γ_{01})	-0.186 (0.075)	-2.495	0.013
Session×Client Aversive Emotion (γ_{11})	-0.0012 (0.0097)	-0.126	0.900
Session²×Client Aversive Emotion (γ_{21})	0.000087 (0.00030)	0.293	0.770
Client Negative Emotion (γ_{01})	-0.139 (0.066)	-2.103	0.036
Session×Client Negative Emotion (γ_{11})	0.0025 (0.0084)	0.304	0.761
Session²×Client Negative Emotion (γ_{21})	-0.000010 (0.00023)	-0.044	0.965
Client Positive Emotion (γ_{01})	0.151 (0.060)	2.518	0.012
Session×Client Positive Emotion (γ_{11})	0.012 (0.0080)	1.456	0.146
Session²×Client Positive Emotion (γ_{21})	-0.00028 (0.00023)	-1.240	0.215
Therapist Aversive Emotion (γ_{01})	0.016 (0.108)	0.146	0.884
Session×Therapist Aversive Emotion (γ_{11})	-0.018 (0.016)	-1.111	0.267
Session²×Therapist Aversive Emotion (γ_{21})	0.00079 (0.00054)	1.475	0.140
Therapist Negative Emotion (γ_{01})	-0.134 (0.081)	-1.662	0.097
Session×Therapist Negative Emotion (γ_{11})	0.0014 (0.0110)	0.131	0.896
Session²×Therapist Negative Emotion (γ_{21})	0.00020 (0.00032)	0.614	0.539
Therapist Positive Emotion (γ_{01})	-0.054 (0.062)	-0.867	0.386
Session×Therapist Positive Emotion (γ_{11})	-0.0036 (0.0081)	-0.447	0.655
Session²×Therapist Positive Emotion (γ_{21})	0.00012 (0.00023)	0.504	0.614

Following the initial model testing the impact of overall positive, negative, and aversive emotions separately, a more detailed investigation was conducted to explore the specific emotional components underlying these effects. The final model integrated all twelve session-level client-rated emotions into a single model. This comprehensive approach aimed to assess the distinct impact of each particular emotion while accounting for others, thus offering a more nuanced understanding of the emotional determinants of perceived session speed. The MLM equation used for this analysis is as follows:

$$\text{PS\_Speed}_{sct} = \gamma_{00} + \gamma_{10} \cdot \text{Session}_{sct} + \gamma_{20} \cdot \text{Session}_{sct}^2 + \sum_{i=1}^{12} \gamma_{0i} \cdot \text{Emotion}_{i,sct} + \sum_{i=1}^{12} \gamma_{1i} \cdot \left(\text{Session}_{sct} \cdot \text{Emotion}_{i,sct}\right) + \sum_{i=1}^{12} \gamma_{2i} \cdot \left(\text{Session}_{sct}^2 \cdot \text{Emotion}_{i,sct}\right) + u_{0c} + u_{1c} \cdot \text{Session}_{sct} + r_{sct} \quad (4.8)$$

In the combined multilevel model including all client-rated emotions, several significant associations were observed (see Table 4.6).

Table 4.6. Significant Fixed Effects in the Combined Multilevel Model Including All Client Rated Emotions As Predictors of Client-Rated Session Speed

Predictor	Estimate	SE	t-value	p-value
Anger	-0.176200	0.048810	-3.609000	0.000319
Session×Anger	0.022410	0.006804	3.294000	0.001012
Session²×Anger	-0.000493	0.000193	-2.560000	0.010572
Session×Contempt	-0.015770	0.007385	-2.136000	0.032884
Session²×Disgust	0.000544	0.000238	2.290000	0.022158
Session²×Contempt	0.000506	0.000210	2.413000	0.015937

Higher levels of Anger reported by clients were significantly associated with slower perceived session speed (b = -0.176, $p < .001$). Moreover, Anger showed significant interactions with both the linear (b = 0.022, p = .001) and quadratic (b = -0.00049, p = .011) session terms, indicating that its impact on perceived session speed changed over time in a non-linear manner. A significant interaction was also found between session number and Contempt (b = -0.0158, p = .033), suggesting that the influence of contempt increased as sessions progressed. In addition, quadratic interactions emerged for both Disgust (b = 0.00054, p = .022) and Contempt (b = 0.00051, p = .016), indicating curvilinear effects of these emotions on client-rated session speed throughout the therapeutic process.

4.2.3. Predicting Therapist-Rated Session Speed and Its Trajectory by Session-Invariant Client and Therapist Characteristics

To further investigate between-client and between-therapist variability in therapist-rated session speed trajectories, a series of multilevel models (MLM) were conducted separately for the Bell-shaped and Reverse Bell-shaped trend groups. Each model tested a single session-invariant predictor at either the client or therapist level. These predictors included client age, sex, diagnosis, and application reason, as well as therapist age, sex, and pre-treatment symptom severity (as measured by the BSI Global Severity Index, Positive Symptom Total, and Positive Symptom Distress Index). All models included fixed effects for time (Session and Session²), and interaction terms between time and the predictor to assess potential cross-level interactions.

In all models, a random intercept and a random slope for Session were included at the client level to account for individual differences in baseline speed and change over time. A random intercept was also specified at the therapist level to adjust for baseline differences across therapists.

4.2.3.1. Predicting Therapist-Rated Session Speed for Bell-Shaped Trend Group

This section examines session-invariant client-level and therapist-level predictors of therapist-rated session speed within the Bell-shaped trend group. This subgroup comprised 29 therapeutic processes and 669 individual sessions, previously classified as displaying a bell-shaped temporal trajectory in therapist-rated session speed. To evaluate how stable characteristics of clients and therapists influence these trajectories, a series of multilevel models (MLMs) were conducted. Each model tested a single predictor separately, including both its main effect and its interactions with time (Session and Session²).

All models included fixed effects for Session and Session² to account for linear and quadratic time effects, respectively. At the client level (Level 2), both the intercept and the linear slope of Session were allowed to vary randomly. A random intercept was also

included at the therapist level (Level 3). The therapist-level predictors were modeled as fixed effects without random slopes.

The fixed effects coefficients of the time-invariant client-level and therapist-level predictors for therapist-rated session speed in the Bell-shaped group are presented in Table 4.7.a. for therapist-level predictors and Table 4.7.b. for the client-level predictors. As shown, none of the predictors yielded statistically significant main or interaction effects.

Table 4.7a. Fixed Effects Coefficients of Time-Invariant Therapist-Level Variables Predicting Therapist-Rated Session Speed For the Bell-Shaped Trend Group

Predictor	Coefficient (SE)	t-value	p
Therapist-Level Predictors			
Sex (γ_{01})	-0.429 (1.008)	-0.425	.674
Session×Sex (γ_{11})	-0.163 (0.165)	-0.990	.322
Session²×Sex (γ_{21})	0.006 (0.009)	0.734	.463
Age (γ_{01})	-0.038 (0.033)	-1.161	.258
Session×Age (γ_{11})	-0.003 (0.003)	-0.871	.385
Session²×Age (γ_{21})	0.00003 (0.00010)	0.331	.741
GSI (γ_{01})	0.227 (0.666)	0.341	.737
Session×GSI (γ_{11})	-0.083 (0.053)	-1.578	.117
Session²×GSI (γ_{21})	0.0012 (0.0015)	0.819	.413
PST (γ_{01})	0.022 (0.026)	0.862	.398
Session×PST (γ_{11})	-0.003 (0.0023)	-1.130	.260
Session²×PST (γ_{21})	0.00005 (0.00007)	0.739	.461
PSDI (γ_{01})	-0.093 (0.593)	-0.156	.878
Session×PSDI (γ_{11})	-0.083 (0.048)	-1.737	.085
Session²×PSDI (γ_{21})	0.0011 (0.0014)	0.749	.454

Table 4.7b. Fixed Effects Coefficients of Time-Invariant Client-Level Variables Predicting Therapist-Rated Session Speed For the Bell-Shaped Trend Group

Predictor	Coefficient (SE)	t-value	p
Client-Level Predictors			
Sex (γ_{01})	-0.011 (0.446)	-0.024	.981
Session×Sex (γ_{11})	-0.015 (0.049)	-0.314	.754
Session²×Sex (γ_{21})	0.0005 (0.0015)	0.305	.760
Age (γ_{01})	0.004 (0.034)	0.119	.906
Session×Age (γ_{11})	0.006 (0.004)	1.527	.129
Session²×Age (γ_{21})	-0.0002 (0.0001)	-1.696	.091
Diagnosis (γ_{01})	0.166 (0.286)	0.581	.566
Session×Diagnosis (γ_{11})	-0.052 (0.029)	-1.785	.077
Session²×Diagnosis (γ_{21})	0.0011 (0.0008)	1.415	.158
Application Reason (γ_{01})	-0.047 (0.061)	-0.769	.447
Session×Application Reason (γ_{11})	0.009 (0.007)	1.226	.222
Session²×Application Reason (γ_{21})	-0.0002 (0.0002)	-1.092	.276
GSI (γ_{01})	-0.072 (0.337)	-0.213	.833
Session×GSI (γ_{11})	-0.016 (0.043)	-0.365	.715
Session²×GSI (γ_{21})	0.0008 (0.0014)	0.591	.555
PST (γ_{01})	-0.012 (0.025)	-0.497	.623
Session×PST (γ_{11})	-0.001 (0.003)	-0.189	.850
Session²×PST (γ_{21})	0.00005 (0.0001)	0.391	.696
PSDI (γ_{01})	0.123 (0.340)	0.363	.719
Session×PSDI (γ_{11})	-0.017 (0.036)	-0.471	.639
Session²×PSDI (γ_{21})	0.0005 (0.0010)	0.558	.577

Overall, these results suggest that the baseline characteristics of clients and therapists did not substantially account for the variability in therapists' perceptions of session speed within this group.

4.2.3.2. Predicting Therapist-Rated Session Speed for Reverse Bell-Shaped Trend Group

Based on the results of individual-level quadratic regression analyses, 42 therapeutic processes (comprising a total of 971 sessions) were identified as exhibiting a reverse bell-shaped trajectory in therapist-rated session speed. To examine predictors of session speed perception in this subgroup, a series of multilevel models were estimated. Each model included fixed effects for time (Session and Session^2), one session-invariant predictor (either at the client or therapist level), and their interactions with time. At the client level, random intercepts and slopes for session were specified, while a random intercept was included at the therapist level to account for between-therapist differences in baseline ratings.

The fixed effects estimates for time-invariant client-level and therapist-level predictors of therapist-rated session speed in the Reverse Bell-shaped group are presented in Table 4.8.a. for therapist-level predictors and Table 4.8.b. for the client-level predictors.

For therapists whose session speed ratings followed a reverse bell-shaped trajectory, demographic characteristics of age and sex did not significantly predict perceived session speed. However, higher pre-treatment symptom levels as indicted by the GSI and PSDI, were associated with a more pronounced change in session speed over time, indicated by significant interactions with the linear session term. This significant linear and session interaction means that the initial downward slope of the curve is steeper for those with higher distress; in other words the rate of slowing down as perceived by the therapist is more pronounced for distressed therapists.

Table 4.8.a. Fixed Effects Coefficients of Time-Invariant Therapist-Level Variables Predicting Therapist-Rated Session Speed For the Reverse Bell-Shaped Trend Group

Predictor	Coefficient (SE)	t-value	p
Therapist-Level Predictors			
Sex (γ_{01})	1.602 (1.456)	1.1	0.2765
Session×Sex (γ_{11})	0.039 (0.407)	0.095	0.9245
Session²×Sex (γ_{21})	-0.013 (0.035)	-0.359	0.7194
Age (γ_{01})	-0.017 (0.040)	-0.431	0.671
Session×Age (γ_{11})	-0.002 (0.003)	-0.674	0.501
Session²×Age (γ_{21})	0.00001 (0.00007)	0.165	0.868
GSI (γ_{01})	0.159 (0.736)	0.216	0.8319
Session×GSI (γ_{11})	-0.088 (0.038)	-2.313	0.0216
Session²×GSI (γ_{21})	0.001 (0.001)	0.904	0.3664
PST (γ_{01})	0.002 (0.026)	0.074	0.942
Session×PST (γ_{11})	-0.002 (0.001)	-1.68	0.0945
Session²×PST (γ_{21})	0.00002 (0.00004)	0.493	0.622
PSDI (γ_{01})	0.581 (0.787)	0.738	0.474
Session×PSDI (γ_{11})	-0.114 (0.037)	-3.073	0.0023
Session²×PSDI (γ_{21})	0.001 (0.001)	1.328	0.1851

In contrast, none of the client-level time-invariant predictors that are sex, age, diagnosis, reason for application, or symptom severity were significantly associated with therapist-rated session speed in this group. This suggests that for therapists with a reverse bell-shaped pattern, their own psychological characteristics played a more influential role than client characteristics in shaping how they experienced the speed of sessions over time.

Table 4.8.b. Fixed Effects Coefficients of Time-Invariant Client-Level Variables Predicting Therapist-Rated Session Speed for the Reverse Bell-Shaped Trend Group

Predictor	Coefficient (SE)	t-value	p
Client-Level Predictors			
Sex (γ_{01})	-0.196 (0.458)	-0.427	0.671
Session×Sex (γ_{11})	0.013 (0.047)	0.281	0.779
Session²×Sex (γ_{21})	-0.0004 (0.0012)	-0.300	0.764
Age (γ_{01})	-0.031 (0.030)	-1.046	0.301
Session×Age (γ_{11})	0.0043 (0.0033)	1.317	0.189
Session²×Age (γ_{21})	-0.0001 (0.0001)	-1.072	0.284
Diagnosis (γ_{01})	0.015 (0.258)	0.059	0.953
Session×Diagnosis (γ_{11})	-0.001 (0.026)	-0.038	0.969
Session²×Diagnosis (γ_{21})	0.0000 (0.0007)	-0.042	0.967
Application Reason (γ_{01})	-0.091 (0.048)	-1.922	0.060
Session×Application Reason (γ_{11})	0.006 (0.005)	1.053	0.294
Session²×Application Reason (γ_{21})	-0.0001 (0.0001)	-1.046	0.296
GSI (γ_{01})	-0.146 (0.254)	-0.573	0.569
Session×GSI (γ_{11})	-0.009 (0.027)	-0.344	0.731
Session²×GSI (γ_{21})	0.0001 (0.0008)	0.169	0.866
PST (γ_{01})	0.002 (0.016)	0.138	0.891
Session×PST (γ_{11})	-0.0003 (0.002)	-0.172	0.864
Session²×PST (γ_{21})	0.00001 (0.00004)	0.294	0.769
PSDI (γ_{01})	-0.247 (0.301)	-0.820	0.416
Session×PSDI (γ_{11})	-0.014 (0.033)	-0.434	0.665
Session²×PSDI (γ_{21})	-0.00009 (0.001)	-0.098	0.922

4.2.4. Predicting Therapist-Rated Session Speed and Its Trajectory by Session-Variant Emotions of Clients and Therapists

In this section, the effects of session-level emotions on therapist-rated session speed were examined. Similar to the client-rated models described in Section 4.2.2, both client-reported and therapist-reported emotions were modeled separately. The fixed effects of each emotional variable (Aversive, Negative, and Positive Emotions), along with their linear and quadratic interactions with time (Session and Session²), were tested independently to evaluate their contributions to perceived session speed and its temporal development. In terms of random effects structure, the linear slope of Session was allowed to vary across clients, while a random intercept was specified at the therapist level. This multilevel configuration accounts for the nested structure of the data and potential interindividual differences in therapists' perceptions of session speed over time.

As in the client-rated analyses, each predictor was tested in a separate model to prevent multicollinearity and overlapping variance among emotions. However, in contrast to the client-rated analyses, therapist-rated session speed was analyzed separately for two trajectory subgroups—Bell-shaped and Reverse Bell-shaped—defined according to the curvilinear pattern of session speed over time. Thus, the current analyses not only evaluate influences of emotions on therapist perception of speed but also consider whether these influences differ by temporal trend group.

For both trend groups (Bell-shaped and Reverse Bell-shaped), the following multilevel model was employed to examine the effects of session-level emotion predictors on therapist-rated session speed:

$$\begin{aligned} \mathrm{PS\_Speed}_{sct} = {} & \gamma_{00} + \gamma_{10} \cdot \mathrm{Session}_{sct} + \gamma_{20} \cdot \mathrm{Session}^2_{sct} + \gamma_{01} \cdot \mathrm{Emotion}_{sct} \\ & + \gamma_{11} \cdot (\mathrm{Session}_{sct} \cdot \mathrm{Emotion}_{sct}) + \gamma_{21} \\ & \cdot (\mathrm{Session}^2_{sct} \cdot \mathrm{Emotion}_{sct}) + u_{0c} + u_{1c} \cdot \mathrm{Session}_{sct} + v_{0t} \\ & + r_{sct} \end{aligned} \tag{4.9}$$

4.2.4.1. Predicting Therapist-Rated Session Speed for Bell-Shaped Trend Group

In the Bell-shaped trend group, session-level emotional predictors—rated by both therapists and clients—were examined in relation to therapist-rated session speed and its trajectory throughout therapy (See Table 4.9). Among therapist-rated variables, Negative Emotions demonstrated a significant interaction with the quadratic time term, indicating that therapists perceived sessions with higher negative emotions as initially slower but increasingly faster over time. Although the main effects and linear interactions of negative emotions were not significant, this curvilinear association suggests that emotional intensity may alter the perceived pacing of sessions across the therapeutic process.

For therapist-rated Positive and Aversive Emotions, no statistically significant effects were observed, although positive emotions showed a marginal trend ($p = .067$) in the expected direction (i.e., more positive emotion linked to greater perceived session speed), without significant temporal modulation.

Client-rated emotional predictors exhibited a similar pattern. Both Negative and Positive Emotion ratings showed significant quadratic interactions with time (*Session²× Emotion*), suggesting that sessions with higher client-reported emotional intensity—whether negative or positive—were experienced by therapists as initially slower but faster in later stages of therapy. While the main effects and linear interactions did not reach conventional significance, the consistent quadratic patterns highlight the potential influence of emotional valence on the evolving perception of session speed.

Taken together, these findings suggest that therapist-rated session speed in the Bell-shaped group may be modulated by emotional dynamics within sessions, particularly through nonlinear time effects. Therapists appear to perceive shifts in emotional intensity, especially negative emotions, as shaping the speed of the session differently across the early and later phases of therapy.

Table 4.9. Fixed Effects Coefficients of Session-Variant Emotion Predictors Predicting Therapist-Rated Session Speed for the Bell-Shaped Trend Group

	Coefficient (SE)	t-value	p
Session-level Predictors			
Client Aversive Emotion (γ_{01})	0.085 (0.117)	0.724	.470
Session×Client Aversive Emotion (γ_{11})	0.006 (0.016)	0.354	.723
Session²×Client Aversive Emotion (γ_{21})	-0.0001 (0.0005)	-0.215	.830
Client Negative Emotion (γ_{01})	0.200 (0.114)	1.744	.082
Session×Client Negative Emotion (γ_{11})	-0.025 (0.015)	-1.689	.092
Session²×Client Negative Emotion (γ_{21})	0.0009 (0.0004)	2.093	.037
Client Positive Emotion (γ_{01})	0.202 (0.106)	1.900	.058
Session×Client Positive Emotion (γ_{11})	-0.026 (0.014)	-1.876	.061
Session²×Client Positive Emotion (γ_{21})	0.0009 (0.0004)	2.244	.025
Therapist Aversive Emotion (γ_{01})	-0.043 (0.184)	-0.232	.816
Session×Therapist Aversive Emotion (γ_{11})	-0.012 (0.026)	-0.475	.635
Session²×Therapist Aversive Emotion (γ_{21})	0.0004 (0.001)	0.513	.608
Therapist Negative Emotion (γ_{01})	0.108 (0.133)	0.810	.418
Session×Therapist Negative Emotion (γ_{11})	-0.029 (0.018)	-1.584	.114
Session²×Therapist Negative Emotion (γ_{21})	0.0013 (0.0005)	2.347	.019
Therapist Positive Emotion (γ_{01})	0.199 (0.108)	1.836	.067
Session×Therapist Positive Emotion (γ_{11})	-0.003 (0.014)	-0.218	.828
Session²×Therapist Positive Emotion (γ_{21})	0.0004 (0.0004)	0.921	.358

Following the preliminary analyses examining the broader categories of positive, negative, and aversive emotions, a more fine-grained investigation was undertaken to identify the specific emotional experiences that might drive these overarching effects. Given that significant associations were observed for both client- and therapist-rated emotional variables in the earlier models, two separate models were constructed in the final step: one including all twelve therapist-rated emotions, and the other including all twelve client-rated emotions. This approach, paralleling the analytic strategy employed

for client-rated session speed, aimed to delineate the unique and specific impact of each individual emotion on therapist-rated perceptions of session speed. Table 4.10. shows the significant results obtained from two different models.

Table 4.10. Significant Fixed Effects in the Combined Multilevel Model Including Emotions As Predictors of Therapist-Rated Session Speed (Bell-Shaped Group)

Predictor	Estimate	SE	t-value	p
Client Emotions				
Sadness	0.24500	0.08897	2.754	0.00611
Envy	-0.26090	0.11400	-2.289	0.02242
Session×Sadness	-0.02522	0.01256	-2.008	0.04513
Session×Guilt	-0.02784	0.01299	-2.143	0.03253
Session×Envy	0.04454	0.01893	2.352	0.01897
Session²×Guilt	0.00110	0.00039	2.842	0.00464
Therapist Emotions				
Relief	0.32570	0.11230	2.901	0.00391

The level of Sadness experienced by the client during the session was found to be significantly related to the therapist's perception of the session as faster ($b = 0.245$, $p = .006$). However, the interaction between Session and Sadness was significant ($b = -0.025$, $p = .045$), indicating that the effect of sadness decreased over time. This finding suggests that sadness has a greater impact on the therapist's perception of session speed in the early stages of the therapeutic process.

In a similar vein, a changing pattern was observed over time concerning the client's feelings of Guilt. The interaction between Session and Guilt is significant (b = -0.028, p = .033), indicating that the influence of guilt on the therapist's perception of speed decreases as the therapeutic process progresses. Furthermore, the quadratic interaction between Session² and Guilt was also found to be significant ($b = 0.00110$, $p = .0046$). This

indicates that guilt exhibits non-linear fluctuations throughout the sessions, meaning its influence increases and decreases during various phases of the sessions.

The client's feeling of Envy was found to be significant both in direct effect and in interaction over time. High levels of envy are generally associated with the therapist perceiving the sessions as slower (b = -0.261, p = .022). However, the interaction between Session and Envy is significant (b = 0.045, p = .019), indicating that the effect of envy reverses over time. In other words, while feelings of envy play a slowing role in the early stages of the therapeutic process, as the process progresses, these feelings cause the therapist to experience sessions as faster.

Among the therapist's emotions, only the level of Relief had a significant effect on the perception of session speed. As the level of relief felt by the therapist during the session increased, the perception of session speed also increased significantly (b = 0.326, p = .0039).

4.2.4.2. Predicting Therapist-Rated Session Speed for Reverse Bell-Shaped Trend Group

The same analysis outlined above was conducted with the processes the Reverse Bell-shaped trend group (See Table 4.11). In the Reverse Bell-shaped trend group, none of the client-rated emotion predictors (Aversive, Negative, and Positive emotions) significantly predicted therapist-rated session speed. Similarly, therapist-rated aversive and negative emotions were not significantly associated with session speed. However, therapist-rated Positive Emotion was found to be a significant predictor (b = 0.259, SE = 0.085, t = 3.043, p = .002), indicating that higher levels of positive emotions experienced by the therapist during the session were associated with a faster perception of session speed. No significant interactions with Session or Session² were observed for any emotion type, suggesting that the influence of affective states on perceived session speed remained stable over time in this group.

Table 4.11. Fixed Effects Coefficients of Session-Variant Emotion Predictors Predicting Therapist-Rated Session Speed for the Reverse Bell-Shaped Trend Group

	Coefficient (SE)	t-value	p
Session-level Predictors			
Client Aversive Emotion (γ_{01})	-0.083 (0.115)	-0.721	.471
Session×Client Aversive Emotion (γ_{11})	0.007 (0.015)	0.487	.626
Session²×Client Aversive Emotion (γ_{21})	-0.0001 (0.0004)	-0.278	.781
Client Negative Emotion (γ_{01})	-0.028 (0.092)	-0.308	.758
Session×Client Negative Emotion (γ_{11})	0.005 (0.012)	0.397	.691
Session²×Client Negative Emotion (γ_{21})	-0.00003 (0.00032)	-0.105	.917
Client Positive Emotion (γ_{01})	-0.066 (0.084)	-0.779	.436
Session×Client Positive Emotion (γ_{11})	0.015 (0.012)	1.289	.198
Session²×Client Positive Emotion (γ_{21})	-0.00018 (0.00034)	-0.530	.596
Therapist Aversive Emotion (γ_{01})	-0.054 (0.162)	-0.337	.736
Session×Therapist Aversive Emotion (γ_{11})	-0.004 (0.027)	-0.142	.887
Session²×Therapist Aversive Emotion (γ_{21})	0.00037 (0.00098)	0.374	.709
Therapist Negative Emotion (γ_{01})	0.104 (0.119)	0.878	.380
Session×Therapist Negative Emotion (γ_{11})	-0.016 (0.016)	-1.028	.304
Session²×Therapist Negative Emotion (γ_{21})	0.00047 (0.00046)	1.017	.309
Therapist Positive Emotion (γ_{01})	0.259 (0.085)	3.043	.002
Session×Therapist Positive Emotion (γ_{11})	0.004 (0.012)	0.346	.729
Session²×Therapist Positive Emotion (γ_{21})	0.00002 (0.00032)	0.057	.954

To further examine the influence of specific affective states on therapist-rated session speed, two separate multilevel models were constructed. The first model included all 12 client-rated emotions, and the second model included all 12 therapist-rated emotions as simultaneous predictors of therapist-rated session speed. This approach allowed for the identification of unique predictors whose effects may have been obscured in the single-

emotion models due to shared variance among affective states. The significant findings are summarized in Table 4.12.

Table 4.12. Significant Fixed Effects in the Combined Multilevel Model Including All Emotions As Predictors of Therapist-Rated Session Speed (Reverse Bell-Shaped Group)

Predictor	Estimate	SE	t-value	p
Client Emotions				
Anger	-0.139	0.070	-1.982	.048
Session × Fear	0.029	0.013	2.238	.025
Session ×Contempt	-0.022	0.011	-2.044	.041
Therapist Emotions				
Relief	0.209	0.090	2.314	.021
Shame	0.435	0.140	3.118	.002
Anger	-0.202	0.083	-2.436	.015
Surprise	0.188	0.072	2.621	.009
Session×Shame	-0.064	0.020	-3.215	.001
Session²×Shame	0.0015	0.0006	2.547	.011

In the model that included client-rated emotions, higher levels of Anger were significantly associated with slower therapist-rated session speed (b = -0.139, p = .048). In addition, significant interactions were observed between session number and two emotions: Fear (b = 0.029, p = .025) and Contempt (b = -0.022, p = .041). These interactions suggest that the effects of these emotions on therapist-rated session speed changed over the course of therapy. Specifically, higher levels of fear were linked to faster therapist-rated session speed as therapy progressed, while higher levels of contempt were linked to increasingly slower session speed over time.

In the model that included therapist-rated emotions, several emotions were found to significantly predict session speed. Higher levels of Relief (b = 0.209, p = .021), Shame (b = 0.435, p = .002), and Surprise (b = 0.188, p = .009) were associated with faster

therapist-rated session speed, whereas higher levels of Anger were associated with slower session speed (b = -0.202, p = .015). Shame, in particular, showed a dynamic time-dependent effect. Its interaction with the linear session term was negative (b = -0.064, p = .001), while its interaction with the quadratic term was positive (b = 0.0015, p = .011), indicating that the influence of shame on therapist-rated session speed followed a non-linear pattern throughout the therapy process.

4.3. Therapist–Client Associations in Perceived Session Speed

This section examines the interrelation between clients' and therapists' perceptions of session speed within individual sessions and their reciprocal influence over time across consecutive sessions. A cross-lagged multilevel modeling (MLM) approach was employed to analyze these dynamics. The analysis focused on both contemporaneous effects, such as the correlation between client and therapist-reported perceptions of speed within the same session, and longitudinal effects, exemplified by the therapist's perception of speed in one session predicting the client's perception of speed in the following session. This methodology aimed to reveal the bidirectional and interactive nature of session speed perceptions over time.

4.3.1. Concurrent Relationship Between Client and Therapist Ratings of Session Speed

To examine the concurrent relationship between client and therapist ratings of session speed within the same session, two cross-lagged multilevel models were estimated. In the first model, therapist-rated session speed was predicted by client-rated session speed while in the second model, client-rated session speed was predicted by therapist-rated session speed. Both models accounted for random intercepts at the client and therapist levels to address the dependency within repeated measures.

In the model predicting therapist-rated session speed, client-rated session speed was a significant predictor (b = 0.12, SE = 0.03, t(1476) = 4.64, p < .001), indicating that

therapists rated the session as faster when the client also perceived it as fast. Similarly, in the model predicting client-rated session speed, therapist-rated session speed was found to be a significant predictor (b = 0.11, SE = 0.02, t(1611) = 4.89, p < .001), suggesting that clients also tended to rate the session as faster when their therapist did so. These findings highlight a bidirectional and synchronous relationship in how clients and therapists evaluate the speed of the session within the same therapeutic encounter.

4.3.2. Cross-Lagged Effects Between Client and Therapist Ratings of Session Speed

This section examines whether the perceptions of session speed by therapists and clients reciprocally influence each other across consecutive sessions. To assess this, two lagged variables were created for each session: the client's rating of session speed from the previous session and the therapist's rating of session speed from the previous session.

Two separate models were tested. In the first model (Client-Lag Model), client-rated session speed was predicted by both the client's and therapist's ratings from the preceding session. In the second model (Therapist-Lag Model), therapist-rated session speed was predicted by both the therapist's and client's ratings from the preceding session. Random intercepts were included at both the client and therapist levels in each model to account for clustering in the data and to separate the autoregressive effect of a person's own prior perception from the cross-lagged effect of the other person's prior rating.

In the model predicting client-rated session speed, the autoregressive effect of the client's prior session speed was statistically significant (b = .10, SE = .025, t(1563) = 3.83, p < .001), suggesting that clients tended to maintain consistent perceptions of session speed across consecutive sessions. However, the therapist's prior rating of session speed did not significantly predict client ratings (b = .01, SE = .023, t(1541) = 0.40, p = .689).

In the model predicting therapist-rated session speed, the autoregressive effect was also statistically significant (b = .12, SE = .025, t(1559) = 4.71, p < .001), indicating that therapists maintained consistent perceptions of session speed. The client's prior

perception of session speed did not significantly predict the therapist's subsequent rating ($b = –0.02$, $SE = 0.027$, $t(1205) = –0.72$, $p = .473$).

These results suggest that both clients and therapists exhibit consistency in their perceptions of session speed, but their respective perceptions do not significantly influence each other across sessions.

4.4. Summary of Findings

The findings of this study reveal how the subjective perceptions of both clients and therapists regarding session speed change over time during the process of psychodynamic psychotherapy conducted with adult individuals, as well as the individual and session-level variables associated with these perceptions.

Clients' perceptions of session speed followed a U-shaped pattern throughout the course of therapy: perceived session speed initially decreased but increased again later in the course. In other words, clients tended to feel that sessions slowed down in the middle phase of therapy but felt faster again toward the end. None of the fixed client-level variables, such as age, gender, diagnosis, or reason for referral, significantly predicted perceived session speed. However, significant interactions were found between the GSI and the quadratic time term, as well as between the PST and both the linear and quadratic time terms. This indicates that clients working with therapists who reported more symptoms before treatment experienced session speed in a more curved and variable pattern across time.

At the session level, sessions characterized by client-reported positive emotions were perceived as faster, whereas sessions characterized by negative or aversive emotions were perceived as slower. Higher levels of anger reported by clients were significantly associated with slower perceived session speed. Moreover, anger showed significant interactions with both the linear and quadratic session terms, suggesting that the effect of anger was not constant throughout therapy but varied depending on the phase, its slowing effect was more prominent at certain times. A significant interaction was also found between session number and contempt, suggesting that the influence of contempt

increased as sessions progressed. In addition, quadratic interactions emerged for both disgust and contempt, indicating that the effects of these emotions on perceived session speed did not follow a straight line but fluctuated over time in a curved pattern.

There was no significant effect of therapist-reported emotions on client ratings of session speed; this was true for both main effects and interactions with time.

Therapists' perceptions of session speed exhibited two distinct patterns throughout the therapy process; therefore, analyses were conducted on two separate groups.

In the Bell-shaped group, therapists' perceived session speed initially increased over time but began to decrease again towards the end of therapy. In this group, no fixed client or therapist-level variable showed a significant relationship with therapists' perceptions of session speed. However, at the session level, significant interactions were found between client-reported negative emotions, positive emotions, and therapist-reported negative emotions with the quadratic term of time. This indicates that the influence of both clients' and therapists' emotions on session speed changed as therapy progressed, and followed a curved trajectory rather than a simple linear one.

In the analysis of emotions separately, client-reported sadness was associated with a faster perceived session speed, while envy was associated with a slower perceived session speed. However, this pattern changed over time: the effect of sadness and guilt became weaker in later sessions, while the effect of envy became stronger. Guilt also showed a significant interaction with the quadratic term of time, indicating that its influence on perceived session speed first decreased and then increased again following a U-shaped pattern over time. Among therapist-reported emotions, relief was significantly associated with a faster perceived session speed.

In reverse bell-shaped group therapists, session speed initially increased but decreased over time. While fixed client-level variables did not show a significant relationship with session speed in this group, some therapist-level variables showed interactive effects over time. In particular, a more pronounced decrease in session speed over time was observed in therapists with high initial GSI and PSDI scores; *t*his suggests that therapists who started with higher distress levels felt sessions slowed down more steeply over the course

of therapy. At the session level, therapist-reported positive emotions were significantly associated with faster perception of the session.

At the level of emotions tested separately, client-reported anger was associated with slower perception of the session. In addition, fear and contempt interacted linearly over time. Specifically, fear became increasingly linked to faster perceived session speed in later sessions, while the slowing effect of contempt became more noticeable as therapy progressed. Among therapist-reported emotions, relief, shame, and surprise were significantly associated with faster sessions, while anger was significantly associated with slower sessions. In particular, shame interacted significantly with time at both the linear and quadratic levels, indicating that its influence on session speed was not stable but shifted throughout therapy — it may have slowed sessions more in the beginning, then lessened or reversed in later stages.

Finally, perceived session speed ratings reported by both clients and therapists in the same session were significantly correlated simultaneously. However, no cross-lagged relationship was found in the between-session interaction analysis; that is, one party's perception of the previous session did not predict the other party's perception of the following session. On the other hand, both clients and therapists showed some consistency in their perception of session speed over time.

5. DISCUSSION

This study examined how clients' and therapists' subjective perceptions of session speed changed over time throughout the process of psychodynamic adult psychotherapy, and which factors influenced these perceptions.

The findings revealed significant differences between clients and therapists in their perception of session speed. For both groups, there were overlapping as well as diverging results regarding the factors influencing this perception. From the clients' perspective, sessions accompanied by positive emotions were perceived as faster, whereas sessions involving negative or aversive emotions were experienced as slower. For therapists, the relationship between emotions and perceived session speed varied depending on the overall trajectory of session speed throughout the process (e.g., bell-shaped or inverted bell-shaped patterns). It was also observed that individual-level variables related to either the client or the therapist did not have a direct impact on perceived session speed; rather, in-session emotional experiences were found to be the primary determinants.

In this context, the subsequent sections will explore in detail which emotional and personal experiences most strongly influence time perception, for whom these effects are most salient, how they operate, and under what conditions they become evident—supported by relevant literature.

To date, no study in the literature has directly and comparatively examined subjective time perception in relation to session speed from both the client and therapist perspectives within the context of psychotherapy. Therefore, the present findings will be interpreted using a multidisciplinary approach, incorporating insights from experimental research on time perception, clinical observations, and the psychoanalytic theoretical framework.

In the following sections, the findings will be elaborated in three main parts: First, client-rated perceived session speed will be discussed in terms of its trajectory and associated predictors. Next, therapist-rated perceived session speed will be evaluated through a similar structure. Finally, the interaction between therapist and client perspectives—both

concurrent and sequential—will be examined to explore whether and how their perceptions influence each other within and across sessions.

5.1. Psychodynamic Therapy and Perceived Session Speed from the Client's Perspective

In this section, the perceived speed of sessions from the client's perspective will be discussed within the framework of psychodynamic therapy. The section will first focus on how clients' perceptions of session speed evolved throughout the therapy process, followed by an examination of the factors that influenced these perceptions. These factors include both stable client and therapist characteristics (such as age, gender, and pre-treatment symptom levels), as well as the dynamic in-session emotional experiences of both parties, will be discussed. The findings will be interpreted in relation to relevant empirical literature and psychodynamic concepts, including affective valence, resistance, transference–countertransference dynamics, and the evolving therapeutic relationship.

5.1.1. The Client's Experience of Session Speed Over the Course of Therapy

Before explaining how clients' perception of session speed changes throughout the process, it is helpful to briefly touch on what typically unfolds during psychotherapy. Although clients seek therapy with specific difficulties and goals, they may initially struggle to fully express the thoughts and emotions stemming from their internal conflicts (Pulver, 1995). In such resistance situations, the therapist identifies and interprets these defenses, helping the client gradually gain awareness. However, when the client senses that disturbing content from the unconscious is about to surface, they develop an introverted awareness (Arlow, 1986). At this point, instead of directly conveying their mental experiences, they direct their attention to observing their situation. For example, they say things like, "I'm starting to feel a little uneasy," "I do not know what to say right now," or "I can hear the soundsoutside." Such comments are usually followed by an evaluation of time; the client gets the impression that the session is taking longer than usual. For example, they express this perception of time with statements like, "I feel like

I have been here for hours," "I guess we're nearing the end of the session," or "Are you sure the time is up?"

As the process progresses, the client's conflicted motivations from the past may resurface, and signs of regression may be observed; alongside these developments, the therapeutic relationship also intensifies (Pulver, 1995). As a result of this intensification, the client often redirects feelings originally aimed at early significant figures (such as parents) toward the therapist; this is called transference, while the therapist's emotional responses toward the client are referred to as countertransference (Stone, 1995).

Over time, resistance may also become more pronounced in the therapeutic process. However, the timing and form of this resistance can vary from one client to another (Pulver, 1995). Some clients may struggle to speak from the very beginning, while others may only show resistance when certain themes arise. Another important element that changes with the course of therapy is insight. As the therapeutic process advances, it is expected that the client will develop insight—higher-level functions of evaluation, judgment, and synthesis that influence their emotions, decisions, and behaviors (Pulver, 1995).

The findings of this study indicate that clients tend to perceive sessions as relatively faster at the beginning of therapy, but this perception gradually slows down over time. Moreover, this change follows a non-linear, curved (U-shaped) pattern: the perceived speed decreases in the middle of the process and increases again toward the end. While the model variances reveal notable individual differences in clients' initial perceptions of speed, the direction of change in time perception over the course of therapy appears to be quite similar across clients. In other words, although clients start out with different experiences of session speed, they tend to follow a similar trajectory over time. The fact that therapist-level variance was not significant suggests that this perception is shaped more by the client's internal processes.

The nonlinear pattern observed in perceived session speed likely mirrors the emotional flow of the therapeutic process. In many psychodynamic models, the middle phase of therapy, often described as the stage of working through, is assumed to involve greater affective engagement and reduced defensiveness (Çavdar & Fişek, 2018; Herrmann et al., 2016). During this period, clients are expected to face previously avoided material and to

express deeper emotional truths. However, this trajectory may not unfold the same way for every individual. For some clients, especially those who experience anxiety or cognitive disorganization when confronting intense inner content, defensiveness may actually increase in these sessions. When free association becomes difficult or emotional avoidance dominates, the session may feel longer, more stagnant, or emotionally disconnected (Namnum, 1972).

Importantly, it is well established that subjective emotional experiences influence how time is perceived (Droit-Volet, 2018; Sackett et al., 2010). Positive emotions are often linked with a sense of time passing quickly, while negative or conflicting feelings may lead to the perception that time slows down or drags. The observed curvilinear pattern in session speed—faster at the beginning and end, slower in the middle—may reflect not only the structural phases of therapy but also moment-to-moment affective experiences. In this sense, changes in perceived session speed might serve as subtle indicators of the underlying emotional rhythm of the therapy: moments of openness and relief may flow more quickly, while emotionally tense or defended moments may stretch time in the subjective experience of both therapist and client.

Although no directly comparable studies exist on this topic, it is possible that at the beginning of therapy, clients' encounter with a new setting and their focus on the therapy room, the therapist, and the content they will share may divert attentional resources away from temporal information processing. This may weaken the perception of time and create the impression that the session is passing more quickly than it actually is. This finding is consistent with cognitive theories such as the attentional gate model, which suggest that time perception is closely related to attention (Zakay & Block, 1995).

The fixed temporal structure of the therapeutic frame is also an important factor influencing this variable perception. The fixed and rhythmic structure of therapy is seen as a "container" that holds the client's internal experiences (Yariv, 1999). This structure functions as a frame that regulates the client's experience of time. At the beginning of the process, since the client is faced with an external structure, this rhythmic framework may not yet be internalized, leading to the sensation that time is passing more quickly. Over time, however, the client internalizes this structure and becomes more aware of the

session process. This awareness becomes particularly pronounced in sessions with intense emotional material, contributing to the feeling that time is passing more slowly. In some cases, experiencing time as unusually prolonged can function as a rational explanation for an unconscious urge to withdraw from the therapeutic encounter (Arlow, 1986).

Although the change over time was found to be statistically significant in this model, a visual inspection of the curve suggests that the change may not be particularly pronounced from a clinical standpoint. The relatively subtle trend observed in the perception of session speed might be overshadowed by individual variations. Therefore, to better understand changes in time perception, it is necessary to go beyond quantitative data and include more in-depth qualitative observations regarding the content of the sessions, the emotional intensity, and the client's position within the therapeutic process. In particular, processual elements such as emotional breakthroughs in certain sessions, transference–countertransference dynamics, and forms of resistance may play a decisive role in the subjective experience of time.

A study conducted by Fisher et al. (2019) on emotions during the therapeutic process found that the emotional experiences of clients increased significantly over time; however, this increase varied among individuals. Although the study did not provide a detailed breakdown of which specific emotions were experienced, the findings suggest a general tendency for the emotional intensity of clients to increase as therapy progressed. This finding is also consistent with the psychoanalytic approach, in which the middle phase of long-term therapy is generally defined as the period during which the most intense and in-depth therapeutic work takes place (Cavdar, 2022).

5.1.2. Individual Characteristics Influencing Clients' Perception of Session Speed

The perception of how quickly time passes has been linked to various individual factors in the literature. Demographic and clinical variables such as age, gender, and diagnosis have been suggested to influence time perception. For instance, while some studies have found a tendency for time to be perceived as passing more quickly with age, others have reported no significant age-related differences (Droit-Volet, 2018; Zuzanek, 2024).

Additionally, certain psychopathological conditions have been associated with distortions in time perception (Thönes & Oberfeld, 2015; Mioni et al., 2020). In mood disorders such as anxiety and depression, individuals often report that time feels either unusually fast or slow (Bahadırlı, 2013). These inconsistent findings may stem from both methodological differences across studies and the inherently multifaceted nature of time perception. However, most of these studies have been conducted under controlled experimental conditions, often stripped of emotional and social context.

In contrast, the psychotherapy session represents a multilayered setting in which numerous factors, such as emotional states, divided attention, relational dynamics, and the intensity of session material, interact simultaneously to influence subjective time perception. Within such a context, the effects of variables like age or gender may become less salient or may only emerge in specific subgroups.

In the present study, no significant effects were found for client- or therapist-level variables such as age, gender, diagnostic category, or reason for seeking therapy on client-rated perceived session speed. This finding suggests that, in clinical settings, time perception may be more strongly shaped by in-session experiences and relational processes. Regarding the gender variable, the predominance of female participants in both client and therapist groups may have limited the ability to detect any potential differences.

The sample of this study consisted of individuals who were clinically evaluated as suitable for working with trainee therapists. The relatively high level of overall functioning among these clients and the absence of psychotic or severely borderline personality structures may have contributed to the limited diagnostic diversity within the sample. Indeed, most clients began therapy due to mood-related issues, anxiety, or relational problems. Therefore, the lack of a significant effect for the diagnosis variable can be attributed to the characteristics of the sample.

Although no significant effect was found for reasons for seeking therapy either, it is worth noting that only two clients started therapy due to trauma. It is well established that traumatic experiences can disrupt time perception, often leading to phenomena such as temporal disconnection or a sense of “frozen time” (Kernberg, 2008). Given the low representation of trauma-related cases in the data, it is not surprising that no significant

differences emerged; however, this highlights the need for future studies to examine the potential effects of trauma on time perception more comprehensively.

The pre-treatment symptom levels of both clients and therapists were assessed using the Brief Symptom Inventory (BSI; Derogatis, 1992), which provides three global indices of psychological distress: the Global Severity Index (GSI), the Positive Symptom Distress Index (PSDI), and the Positive Symptom Total (PST). These indices respectively capture the overall level of symptomatology (combining intensity and breadth of symptoms), the average distress associated with reported symptoms, and the total number of symptoms endorsed. Together, they offer a multidimensional profile of current or recent psychological functioning.

Interestingly, clients' own pre-treatment symptom levels—including overall distress, number of symptoms, or average symptom intensity—did not significantly predict their perception of session speed, either directly or in interaction with time. This suggests that clients' experience of how fast or slow sessions felt was not strongly determined by their initial psychological state.

By contrast, although therapists' pre-treatment psychological distress did not directly predict clients' perception of session speed, it showed significant interaction effects with time. Specifically, both the Global Severity Index (GSI) and the Positive Symptom Total (PST) scores of the therapist interacted with the linear and quadratic time terms. These effects indicate that the trajectory of clients' perceived session speed—how their perception changed over the course of therapy—may have been shaped in part by the therapist's initial psychological burden. Rather than a constant influence, this suggests a more dynamic, evolving sensitivity on the client's part to relational or emotional undercurrents in the therapeutic process.

In conclusion, the individual factors influencing clients' subjective perception of session speed appear to be more closely related to in-session emotional processes and the quality of the therapeutic relationship, rather than to fixed demographic or diagnostic categories. These findings support the view that the experience of session speed is shaped in a relational context. Freud's emphasis on the absence of time in the unconscious (Freud, 1915) implies the existence of a timeless space that allows past experiences to be re-lived

during the session. In this context, although the session takes place within a fixed duration, it can give rise to vastly different temporal experiences for the individual. Transference dynamics may revive early relational patterns, creating a subjective sense of time being "stretched" or "frozen." In this sense, the perception of time is not merely a cognitive process, but also a reflection of the relational dynamics between client and therapist.

5.1.3. Emotional Factors Influencing Clients' Perception of Session Speed

Many studies on time perception emphasize the pivotal role of emotions in shaping the subjective experience of time flow. The impact of emotions on perceived time is typically examined along two main dimensions: arousal level and emotional valence (positive vs. negative) (Droit-Volet & Gil, 2009; Craig, 2009). Numerous studies have shown that positive emotions tend to make time feel as though it passes more quickly, whereas negative and especially threatening emotions are associated with the perception of time slowing down (Eagleman & Pariyadath, 2009; Sackett et al., 2010).

In the context of psychodynamic therapy, such temporal distortions may reflect not only the emotional tone of the session but also the unfolding of internal conflicts and transference dynamics. Sessions in which the client experiences positive emotions are often perceived as passing more quickly, while those marked by intense negative emotions tend to feel slower. This temporal shift can offer insight into how challenging the session is for the client at that moment—what themes are emerging and how the client is coping with them. In other words, the experience of slowed time may not only be a reflection of negative affect but also an indicator of the client's internal response to therapeutic material, including resistance or an unconscious desire to withdraw. Beyond the emotional tone experienced during the session, clients' subjective perception of time may also be shaped by their motivational stance toward the session itself. The study conducted by Liu et al. (2024) is important in examining PoTJ in real-time experiences in daily life. In their study, unlike others, participants were also asked whether they wanted time to pass as soon as possible (time expectation) and examined its relationship with PoTJ. According to the findings, when individuals wanted time to pass quickly, they

perceived time more slowly; when they wanted it to pass slowly, they perceived it more quickly. Based on clinical experience, some clients report feeling reluctant or having difficulty attending the session; this situation may affect their emotions during the session and their perception of time. In addition, positive relationships were found between emotional valence (positivity) and arousal level and PoTJ in the study (Liu et al., 2024). This finding is consistent with the relationship between the positive emotions reported by the clients within the scope of this study and the faster perception of the session.

In this study, the emotional experiences of clients during sessions were initially examined as broader experiences of Aversive, Negative, and Positive. The findings revealed that sessions in which clients experienced more positive emotions were perceived as faster, whereas sessions dominated by negative or aversive emotions were perceived as slower. This result supports the existing literature suggesting that the perception of time is closely tied to the hedonic tone of experience (Sackett et al., 2010; Droit-Volet, 2018). Specifically, positive emotions appear to have an accelerating effect on time perception; when sessions are emotionally pleasant or regulating, clients often report a sense that "time flew by." In contrast, negative or threatening emotions tend to elicit more prolonged, intense, and challenging internal experiences, which are accompanied by a sense that time is passing more slowly.

Within the framework of psychoanalytic theory, the pleasure–unpleasure principle offers a more comprehensive and appropriate framework for classifying emotional experiences than the more commonly used pleasure–pain dichotomy (Rangel, 1995). While pain is often regarded as a physical sensation, it can intensify and transform into psychological unpleasantness, particularly into anxiety. In early developmental stages, this unpleasure is diffuse and undifferentiated, but over time it evolves into more distinct emotional states such as anxiety, depression, guilt, and shame. These core emotions later provide the basis for the emergence of more complex and derivative emotional experiences through various combinations

This theoretical framework aligns with the findings of the present study: pleasurable emotions—those with positive valence, such as happiness and relief—were associated with a faster perception of session duration, whereas emotions characterized by

unpleasure—such as anger, shame, disgust, and contempt—were linked to the feeling that time passed more slowly. When clients experienced such unpleasurable emotions, their internal experience tended to become more intense, complex, and at times difficult to endure. This, in turn, may lead to a subjective evaluation that time is dragging or has slowed down. From this perspective, it can be argued that time perception is not merely a cognitive process, but rather a multidimensional experience shaped by emotional states. The findings also indicate that the therapist's emotional experiences did not have a statistically significant effect on the client's perception of session speed. This suggests that the client's experience of time is largely shaped by their own internal processes. Clients may not be fully aware of the emotional states experienced by the therapist, nor may they process these emotions in a way that influences their temporal perception.

In the therapeutic relationship, therapists typically do not directly express their emotional reactions to the client; instead, they internalize, regulate, or interpret them through an analytic framework. While Heimann (1950) emphasized that countertransference reactions can serve as valuable sources of therapeutic insight, she also underscored the importance of these reactions being processed internally by the therapist rather than conveyed directly. When therapists do not openly express their emotional states, even if clients intuitively sense them, they may not interpret them in a way that affects their perception of time.

Within this framework, the client's temporal experience appears to be primarily shaped by their own emotional state, cognitive resources, and subjective evaluation of the session. The therapist's emotional experiences, when analyzed as broader categories (i.e., Positive, Negative, and Aversive), did not reveal any significant associations with perceived session speed. Therefore, the specific emotions within these broader categories were not analyzed separately. In the case of client-reported emotions, the analysis extended beyond the broad categories. To explore the effects of specific emotional experiences, all 12 individual emotions were included simultaneously in a combined model. Among these, only a subset showed significant associations with perceived session speed. For example, anger was found to be significantly associated with slower perceived session speed as a fixed effect. In addition, the time-varying effects of aversive emotions such as anger, contempt, and disgust were also found to be significant.

Specifically, anger had a stronger slowing effect on perceived session speed at the beginning of therapy, but this effect diminished over time, while the influence of contempt and disgust emerged more prominently in the later stages of the therapeutic process. These findings suggest that certain aversive emotions do not exert a consistent effect throughout therapy but rather become influential in a time-dependent manner.

This pattern may partly be explained by potential suppressor effects resulting from the inclusion of multiple predictors in the model. The high intercorrelations among aversive emotions might have led to the masking of some emotional effects in the model. Nevertheless, from a clinical perspective, it is quite common for clients to experience multiple emotions simultaneously during a session. Therefore, including all emotions in the same model offers a more theoretically grounded and holistic understanding of the multifaceted emotional experience of the session.

The finding that anger was associated with a slower perception of session speed can be interpreted both in line with and somewhat distinct from psychoanalytic and experimental literature. From a psychoanalytic perspective, anger is often a difficult emotion to tolerate, especially for clients with depressive structures. These individuals may fear that their anger will harm loved objects or may even believe that such damage has already occurred (Birksted-Breen, 2003).

At the same time, when desires originating from an individual's internal drives conflict with environmental and interpersonal expectations, these desires and the emotions that accompany them are repressed (Subic-Wrana et al., 2016). For instance, an aggressive drive—such as the wish to destroy a rival—and the accompanying feelings of anger may be pushed into the unconscious because they are socially unacceptable. Therefore, sessions in which anger arises may be perceived as slower due to their emotionally taxing and conflicted nature.

However, cognitive-affective theories define anger as a negatively valenced emotion with high arousal but approach motivation (Gable et al., 2022). According to this view, anger is often considered an activating and energizing emotion, which may be associated with a faster perception of time. However, this model has primarily been tested in experimental contexts that involve short-term, reactive responses to direct environmental stimuli. In more complex and internally driven settings such as psychotherapy, the

meaning and function of anger can differ significantly from these experimental paradigms.

In the therapeutic relationship, anger may not merely function as a motivation toward action; it can also represent inner conflict, vulnerability, and defensive mechanisms. Indeed, the finding in this study that anger was associated with slower perceived session speed may stem from the fact that anger in therapy often emerges as a feeling that requires greater resistance, hesitation, and emotional processing. Especially when anger carries transference content, it may not manifest through direct expression, but rather be experienced in a suppressed or conflicted internal form. This could lead to a subjective slowing of time. Therefore, although anger is approach-oriented in many theoretical models, in the therapeutic context it may not always correspond to an experience of time speeding up. On the contrary, sessions in which anger intensifies and deepens may evoke a sense that time is stretching or dragging.

Experimental literature also suggests that anger, due to its high arousal content, may lead to distortions in time perception. Researchers such as Droit-Volet and Gil (2009) have shown that high-arousal emotions—particularly those with negative valence—tend to make durations feel longer than they actually are. This could further explain why sessions involving anger may be experienced as more “extended” and “intense” in terms of time. Although these findings come from controlled experimental settings, they provide meaningful insights into how anger felt in therapy may influence subjective time perception.

5.2. Psychodynamic Therapy and Perceived Session Speed from the Therapist's Perspective

Clients’ perception of time within the therapeutic process appears to be strongly linked to both emotional experiences and the structural evolution of the process itself. However, time in therapy is not a phenomenon experienced solely by the client; it is also a shared experiential space shaped by the therapist’s internal processes, attentional focus, and emotional presence. Therefore, in the following discussion, the focus will shift to how therapists perceive the speed of sessions, how this perception changes over time, and

which factors influence it. Examining the therapist's perspective is important not only for comparing different views on the perception of time but also for understanding the reciprocal nature of the therapeutic process.

5.2.1. The Therapist's Experience of Session Speed Over the Course of Therapy

In this study, visual inspection of individual trajectories indicated that therapists' perceptions of session speed did not follow a uniform pattern across therapeutic processes. While clients also displayed individual differences in how session speed evolved over time, the degree of variation among therapists was more pronounced—clear enough to justify conducting separate analyses for distinct subgroups. Specifically, some therapist trajectories exhibited a bell-shaped pattern, with perceived session speed increasing and then decreasing, while others reflected a reverse bell-shaped pattern, characterized by gradual acceleration over time. Notably, the fact that the same therapist showed different patterns with different clients suggests that these temporal dynamics are influenced less by fixed therapist characteristics and more by the evolving relational and structural features of each therapeutic process. In addition, therapists tended to perceive the sessions as progressing more slowly compared to clients, indicating a general difference in temporal experience between the two perspectives.

To investigate potential factors underlying these divergent trajectories, advanced logistic regression analyses were conducted. However, the results did not identify any significant predictors that could reliably distinguish between the two groups. While this limits the explanatory power of the current sample, the study nonetheless highlights the importance of exploring therapists' subjective time experience as a meaningful and complex phenomenon, worthy of further investigation in future research with larger and more diverse samples.

Importantly, all therapists in the present study were clinical psychology interns, many of whom were engaging in their first individual therapy cases. Consequently, the early phases of therapy often represented not only the beginning of a therapeutic process but also the beginning of their experience in the therapist role. This dual novelty may have shaped their temporal experience in different ways. For example, some interns may have

initially approached sessions with high anxiety and over-preparedness that led to a strong early focus and gradual disengagement, while others may have started with hesitancy and accelerated over time as they grew more confident. The lack of a unified pattern across therapists may reflect such divergent reactions to early performance-related stress.

Supporting this interpretation, Hill, Sullivan, Knox, and Schlosser (2007) found that novice psychotherapy trainees frequently experience anxiety, self-doubt, and intense self-criticism, especially around their therapeutic competence, emotional regulation, and role identity. Many worry about saying the "right" thing, managing sessions effectively, or being perceived as credible therapists. Moreover, these trainees often struggle with under- or overidentification with clients, finding it difficult to maintain therapeutic neutrality. They also report frequent use of supervision to cope with these challenges and to gain validation, practical strategies, and emotional support. Accordingly, it is plausible that the specific clients who elicited greater anxiety, required supervisory input, or evoked personal reactions may have coincided with cases where session speed was perceived as unusually fast or slow, contributing to the observed heterogeneity in trajectories.

It is also worth noting that the same therapist often appeared in both trajectory groups, bell-shaped and reverse bell-shaped, depending on the client. This finding underscores that the observed patterns cannot be solely attributed to stable therapist characteristics. Instead, they likely reflect process-specific dynamics emerging within each therapeutic relationship. Factors such as the evolving therapeutic alliance, the emotional depth of sessions, whether the case was brought to supervision, and how the dyad navigated early challenges may all contribute. These elements, co-constructed by both therapist and client, may shape the therapist's subjective experience of time in nuanced and context-dependent ways. Thus, future research should further examine relational and contextual variables that influence how therapists perceive session tempo across different therapeutic processes.

5.2.1.1. Bell-Shaped Pattern in Therapists' Perception of Session Speed

The therapists in the Bell-shaped group reported a trajectory where perceived session speed increased during the early-to-middle sessions and then noticeably decreased toward

the end of treatment. Although the linear term in the model was not statistically significant, the quadratic trend revealed a clear deceleration near termination. This finding can be interpreted in light of qualitative research by Coşkun (2023), in which many therapists described experiencing time as moving more quickly during the mid-phase of therapy. In these cases, therapists explained that once a therapeutic alliance was established, working with transference or resistance became more intellectually and emotionally engaging, often giving rise to a sense of temporal acceleration. Similarly, emotionally intense sessions—more common during the middle stages—were described as flowing more quickly, especially when therapists felt confident in managing complex material.

In contrast, sessions near termination were perceived as slower, which may reflect the therapist's heightened responsibility to contain emerging content, provide closure, or manage clients' anxieties about ending. The need to remain more active and vigilant in shaping the session structure during termination might reduce the therapist's subjective sense of temporal fluidity. Together, these qualitative patterns mirror the Bell-shaped curve observed in the quantitative data, pointing to a process in which the therapist's engagement fluctuates across the phases of therapy in a way that shapes their experience of time.

5.2.1.2. Reverse Bell-Shaped Pattern in Therapists' Perception of Session Speed

In the reverse bell-shaped group, therapists' perception of session speed followed a U-shaped trajectory—initial sessions were perceived as relatively fast, followed by a slowing down in the middle phase, and then a renewed sense of acceleration toward termination. This pattern may reflect the shift from structured and engaging early sessions to a more ambiguous or stagnant middle phase.

Coşkun's qualitative study (2023) provides meaningful insights into how such changes may be experienced by therapists. Some therapists reported that time felt faster when working with clients who showed insight and motivation, whereas sessions felt slower with those who appeared disengaged or unsure about the therapeutic process. For

example, one therapist described that sessions dragged on when clients lacked clarity about their reasons for coming or about what to talk about, emphasizing that silence particularly contributed to a slower sense of time.

Individuals who are sensitive to time and feel a constant internal pressure to achieve something may struggle with free association. These individuals might resort to time-control behaviors as a defensive strategy in therapy—for instance, frequently checking their watches during sessions is considered one such behavior (Namnum, 1972). Such dynamics may be especially relevant to the mid-phase of therapy. After the structure of initial sessions fades, therapists may encounter more silence or ambiguity, especially with clients who find free association difficult. These moments can feel effortful for therapists, contributing to a perception of sessions passing more slowly.

This sense of stagnation may be particularly prevalent during the middle stage of therapy, after the initial framework has loosened, but before deeper emotional engagement has fully emerged. One of the therapist's primary intervention goals is to help the client overcome defenses and bring repressed emotions to the surface (Subic-Wrana et al., 2016). As this process unfolds, and emotions are not only cognitively recognized but also affectively experienced, therapy tends to become more emotionally engaging and dynamic. This emotional activation may contribute to a heightened sense of involvement, which in turn can make sessions feel faster to the therapist. Additionally, another therapist remarked that early sessions tend to feel slower until a solid therapeutic alliance is established. This suggests that variations in the timing and quality of alliance formation may also shape therapists' temporal experience.

In contrast, the ending phase of therapy was sometimes experienced as more emotionally charged or unpredictable, potentially contributing to a faster perception of time. This is consistent with Hartocollis's (1975) proposition that novelty and uncertainty tend to accelerate the perception of time.

5.2.2. Individual Characteristics Influencing Therapists Perception of Session Speed

In exploring the impact of both clients' and therapists' individual characteristics on therapists' perception of session speed, no significant predictors were identified in the bell-shaped group. By contrast, in the reverse bell-shaped group, therapists' pre-treatment symptom levels, particularly their GSI and PSDI scores, showed significant interactions with time, suggesting that therapists' own psychological state may influence how they experience session speed over the course of therapy. These findings will be elaborated below.

5.2.2.1. Bell-Shaped Group

In this group, therapists' perception of session speed initially showed a slight increase during the early phase of the process, followed by a gradual slowdown. In the models related to this group, therapist-level variables (age, gender, and pre-treatment symptom levels measured by GSI, PST, and PSDI) as well as client-level fixed characteristics (age, gender, diagnosis, application reason, and pre-treatment symptom levels) were included as predictors. However, none of these variables significantly explained the observed changes in perceived session speed.

The bell-shaped pattern observed over the course of therapy appears to emerge independently of both therapist and client characteristics that were examined in this study. This suggests that the perception of time in therapy may be shaped not solely by individual traits, but also by dynamics inherent to the therapeutic process itself. As noted in the discussion of client-level predictors of perceived session speed, the present sample may not have been optimal for capturing the full range of effects of individual characteristics. Although factors such as age, gender, and psychological state have occasionally been found to influence time perception in previous studies, the findings here emphasize the potential significance of session-level and relational factors in shaping temporal experience during psychotherapy.

5.2.2.2. Reverse Bell-Shaped Group

Similarly, in this group, none of the client-related predictors were found to be significant. However, the therapists' pre-treatment symptom levels,, specifically their GSI and PSDI scores, showed significant interactions with the Session variable. According to the results, therapists who reported higher symptom levels before starting therapy tended to perceive sessions as slower in the early phase of the process and faster in later sessions. This finding suggests that the therapist's own psychological state may influence their perception of time throughout the therapeutic process.

Notably, even a seemingly stable characteristic such as pre-treatment symptom severity may exert different effects depending on the stage of therapy. In other words, while symptom level is a fixed trait, its impact on time perception may vary across different phases of the therapeutic journey. Although this specific mechanism was not directly tested in the current study, it is plausible that therapists may be more internally affected depending on the material brought by the client. For instance, working with a client who shares a similar traumatic life experience may challenge the therapist's emotional regulation capacity, which could in turn indirectly shape their perception of time.

Overall, these findings further underscore the multi-layered and reciprocal nature of the therapeutic process.

5.2.3. Emotional Factors Influencing Therapists' Perception of Session Speed

During the therapy process, it is essential for therapists to remain aware of their countertransference feelings and to regularly reflect on their emotional responses, thoughts, and impulses (Aaron, 1974). Intense emotional reactions toward the client—such as anger, resentment, excessive sympathy, or a strong desire to protect—can disrupt the working alliance and hinder the healthy progression of therapy. Therapists are encouraged to evaluate the degree to which their emotional responses are related to the material brought forth by the client. Feelings such as sleepiness, boredom, extreme detachment, or even intense affection during a session can serve as important signals of countertransference and should be carefully considered (Aaron, 1974). In this context, the

therapist's subjective perception of whether the session progressed quickly or slowly may also offer valuable insight into the dynamics of countertransference and should not be overlooked.

Nissen-Lie et al. (2022) further demonstrated that clients' level of motivation for therapy can significantly influence therapists' emotional countertransference reactions. Therapists working with more highly motivated clients were found to be less likely to experience uncomfortable feelings such as inadequacy or disengagement. Instead, these therapists were more likely to report feeling confident—particularly among those engaged in transference work. This suggests that the therapist's emotional responses, including their perception of time, are shaped not only by internal factors but also by the relational dynamics and client engagement within the session.

Therapists' emotional experiences during sessions are often shaped by complex countertransference dynamics. As Aaron (1974) emphasized, it is crucial for therapists to remain attuned to their emotional responses—such as anger, detachment, or affection—as these can signal unconscious processes and influence the therapeutic relationship. Similarly, Nissen-Lie et al. (2022) highlighted that such emotional reactions are not only internally driven but also shaped by the client's engagement and motivation. Within this framework, the therapist's subjective perception of whether a session felt fast or slow may serve as an implicit marker of these affective and relational processes.

In the present study, therapists' emotional experiences were examined in relation to their perception of session speed. The findings revealed that emotional predictors differed across therapist groups. In the Bell-shaped group, client-reported sadness, guilt, and envy, as well as therapist-reported relief, were associated with changes in perceived session speed. In contrast, in the Reverse Bell-shaped group, therapist-reported relief, shame, surprise, and anger (both therapist- and client-reported) were found to significantly influence how fast or slow sessions were experienced. These effects, as well as their time-dependent patterns, are discussed in detail below.

5.2.3.1. Bell-Shaped Group

In this group, the overall levels of positive, negative, and aversive emotions experienced by both the client and the therapist—namely, how strongly these emotions were felt throughout the sessions—were not significant predictors of the therapist's perception of session speed when considered as main effects. However, the impact of these emotions varied across the course of therapy, suggesting that the timing of their emergence within the process was a meaningful factor. Specifically, significant interactions were found between the quadratic time term (representing the progression of therapy) and the client's negative and positive emotions, as well as the therapist's negative emotions.

These emotions do not exert the same influence when they occur at different stages of therapy—early, middle, or late. For example, sadness experienced by the client in the initial sessions may have little impact on the therapist's perception of time. However, the same emotion may have a stronger effect in the middle or later stages of therapy, when the therapeutic relationship has deepened. Similarly, negative emotions felt by the therapist in the early sessions may be suppressed, yet as the process progresses, these emotions may become more consciously acknowledged and begin to influence their temporal experience.

Emotions that arise during a session rarely remain on the surface; in order to become meaningful, they must be processed within the context of time and relationship (Subic-Wrana et al., 2016). That is, there is often a temporal gap between the emergence of an emotion and the therapist's recognition, processing, and emotional response to it. This implies that the impact of an emotion depends not only on how much it is felt, but more importantly on when and how it is experienced. Therefore, main effects may remain weak, while time-dependent interaction effects can emerge more strongly.

In conclusion, these findings indicate that the influence of emotions on the session experience is not static, but dynamic and time-sensitive. As the therapeutic process unfolds, certain emotions may become more pronounced or gain deeper meaning for the therapist, thereby shaping their perception of how time is experienced during the session

In the analyses where emotions were included individually—rather than grouped—some noteworthy findings emerged. In particular, sadness reported by the client was found to

significantly predict a faster perception of session speed by the therapist. In other words, sessions in which the client experienced higher levels of sadness were perceived by the therapist as having passed more quickly.

According to a study by Gable, Neal, and Poole (2016), when sadness is experienced in an approach-motivated way, time appears to be perceived as shorter. To create the sad emotional state, participants were shown a movie scene of children talking about the death of their sibling. In the current study , re sults indicate that the client's feeling of sadness during the session was significantly related to the therapist's perception of the session as being faster. The client's sadness may have evoked a greater emotional closeness and approach from the therapist, which could have been associated with the perception that the session was shorter.

The therapist may develop varying levels of emotional responses depending on the emotional material presented by the client (Nissen-Lie et al., 2022). This suggests that more implicit and affective processes—such subjective perception of session speed—can also be shaped within the therapeutic relationship. In particular, when clients express intense emotions such as sadness, guilt, or envy, the therapist may experience emotional closeness or difficulty, which in turn may influence whether the session is perceived as passing quickly or slowly.

Client-reported envy was significantly associated with a slower perception of session speed by therapists in the Bell-shaped group. This finding aligns with psychoanalytic understandings of envy as a constricting and painful affect, marked by feelings of humiliation, helplessness, and resentment toward an idealized other (Smith, 2002). Feldman and De Paola (1994) propose that envy targets not just any desirable quality, but an omnipotent and unattainable object, leading to intense emotional discomfort that may be subtly transmitted and perceived within the therapeutic relationship.

Such affect, when unspoken or unprocessed, may manifest as emotional resistance or disengagement in the session—dynamics that therapists might pick up on and experience as a slowing of the session’s flow. Notably, the significant positive interaction with session number suggests that this effect diminishes over time: as therapy progresses,

clients may become more able to tolerate, symbolize, or express envy, leading to sessions that feel more dynamic and less inhibited from the therapist's perspective

The client's experience of guilt guilt did not have a stable main effect on the therapist's perception of session speed, but its influence shifted over the course of therapy. Specifically, higher levels of guilt were associated with slower sessions early on, whereas in later sessions, the same emotion corresponded with a perception of faster session speed. This pattern suggests a transformation in how guilt is experienced and processed within the therapeutic relationship.

Initially, guilt may emerge as a burdensome and defended feeling, contributing to a more effortful therapeutic process. As Subic-Wrana et al. (2016) note, such emotions are often repressed and require a secure therapeutic alliance to surface and be worked through. Over time, as guilt becomes more accessible and symbolized, the emotional flow of the session may improve—leading therapists to perceive time as passing more quickly. Arlow (1986) observed that distortions in time perception may reflect unconscious wishes, such as a desire to extend the session to relieve unresolved guilt.

The therapist's experience of relief during the session was found to be associated with a faster perception of session speed. This emotion may indicate that the therapist had a more positive experience during the session, felt less internally strained, and perhaps believed that therapeutic goals were more easily achieved.

This finding is consistent with affective valence models of time perception. Positive-valence emotions—states in which individuals feel pleasant, balanced, or satisfied—are generally associated with the impression that time passes more quickly (Droit-Volet & Gil, 2009; Gable et al., 2016). The association between the positively valenced emotion of relief and the perception of a faster session aligns well with this theoretical framework. In the therapeutic context, the feeling of relief may stem from the emergence of insight, the resolution of a conflict, or successful emotional regulation during the session. Beyond these factors, the therapist's ability to remain engaged without needing to overly monitor time or maintain rigid adherence to the therapeutic frame may itself be experienced as relieving. When a sense of spontaneity and internal coherence is achieved during the session, the cognitive need to track time diminishes. This allows the therapist to direct

attention more freely toward the client, contributing to the feeling that the session "flowed" or passed quickly.

5.2.3.2. Reverse Bell-Shaped Group

In this group, positive emotions of the therapist were associated with perceived faster sessions when analyzed by emotion groups in the initial analyses.

Subsequently, all emotions of both therapists and clients were tested individually in two combined models and relief, one of the therapist emotions, was found to have an effect on the therapist's perception that the session perceived faster. In addition, the therapist's feeling of shame was also generally associated with faster perceived sessions, but this effect diminished over time. This could be explained by the therapist regulating his/her emotional experience over time or by the function of shame changing at different stages of the session. The therapist may experience shame when they feel they are not being helpful enough during the session, when they fail to adequately support free association, or when they become emotionally distant (Morrison, 2011). At such moments, a discrepancy may arise between their internalized expectations of professional competence and the actual experience in the session, leading to feelings of shame. On the surface, it might seem that the relationship between therapist-reported shame and a faster perceived session speed runs counter to well-established results in the literature on time perception. For example, Droit-Volet and Gil (2009) have shown that negative emotions with high arousal tend to overestimate duration, which causes the subjective perception of time slowing down. But there are other complications brought about by the therapeutic setting. Shame in the therapist may appear as a brief, strong reaction during emotionally charged moments rather than as a persistent affective state. The subjective perception of time may be compressed during such moments due to intense interpersonal engagement and high emotional arousal. Additionally, therapists may unintentionally try to get through these challenging times faster, which adds to the feeling of an accelerated session flow. Interestingly, the emotion of surprise was also associated with a faster perception of time. This finding may suggest that when therapists are confronted with unexpected or

novel therapeutic moments, their heightened engagement and focused awareness may make the session feel shorter.

In contrast, the feeling of anger felt by both the client and the therapist was significantly associated with the perception of slower sessions. This finding contradicts expectations (e.g., Gable, Neal, & Poole, 2016) that anger, as an approach-motivated emotion, will lead to a faster passage of time. In the therapeutic context, anger is a multifaceted experience that is not limited to approach motivation, but is intertwined with relational tension, defenses, and simultaneously emerging conflictual emotions. Even when not overtly expressed, therapists' anger can subtly interfere with the flow of the session—through changes in tone, timing, or presence. In some cases, it may not be visible at all, yet it may quietly block the therapist's curiosity and the motivation to understand the client, ultimately hampering the progress of therapy (Çavdar, 2022).

At the same time, therapist anger may not always be the starting point—it can also emerge as a reaction to stagnation or lack of progress in therapy. When the therapist begins to feel ineffective or disconnected, frustration may build over time. According to Gaweda (2015), such feelings may reflect a deeper emotional withdrawal from the therapeutic process—a loss of inner and behavioral investment in the client—which in turn may slow the therapist's subjective experience of time during the session

5.3. Therapist–Client Associations in Perceived Session Speed

Given that the therapeutic process is co-constructed by both the therapist and the client (Yariv,1999), perceptions of perceived session speed are not solely individual experiences but are also shaped through mutual interaction. The findings of this study suggest that these perceptions are not only aligned within the same session, but that individuals' own prior evaluations are also reflected in subsequent sessions. Three key types of associations are particularly noteworthy:

First, therapists and clients often made similar judgments about whether a session felt fast or slow within the same session (concurrent association). Second, both therapists and clients tended to maintain their perceptions of session speed across consecutive sessions

(autoregressive effect), indicating that the experience of session speed follows a certain continuity and may carry an individual imprint. Third, one party's perception of session speed in the previous session did not significantly predict the other party's perception in the following session (cross-lagged association).

These results suggest that while perceived session speed is jointly experienced in the moment, it remains a highly subjective phenomenon over time. Although therapeutic interactions are reciprocal in nature, the perception of how time passes appears to be internally driven and uniquely shaped for everyone. In the following sections, three types of associations will be discussed respectively: (1) synchronous or concurrent perceptions of session speed within the same session, (2) the stability of these perceptions across sessions through autoregressive patterns, and (3) the lack of predictive power from one party's experience to the other's in subsequent sessions, known as cross-lagged effects.

5.3.1. Synchronous Perception of Perceived Session Speed

The findings revealed a significant synchronous relationship between therapists' and clients' perceptions of perceived session speed within the same session. When clients reported that the session felt fast, therapists also tended to perceive it as fast; likewise, when the session was perceived as slow by one party, the other party often shared this view. This suggests that the experience of how time passes in therapy is not merely an internal, subjective phenomenon, but also a co-constructed and shared aspect of the therapeutic process.

Such synchrony may stem from moments of therapeutic "flow," emotional attunement, or relational alignment. This aligns with theories emphasizing that the therapeutic hour is shaped not only by verbal content but also by implicit relational dynamics between therapist and client (Yariv, 1999). In particular, the countertransference literature suggests that therapists' internal emotional reactions may become synchronized with the client's affective state, thereby influencing their perception of the session (Heimann, 1950; Gabbard, 2001).

Although previous studies have not directly examined perceived session speed, findings of affective and behavioral synchrony in therapy (e.g., Bar-Kalifa et al., 2023; Ramseyer & Tschacher, 2016) suggest that therapeutic dyads often share moment-to-moment emotional and interactional states. The present findings may reflect a similar process at the level of temporal experience: how fast or slow a session feels might also emerge as a co-constructed, shared perception between therapist and client.

Thus, the shared perception of how fast or slow the session felt may serve as an implicit marker of the quality of the therapeutic relationship. Mutual perceptions of a fast session may reflect productive work, emotional engagement, or meaningful insight. Conversely, a shared sense that the session passed slowly may indicate relational tension, resistance, or a lack of connection. Accordingly, synchrony in perceived session speed can be seen as an indirect yet informative barometer of the underlying relational dynamics in therapy.

5.3.2. Autoregressive Patterns in Perceived Session Speed

Beyond instantaneous overlap, the findings revealed an autoregressive effect of therapists' and clients' perceived session speed. Both therapists and clients carry their perceptions of time from the previous session to the next session. In other words, an individual's perception of a session as having gone fast or slow increases the likelihood of having a similar perception in the next session. although the perception of session speed has been found to be influenced by the content of that session, the client or therapist may start the session with what they remember from the previous session and this may also affect their perception.

From a psychoanalytic perspective, this continuity reflects the enduring emotional and relational dynamics that shape the therapeutic encounter. Time in psychoanalytic work is not just a chronological progression; it is also charged with transference, emotional intensity and inner experiences. In this context, the transfer of time perception between sessions may reflect the emotional integrity and inner continuity of the therapeutic process.

On the other hand, in the time perception literature, it is suggested that memories of individuals' past experiences may affect their current time judgments (Block & Zakay, 1996; Droit-Volet, 2018). Accordingly, the emotional intensity, insight or conflictual content experienced in the previous session may determine how the next session will be experienced.

Therefore, for both the therapist and the client, the perception of the session as fast or slow is not only a momentary experience; it is an experience that carries traces of the past and is shaped over time. This finding once again demonstrates that the therapeutic process is not instantaneous, but operates within an emotional context that extends over time.

5.3.3. Cross-Lagged Effects Between Client and Therapist Ratings of Session Speed

Another important type of relationship examined in this study is whether the therapist's and client's perceived session speed influences each other over time. The findings showed that one party's (i.e., the client's) perception of time in the previous session did not significantly predict the other party's (i.e., the therapist's) perception of time in the next session. This result suggests that although perceptions of session speed may overlap at the same time, they do not directly predict each other over time.

This suggests that despite the reciprocity inherent in the therapeutic process, time perception is shaped in a subjective and individualized manner. Although the therapist and the client share the same experience, the mental representation of this experience and the emotional processing associated with time may differ. Considering that the perception of time depends on the individual's internal states, attentional processes and memory traces (Wittmann, 2013; Droit-Volet, 2018), this finding is not unexpected.

Moreover, in transference and counter-transference processes, the influence of the parties on each other is often implicit and indirect. The sense of how the session went depends on the dynamics of the process at that moment and the individual's internal representations, rather than directly on the other party's previous perception.

As a result, there was no reciprocal influence between therapist and client that progressed over time. This finding demonstrates once again that the perception of time in the

therapeutic relationship has both common and distinct dimensions and that the experience of time is essentially shaped by individual processes.

5.4. Clinical Implications

Therapists' experience of time is shaped not only by the content of the session, but also by the client's structural characteristics, the therapist's subjective experience, and the technical approach used. While some therapists state that working with the basic dynamics of the psychodynamic process, such as transference and resistance, makes the session more lively and fluid, others state that they experience an experience where time "freezes" during such intense emotional processes. For example, one therapist stated that sessions where work is done at a more structural level and where the psychoeducational aspect is dominant pass more slowly, whereas sessions where more neurotic structures and transference and resistance dynamics are at the forefront move faster in terms of time (Coşkun, 2023). These observations show that the therapist's individual tendencies, intervention styles, and countertransference experiences can directly affect the perception of time.

Therefore, the therapist's perception of time as fast or slow is closely related not only to the internal tempo of the session, but also to his/her professional identity, emotional comfort zone, and technical approach. While some therapists find working on processes such as transference and resistance professionally nutritious and interesting, others find these processes more challenging and experience the time of the session more slowly. These individual differences can shape the perception of time by determining how "compatible" or "forced" the therapist feels when working with certain client structures.

In this context, addressing the perception of time in therapist supervisions and discussing it as a structured topic in therapist training can contribute to the development of in-session self-awareness and clinical flexibility. In particular, emotions associated with the feeling that time is passing "slowly" can reveal the therapist's countertransference, internal blockages, or intervention difficulties. Such subjective awareness can strengthen the

therapist’s capacity for emotion regulation and make the therapeutic process more conscious.

The findings also show that the therapeutic process has not only a content or structure but also an experiential and temporal dimension. Clients’ perceptions of the speed of the session appear to follow a U-shaped pattern throughout the process: Time passed faster at the beginning and end of the sessions and slower in the middle. This finding suggests that the phase in which clients experience the most internal difficulty and therapeutic progress slows down relatively is concentrated in the middle of the process. Experiencing sessions as “slow” may indicate phases in which intense and challenging content is processed and emotional load increases. This may be a meaningful indicator for the therapist to re-evaluate their technical preferences.

For therapists, the fact that time perception is more affected by contextual and relational elements is directly related to their in-session self-regulation skills. Subjective awareness of whether time passes “fast” or “slowly” can provide intuitive information about the quality of the therapist’s relationship with the client. The change in the speed of the session in relation to emotional resonance enables the therapist to gain deeper insight into countertransference processes. Therefore, regular monitoring of time experience can serve as a clinical tool in understanding not only the session tempo but also the sustainability and depth of the therapeutic alliance.

In addition, the bell and reverse bell shaped session speed patterns revealed in the study shed light on the natural cycle of the therapeutic process. The relative acceleration observed at the beginning and end of the process and the apparent slowdown in the middle phase show how the emotional intensities of the therapy are distributed across different phases. Therapists' awareness of these cyclical changes can enable them to develop more patient and functional interventions, especially in the face of resistance, pauses or emotional intensity encountered in the middle phase. From the client's perspective, the change in time perception during these periods can provide valuable clues about how the process is experienced internally.

In conclusion, considering time perception as a variable that reflects both contextual and relational information about the therapeutic process has important clinical implications in

terms of the therapist reviewing his/her own internal processes, increasing his/her intuitive sensitivity towards the session and structuring his/her clinical decisions more flexibly. At the same time, it should be kept in mind that the client's experience of time is always intertwined with session content, emotional intensity, and relationship dynamics, not with factors outside the session. In this respect, time perception is a valuable clinical indicator for both the therapist and the client to understand the invisible but felt aspects of the therapeutic process.

5.5. Limitations and Future Directions

Some limitations of this study should be considered carefully in terms of the scope and generalizability of the findings. First, therapists' perceptions of session speed were grouped according to two different patterns (bell and inverted bell curve). However, the reasons underlying the significant differences observed between these groups could not be explained by the current data. Which processual or interpersonal characteristics cause such a difference in therapists' time perception should be examined in more detail in future studies. For example, clinical context variables such as the quality of the therapeutic alliance, the therapist's technical orientation, or countertransference dynamics may be factors affecting these patterns. It is also worth noting that the therapists in the current sample were all intern clinicians. Therefore, it remains unclear whether the trajectory patterns or the emotional predictors of perceived session speed would similarly emerge among more experienced therapists. For instance, interns may be more emotionally reactive or less able to regulate their countertransference, potentially amplifying the association between affective states and time perception. In contrast, seasoned therapists might manage their emotional responses more effectively, resulting in different temporal experiences. Future studies should investigate whether clinical experience moderates both the course and emotional determinants of perceived session speed.

Second, previous literature suggests that some psychopathological characteristics such as depression (Thönes & Oberfeld, 2015), borderline personality structure (Mioni et al., 2020), and narcissistic traits (Kernberg, 2008) have an effect on time perception.

However, the sample in this study largely consisted of undiagnosed clients. In addition, the structural levels of the clients (e.g. neurotic, borderline or psychotic organization) have not been systematically evaluated. The relationship between these structural levels, which have an important place in the psychodynamic formulation, and time perception can be addressed in future studies. In this way, more in-depth data can be obtained on how individuals with different levels of psychic organization experience time during the therapeutic process.

Thirdly, this study only examined the processes carried out within the psychodynamic therapeutic framework. Since the psychodynamic approach offers a structure that focuses on free association, unconscious processes and emotional depth, time perception may have also been shaped in this context. It is not yet known how the session speed is perceived and how it progresses throughout the process in more structured and direct intervention-based therapeutic models (e.g. Cognitive Behavioral Therapy). A comparative examination of different therapy models in the future may reveal the effects of theoretical orientations on time perception.

Fourth, emotions in the study were evaluated retrospectively through self-report at the end of each session. While this method is applicable in clinical settings and minimizes participant burden, it may fail to capture the full range of fluctuations in emotional intensity and attention throughout the session. For instance, sessions perceived as “fast” or “slow” may have included significant moments of acceleration or deceleration—yet these micro-temporal dynamics were not assessed. A more fine-grained measurement approach could include questions such as: “Were there any moments when the session felt particularly fast or slow?” to better understand within-session variation.

Moreover, the perception of session speed was assessed through a single item, which may have captured a general impression but not the multidimensional nature of temporal experience. Future research could incorporate multiple items or qualitative prompts to explore specific aspects of perceived time and their underlying causes.

In this study, factors influencing perceived session speed were primarily examined through the emotional experiences of clients and therapists. However, clinical experience suggests that the perception of time in therapy is shaped not only by emotion, but also by

how the session unfolds structurally. For example, how overwhelming the session feels for the therapist, how complex or demanding the content is, or whether the session flows smoothly or feels fragmented may all influence how time is perceived. Sessions that are experienced as more intense, effortful, or difficult to manage may feel slower, even in the absence of strong emotional expression. In the original research project from which the current dataset was derived, session-level variables such as *depth* and *smoothness* were also measured. However, these variables were not included in the present analyses, as they involve a separate line of inquiry. Future research may examine how such structural features of the session contribute to the subjective experience of time.

Moreover, if data on the therapeutic alliance had been available, it would have been possible to investigate how the relational rhythm between therapist and client affects the perception of session speed. Processes such as attunement, rupture and repair, or synchrony may play a meaningful role in shaping the temporal experience of the session.

Finally, no baseline measure of participants' general time perception outside the therapy context was included. Therefore, it is unknown whether individuals who perceived sessions as generally fast or slow also tended to experience time differently in everyday life. Including trait-level assessments of temporal experience in future designs could help differentiate between general tendencies and therapy-specific phenomena.

6. CONCLUSION

This study examined how the subjective perception of time is experienced in psychodynamic psychotherapy processes and the individual and affective factors that shape this experience, presenting a multi-level analysis from both client and therapist perspectives. The findings reveal that the perceived speed of how sessions pass is not a fixed experience, but rather a structure that is sensitive to the emotional context of the session, the person's internal processes, and the therapeutic relationship.

For clients, the perceived speed of the sessions followed a bell-shaped pattern; that is, sessions were perceived as faster at the beginning and end of the therapeutic process and slower in the middle phase. This pattern can be explained by the increased emotional intensity during the establishment and termination of the therapeutic alliance. In addition, clients' perception of time changed depending on the valence of the emotions felt during the session: positive emotions (e.g., happiness, relief) led to an experience of time passing quickly; negative and aversive emotions (e.g., anger, contempt) led to an experience of time passing slowly. However, clients' perception of time was not significantly affected by the therapist's emotions. These findings suggest that clients' time experience is primarily based on internal emotional processes.

In therapists, the perception of time regarding the speed of the session did not follow a similar pattern in every process; a bell curve was observed in some therapeutic relationships, while an inverted bell curve was observed in some relationships. It was found that therapists' perception of time was significantly affected by the emotions experienced by the client as well as their own emotional experiences. For example, the client’s feeling of sadness was associated with the therapist perceiving the session as going faster. These findings suggest that therapists' time experience may be more sensitive to relational resonance, countertransference processes, and contextual interactions.

In general, this study shows that subjective time perception is both a structural and experiential variable in the therapy process. Clients' and therapists' time experiences are

shaped not only by the session content but also by emotional context, relationship patterns, and individual tendencies. In this respect, time offers a unique dimension that can be evaluated based on both clinical intuition and measurable data, facilitating a deeper understanding of the therapeutic process.

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8. APPENDICES

Appendix A. Session Form

Bugünkü görüşme hakkında ve seansta terapistinizleyken nasıl hissettiğinizi aşağıdaki boyutlar üzerinden uygun sayıyı yuvarlak içine alarak belirtin.

Bugünkü görüşme:

Kötüydü	1	2	3	4	5	6	7	İyiydi
Güvenliydi	1	2	3	4	5	6	7	Tehlikeliydi
Zordu	1	2	3	4	5	6	7	Kolaydı
Anlamlıydı	1	2	3	4	5	6	7	Anlamsızdı
Yüzeyseldi	1	2	3	4	5	6	7	Derindi
Dingindi	1	2	3	4	5	6	7	Gergindi
Nahoştu	1	2	3	4	5	6	7	Hoştu
Doluydu	1	2	3	4	5	6	7	Boştu
Etkisizdi	1	2	3	4	5	6	7	Etkiliydi
Özeldi	1	2	3	4	5	6	7	Sıradandı
Acıtıcıydı	1	2	3	4	5	6	7	Yumuşaktı
Rahattı	1	2	3	4	5	6	7	Rahatsızdı
Hızlı geçti	1	2	3	4	5	6	7	Yavaş geçti

Terapistimleyken bu seansta:

Hiç öfkelenmedim	1	2	3	4	5	6	7	Çok öfkelendim
Hiç mutlu olmadım	1	2	3	4	5	6	7	Çok mutlu oldum
Hiç şaşırmadım	1	2	3	4	5	6	7	Çok şaşırdım
Hiç rahatlamış hissetmedim	1	2	3	4	5	6	7	Çok rahatlamış hissettim
Hiç iğrenmedim	1	2	3	4	5	6	7	Çok iğrendim
Hiç kıskançlık hissetmedim.	1	2	3	4	5	6	7	Çok kıskançlık hissettim.
Hiç korkmadım	1	2	3	4	5	6	7	Çok korktum
Hiç yukarıdan bakmadım	1	2	3	4	5	6	7	Çok yukarıdan baktım
Hiç üzülmedim	1	2	3	4	5	6	7	Çok üzüldüm
Hiç haset hissetmedim	1	2	3	4	5	6	7	Çok haset hissettim
Hiç utanmadım	1	2	3	4	5	6	7	Çok utandım
Hiç suçlu hissetmedim	1	2	3	4	5	6	7	Çok suçlu hissettim

Appendix B. Brief Symptom Inventory (BSI)

ARAŞTIRMAMIZA KATILDIĞINIZ İÇİN TEŞEKKÜRLER!

BU DOSYADA YAŞIYOR OLABİLECEĞİNİZ BAZI ŞİKAYETLER, KİŞİLERARASI İLİŞKİLERİNİZ, VE DUYGULARINIZ İLE İLGİLİ ÇEŞİTLİ SORULAR YER ALMAKTADIR.

HER SORUYU DİKKATLE OKUYUP, YÖNERGEDE BELİRTİLEN ŞEKİLDE YANITLAMANIZI RİCA EDERİZ. SORULARI YANITLARKEN OLABİLDİĞİNCE SAMİMİ VE DÜRÜST OLMANIZ, ARAŞTIRMA SONUÇLARININ SAĞLIKLI OLABİLMESİ VE PSİKOTERAPİ SÜRECİNİ DAHA İYİ ANLAYABİLMEMİZ AÇISINDAN ÇOK ÖNEMLİ.

YANITLARINIZ TERAPİSTİNİZLE PAYLAŞILMAYACAKTIR. TÜM VERİLER KİMLİK BİLGİLERİ SAKLI TUTULARAK TOPLANACAK VE DEĞERLENDİRİLECEKTİR. SİZDEN DE BU DOSYADAKİ HİÇ BİR SAYFAYA ADINIZI VE SOYADINIZI YAZMAMANIZI RİCA EDERİZ.

BU DOSYAYI TAMAMLADIKTAN SONRA, BU ARAŞTIRMA KAPSAMINDA SİZDEN HER GÖRÜŞMENİZDEN SONRA SADECE 1 SAYFALIK KISA BİR ANKET DOLDURMANIZ BEKLENECEKTİR.

ŞU ANDA ELİNİZDEKİ DOSYANIN BİR BENZERİ, SÜRECİNİZ SONLANIRKEN YENİDEN UYGULANACAKTIR.

BU DOSYADAKİ SORULARI TAMAMLADIKTAN SONRA ZARFI KAPATARAK ASİSTANA TESLİM EDEBİLİRSİNİZ. EĞER SORULARI EVDE YANITLAMAYI TERCİH EDİYORSANIZ, ZARFI BİR SONRAKİ SEANSINIZ İÇİN GELDİĞİNİZDE ASİSTANA TESLİM ETMENİZ GEREKMEKTEDİR. EĞER BU DOSYAYI BİR SONRAKİ SEANSINIZDAN ÖNCE İLETMEMİŞ OLURSANIZ VERİLERİNİZ ARAŞTIRMA KAPSAMI DIŞINDA KALIR VE SÜRECİN DEVAMI UYGULANMAZ.

BU ARAŞTIRMA İLE İLGİLİ BİR SORUNUZ OLURSA ARAŞTIRMACILARDAN ALEV ÇAVDAR'A ULAŞABİLİRSİNİZ

KATILIMINIZ İÇİN TEKRAR TEŞEKKÜRLER!

Aşağıda, insanların bazen yaşadıkları belirtilerin ve yakınmaların bir listesi verilmiştir. Listedeki her maddeyi lütfen dikkatle okuyun. Daha sonra o belirtinin sizde, **bugün dahil, son bir haftadır** ne kadar var olduğunu yandaki bölmede, uygun olan yerde işaretleyin. Her belirti için sadece bir yeri

Bu belirtiler son bir haftadır sizde ne kadar var?

		Hiç	Biraz	Orta Derece	Epe yce	Çok fazla
1	İçinizdeki sinirlilik ve titreme hali	(0)	(1)	(2)	(3)	(4)
2	Baygınlık, baş dönmesi	(0)	(1)	(2)	(3)	(4)
3	Bir başka kişinin sizin düşüncelerinizi kontrol edeceği fikri	(0)	(1)	(2)	(3)	(4)
4	Başınıza gelen sıkıntılardan dolayı başkalarının suçlu olduğu duygusu	(0)	(1)	(2)	(3)	(4)
5	Olayları hatırlamada güçlük	(0)	(1)	(2)	(3)	(4)
6	Çok kolayca kızıp öfkelenme	(0)	(1)	(2)	(3)	(4)
7	Göğüs (kalp) bölgesinde ağrılar	(0)	(1)	(2)	(3)	(4)
8	Meydanlık (açık) yerlerden korkma duygusu	(0)	(1)	(2)	(3)	(4)
9	Yaşamınıza son verme düşünceleri	(0)	(1)	(2)	(3)	(4)

10	İnsanların çoğuna güvenilmeyeceği hissi	(0)	(1)	(2)	(3)	(4)
11	İştahta bozukluklar	(0)	(1)	(2)	(3)	(4)
12	Hiçbir nedeni olmayan ani korkular	(0)	(1)	(2)	(3)	(4)
13	Kontrol edemediğiniz duygu patlamaları	(0)	(1)	(2)	(3)	(4)
14	Başka insanlarla beraberken bile yalnız hissetmek	(0)	(1)	(2)	(3)	(4)
15	İşleri bitirme konusunda kendini engellenmiş hissetmek	(0)	(1)	(2)	(3)	(4)
16	Yalnızlık hissetmek	(0)	(1)	(2)	(3)	(4)
17	Hüzünlü, kederli hissetmek	(0)	(1)	(2)	(3)	(4)
18	Hiçbir şeye ilgi duymamak	(0)	(1)	(2)	(3)	(4)
19	Ağlamaklı hissetmek	(0)	(1)	(2)	(3)	(4)
20	Kolayca incinebilme, kırılmak	(0)	(1)	(2)	(3)	(4)
21	İnsanların sizi sevmediğine, kötü davrandığına inanmak	(0)	(1)	(2)	(3)	(4)
22	Kendini diğerlerinden daha aşağı görme	(0)	(1)	(2)	(3)	(4)
23	Mide bozukluğu, bulantı	(0)	(1)	(2)	(3)	(4)
24	Diğerlerinin sizi gözlediği ya da hakkınızda konuştuğu duygusu	(0)	(1)	(2)	(3)	(4)
25	Uykuya dalmada güçlük	(0)	(1)	(2)	(3)	(4)
26	Yaptığınız şeyleri tekrar tekrar doğru mu diye kontrol etmek	(0)	(1)	(2)	(3)	(4)
27	Karar vermede güçlükler	(0)	(1)	(2)	(3)	(4)

28	Otobüs, tren, metro gibi umumi vasıtalarla seyahatlerden korkmak	(0)	(1)	(2)	(3)	(4)
29	Nefes darlığı, nefessiz kalmak	(0)	(1)	(2)	(3)	(4)
		Hiç	Biraz	Orta Derece	Epe yce	Çok fazla
30	Sıcak soğuk basmaları	(0)	(1)	(2)	(3)	(4)
31	Sizi korkuttuğu için bazı eşya, yer ya da etkinliklerden uzak kalmaya çalışmak	(0)	(1)	(2)	(3)	(4)
32	Kafanızın bomboş kalması	(0)	(1)	(2)	(3)	(4)
33	Bedeninizin bazı bölgelerinde uyuşmalar, karıncalanmalar	(0)	(1)	(2)	(3)	(4)
34	Günahlarınız için cezalandırılmanız gerektiği	(0)	(1)	(2)	(3)	(4)
35	Gelecekle ilgili umutsuzluk duygusu	(0)	(1)	(2)	(3)	(4)
36	Konsantrasyonda (dikkati bir şey üzerinde toplama) güçlük/zorlanmak	(0)	(1)	(2)	(3)	(4)
37	Bedenin bazı bölgelerinde zayıflık, güçsüzlük hissi	(0)	(1)	(2)	(3)	(4)
38	Kendini gergin ve tedirgin hissetmek	(0)	(1)	(2)	(3)	(4)
39	Ölme ve ölüm üzerine düşünceler	(0)	(1)	(2)	(3)	(4)
40	Birini dövme, ona zarar verme, yaralama isteği	(0)	(1)	(2)	(3)	(4)
41	Bir şeyleri kırma dökme isteği	(0)	(1)	(2)	(3)	(4)
42	Diğerlerinin yanındayken yanlış bir şeyler yapmamaya çalışmak	(0)	(1)	(2)	(3)	(4)
43	Kalabalıklarda rahatsızlık duymak	(0)	(1)	(2)	(3)	(4)

44	Bir başka insana hiç yakınlık duymamak	(0)	(1)	(2)	(3)	(4)
45	Dehşet ve panik nöbetleri	(0)	(1)	(2)	(3)	(4)
46	Sık sık tartışmaya girmek	(0)	(1)	(2)	(3)	(4)
47	Yalnız bırakıldığında/kalındığında sinirlilik hissetmek	(0)	(1)	(2)	(3)	(4)
48	Başarılarınız için diğerlerinden yeterince takdir görmemek	(0)	(1)	(2)	(3)	(4)
49	Yerinde duramayacak kadar tedirgin hissetmek	(0)	(1)	(2)	(3)	(4)
50	Kendini değersiz görmek/değersizlik duyguları	(0)	(1)	(2)	(3)	(4)
51	Eğer izin verirseniz insanların sizi sömüreceği duygusu	(0)	(1)	(2)	(3)	(4)
52	Suçluluk duyguları	(0)	(1)	(2)	(3)	(4)
53	Aklınızda bir bozukluk olduğu fikri	(0)	(1)	(2)	(3)	(4)