

# The Recording Cure: A Media Genealogy of Recorded Voice in Psychotherapy

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## Abstract

This article explores the relationship between psychotherapy and sound reproduction technologies from the early 20th century to the present. Subscribing to a media genealogy approach, it traces the changing status of the recorded voice in therapy as set against broader transformations in the field of mental health. Delving into the recorded voice's diverse applications across psychotherapeutic approaches, it demonstrates how technology worked to unravel the temporal and spatial formations of the therapeutic setting, thereby unsettling established hierarchies, terminologies, and techniques while at the same time supporting the integrity of the therapeutic situation. The article points to sound media's capacity to bifurcate the voice into somatic and expressive elements and reassemble them in various configurations, thereby producing the 'psyche' through alternative access points. The story of the recorded voice in therapy provides a glimpse into the way technological affordances inform therapeutic concepts and practices, which in turn implement technology in study, training, and treatment.

## Keywords

datafication, media genealogy, psychotherapy, self, sound, sound recording, voice

## Introduction

Therapy and voice go way back. The Freudian psychoanalytic scenario, wherein analyst and analysand converse without eye contact so as to allow free association, is importantly conditioned by vocal exchange. Listening with 'evenly suspended attention' (Freud, 1958: 111), the analyst acts as receptor for whatever the analysand voices, intentionally

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and unintentionally. In psychoanalytic theory, the voice is commonly linked to early stages of ego formation with the mother's voice providing a pre-symbolic 'sonorous envelope', shielding and nurturing the newborn (Anzieu, 2018). Later therapeutic approaches, including the humanistic approach and cognitive-behavioral therapy, are also forms of 'talking cure' insofar as involving regular verbal interactions. More recently, with the advent of AI-based voice analytics apps, which allow measuring and analyzing users' voice samples to quantify symptoms such as depression or anxiety, the voice becomes akin to a 'vital sign' for emotional health. This link is not surprising as the voice is considered in Western thought as metonymic to the 'self', implying 'a subjectivity which "expresses itself" and itself inhabits the means of expression' (Dolar, 2006: 15). Indeed, it is hard to imagine psychotherapy without the voice playing a key role therein – a fact that took on special importance with the introduction of sound technologies into therapy.

This article explores the relationship between psychotherapy and sound reproduction technologies through the 20th century to the present, tracing the changing status of the recorded voice within the therapeutic situation. It argues that phonographs, wires, and tape recorders served as facilitators for new, at times contradicting, conceptions of the (therapeutic) self. In so doing, the discussion to follow critically engages with Nikolas Rose's (2007) analysis of the conceptual turn, which arguably took shape during the second half of the 20th century, from the 'psychological self', that is, the idea of a singular, self-reflecting consciousness, to the 'somatic self', which as Paul Roquet (2016: 10) puts it, is 'tied more directly into the surface vitality of the physical body', abstracting the body as 'an assemblage of diverse, largely preconscious systems'. Unfolding the story of the recorded voice in therapy against this dichotomous description, this article suggests that the two models are not mutually exclusive but actually interrelated. Thus, sound reproduction technologies enabled bifurcating the voice into somatic and expressive elements, only to then reassemble them in various configurations, thereby producing the 'psyche' through alternative access points.

Rose (2007) identifies the origins of the Freudian subject as inhabited by deep inner psychological space with the failure of 19th-century psychology to penetrate the surface of the body. He associates the shift from this 'psychological self' to the 'somatic self' with the spread of new biomedical technologies operating at a preconscious, molecular level. However, technology already played a part in the construction of psychoanalytic theories, where questions of subjectivity and identity were approached in terms of media operations (Derrida, 1996; Elsaesser, 2009). Sigmund Freud (1925) famously speculated on 'the Mystic Writing-Pad' to explain the functioning of the 'psychic apparatus' as that which possesses 'an unlimited receptive capacity for new perceptions and nevertheless lays down permanent – even though not unalterable – memory traces of them' (p. 228). The writing pad – a wax slab covered with a double-layered transparent sheet that can be overwritten and erased while retaining previous impressions – combined both functions of transmission (consciousness) and storage (memory). Although opposing the use of technological media in sessions, Freud employed technological tropes to thematize the psychoanalytic practice, for instance associating the analyst's receptivity with that of the telephone, converting obscure oscillations from the patient's unconscious into meaningful messages and redirecting them back to their source.

Friedrich Kittler (1999) argued that Freud's analogy missed psychoanalysis' basic media a priori – phonography. Registering the patient's speech together with the stutters, slips, and parapraxes, psychoanalysis is better understood along the lines of sound recording. To Kittler, such correlations are not simply metaphorical: as foregrounded in the term 'psychotechnology' (coined by German-American psychologist Hugo Münsterberg), psychological and technical operations are fundamentally interconnected as 'each psychic apparatus is also a technological one, and vice versa' (p. 160). Following Kittler, recent scholarship has noted the elective affinities between communication technologies and mental pathologies such as schizophrenia, autism, and post-traumatic stress disorder (Peters, 2010; Pinchevski and Peters, 2016; Pinchevski, 2016, 2019). This article joins a growing body of work examining the interconnections between media and psychotherapy and the ways they mutually implicate each other (Geoghegan, 2017; Pinchevski, 2019; Zeavin, 2021).

The employment of recording technologies in therapy was fraught from the start. Early attempts to mechanically record sessions were motivated by the ambition to scientize psychoanalysis and introduce external scrutiny into traditional therapeutic relationship (Birdsall et al., 2015; Lempert, 2019). Initial recordings were typically made without the patient's, and sometimes even the therapist's, knowledge, which sparked fierce ethical debates among practitioners. Even after securing the approval of all involved, there were still those who considered the recording device a 'contaminant', irreversibly altering the psychotherapeutic setting (Roose, 1960: 324). In their efforts to legitimize recording, advocates conducted various meta-studies of its effects, concluding that, over time, both therapists and patients tend to adapt to the idea. To naturalize its use, they portrayed sound recording as minimally invasive, being 'a push-button technic requiring the presence of no third party' (Carmichael, 1966: 53). Thus, during its first years, the practice of recording therapy can be regarded as a double act of boundary work (Gieryn, 1983): on the one hand, placing psychotherapy among the medical sciences; on the other, demarcating inner-disciplinary borders between the more and less progressive, outward-looking approaches to psychotherapy.

In retrospect, those who feared recording would change therapy were quite prescient: in remolding its temporal and spatial structures, sound reproduction technologies unsettled established norms and methods. The changes effected on the status of the voice within the therapeutic setting are indicative of larger transformations in the field of mental health. In tracing these shifts, the discussion below subscribes to a media genealogy approach, seeking to discover 'past divergent lines and hidden relationships that point towards the present in critical ways' (Apprich and Bachmann, 2017: 293). Media genealogy is concerned with the materiality of media in conjunction with their role in producing and maintaining structures of knowledge and power, 'establishing the grounds of possibility for practice and utterance' (Monea and Packer, 2016: 3152). Emphasizing the reciprocal effects of society and technology, media genealogy considers historical changes as dynamic processes where discursive and political formations constantly collide. A media genealogy of the recorded voice in therapy thus examines the changing configurations of patients, therapists, and sound media in order to identify the social and technological forces active in producing the therapeutic situation and the corresponding self-in-treatment. The story of recorded voice in therapy – as reproduced by media such

as the phonograph, wire recorder, tape recorder, and digital platforms – provides a glimpse into the way technological affordances inform therapeutic concepts and practices, which in turn implement technology in therapeutic study, training, and treatment.

More particularly, this media genealogy explores how the bifurcation of voice into expressive and somatic elements afforded by recording technologies enabled the objectification of the self and the therapeutic interventions ensuing from it. As opposed to Rose's (2007) claim that during the second half of the 20th century the concept of the 'somatic self' came to replace the 'psychological self', this study proposes an alternative history which reveals the coexistence of these two concepts of self as conditioned by various recording technologies. Indeed, it is precisely this duality of the somatic and the psychological that is produced, summoned, and utilized across therapeutic approaches, leading up to the present with AI-based mental health voice analytics.

## **Making Hi-fidelity Therapy**

The Second World War is considered a transformative event in the history of American psychotherapy, bringing as it did public and governmental recognition of the prevalence of various mental disorders. The federal government provided massive support for training, research, and service in the field of mental health with agencies such as the Veterans Administration, the Department of Defense, and the National Institute of Mental Health offering funding and employment opportunities (Pickren, 2005). Paralleling a general trend among postwar social scientists, a growing number of American psychiatrists and clinical psychologists argued in favor of rigorous, objective methods for evaluating psychoanalytic processes. They held that traditional psychoanalytic research, typically relying on the case study method, was facing an impasse in its incompatibility with modern scientific standards, and that no progress would be achieved without significant revision (Rosner, 2005).

The idea of using mechanical recordings as a way to address the problem challenged some core assumptions within psychotherapy. One of its advocates was psychoanalyst Lawrence S. Kubie, who believed that the introduction of film cameras into therapy may initiate 'a new era of clinical research in psychiatry' insofar as providing permanent records that would afford 'a critical comparison of the observations and deductions by different observers on both the same and different cases' (Brenman et al., 1947: 1999). A prerequisite for this scientific advancement was breaking with Freud's (1958: 114) single case study paradigm, in which the analyst served both as therapist and researcher, 'swinging over according to need' between the two. In Kubie's view, delegating one task to technology, which can accurately register and 'catch the infinite details' (Brenman et al., 1947: 222), would free the therapist from the twofold duty of simultaneously listening and observing during sessions. Moreover, in Kubie's vision, psychiatric research should take form collaboratively in research institutions staffed by physiologists, sociologists, cultural anthropologists, but mostly by experienced psychoanalysts who would relinquish any duty but to 'study the techniques by which psychological forces influence psychopathological processes' (Brenman et al., 1947: 201). Kubie's suggestion was ultimately a call for separating subjectivity and objectivity: keeping the therapist in while taking the ostensibly impartial researcher out. The

recording apparatus was to act as the medium of this separation, turning subjective materials (the patient's reports about feelings, attitudes, and memories, and the therapist's reactions and comments) into objective data 'accurately recorded and made available in the actual form in which they occur' (Shakow, 1960: 87). As a form of documentation, mechanical recordings indifferently and evenly captured the therapist's voice and utterances together with those of the patient, thereby leveling their status. Recordings introduced the potential of turning the therapist from observer into observed, subjected to survey just like, and along with, the patient.

While the introduction of recording into therapy was mostly met with resistance, there were those who seized on the opportunity. In the early 1940s, psychotherapist Carl R. Rogers and his students at Ohio State University equipped interviewing rooms with concealed non-directional microphones, linked to a double recording turntable in an adjacent room, and recorded nearly 200 interviews on phonograph discs. This technological complex allowed them to preserve 'an absolutely accurate account of every word spoken in the interview', including 'the inflections and tone of voice', which could provide 'a vivid and clearcut picture' of therapeutic processes (Rogers, 1942b: 429). That said, Rogers and his colleagues were mostly interested in what (and how much) was said, focusing their investigations on 'typescripts' made of recorded interviews. For this purpose, one of Rogers' students devised a special machine with a foot pedal, which allowed the stenographer to raise or lower the needle at will, and 'type the material as she would from a Dictaphone, listening to the record through earphones' (see Figure 1).

These typescripts proved indispensable for Rogers in posing his 'non-directive' theory against the then dominant model according to which the therapist identifies problems and prescribes solutions (Kramer, 1995). Rogers' approach put the 'client', rather than the 'counselor' (Rogers' terms for the traditional 'patient' and 'therapist'), in charge of directing the session. For Rogers (1942a: 124), the counselor's primary function is to assist the client 'to recognize and understand his feelings, attitudes, and reaction patterns', and encourage him to talk about them, avoiding criticism, interpretation, or advice. In his 1942 *Counseling and Psychotherapy: Newer Concepts in Practice*, said to contain 'the first phonographically recorded case of psychotherapeutic interviews ever to be published' (Snyder, 1947: 338), Rogers demonstrated empirically what he deemed to be the key differences between the directive and non-directive methods. An effective therapy entails 'a definitely structured, permissive relationship which allows the client to gain an understanding of himself to a degree which enables him to take positive steps in the light of his new orientation' (Rogers, 1942a: 18). To help the client achieve self-understanding, the counselor should reflect as accurately as possible the feelings associated with the client's statements. In a later book, Rogers explained that to do so, the counselor must first aim

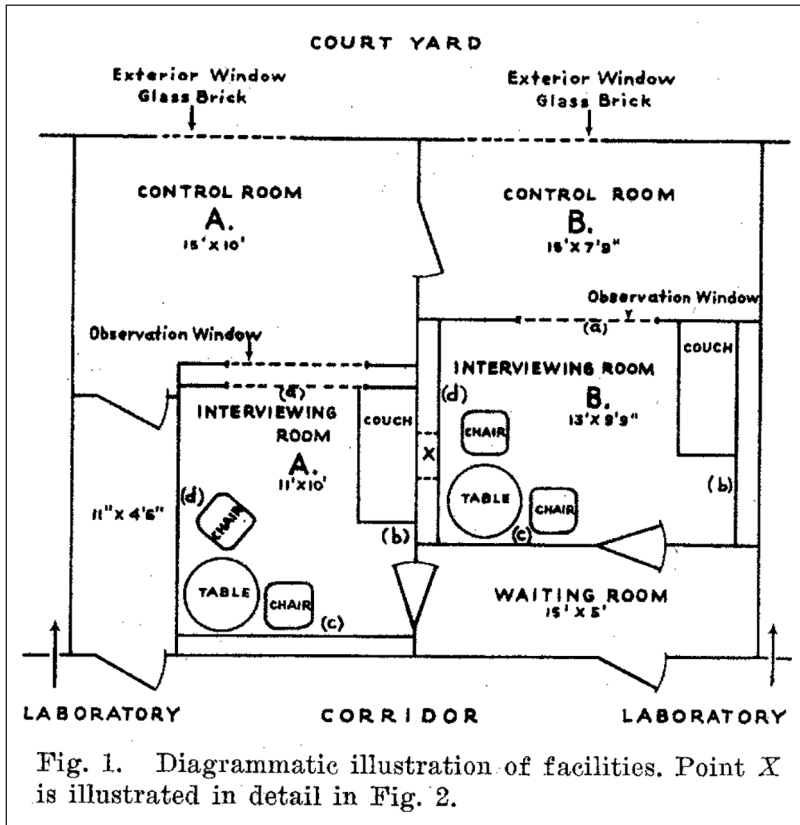
to perceive as sensitively and accurately as possible all of the perceptual field as it is being experienced by the client, with the same figure and ground relationships, to the full degree that the client is willing to communicate that perceptual field; and having thus perceived this internal frame of reference of the other as completely as possible, to indicate to the client the extent to which he is seeing through the client's eyes. (1951: 34)



**Figure 1.** Over-all arrangement of apparatus for transcribing phonographic recordings of verbal material (Covner, 1942b).

Considering Rogers' approach together with its attendant technological apparatus reveals the session as a perceptual field in which the counselor is to pick and reproduce, with the highest fidelity possible, what the client communicates – in form and content, figure and ground – and reflect it back to the client. In other words, non-directive therapy can be seen as modeled on the unselective nature of recording technology, capturing as it does both intentional and unintentional utterances, signal and noise (Kittler, 1999). From this perspective, what underlies Rogers' humanistic approach is recording technology. Rather than a dialogic one-on-one, non-directive therapy encompasses from the start a triad of counselor, client, and recording device (cf. Pinchevski, 2019).

While typewriters allowed Rogers to focus on what was said in sessions, the ability to capture sound allowed rediscovering the voice's somaticity, opening thereby new avenues for interpreting the relation between mental states and manners of expression. The idea was pioneered in the early 1930s by American political scientist Harold Lasswell, who used wax-cylinder recordings of therapy sessions to measure voice variations,



**Figure 2.** Diagrammatic illustration of facilities (Mahl et al., 1954).

which, together with indicators such as heart rate and galvanic skin response, were said to reveal the speaker's degree of tension (Lasswell, 1935; Lempert, 2019). Merton Gill, a leading psychoanalyst, similarly stressed the advantages of sound recordings in picking up vocal modulations of client-therapist intercommunication. Different intonations convey different meanings, he argued, 'whether the difference lies only in a subtle nuance or in contrasts as clear as that between the angry "no" of a paranoid and the timid "no" of an inhibited patient' (Brenman et al., 1948: 103).

Criticizing Rogers' approach, Gill and his colleagues at the Yale Medical School held that transcripts were inferior to the actual soundtrack since 'transcribing – transferring the sound record to the printed page – removes most of the feelings and emotions from the interview' (Gill et al., 1954: 112). Together with specialists from Harvard University's Psycho-Acoustic laboratory, the Clark School for the Deaf, and the Bell Telephone Company, Gill and his team built facilities at Yale for hi-fidelity interview recording, complete with omnidirectional microphones and adjacent control rooms (Mahl et al., 1954; see Figure 2). To fully capture vocal nuances, background noise had to be eliminated by installing double walls and weather-stripped doors. Employing principles from

acoustic architecture and sound engineering, they calibrated the therapeutic setting for maximum audio range, 'from the lowest base to the highest pitch of the overtones of the recorded sounds', preserving 'the relative intensity relationships of the fundamental tones and their associated overtones', thereby optimizing 'the ability to interpret emotional nuances correctly' (Mahl et al., 1954: 235–6). In searching the recordings for what the patient 'gives-off', tracking 'every intonation of voice, sigh, mutter, murmur, or silence' (Gill et al., 1954: 115), these researches were following Freud's lead through technological means, deeming the embodied voice as an entry point to the unconscious.

The introduction of recording into therapy pried open what had traditionally been spoken behind closed doors. The recording facilities at Yale traded confidentiality for hi-fidelity (both from the Latin *fidere*, 'trust'). Once a dyadic, privy engagement, the therapeutic session became, through recording, a triadic situation both repeatable and scrutinizable. Indeed, the therapeutic session became an apparatus, that is, 'a whole set of relations, practices, people, and technologies' (Sterne, 2003: 225), encompassing control room technicians, stenographers, research assistants, and outside colleagues, supervisors, and students. By and by, psychotherapists were required to delve into technical issues previously outside their professional purview, from collecting chips created during phonographic recording (Covner, 1942a) to mending snapped recording wire (Bierer and Ström-Olsen, 1948). Recording thus paved the way for the objectification of the self-in-treatment by virtue of the split between the psychological and somatic. By analyzing expressions in typescripts or physical tracings on soundtracks, it became possible to isolate and identify typical characteristics of patients and therapists alike. Within an increasingly distributed therapeutic apparatus, the 'self' became something that could be interpreted and diagnosed across multiple ears.

## Playing Back Therapy

From the beginning, recordings of therapeutic sessions were played back to psychiatrists and analysts in seminars and training programs, providing them with a self-reflexive corrective tool. According to Kubie (1958: 233), the first time a therapist listens to his recorded voice is an illuminating experience: 'with surprise and dismay he hears in his own voice the edge of unintended scorn or sarcasm, or impatience or hostility, or else overtender solicitude and seductive warmth'. While such insights were intended exclusively for therapists' ears, a few practitioners opted to share recordings with their patients, typically as a means to demonstrate to them the progress made. When patients were treated with hypnosis or administered sodium amytal as part of narcoanalysis, recordings provided evidence of their subconscious material (Bierer and Ström-Olsen, 1948; Freed, 1948). What became known as the 'playback technique' occasioned yet another split within the therapeutic setting, this time making the patient both speaker and listener, alongside the therapist. As one patient put it: 'now there are two me's – one is doing analysis and the other is an observer who sees the childish behavior in it and suffers' (Stern, 1970: 593). While in traditional analysis the analyst has the role of bouncing back the patient's voice (Dolar, 2006), in therapeutic playback the interval between patient-as-speaker and patient-as-listener is relegated to the interval between pressing the 'record' and 'play' buttons. Operating as an 'acoustic mirror', the recording was said to deliver



powerful stimuli which rapidly penetrated the patient's resistance and accelerated self-awareness. Eliciting what Raoul Schindler (1956) called 'tape recorder shock' among patients, the playback method was reported to be especially effective in treating narcissistic personalities (Freed, 1948; Sanford, 1969).

Initially, patients and therapists listened together to parts of sessions selected in advance by the therapists, whereas later protocols emphasized the patient's private listening to entire sessions. Free from immediate contact with the therapist, patients were said to be 'more objective and thus able to observe and evaluate their performance with less distortion' (Barcai, 1967: 292). Some therapists even allowed patients to take tape reels home for private listening (Geocaris, 1960). The 'bending' of therapeutic procedures became more prevalent with the introduction of affordable portable cassette players (Perr, 1985). With the therapeutic setting extending beyond the clinic to include the patient's home, car, or on the go, the patient-as-listener caught up with the patient-as-speaker. That therapy could now also take place through recording was presented as a solution to the increasing burden on the American mental health system, as well as lowering the cost and shortening the length of treatment (Barcai, 1967). Therapeutic playback may then be placed together with other mundane practices that Raymond Williams (2003) described as 'mobile privatization': the technologically enabled conjunction of mobility and domesticity, being at home and on the move – a conjunction unique to the late capitalist era.

Whereas in the late 1940s, phonographs and wire recorders were exclusively owned and operated by clinical institutions and therapists, in the following decades therapists gradually handed over technological control to their patients. One protocol instructed that the patient would be responsible for bringing the recording device, operating it, and deciding how and when to listen between sessions. The extent to which the patient performed the task (also whether they remembered to bring the recorder, procure fresh batteries, etc.) provided the analyst with 'a useful index of whether the process is being employed constructively or is subject to the vicissitudes of drive, conflict, and defense, and needs to become an issue in the analysis' (Robbins, 1988: 66). In this case, the tape recorder became something of a transference object, a technological metonymy for the therapeutic process as a whole. In other cases, it helped to make the therapist a partner rather than the authority figure (David, 1970). One patient remarked that while listening to the tape, he felt that he no longer needed his analyst since he was taking over his role. To the analyst, this remark affirmed that the playback procedure had worked in fostering a shift from 'passive dependence [. . .] to a more rational working alliance' (Stern, 1970: 593).

Therapists and patients alike came to regard the technology as part of the treatment. Therapists referred to tape recorders as 'ego extenders' insofar as they provided patients with 'conscious control of a device that mimicked and augmented such mental functions as memory, perception, reality testing, self-other differentiation, delay, and trial action' (Satel and Sledge, 1989: 1015). One patient referred to the tape as her hearing aid, while another felt that in the absence of the recorder 'her memory and grasp of what was happening [was] slipping away' (Robbins, 1988: 67). This psychotechnological process is particularly striking when considering therapists' insistence on reusing the same tape to record new sessions over previous ones. Explanations for this insistence varied from

practical reasons, having to do with cost and efficiency, through a desire to keep the material confidential, to a more functional argument according to which ‘the emphasis is not on forming a kind of library, but on more or less immediate relistening’ (Stern, 1970: 563). Yet it seems that the built-in recordability and erasability of the magnetic tape carried further meaning. Technologically speaking, recording and erasing are synonymous operations, erasability being an integral feature of the technology itself (Bohlman and McMurray, 2017). Albeit resonating with Freud’s ‘mystic writing-pad’ analogy for the psychic apparatus, the tape’s erasability is far more radical with no wax slab equivalent to retain past impressions. The double function of the ‘record’ button, simultaneously implementing new content while fully removing the old, suggests that not everything that can be preserved should be (McMurray, 2017). Thus, in addition to affording an interval between the patient-as-speaker and the patient-as-listener, tape recording also provided a temporary container for the patient’s feelings and thoughts – with the more recent emotional substance overriding the previous. The magnetic tape suggests something about the structure of the therapeutic process itself, its progression as a measure of the ability of new realizations to supersede the former.

In rearranging therapeutic space and time, the playback technique afforded the concurrence of two modes of ‘self’ – one speaking there-and-then, and another listening here-and-now, providing a technologically-mediated meaning for the conscious process of ‘hearing oneself speak’ (Dolar, 2006: 39). The bifurcation of the therapeutic self through recording produces a material reference to the gap between the speaking and the listening selves with the recorded voice acting as their intermediate. Indeed, it is through this gap that therapeutic progress is made tangible under playback technique. Therapeutic playback capitalizes on the irreducible status of voice as standing between body and language and, moreover, embodying the tensions in being both inside and outside, of self and the other. With this, a new sense of temporality is introduced into therapy: a short-term emotional past, instantly available and erasable, a past that serves as a yardstick to assess the emotional present. There is no retention or accumulation from one recorded session to the next; each playback iteration is used provisionally until replaced by the ensuing one in a continuous effort towards progress and betterment.

## **Retraining the Mind by Tape**

In channeling the psyche through the tape recorder, therapeutic playback set the stage for a more thoroughgoing tape-based treatment, specifically for obsessive-compulsive disorder (OCD). While traditional psychoanalysis viewed such behaviors as symptomatic of unresolved unconscious conflicts, since the late 1960s new understanding began to gain purchase based on cognitive and biochemical brain processes (Osborn, 1999; Rachman, 1985). One therapy technique for treating OCD that drew on cognitive and behavioral psychology was developed in the 1970s under the name Exposure and Response-Prevention (ERP). ERP is based on habituation: it is not designed to eliminate obsessive thoughts but to make them less disturbing. The premise is that if a person is repeatedly faced with an anxiety-evoking situation without being harmed by it, she will eventually become less sensitive to it. The goal is alleviating obsessive-compulsive behaviors that, while relieving distress in the short term, prevent confronting fear

triggering situations in the long run, thereby reinforcing the obsessive-compulsive cycle. ERP consists of two steps: first, the patient is exposed to situations that elicit obsessional thoughts (e.g. being in a public restroom), either in vivo exposure, a 'real life' experience of the feared object or situation, or imaginal exposure, where the patient is instructed to imagine the feared object or situation and retain the image in her mind. The patient is then dissuaded from performing neutralizing behaviors (e.g. showering) under the supervision of a therapist or family member.

ERP proved effective in treating observable compulsions (e.g. washing hands, checking locks) but unsuccessful in cases of obsessive ruminations, which typically do not involve overt rituals. British clinical psychologist Paul Salkovskis argued that ERP was not applied properly, and a distinction between 'obsessional thoughts' and 'cognitive rituals' may correct this problem – along with the use of a tape recorder (Salkovskis and Westbrook, 1989). In one case Salkovskis used a tape recorder as an exposure instrument to treat a patient's ruminations of being mistreated by others, to which he developed a neutralizing behavior of repeating the exact thought an even number of times. As intrusive thought would usually resurface immediately following a neutralization sequence, the process had to be repeated, trapping the patient in prolonged obsessive loops. Salkovskis asked the patient to tape his ruminations and used the recording as high-intensity exposure stimulus on two-track audiotape: 'channel 1 was a recording of N voicing his unpleasant thoughts (edited from a tape he made at home as the thoughts occurred); channel 2 was a list of names of people who had been unpleasant or violent to him in the past' (1983: 312). Salkovskis arranged the tape so that the entire sequence was repeated every 10 minutes and asked the patient to listen to it daily for 90 minutes. After three months, the patient's obsessions decreased significantly. Other clinicians adopted Salkovskis' approach and advocated the use of exposure tapes in self-help books for people suffering from OCD (e.g. Baer, 1991; Schwartz, 1996). Nevertheless, the idiosyncratic nature of obsessive ruminations prevented standardization of therapy. Salkovskis' two-track technique suited patients who neutralized by repeating or counting their intrusive thoughts but proved unhelpful in other cases, like praying or repeating mottos.

Still, tape recording allowed therapists to mold exposure stimuli both in content and form so as to accommodate the patient's particular 'fear structure' (Foa and Kozak, 1986), namely, the mental blueprint determining reaction to fear-evoking situations or objects. The rule of thumb was that any thought that might 'switch anxiety off' before habituation takes place must be excluded from the tape (Lovell et al., 1994: 151). This is either by editing out the desired segment from an entire sequence or by writing down the patient's intrusive thoughts and rehearsing them aloud before dictating them into the tape (Salkovskis and Westbrook, 1989; Thyer, 1985). In his self-help book *Getting Control*, American psychologist Lee Baer (1991) tells of a patient who suffered from obsessional thoughts about transferring lethal food bacteria to her infant son. Baer asked her to put her intrusive thoughts on paper: 'when I read the actual first draft of Anna's script, I noticed that she had included several mental rituals which I pointed out to her and then crossed out of her script' (p. 121). Baer was known to use an inventory of exposure media, including films with strong violent and sexual content, in treating patients with generic fears and obsessions. For those frequented by more circumscribed thoughts, he

prescribed 'a tailor-made audiotape', utilizing the medium's modularity to home in on specific manifestations of fear.

As in therapeutic playback, the tape recorder's interface was central in facilitating treatment. Initially, repetitive listening to voiced thoughts entailed rewinding or turning the cassette over before replaying recorded scripts. Leaving no silent space for obsessive-compulsive rituals, the patient had to repeat the process up to 60 minutes each time. Later on, clinicians switched to loop-tapes used for answering machines, varying from 10 seconds to several minutes, which released the patient from operating the device. Headphones became an important element in triggering the inner thoughts through immersive listening. As the patient's voice is heard as if coming from inside the head, 'thinking tends to follow the tape unless active attempts are made to prevent it' (Salkovskis and Westbrook, 1989: 153). Some patients reported the experience to be highly aversive to the point of removing the headphones, preferring listening to the tape through speakers (Headland and McDonald, 1987). In his autobiography *Triggered: A Memoir of Obsessive-Compulsive Disorder*, Fletcher Wortmann described how the maddening experience of listening to his extreme thoughts on a loop-tape led him to 'break apart the tape, quite thoroughly, in hopes of catharsis and of destroying incriminating materials' (2012: 201).

ERP therapists had to acquire technical expertise, just like their predecessors at Yale and Ohio State University, who used phonographs and wire recorders to document therapy. Adopting techniques of slicing, editing and looping brought therapists to the work of sound technicians. The use of loop-tapes containing short, on-the-mark phrases expressing the patient's fears (e.g. 'I might kill or molest my baby') further demonstrate the media logic at the base of recorded voice exposure therapy: it is not only about voicing fearful content but about the accumulated effect of repeated listening to it. Unlike psychodynamic approaches, exposure therapy is less concerned with bringing dormant emotions to the patient's awareness through discursive practices, aiming instead at a more basic, preconscious reaction on the level of conditioning, positing thereby a direct link between mind and media (Pinchevski, 2019). ERP draws on the technical affinities between the loop-tape and repetitive obsession in order to retrain the patient's fear structure. If early therapeutic recordings helped in highlighting the sense within the non-sense (stutters, sighs, as meaningful emotional cues), and if playback therapy served as a continuously revisable technological sounding board, ERP loop-tapes operate on a more elemental level, below the level of meaning. ERP does not seek to examine or question certain conceptions, nor to interpret or purpose an alternative understanding; rather, its aim is to condition the setting under which conception and understating emerge. ERP rests on the concurrence of the psychological and the somatic self: it builds on the voice teetering between language and body in reaching the psychological through the somatic, and this is by employing an embodied practice – repetitive listening to one's feared thoughts in the recorded voice – so as to preempt these thoughts.

ERP offers a glimpse into the way clinicians imagine the access point into the patient's psyche as passing through a technologically mediated vocal domain. Unlike therapeutic playback, where the use of the patient's recorded voice introduced an interval between the patient-as-speaker and the patient-as-listener, ERP strives to eliminate the temporal and cognitive break between these two phases. Having the potential to turn 'then' into

‘now’, tape is indifferent to the history of the signal: ‘at the moment of playback, all techno-sonic sounds from the past are pure presence’ (Ernst, 2016: 111). Consistent with this logic, ERP collapses past-self and present-self, producing instead a competing and repetitive – competing because repetitive – stream of consciousness. The term ‘self-help’ takes on a new meaning as the patient’s own voice is remediated through tape recording in an attempt to suture it back to its source. If psychoanalysis relied on the occurrence of transference – the unconscious redirection of the analysand’s feelings from primary relationships toward the analyst – tape-based therapies, such as the playback technique and ERP, offer an alternative form of transference: the redirection of the patient’s address back to oneself as within a closed feedback loop that takes place outside and irrespective of dyadic therapeutic discourse. Yet while playback technique still owed much to an interpretative therapeutic mindset, ERP marks a shift toward a behavioral mindset, which further intensifies with the adoption of digital platforms.

## **Datafying the Recorded Voice**

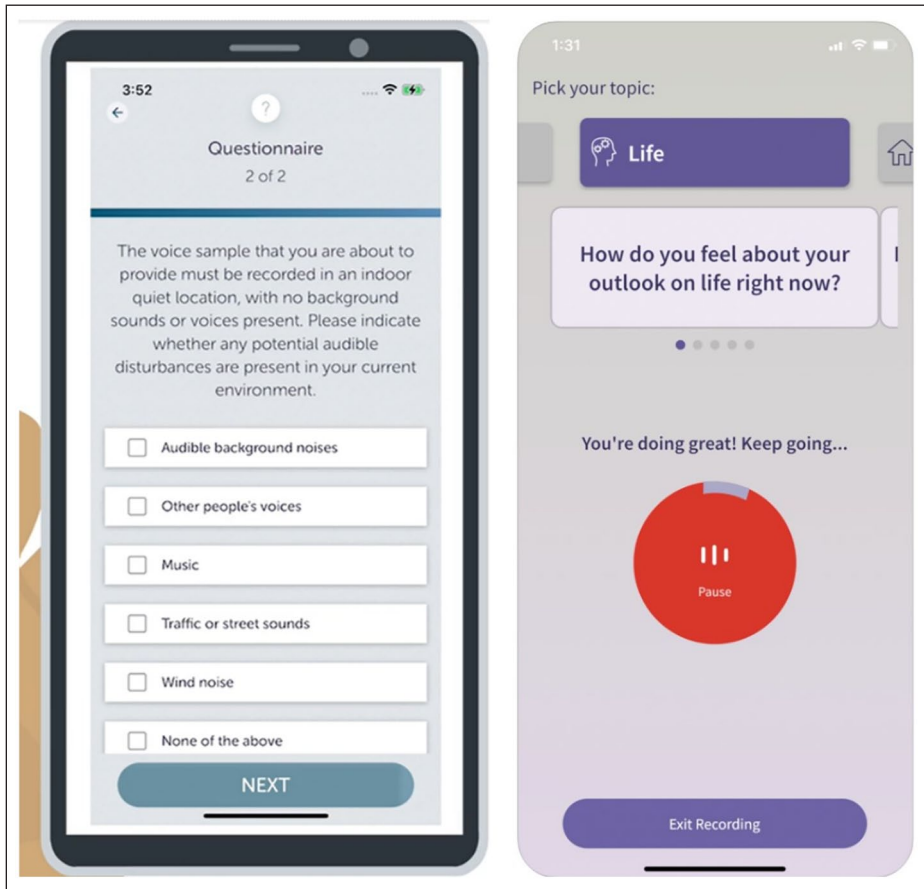
In recent years, and especially during the coronavirus pandemic, medical professionals have been calling to implement digital mental health interventions to overcome treatment barriers (e.g. access, cost, stigma). Leveraging smartphones’ online accessibility, mental health mobile applications are a part of the Mobile Health (mHealth) trend, involving a range of digital technologies said to extend health care reach. These may be used as stand-alone, self-help programs or in conjunction with counseling in order to increase patients’ commitment to therapy while supplying therapists with a means to remotely monitor patients’ symptoms (Ralston et al., 2019). A case in point are mobile apps using artificial intelligence (AI) to measure and analyze users’ voice samples to quantify mental health symptoms such as depression or anxiety. Designed to accompany extended treatment plans, these apps draw on algorithms trained against large datasets of multiple voice recordings of patients struggling with similar conditions. Prompting users to record frequent audio check-ins commenting on their daily lives, the apps analyze vocal patterns and provide users with real-time feedback about their mental state, together with recommendations for further action. While these apps do not necessarily share users’ voice samples with their therapists, they deliver the results of their voice analysis in the form of visual data to both users and therapists. Combined with voice analytics, apps like CompanionMx also passively track users’ geolocation, call and text logs, and use this metadata in calculating their scores (see Figure 3).

The voice thus becomes a new ‘vital sign’ for emotional wellbeing akin to physical indicators such as temperature and heart rate (Ellipsis Health Overview, 2020). What makes it an ‘ultimate biomarker’ are the affordances of digital media, as the makers of Sonde state: ‘smartphones, laptops and tablets have microphones that can be used for supporting your health’ (Sonde Health, n.d.). That the recorded voice faithfully captures the speaker’s emotional state is, of course, not a new idea; what is unprecedented are the underlying algorithmic procedures employed to render the voice data-ready, available for analysis, comparison and distribution. Voice analytics mental health apps vary in what they take into consideration in their analysis, which may include attributes such as intonation, phonation, and breathing, as well as pitch variation and speech rate; data



**Figure 3.** CompanionMx mobile app and clinician dashboard (screenshots).

visualization also varies with different types of spectrograms, plots, and charts (Li and Mills, 2019). Parsing pauses as emotional cues, Rising Higher asks the user to select a topic from an open-ended questions bank (e.g. ‘what do you feel about your colleagues?’), and simply ‘talk to us like you would talk to a friend’ (Rising Higher: Apps on Google Play, 2020). Conversely, Sonde measures the user’s respiratory fitness (Following COVID-19, the company launched a similar app to detect pulmonary conditions.) The user is instructed to record her voice sample in an indoor quiet location and speak about her day for 30 seconds at a proper volume and without pausing, indicating potential disturbances in her surroundings, such as other people’s voices, traffic, or wind noises. If, in early recordings of therapy, practitioners refined the technological setting to fully capture the unique communication between therapist and patient, the patient is now required to accommodate her speech to the algorithm’s preferences: in case the recording ‘does not meet quality requirements’, she may be required to re-record her sample (Sonde Health, 2021) (see Figure 4).



**Figure 4.** Sonde (on the left), Rising Higher (on the right) (screenshots).

By integrating the task of voice recording with other daily routines, voice analytics mental health apps do not only afford the extension of therapy beyond the clinic walls but also an extended, more holistic grasp of the therapeutic self, one that is embedded in its everyday setting rather than enclosed in a secluded holding environment that supports the psychotherapeutic script. These apps correspond to the ‘quantified self’ and ‘self-tracking’ practices, typically involving continuous monitoring of bodily indicators and daily activities (sleeping patterns, exercise habits) around the clock. Recent sociological studies suggest that medical self-tracking can promote more equitable therapeutic participation, but more critically point to privacy and surveillance concerns (e.g. Lupton, 2016; Neff and Nafus, 2016).

Indeed, voice analytics mental health apps operate within a complex network of what might be called dataveillance. Apps like CompanionMx combine algorithmic voice analysis with tracking smartphone metadata, thereby unprecedentedly extending the clinician’s monitoring capacity together with those of potential others. Rising Higher shares voice

samples not only with the user's care team but also with the app's research team, thus building new structural asymmetries into the therapeutic situation as 'forms of actionable information' [ . . . ] 'are shaped and controlled by those who have access to the sensing and analytical infrastructure' (Andrejevic and Burdon, 2015: 21). Excavating biometrics and affect metrics from voice recordings, these apps align with pervasive platforms burrowing the voice as 'a medium located between sound and data', such as smart speakers and voice-activated personal assistants (Neville, 2020: 345). In compliance with HIPAA (the 1996 American federal law referring to the protection of personal health information), they share the premise that analyzing the sonics of the voice rather than its semantics grants 'a path to really be able to do pervasive monitoring that can still provide strong privacy' (James Harper, Sonde Health COO, in an interview; Comstock, 2016).

Slicing the user's recorded voice according to this privacy scale, voice analytics mental health apps once again bifurcate the voice to somatic and expressive elements. Different from ERP loop-tapes, in which the segment containing the patient's obsession remains idiosyncratic, voice analytics mental health apps automatically extract the singular voice metrics and put them alongside multiple others. This shift corresponds with what Franco Berardi (2021) identifies as the neoliberal turn in the collective 'psychosphere', which redefines the boundaries between the conscious and the unconscious, instigating 'the surfacing of the unconscious at the surface of social life' (p. 35). What was previously laced with mystery and enigma is now rendered data-ready, available for collecting and analyzing. In its datafied form, the (recorded) voice is thus abstracted away from any speech situation, from its fundamental relationality and addressability. No longer standing between body and language, it produces an impersonal form of 'self'. In a time when Siri and Amazon Echo have made speaking to media an everyday practice (Levy-Landesberg, 2021), the patient's recorded voice, channeled as it is through such psychotechnological apps, does not require nor seek a human ear.

## Conclusion

The case of recorded voice in psychotherapy demonstrates the contested status of voice within the therapeutic situation. With the introduction of sound reproduction technologies, the voice has undergone several mutations, becoming progressively independent of a particular speaking subject. Contained within phonograph discs, magnetic tapes, or digital media, the voice leaves one's authority and submits to others', making it available for replaying, editing, looping, and data harvesting. The technologization of voice supplied clinicians with resources to construct new theories about the inner workings of the mind, providing practical and conceptual means to describe and engage with the patient's psyche. Through bifurcating the voice into expressive and somatic elements, sound media afforded the articulation of different relations between the conscious and the unconscious, preserving throughout the fundamental duality between what was deemed intentional and unintentional expressions and securing it as an access point to the 'self'.

While the recorded voice has gradually gained therapeutic significance, its nature transformed in the process: initially encompassing the therapeutic situation as a whole, it then scaled down to playback in attending to the patient's behavior, and later on was further scaled down to focus on the patient's particular obsession. In its datafied form,



the duality between the stated and the unstated resting on the distinction between conscious and unconscious is collapsed – or better, made equally accessible and collectable. In reproducing the patient’s lived experience through scores and charts, voice analytics apps frame mental health in neoliberal terms, marking a clear quantitative path to ‘adaptive efficiency’ (Chandler and Reid, 2016). Through digital platforms the voice undergoes decontextualization: detached from its lived structure of address, it transforms into extractable and actionable information, which then feeds into ready-made prescriptions and modes of operation.

As sound reproduction technologies multiplied the channels through which therapy takes place, relocating it from co-presence of therapist and patient to phonographs, wires, and tapes, and remediated through editing, looping and transcribing, the temporal and spatial boundaries of the therapeutic setting became unraveled, unsettling in the process established hierarchies, terminologies, and techniques. The recorded voice emerges from this genealogical account as technologically malleable and, as such, corresponding with broader shifts in the field of mental health. Yet at the same time, in continually offering a site of negotiation and operation for both therapists and patients, the recorded voice – together with the affordances of sound reproduction technologies – supported the cohesiveness of the therapeutic situation across different configurations, this in contrast to early detractors who warned against the disruptive potential. Providing a tweakable channel through which power could be enacted but also filtered (e.g. in operating as both acoustic mirror and buffer in therapeutic playback, through patients’ preference to listen to their recorded obsessions through loudspeakers rather than headphones), the recorded voice in therapy makes manifest the constitutive friction between care and control.

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## References

- Andrejevic, M and Burdon, M (2015) Defining the sensor society. *Television & New Media* 16(1): 19–36.
- Anzieu, D (2018) *The Skin-Ego*. New York: Routledge.
- Apprich, C and Bachmann, G (2017) Media genealogy: Back to the present of digital cultures. In: Koch, G (ed.) *Digitisation: Theories and Concepts for Empirical Cultural Research*. New York: Routledge.
- Baer, L (1991) *Getting Control: Overcoming Your Obsessions and Compulsions*. Boston, MA: Little, Brown.
- Barcai, A (1967) ‘But who listens’: Therapeutic values of replayed tape recorded interviews. *American Journal of Psychotherapy* 21(2): 286–294.
- Berardi, F (2021) *The Third Unconscious: The Psycho-Sphere in the Viral Age*. London: Verso.
- Bierer, J and Ström-Olsen, R (1948) The recording of psychotherapeutic sessions: Its value in teaching, research, and treatment. *The Lancet* 251(6512): 957–958.

- Birdsall, C, Parry, M, and Tkaczyk, V (2015) Listening to the mind: Tracing the auditory history of mental illness in archives and exhibitions. *The Public Historian* 37(4): 47–72.
- Bohman, AF and McMurray, P (2017) Tape: Or, rewinding the phonographic regime. *Twentieth-Century Music* 14(1): 3–24.
- Brenman, M, Kubie, LS, and Murray, HA, et al. (1947) Problems in clinical research: Roundtable, 1946. *American Journal of Orthopsychiatry* 17(2): 196–230.
- Brenman, M, Kubie, LS, and Rogers, CR, et al. (1948) Research in psychotherapy: Roundtable, 1947. *American Journal of Orthopsychiatry* 18(1): 92–118.
- Carmichael, HT (1966) Sound-film recording of psychoanalytic therapy: A therapist's experiences and reactions. In: Gottschalk, LA, and Auerbach, AH (eds) *Methods of Research in Psychotherapy*. Boston, MA: Springer.
- Chandler, D and Reid, J (2016) *The Neoliberal Subject: Resilience, Adaptation and Vulnerability*. London: Rowman & Littlefield.
- Comstock, J (2016) Sonde Health will use MIT voice analysis tech to detect mental health conditions. *MobiHealthNews*, 29 June. Available at: <https://webcache.googleusercontent.com/search?q=cache:4JD4BNT39jEJ:https://www.mobihealthnews.com/content/sonde-health-will-use-mit-voice-analysis-tech-detect-mental-health-conditions+&cd=1&hl=en&ct=clnk&gl=us> (accessed 26 May 2021).
- Covner, BJ (1942a) Studies in phonographic recordings of verbal material: I. The use of phonographic recordings in counseling practice and research. *Journal of Consulting Psychology* 6(2): 105–113.
- Covner, BJ (1942b) Studies in phonographic recordings of verbal material: II. A device for transcribing phonographic recordings of verbal material. *Journal of Consulting Psychology* 6(3): 149–153.
- David, AC (1970) Using audio tape as an adjunct to family therapy: Three case reports. *Psychotherapy: Theory, Research & Practice* 7(1): 28–32.
- Derrida, J (1996) *Archive Fever: A Freudian Impression*. Chicago, IL: University of Chicago Press.
- Dolar, M (2006) *A Voice and Nothing More*. Cambridge, MA: MIT Press.
- Ellipsis Health (2020) *Ellipsis Health Overview*. Available at: <https://www.youtube.com/watch?v=qln3dQA6JMA&t=2s> (accessed 26 May 2021).
- Elsaesser, T (2009) Freud as media theorist: Mystic writing-pads and the matter of memory. *Screen* 50(1): 100–113.
- Ernst, W (2016) *Chronopoetics: The Temporal Being and Operativity of Technological Media*. London: Rowman & Littlefield.
- Foa, EB and Kozak, MJ (1986) Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin* 99(1): 20–35.
- Freed, H (1948) On various uses of the recorded interview in psychotherapy. *The Psychiatric Quarterly* 22(1): 685–695.
- Freud, S (1925/1953) A note upon the 'mystic writing-pad'. In: Strachey, J (ed.) *The Standard Edition of the Complete Psychological Works of Sigmund Freud*. London: Hogarth Press vol. 19, pp. 225–32.
- Freud, S (1958) Recommendations to physicians practising psycho-analysis. In: Strachey, J (ed.) *The Standard Edition of the Complete Psychological Works of Sigmund Freud*. London: Hogarth Press, vol. 12
- Geocaris, K (1960) The patient as listener: A new dimension in the structure of psychotherapy. *A.M.A. Archives of General Psychiatry* 2(1): 81–88.
- Geoghegan, BD (2017) The family as machine: Film, infrastructure, and cybernetic kinship in suburban America. *Grey Room* 66: 70–101.

- Gieryn, TF (1983) Boundary-work and the demarcation of science from non-science: Strains and interests in professional ideologies of scientists. *American Sociological Review* 48(6): 781–795.
- Gill, M, Newman, R, and Redlich, FC (1954) *The Initial Interview in Psychiatric Practice*. New York: International Universities Press.
- Headland, K and McDonald, B (1987) Rapid audio-tape treatment of obsessional ruminations: A case report. *Behavioural and Cognitive Psychotherapy* 15(2): 188–192.
- Kittler, FA (1999) *Gramophone, Film, Typewriter*. Stanford, CA: Stanford University Press.
- Kramer, R (1995) The birth of client-centered therapy: Carl Rogers, Otto Rank, and ‘the beyond’. *Journal of Humanistic Psychology* 35(4): 54–110.
- Kubie, LS (1958) Research into the process of supervision in psychoanalysis. *The Psychoanalytic Quarterly* 27(2): 226–236.
- Lasswell, HD (1935) Verbal references and physiological changes during the psychoanalytic interview: A preliminary communication. *Psychoanalytic Review* 22: 10–24.
- Lempert, M (2019) Fine-grained analysis: Talk therapy, media, and the microscopic science of the face-to-face. *Isis* 110(1): 24–47.
- Levy-Landesberg, H (2021) Listen up! Phatic thresholds and sound interface design. *New Media & Society* 23(10): 3084–3104. DOI: 10.1177/1461444820944851.
- Li, X and Mills, M (2019) Vocal features: From voice identification to speech recognition by machine. *Technology and Culture* 60(2): S129–S160.
- Lovell, K, Marks, IM, and Noshirvani, H, et al. (1994) Should treatment distinguish anxiogenic from anxiolytic obsessive-compulsive ruminations? *Psychotherapy and Psychosomatics* 61(3–4): 150–155.
- Lupton, D (2016) *The Quantified Self: A Sociology of Self-Tracking*. Cambridge: Polity Press.
- Mahl, GF, Dollard, J, and Redlich, FC (1954) Facilities for the sound recording and observation of interviews. *Science* 120(3111): 235–239.
- McMurray, P (2017) Once upon a time: A superficial history of early tape. *Twentieth-Century Music* 14(1): 25–48.
- Monea, A and Packer, J (2016) Media genealogy and the politics of archaeology. *International Journal of Communication* 10: 3141–3159.
- Neff, G and Nafus, D (2016) *Self-Tracking*. Cambridge, MA: MIT Press.
- Neville, S (2020) Eavesmining: A critical audit of the Amazon Echo and Alexa conditions of use. *Surveillance & Society* 18(3): 343–356.
- Osborn, I (1999) *Tormenting Thoughts and Secret Rituals: The Hidden Epidemic of Obsessive-Compulsive Disorder*. New York: Dell.
- Perr, HM (1985) The use of audiotapes in psychotherapy. *Journal of the American Academy of Psychoanalysis* 13(3): 391–398.
- Peters, JD (2010) Broadcasting and schizophrenia. *Media, Culture & Society* 32(1): 123–140.
- Pickren, Jr. WE (2005) Science, practice, and policy: An introduction to the history of psychology and the National Institute of Mental Health. In: Pickren, Jr. WE, and Schneider, SF (eds) *Psychology and the National Institute of Mental Health: A Historical Analysis of Science, Practice, and Policy*. Washington, DC: American Psychological Association.
- Pinchevski, A (2016) Screen trauma: Visual media and post-traumatic stress disorder. *Theory, Culture & Society* 33(4): 51–75.
- Pinchevski, A (2019) *Transmitted Wounds: Media and the Mediation of Trauma*. New York: Oxford University Press.
- Pinchevski, A and Peters, JD (2016) Autism and new media: Disability between technology and society. *New Media & Society* 18(11): 2507–2523.

- Rachman, SJ (1985) An overview of clinical and research issues in obsessional-compulsive disorders. In: Mavissakalian, M, Turner, SM, and Michelson, L (eds) *Obsessive-Compulsive Disorder: Psychological and Pharmacological Treatment*. Boston, MA: Springer.
- Ralston, AL, Andrews, AR, and Hope, DA (2019) Fulfilling the promise of mental health technology to reduce public health disparities: Review and research agenda. *Clinical Psychology: Science and Practice* 26(1): 1–14.
- Rising Higher: Apps on Google Play (2020). Available at: [https://play.google.com/store/apps/details?id=com.ellipsishealth.kittfree&hl=en\\_US&gl=US](https://play.google.com/store/apps/details?id=com.ellipsishealth.kittfree&hl=en_US&gl=US) (accessed 26 May 2021).
- Robbins, M (1988) Use of audiotape recording in impasses with severely disturbed patients. *Journal of the American Psychoanalytic Association* 36(1): 61–75.
- Rogers, CR (1942a) *Counseling and Psychotherapy: Newer Concepts in Practice*. Boston, MA: Houghton Mifflin Company.
- Rogers, CR (1942b) The use of electrically recorded interviews in improving psychotherapeutic techniques. *American Journal of Orthopsychiatry* 12(3): 429–434.
- Rogers, CR (1951) *Client-Centered Therapy; Its Current Practice, Implications, and Theory*. Boston, MA: Houghton Mifflin.
- Roose, LJ (1960) The influence of psychosomatic research on the psychoanalytic process. *Journal of the American Psychoanalytic Association* 8(2): 317–334.
- Roquet, P (2016) *Ambient Media: Japanese Atmospheres of Self*. Minneapolis, MN: University of Minnesota Press.
- Rose, NS (2007) *Politics of Life Itself: Biomedicine Power and Subjectivity in the Twenty-First Century*. Princeton: Princeton University Press.
- Rosner, RI (2005) Psychotherapy research and the National Institute of Mental Health, 1948–1980. In: Pickren, Jr. WE (ed.) *Psychology and the National Institute of Mental Health: A Historical Analysis of Science, Practice, and Policy*. Washington, DC: American Psychological Association.
- Salkovskis, PM (1983) Treatment of an obsessional patient using habituation to audiotaped ruminations. *British Journal of Clinical Psychology* 22(4): 311–313.
- Salkovskis, PM and Westbrook, D (1989) Behaviour therapy and obsessional ruminations: Can failure be turned into success? *Behaviour Research and Therapy* 27(2): 149–160.
- Sanford, EF (1969) An acoustic mirror in psychotherapy. *American Journal of Psychotherapy* 23(4): 681–695.
- Satel, SL and Sledge, WH (1989) Audiotape playback as a technique in the treatment of schizophrenic patients. *The American Journal of Psychiatry* 146(8): 1012–1016.
- Schindler, R (1956) The development of psychotherapy in Austria since 1945. In: Fromm-Reichmann, F, and Moreno, JL (eds) *Progress in Psychotherapy, 1956*. Oxford: Grune & Stratton.
- Schwartz, JM (1996) *Brain Lock: Free Yourself from Obsessive-Compulsive Behavior*. New York: Harper Collins.
- Shakow, D (1960) The recorded psychoanalytic interview as an objective approach to research in psychoanalysis. *The Psychoanalytic Quarterly* 29(1): 82–97.
- Snyder, WU (1947) The present status of psychotherapeutic counseling. *Psychological Bulletin* 44(4): 297–386.
- Sonde Health (n.d.) Company. Available at: <https://www.sondehealth.com/about> (accessed 26 May 2021).
- Sonde Health (2021) *Sonde Depressive Symptoms App User Guide*. Available at: <https://vimeo.com/519804128> (accessed 26 May 2021).
- Stern, MM (1970) Therapeutic playback, self-objectification and the analytic process. *Journal of the American Psychoanalytic Association* 18(3): 562–598.

- Sterne, J (2003) *The Audible Past: Cultural Origins of Sound Reproduction*. Durham, NC: Duke University Press.
- Thyer, BA (1985) Audio-taped exposure therapy in a case of obsessional neurosis. *Journal of Behavior Therapy and Experimental Psychiatry* 16(3): 271–273.
- Williams, R (2003) *Television: Technology and Cultural Form*. New York: Routledge.
- Wortmann, F (2012) *Triggered: A Memoir of Obsessive-Compulsive Disorder*. New York: Thomas Dunne Books.
- Zeavin, H (2021) *The Distance Cure*. Cambridge, MA: MIT Press.

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