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## Automatic Treatment Session Summaries in Psychotherapy – a Step towards Therapist-Patient Cooperation

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### Abstract

Therapeutic documentation is a crucial part in psychotherapy and should first and foremost support the patient's therapy progress. Yet, the notes taken throughout a therapy, mainly serve the use of therapists. In line with the movement of patient empowerment, the calls for patients' access to their records are growing louder and were incorporated into the German patients' rights law. Hence, with Tele-Board MED, an interactive system for joint documentation of therapist and patient was developed. In this paper, we introduce one of its many features: the automatic creation of treatment session summaries. Our contribution also consists of the evaluation of its potential for practical use by psychotherapists. The aim of our work is twofold, namely the involvement of patients in the documentation, and the support of therapists with their documentation duties. The aspects of investigation include the therapists' documentation habits (regarding time, amount, and method), their purposes to manually create session summaries and opinion about the automatically created summaries. It was discovered that the bigger part of the motivation for treatment session documentation lies in the therapists' personal purposes, such as remembering a case right before the next session. Nevertheless therapists are willing to turn documentation in a cooperative activity if they had effective and efficient tools at hand. With the system presented, they can well imagine summarizing important issues together with the patient at the end of a session and also handing out printed summaries to them.

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### 1. Introduction

A patient's treatment in cognitive behavioral therapy entails the collection of data and the creation of various documents. Therapeutic documentation is a crucial part in psychotherapy; it is a legal duty of therapists and it serves as a basis for the communication with third parties, such as health insurances<sup>1</sup>. Documentation also helps the therapist to recall the last therapy session or to synchronize the patient's progress with the initial treatment plan, yet the notes are usually not dedicated to be seen by the patient. However, it is recognized that a cooperative feeling between therapist and patient is beneficial for a positive therapy outcome<sup>2</sup>. A literature review<sup>3</sup> about the effects of promoting patient access to medical records showed that the majority of psychiatric patients, who made use of accessing their records,

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had favorable attitudes about it, which also had positive effects on doctor-patient communication and empowerment in improved autonomy and self-efficacy. However, a risk especially pronounced in psychiatric patients is that the experience of an accessible medical record can be found worrisome or upsetting. Ross and Lin therefore suggest for a mental health professional to be available when patients review their notes.

In the frame of a literature review concerning the patient's experience of counselling and psychotherapy McLeod<sup>4</sup> aptly formulated the different perspectives of therapist and patient: "the therapist's experience of the client is mainly of someone he or she meets in an office perhaps once a week; the client's experience is of a life in which therapy plays its part, but only in relation to everything else". The process the patient is going through is not limited to the weekly encounter with the therapist, and thus the question arises how the access to therapeutic content can be made more continuous.

Orlinsky and Howard<sup>5</sup> conducted a literature review about the process and outcome of psychotherapy and concluded that it is effectively therapeutic to prepare the patient adequately for participation in therapy and collaboratively share the responsibility of problem solving. Thus, the question arises how it can look like in practice, to adequately prepare the patient for participation in therapy sessions, and to involve the patient in a collaborative manner.

Based on the above questions, the aim of our work is twofold, namely the involvement of patients in the documentation, and the support of therapists with their documentation duties. As a step towards this goal we investigate the potential of an automatic session summary feature embedded in our interactive medical documentation system *Tele-Board MED*. In the following section, the status quo of psychotherapy session documentation is described, along with the different legal requirements in the USA and Germany. In section 3, the digital documentation system *Tele-Board MED*, the automatic session summary feature, and its use in cognitive behavioral therapy sessions is presented. A study with psychotherapists on their documentation habits and feedback on the session summary feature is described in section 4, while in the final part (sections 5 and 6) discusses the potential of digital documentation tools to promote psychotherapy patient empowerment.

## **2. The nature of therapy session notes and different legal requirements regarding disclosure**

The documentation of the therapeutic process should cover a variety of aspects. Next to formal parameters of the therapy session (such as date, time, number and setting) its content and topics should be recorded, the interventions and applied methods, as well as and an outline of its course. Furthermore, there might be notes about the patient's mood and the quality of the patient-therapist relationship. Additionally, conspicuous features, such as aggression or the expression of suicidal thoughts, should be captured<sup>6</sup>. Whilst there is a broad consensus of what kind of content should be recorded during a treatment episode, there are national differences in the standards of which information should be disclosed to whom. Such national differences are illustrated by the examples of the USA (section 2.1) and Germany (section 2.2), where our study took place.

### *2.1. Situation in the USA*

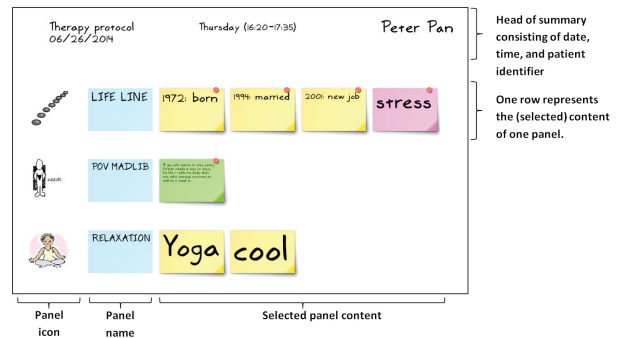
In the United States of America, the Health Insurance Portability and Accountability Act (HIPAA) makes a strict distinction between *progress notes* and *psychotherapy notes* regarding content and confidentiality. *Psychotherapy notes* are considered as private notes which are not intended to be disclosed to any person other than the therapist. The American Psychiatric Association (APA) recommends keeping for example intimate personal content, process interactions, and topics discussed in therapy sessions as *psychotherapy notes* and thus separated from the official treatment record<sup>7</sup>. The following information should be part of the official record: "medication prescription and monitoring, therapy session start and stop times, the modalities and frequencies of treatment furnished, results of clinical tests, and any summary of the following items: diagnosis, functional status, the treatment plan, symptoms, prognosis, and progress to date"<sup>7</sup>.

### *2.2. Situation in Germany*

In Germany, there is no fixed standard for therapy progress documentation, yet there is a recommendation by Laireiter and Baumann<sup>6</sup> differentiating between three groups of data, which are intervention and progress data, process



(a) A therapist-patient scenario:  
Using Tele-Board MED in a therapy session.



(b) Example of an automatic summary (protocol) of one particular therapy session with annotations on the general structure.

Fig. 1. The Tele-Board MED system and its automatic session summary.

data about the therapeutic relationship, as well as the effect, change, and diagnostic data. The patient's rights law of 2013 stipulates that doctors must document the whole process of treatment promptly and comprehensively and grants patients the right to fully view their record and attain an electronic copy<sup>8</sup>. This law prepared the ground for advancing patient empowerment initiatives in Germany, but also led to controversial discussions about the question whether it is really in the interest of the patient and the best treatment outcome to provide unexceptional access to the notes.

### 3. Instant medical documentation with Tele-Board MED

Many points argue for considering documentation activities as a part of the therapy itself. Firstly, the more time passes between a therapy session and its documentation, the more the documentation's quality might decrease. For this reason, Laireiter and Baumann<sup>6</sup> stress the need for an economic way to carry out the documentation, and call for a solution which can be applied in the frame of a treatment session or immediately afterwards. Secondly, they stress that documentation data should serve as an input to therapy situations and therefore should be continually available. With Tele-Board MED a digital documentation system was developed, that amongst other aspects addresses exactly these needs.

#### 3.1. General concept of Tele-Board MED

The fundamental idea of Tele-Board MED (TBM) is to turn medical documentation from a necessity taken care of by the therapist, into a task that supports the patient's recovery. TBM is being developed as an adjunct to the traditional face-to-face therapy to allow a joint documentation of the session's therapeutic content. We try out whether interactive whiteboards can be a suitable medium for joint documentation for both patient and doctor, and also investigate if this will lead to higher personal engagement by the patient. Figure 1a shows a user scenario with an interactive whiteboard to display and operate the documentation panel via touch gestures.

TBM is based on Tele-Board, a whiteboard software system to digitally support distributed teams in creative, collaborative work<sup>9</sup>. It was adapted with respect to the medical domain, so that users (therapists) can create patient records in the form of folders which can be filled with panels. A panel is a work sheet which simulates the surface of an analog whiteboard. The basic functions include sketching with digital pens, erasing pen strokes, and writing, posting, marking, arranging and clustering sticky notes.

#### 3.2. Automatic session summary creation

Within Tele-Board MED a feature was created which enables therapist and patient to get an automatically created summary at the end of a treatment session. Figure 1b illustrates the general structure of such a session summary (cf.

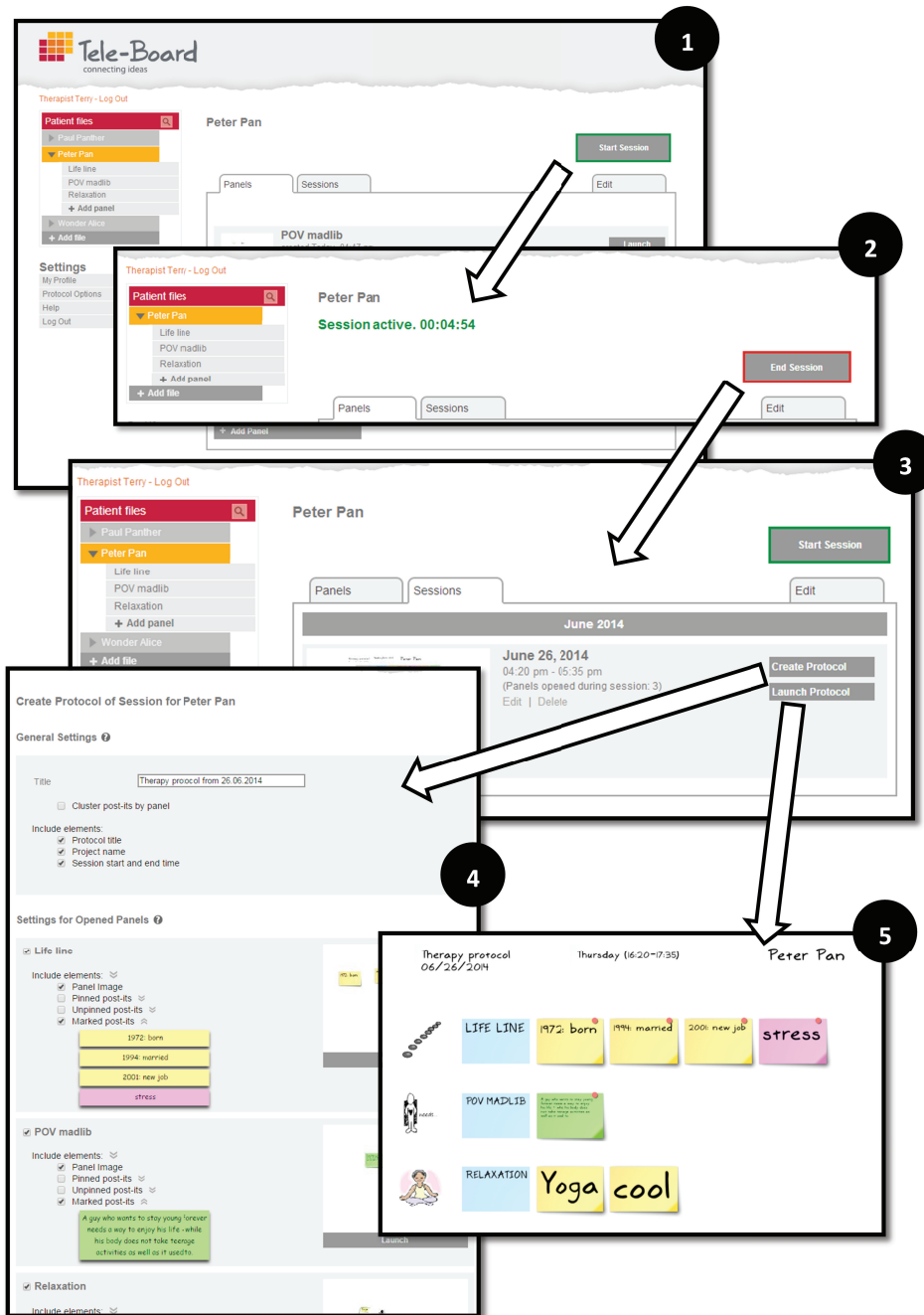


Fig. 2. Navigation through the user interface to create a summary: (1) The therapist selected a patient and clicks on *Start Session*. A clock starts running, indicating the elapsed session time. (2) Throughout the session, therapist and patient can work on an arbitrary number of panels. In the example shown here, three panels are opened (however, the opened panels themselves are not shown in this figure). When the *End Session* button is pressed, a list of all sessions can be viewed that the therapist has had so far with this patient. (3) The therapist can select one session to open the corresponding summary. One can either choose to see all options of automatic summary creation again (4); in this case, one also sees a preview of how the summary will look like depending on the selected options. Or (5) one can start the summary immediately based on previously saved settings. The summary opens up as a new whiteboard panel.

fig. 2 step 5). The appearance is very visual; it contains graphical elements and short text notes which reflect the discussion between patient and therapist during the session. This summary structure was tested and refined in more than 30 therapy sessions. In an earlier feedback study<sup>10</sup>, we asked 34 psychotherapists for utility ratings on existing and potential Tele-Board MED features. The envisioned automatic session summary feature including a typical end result (cf. fig. 1b) was shown to the therapists. Among other new suggested features, it received the highest rating: on a scale from 1 (rarely useful) to 4 (very useful) it got an average rating of 3,1. Therefore, a feature was implemented to create such session summaries automatically. It provides an outline of all documentation panels which were opened during a treatment session. Figure 2 shows the navigation through the graphical user interface to illustrate the use of the treatment session mode and the creation of session summaries (in the figure called “protocols”). The summary creation can be customized, that is the user decides whether or not it should include a title, the patient identifier, and session start and end times. In addition, there are panel-related options where users can decide whether or not to include sticky notes according to their characteristics of being marked with a dot or being pinned to the background (cf. fig. 2 step 4). Once the summary was created, it can also be modified as any other panel.

#### 4. Testing the therapy session summary function with psychotherapists

In order to test the session summary function, we introduced it in a 2-hour timeslot to 10 behavioral therapists (both practicing psychotherapists and therapists-in-training), affiliated to our cooperating ambulant psychotherapeutic clinic in Berlin, Germany. The therapists also tried out the Tele-Board MED system and its functionality themselves as part of the demonstration. In line with several therapeutic use cases we demonstrated how to create a patient file and documentation panels, and how to fill the panels with notes, scribbles and pictures. Building on these basic functions we introduced the automatic creation of a session summary, which finally can be exported as an image file and be handed out to the patient.

The data was collected via two questionnaires. The first one was handed out to the therapists at the beginning of the event and contained questions about their therapy experience, their note taking habits, and their attitude towards technology and digital documentation. After the demo we handed out the second questionnaire that focused on their motivation to create session summaries in general; and the purposes they see in the automatic session summaries created with Tele-Board MED. The results of the data analysis are presented in the following subsections.

##### 4.1. Therapists' characteristics and documentation habits

The average age of the psychotherapists in our sample was 38 years. 40% of them had a work experience longer than two years. Their attitude towards technology was slightly positive: on a scale from -2 (hostile towards technology) to 2 (enthusiastic about technology) the average was 0.7.

Regarding their present documentation habits and tools, most therapists stated that they take handwritten notes during sessions with patients. The majority (60%) writes an average of between one quarter and one half of an A4-page per session. 30% of the therapists state they usually do not add any more notes after sessions. 40% typically add notes of about one quarter of a page, 30% usually add half of a page or more. Handwriting is the most common means of documentation both during and after sessions. Table 1 outlines the habits of when and how therapists document.

Table 1. Overview of therapists' documentation habits with a comparison of the moment and the means of documentation.

Percentage of therapists who ...			
	take handwritten notes	take digital notes	take notes (total)
during sessions	80%	0%	80%
after sessions	50%	20%	70%

Since the notes taken during or directly after the session are rather unstructured, most of the therapists go over their notes again in order to create neat summaries at least for some treatment sessions (44% of the therapists do this for more than 90% of their sessions). We asked therapists about the time it takes them to create session summaries. Only 10% of the therapists manage to do this in up to five minutes, but for the vast majority it takes up to two hours.

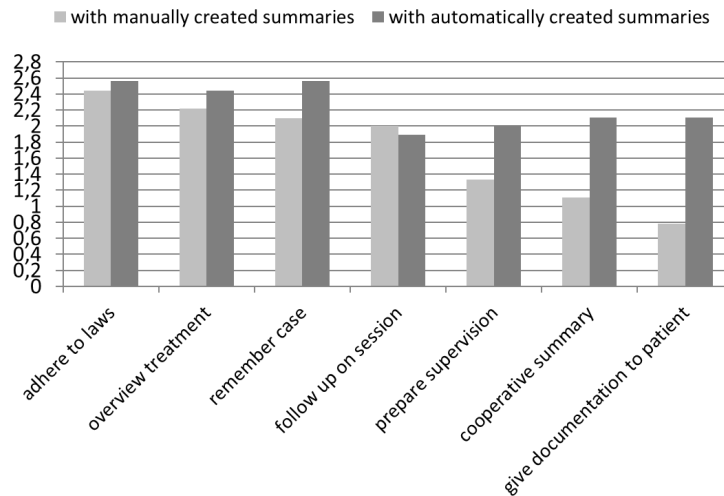


Fig. 3. Therapists' rating of purposes for session summaries on a scale from 0 (not so important) to 3 (very important): comparison between manually created summaries and automatically created Tele-Board MED summaries

Against the background that in our sample one treatment session takes 50 minutes, this means that documenting one therapy session by writing a proper summary takes about half as long as the therapy session itself.

#### 4.2. Therapists' reasons for creating session summaries

The participants were asked why they write session summaries, suggesting the following purposes: to adhere to the laws, to get an overview of the treatment as a whole, to remember the case for the next meeting, to follow up on a session (What was important? What went well, what went badly?), to prepare for supervision, to cooperatively summarize the conversation with the patient, and to hand out documentation to the patient. The rating of these purposes for manually created summaries are illustrated by the light grey bars in figure 3. Adhering to legal documentation demands is the highest ranked purpose (average of 2,44). In contrast, handing session documentation out to patients—as though part of the new German legal requirements<sup>8</sup>—is the least important purpose for writing sessions summaries. In line with these findings, 70% of the therapists state that they have never handed out session summaries to patients.

Against this background, our automatic session summary function seems to make a great difference. Firstly, all therapists think they would work with session summaries generated by Tele-Board MED. Given that so far more than 20% of the therapists do not create structured session summaries on a regular basis, this makes a considerable difference. Furthermore, the status quo of handing out session summaries to patients was compared to the possibility of handing out automatically created Tele-Board MED summaries on a four step scale (*never, in single cases, often, very often*). All of the therapists stated that they never or in single cases handed out summaries to patients, but with Tele-Board MED the opposite is the case, because therapists are likely to hand out automatically created session summaries to patients often or very often.

Subsequent to the questions about why they create session summaries in general, the therapists were asked for which reasons they would use the automatically generated Tele-Board MED session summary (the same purposes as above were proposed). It was striking that they found more reasons to use automatic summaries than for self-created summaries. Figure 3 compares the stated importance of purposes for session summaries when creating them manually (see light grey bars) versus using the automatically created summaries provided by Tele-Board MED (see dark grey bars). Detailed results of the statistical analysis can be found in<sup>11</sup>.



#### 4.3. Assessment of opportunities and doubts concerning Tele-Board MED and automatic summaries

Qualitative feedback from the therapists regarding the session summary function was collected as well. In terms of benefits for patients, they stated that the patients would be enabled to better recap sessions and work on their therapy by themselves between meetings. Furthermore, they saw advantages in the fact of higher transparency to enable the patient to actually read the notes, as opposed to face unreadably handwriting. The highest consensus on their own benefits was about the fact that they would reduce the time for individual documentation and the redundancy in note taking, which helps in favor of more interaction time with the patient.

Due to the fact that with the current version of Tele-Board MED there is no possibility to inconspicuously take private notes, one therapist saw the threat of self-censorship and forgetting important aspects when they are not noted down until a private moment after the session is come.

### 5. Discussion

The bigger part of the motivation for treatment session documentation lies in therapists' personal purposes, e.g. to have an overview of the treatment or to remember a case right before the next session. However, the findings of our study show that therapists are ready to rethink the data sovereignty and the therapist-patient hierarchy in psychotherapeutic treatments. Given effective and efficient tools, therapists would like to use the documentation in favor of the patient and turn it into a cooperative activity, for instance by summarizing important issues together with the patient at the end of a session and also handing out printed summaries to them. Thus, the findings show that behavioral therapists to a certain extent support the patient's access to information, which is considered the first mandatory step in the process of patient empowerment<sup>12</sup>. However, the controversy and uncertainty about the issue of full note transparency became apparent once again. The legal requirements of the notes' disclosure on demand of the patient seems to be hardly compatible with the habits of psychotherapists to keep private notes, which they would like to keep outside of a documentation system like Tele-Board MED. Already in a former study we found doubts about the appropriateness and feasibility of full record transparency in cognitive behavioral therapy<sup>1</sup>.

In terms of documentation habits, we found out that on average therapists take more notes during the session than afterwards, in order not to forget important things. Later note taking allows the therapists to give their full attention to the patient, though it causes them extra hours. Both points argue for a non-disturbing live documentation with Tele-Board MED. Therapeutic documentation is not only time consuming but also at times redundant, since therapists tend to turn their jotted down notes into structured summaries after each session. Turning the documentation to digital allows an efficient reuse of notes.

### 6. Conclusion and future work

We can conclude that the session summary function is strongly appreciated by the therapists, since it allows them to create official session summaries in a much more efficient way than with their current means. Furthermore, automatic session summaries can serve at least as many purposes as present-day, manually written summaries. With Tele-Board MED, summarizing session content cooperatively with the patient or handing out sessions summaries to patients become much more recognized purposes (cf. fig. 3). These points argue for the enhancement of the therapist-patient cooperation and patient empowerment.

In terms of the technology acceptance model<sup>13</sup>, our study was limited to the "perceived usefulness" of an automatic session summary function to psychotherapists. There is still research work to be done regarding the "perceived ease of use" and the "actual use" in order to fully predict and explain the acceptance and use of Tele-Board MED and its summary function. Once we know more about the actual use, we could address further questions, for instance, are the summaries which are created automatically, directly at the end of a session, and together with the patient more correct and complete in capturing relevant points? The fact of instant documentation could speak for this hypothesis, yet subsequent personal notes could be a counterargument.

In general, there is a need for a broader discourse on the challenge of how to harmonize the German legal requirements of full transparency and the practically approved approach in psychotherapy to take personal notes next to official documents. The central questions are whether therapists should be allowed to take personal notes and

if yes, how such notes should be handled, that are not supposed to be disclosed to the patient, in times of digital documentation.

The next steps are to use Tele-Board MED with therapists and patients in treatment sessions; and to investigate its effects on the patient-doctor relationship, and its impact on the patient's healing process.

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