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Title: The added value of studying embodied responses in couple therapy research : A case study

Year: 2019

Version: Accepted version (Final draft)

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Please cite the original version:

Laitila, A., Vall, B., Penttonen, M., Kykyri, V.-L., Karvonen, A., Tsatsishvili, V., Kaartinen, J., & Seikkula, J. (2019). The added value of studying embodied responses in couple therapy research : A case study. *Family Process*, 58(3), 685-697. <https://doi.org/10.1111/famp.12374>

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**The added value of studying embodied responses in couple therapy
research: A case study**

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The added value of studying embodied responses in couple therapy research: A case study

Abstract

This article reports on the added value of embodied responses identified through sympathetic nervous system (SNS) activity in couple therapy research. It focuses on moments of change and the timing of therapeutic interventions or therapeutic moves in a couple therapy session. The data for this single-case study comprise couple therapy process videotapes recorded in a multi-camera setting, and measurements of participants' SNS activity. The voluntary participants were a marital couple in their late thirties and two middle-aged male psychotherapists. The division into topic segments showed how the key issue of seeking help, which was found to comprise three separate components, was repeatedly dealt with in the session. SNS activity showed different degrees of synchronization between the couple, between the therapists and between the couple and therapists during the dialogue pertaining to these three components. The issue of timing emerged as a complex, even ambivalent, phenomenon. Arousal in the therapists was in line with their therapeutic activity whereas in the clients it was more anticipatory. The approach used here rendered visible some of the intensity that therapeutic dialogue can generate when dealing with issues of relationship change in the couple context and showed how this intensity can be dialogically regulated in the therapeutic system.

INTRODUCTION

The topic of this study is the added value of embodied responses, identified through autonomic nervous system (ANS) measurements, in couple therapy research.

Specifically, the study addressed the question of how important moments or moments of change can be detected in couple and family therapy through the measurement of sympathetic nervous system (SNS) activity. To this end, we looked closely at the one session during a couple therapy process in which SNS measurements were conducted. Efforts to determine moments of change have recently been reported by the Innovative Moments research group (see e.g. Gonçalves et al, 2001; Matos, Santos, Gonçalves, Martins, 2009; Santos, Gonçalves, Matos, Salvatore, 2009) and by researchers working on the Narrative Process Coding System (see, for example, Angus et al., 2012; Laitila, 2016) and on Greenberg's EFT (see, for example, Angus, 2012; Greenberg, 2009; Goldman, Greenberg & Angus, 2006). However, more important than merely detecting moments of change is determining what has led to these moments, and hence focusing on the therapy process itself.

This study draws on both the dialogical and systemic approaches to couple therapy. Of crucial importance in couple therapy is change or the transition toward change made by the couple, i.e., interpersonal change. Thus, couple therapy aims to support the development of the couple relationship as well as the process of dealing with mental health issues via specific developmental tasks or problem solving (Bachand & Caron, 2001; Byng-Hall, 1985; Kaslow & Hammerschmidt, 1993; Pinsof, 2002). Simon, Stierlin and Wynne (1985) defined couple

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therapy as a twofold activity. A couple can be understood as both 1) a system and 2) an interactional network comprising two individuals. Couple therapy actively applies the approaches of both systems therapy and individual psychology, and thus is useful in seeking to resolve the relational problems of a couple, issues concerning the couple as a system, and the problems of the two individuals, via activation of the social support network of the close system, i.e., that of the couple (Rautiainen, 2010; Sprenkle, Davis & Lebow, 2009). Gurman and Fraenkel, in evaluating evolution in the field of couple therapy (2002), emphasized the need to look for systemically oriented descriptions instead of relying on metaphors linked with the models of individual development.

The theoretical models of the couple relationship (i.e. the couple relationship is the therapeutic focus) emphasize the importance of couple-specific developmental tasks (Wallerstein, 1994, 1996) (i.e. not of tasks for the individual partners), such as a shift away from enmeshment (i.e., romance) towards differentiation (and towards more individualized positions in the relationship). In addition to long-term development, the system perspective also emphasizes the here-and-now dialogical regulation of the relationship, that is, living together from moment to moment, and jointly producing and renewing the relationship.

This tension between uniformity vs. differentiation can also benefit from being observed at the level of embodiment. Some research on synchrony in physiological reactivity has focused on this issue. These studies range, for example, from the seminal research of Gottman and colleagues (Gottman et al., 1995; Gottman et al., 1998), towards more recent research on conflictual and empathic situations (Coutinho, Oliveira-Silva & Decety, 2014; Oliveira-Silva and Gonçalves, 2011; Perrone et al., 2014) and on cortisol responses in couples (Liu, Rovine, Klein, & Almeida, 2013). However, little couple therapy-related research has included the analysis of embodied responses. By including measurements of physiological reactivity (here electrodermal activity, or EDA) and integrating these into the analysis of couple interaction

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(here therapeutic dialogue, including the therapists), it is possible to observe the attunement of participants (couple and therapists) to each other either as an ongoing process or in very brief time windows.

In this study, EDA was recorded to track changes in sympathetic nervous system (SNS) activity. Whereas parasympathetic nervous system activity is related to the digestion of food and rest, increase in SNS activation is related to the increased physiological arousal that accompanies most emotions and preparation for actions (Kreibig, 2010; Boucsein, 2012). In particular, fast changes in EDA, measured as skin conductance responses (SCRs), indicated by increased sweating, especially in the palms, fingers and feet, are thought to be a direct measure of the phasic neuronal activity of the SNS (Benedek & Kaernbach, 2010).

Most of the research on couple therapy has focused on the clients, to the relative neglect of the therapists. The therapist's role in couple therapy is to assist the couple to define their therapeutic goals and their couple relationship and to provide a context of productive interaction aimed at reaching the goals set and supporting the couple to stabilize the attained outcome. The theoretical orientation of the therapist impacts on the interventive style (e.g. active vs. restrained interventionist (Minuchin, Lee & Simon, 1996)), and on the quality of the intervention.

Equally crucial is the issue of the timing of therapists' dialogical initiatives or responses, therapeutic interventions or therapeutic moves. In individual psychotherapies, in particular, the validity of the concept of the Zone of Proximal Development (ZPD) for understanding the possibility of successful intervention, and especially its timing, has been widely accepted (Leiman & Stiles, 2001; Penttinen, 2017). In marital or couple therapy, however, the situation, with its multiple actors, is more complex.

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The multi-actor context of couple and family therapy calls for a different perspective on the issue of timing. Our method for investigating change events (Seikkula, Laitila, & Rober, 2012) in this context provides an opportunity to examine both spoken and non-verbal utterances, the positioning or voice of an initiative, and the responses to these, with a focus on what is and what is not responded to. Thus, the emphasis is on the responsiveness of the interaction and participants' utterances in the dialogical chain of interaction (Seikkula al., 2012).

The regularities of physiological reactivity, including attunement and synchronization, have mostly been studied in dyadic settings (Seikkula et al., 2015). In the Relational Mind project, the aim was to include four persons in the analysis. From the synchronization perspective, this multi-actor setting thus comprises six possible dyads. The therapeutic work is carried out by all the participants, the therapists' role being to activate, facilitate, intervene, and open up the dialogues. Hence the therapists' role is the focus of this report.

Specifically, the present research task was to detect significant topical episodes (TEs) by familiarizing ourselves with the contents of each TE and then, by analyzing the participants' individual SCR activity, to identify the preconditions for the timing of interventions in a couple therapy session. Dialogical microanalysis of the TEs was conducted to deepen understanding of the intervention process. In this specific case, our research objectives were to look for what the therapists do to assist the couple, what the spouses do to resolve the central problem in their relationship, and how the actions of all parties are related to changes in SNS activity.

METHOD

Materials

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The data for this case study comprise both the SNS data (SCRs) and transcribed talk produced in a single session and the original video recording of the session gathered as part of a project Relational Mind in Events of Change in Multi-Actor Therapeutic Dialogues (Seikkula et al., 2015). The project's overall aims included studying both the inner and outer dialogues that take place in the couple therapy setting and combining different measures conducted during couple therapy sessions, i.e., EDA, heart rate and volume and rate of breathing, along with video recordings of the sessions and stimulated recall interviews. All the participants, including therapists, in 12 couple therapy cases were included in the project (Seikkula, et al., 2015). The project was conducted by the University of Jyväskylä, Finland in collaboration with four other European universities. The project (Seikkula, et al., 2015) aimed to examine (i) how the participants in multi-actor dialogues synchronize their behavior with each other, (ii) whether change events in the session involve emotional arousal on the part of the clients and/or therapists, (iii) what is happening during important moments in the dialogue when things are not spoken aloud, and (iv) how any change for the better is related to mutual attunement and synchronization of movements in all the above-mentioned factors. The present report focuses mostly on aims (i), (ii) and (iii).

Participants

The clients (pseudonyms Mary and Tom) were a married couple with one child (pseudonym Eva). They had sought couple therapy owing to relational difficulties and had named a sense of being disconnected as the main difficulty. The couple agreed to participate in the research project and gave their informed consent.

The therapists were family therapy-trained male psychologists with clinical experience ranging from 25 to 30 years. The non-manualized couple therapy took place at the

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Psychotherapy Training and Research Center at the University of Jyväskylä, and was conducted in English, which was the first language of the clients but not of the therapists.

Measures

In the Relational Mind project, couple therapy processes were videotaped in a multi-camera setting allowing both general and individual (facial expressions) views of the sessions. Each process comprised two separate measurement sessions including different ANS measures (EDA, heart rate, and breathing) and individual video-assisted Stimulated Recall interviews (SRIs) within 24 hours post-session for both clients and therapists.

The embodied responses in this case study were analyzed using the EDA measures, and the dialogue was analyzed using the AV recordings and session transcripts.

EDA was recorded using two electrodes attached to the palm of the participant's nondominant hand. Skin conductance was obtained with a GSR sensor, an amplifier and data acquisition unit (ExG 16), and a data acquisition program (all from Brain Products, Germany). The signal was recorded in DC mode, low-pass filtered at 250 Hz, digitized at 1000 Hz and resampled to 10 Hz.

SCRs, representing phasic changes of EDA related to movement-by-movement changes in sympathetic nervous system activity, were extracted with the LEDALAB program package written in Matlab (Benedek & Kaernbach, 2010). Subsequently, the signal was resampled to 1 Hz and standardized (session mean was subtracted from raw scores and divided by standard deviation) for each participant separately to render the signals comparable over participants. Hence, with these Z scores, the changes in participants' arousal could be compared to their average arousal during the session. The SCRs were then averaged for each TE for each participant. TEs ranged in length from 139 to 441 seconds, with a mean of 255 seconds.

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The session transcripts were investigated by using the three steps of the Dialogical Investigations of Happenings of Change (DIHC) (Seikkula, Laitila, & Rober, 2012) approach: STEP 1 explores the TEs, each of which has its own theme; STEP II explores the quality of the therapeutic conversation as either dialogical (D, utterances connected with what has been said earlier) or monological (M, utterances not adapted to what has previously been said); and STEP III is a detailed analysis of the data by applying the narrative process modes (NM) of the Narrative Processes Coding System (NPCS) (Angus, Levitt & Hardtke, 1999; Laitila, 2016). The three modes in the model are 1) the External mode (E, accounts and descriptions of events, that can be both real and imagined, and answering the question “What?”), 2) the Internal mode (I, descriptions of experiences or feelings, and answering the question “How was it (to me)”), and 3) the Reflexive mode (R, meaning-making and reflecting on the meanings, and answering the question “How could/should this be understood?”).

The investigation procedure

A mixed methods approach was taken. The session was transcribed from the session video, and the transcripts were divided into TEs, each with its own theme. The 19 episodes found were titled according to the thematic focus of the episode in question and in some cases incorporating quotes from participants’ utterances, i.e., original words. This task was performed by the first two authors. In the first stage of the investigation, the transcripts were read and a preliminary division into TEs, with a working title for each, was conducted independently. Subsequently, in a joint data session, the number and titles of the TEs were finalized. We also performed a second-order coding for the TEs by re-reading the original titles in relation to the contents of each TE. This yielded three meta-topics. The DIHC methodology, including the NPCS analysis, was then applied and the results collated in a table (see Table 1).

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The physiological data were divided into segments based on the TEs. Averages of standardized SCRs were calculated for each episode to show which episodes represented higher than average reactivity and intensity for each of the participants. Thus, the quantitative data, by showing the points of high activity in the SCRs within and between the participants in the therapeutic interaction, provided us with a map for choosing topical episodes for detailed investigation.

RESULTS

In this section, first, the overall course of the session from both the topical and arousal perspectives is described. This followed by an analysis of the session, focusing on significant TEs and including examples from the session transcripts. Finally, due to the innovative aspect of the methodology, an interpretation of the results is also presented.

The course of the session from the topical and ANS perspectives

The session was divided into 19 TEs, the titles of which are listed in table 1. The table also includes information for each participant on dominance (interactional, semantic and quantitative dominance), the dialogical vs. monological quality of utterances, and the narrative process speech mode used. Owing to technical problems, Figure 1 shows only 18 TEs, starting from TE 2, as ANS measures were not available for TE 1.

Please locate table 1 about here

According to Table 1, the conversation in the session was mostly dialogical and met the basic criteria for a helpful meeting. Most of the conversation during the beginning of the session

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took place in the external and reflexive narrative modes. The internal mode began appearing repeatedly from TE 8 onwards up to TE 17. In introducing the concept of narrative process modes, Angus, Levitt and Hardtke (1999) suggested that in individual psychotherapy the most productive sequence is E-I-E-R. While this specific sequence has not been reported in systems therapy, family therapy or couple therapy, for both clients in the present case study therapeutic change involved the internal mode in addition to the two other process modes. This might be interpreted as the need for all three perspectives to be present at some stage during the process for it to be therapeutically significant. These perspectives allow the client to give a plausible and authentic account, to relate to and disclose one's experiences and to evaluate one's position vis-à-vis.

As a very approximate way of showing arousal during a session, the graph in Figure 1 presents the average amplitudes of a participant's standardized SCRs. In general, C1 (female client) showed the most arousal during TEs 2, 3, 4 and 7; C2 (male client) showed the most arousal during TEs 5 and 17; T1 (first therapist), showed the most arousal during TEs 9, 10, 13, 18, and 19; and T2 (second therapist) showed the most arousal during TEs 8, 11, 14, 15. In TE5 only, both clients showed high arousal (above 0.2 z). The highest averages were interpreted to represent something emotionally activating and intense, and thus for each participant during these episodes something important was happening. The session also included four TEs, namely 6, 10, 12 and 14, during which all four participants' responses showed the same direction. During TEs 6 and 12, arousal was below, and during 10 and 14 above the session average.

Please locate Figure 1 about here

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The therapists showed high mutual arousal during TEs 9, 10, and 11. The end of TE 11 was occupied by the therapists' reflective discussion, after which, in TE 12, all the participants showed signs of relaxing. During TEs 14 and 15 arousal again increased.

The session centered on three main focus-areas or meta-topics: Work-issues, Motherhood-parenthood and Disconnection. The spouses' work issues were dealt with in several TEs, mostly those in the early part of the session (2, 3, 4, 5, and 7). The second meta-topic, in the middle of the session, was motherhood and parenthood, but this focal area was also the most widely spread across the session (1, 8, 9, 10, 11, 13, 17, 18, 19). The third meta-topic, disconnection (6, 12, 14, 15, 16), was the closest to the reason articulated for seeking help. This distribution of TEs indicates that the reason for seeking help was approached and retreated from several times during the conversation on these three meta-topics, each of which formed a specific and separate context for so doing.

Significant TEs according to the Dialogue and ANS results

Three segments showing shifts in either SCRs or dialogue quality in the session were detected: i) TEs 1-7, during which the themes of the session were revealed, more or less individually, while the therapists were responsive but not especially activated or aroused; ii) TEs 8-11 and 13, during which both therapists were clearly aroused above their own session mean and called for more detailed ways of dealing with the previously named themes, and which also included two short reflective discussions; and iii) TEs 12, 14-19, during which more parallelism in arousal and a qualitatively different discussion of meaningful themes were observed. All the themes, in this section, even if slightly different, dealt with the change

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from couplehood to parenthood and family life. We then took a closer look at segments ii and iii.

Therapists' initiatives and high arousal

The high arousal periods began during TE 8 for T2 and TE 9 for both therapists . During episode 8, T1 had directed the conversation towards a comparison of family life with the couple's previous life as a couple. TE 8 began at 30 minutes from session start with T1's question:

T1: would this have been different if you would not have Eva? And aa dilemmas that you are facing at the moment (omitted text).

T1 brought the issues of family and the marital relationship into the discussion and connected these with the work-related issues that, up to this moment, the spouses had been discussing for almost the entire session. During TE 8, T2 began to manifest higher arousal while the other three participants seemed to remain relaxed.

TE 8 had been about imagining life together without a child, and TE 9 started with a focus on stressful situations, again on the initiative of T1, who referred to what C1 had said at the very beginning of the session.

T1: but you said you also aa what you said that aa that makes a pressure to you when you are coming back from a long travel what are the things that you see as stressful at that very moment coming back from the travel

C1: well I think the last few trips um (2) ((rubs her face)) it's been I think I said this last time actually I kind of-kind of felt like aa third wheel ((gestures with hand)) coming in

T1: yeah

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C1: because they were so connected (omitted text)

T1's comment, ending in a direct question, invited C1 to reply. C1's response manifested feelings of confusion regarding her role as a mother and wife because on her return after an absence of several days it had seemed to her as if there wasn't space for her in the triangle, that she wasn't missed or needed at home, maybe even rejected. Most of the dialogue in this episode was between T1 and C1, T2 remaining in the position of listener and observer without speaking at all. The couple's situation in a three-person family system was discussed, with C1 and T1 using all three narrative modes, ending with the reflexive mode.

In TE 9, the average amplitude values were above the session average for the therapists but below the session average for both clients, C2 showing his lowest value across all the TEs. T1's asking about the consequences of the change from couplehood to becoming a family marked a shift in the interaction, one that was partly strategic and thus constituted an intervention. The therapists seemed to be anticipating active working after this shift.

At the end of TE 11, the therapists held a reflective discussion to which the clients listened. When it ended, the session had lasted a little more than 45 minutes. Thus, in the middle of the session an intensive 15-minute period had occurred, during which both therapists were interactionally active and showed the highest arousal of the four participants. The therapists had also taken the initiative in each of these TEs by directing the discussion with a question. During TE 12, all the participants showed arousal below the session average (the second such TE in the session). The theme of becoming a parent was revisited again in TE 13.

Shared responses and therapeutic work

In TE 12, C2 focused on the ongoing conversation:

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C2: I-I'm struck by this conversation in some ways in terms of its (2) I think about we came in here I guess to talk about us [Text omitted] yet most of our conversations hasn't been about us (.) it's about (1) ourselves and our relationship with Eva.

This more agentic performance by C2 indicated that he was ready to deal with the couple's relationship issues more directly, including his own experiences, and not just through their child-rearing practices. The three other participants joined him in this during TE 14, when all the four participants showed alertness and readiness to act, T2 showing the highest value.

The spouses began to evaluate both the ongoing discussion and what had started to happen after the first therapy session: C1 had become more intentional on her return from her business trip abroad, and active in facilitating contact with Eva.

TE 16 dealt most directly with the reason for seeking help, i.e., the differences in the spouses' experiences. The arousal levels were quite close to the session averages for C2 and T2, and below it for C1 and T1: each therapist thus accompanied one client in their bodily responses. Of the TEs studied, this was the first in which the shift to a new topic was not made by either of the therapists but by the male client, C2, who followed his spouse's initiative and reflected on his first year as a member of a family of three.

C2: ((laughter)) well I mean you know you and I talked about this (.) but I think it's good when you have brought it up (.) so I think we had (1) a different experience (.) the first year

T1: mm mm mm mm

[C2: you know and - and even the narrative I -you-know for me it was -aa-was a wonderful thing and I really enjoyed it and however there were also parts of it that I didn't enjoy and (1) that was seeing her go through all of this

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C2 was able to share his own conflict between enjoying fatherhood and parenthood and simultaneously observing his wife's distress over her low mood and tiredness. C1 recognized this as the possible "heart of the disconnect", since their experiences were so different, or going in opposite directions. Dealing with this issue was arousing for C2 and caused C1 to shed tears.

C1: yea I mean now that we talk about it it's like (.) maybe that is a heart of the disconnect ((wipes her eyes with a handkerchief))

T1: mm hm

C2: and I think previously (2) maybe in a sense that (.) like we've had almost identical feelings and experiences you know (.) how we felt our experiences and issues (.) so

[T2: mm hm yea

C2: so

C1: it was like I mean (.) we were such a unit (omitted text)

Significant therapeutic work was done during this episode as both clients delineated the course of events (in an external mode), described their personal experiences and expressed their emotions (internal mode) and tried to make sense of the events for themselves both as individuals and as a couple (reflexive mode). The order of the three modes was different for each spouse but both used all three. This point in the episode was the moment of reflection for the couple: their SCR values indicated a high level of activation during TE 14 and TE 15. In TE 14, they started to talk to each other, they initiated the conversation topics and were able to reflect upon what had been said earlier. Finally, in TE 16, they realized why they had felt so disconnected.

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C1 had referred to her own belief/experience that unlike other women (=a generalized other), she was not “a natural mother”. This topic was repeated in TE 17, where C1 brought up her uncertainties after childbirth. The spouses then co-constructed the narrative of the birth and of the moment after it when Tom had to leave the maternity ward. C1, however, was the least aroused participant during this episode. T1 also showed low arousal. C2 and T2 were both aroused above the session average despite the personal nature of the topic and its link with motherhood. C1’s low level of arousal can be interpreted as a reflection of her acceptance of the account and of her ownership of the experience.

C1: (Text omitted) (.)um but I do feel (.) I do feel like the pregnancy I was connected with (.) with carrying Eva (.) like I really loved

T1: mm

C1: feeling her move and (.) we used to talk about how she was dancing in the belly

T1: mm

C1: and she totally was and she’s a dancer now so (.) definitely her personality and her aa (.) so I felt connected (.) but I had _no_ idea (.) what was coming

During the last part of this episode the husband mostly listened; for him, the situation was arousing, and his mean SCR activity was higher than in any of the other TEs.

DISCUSSION

The two separate ways of investigating the course of the session, that is, the dialogical approach and the use of SCRs yielded somewhat different narrative patterns. In the clients, arousal preceded reflection, which also included use of the internal narrative mode, whereas

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in the therapists the order of arousal and dialogue was more mixed. The dialogical approach, in turn, emphasized the role of the shifts in narrative processing during each of the three meta-topics identified. Thus, thematically and therapeutically meaningful discussion was visible throughout the session, although it was more monological in the beginning than in the middle. On the other hand, SCR activity increased in the therapists after the 30-minute-long client-centered beginning of the session, and arousal was more shared among all four participants. Before this, the average arousal figures were highly individual. Another interesting finding is that each therapist accompanied one client in their bodily responses, something that, while detectable at the level of dialogue, became more obvious through the inclusion of the SCR analysis. This situation appears to exemplify the concept of a split alliance, which it is crucial to consider as a possibility in couple and family therapy. At its best, it may mean that during the non-verbal interaction prior to dealing with the most critical emotional topic, which does not yet have words, one of the therapists, by drawing affectively closer to one of the spouses, can assist in furthering this topic while the other therapist, by maintaining slightly more distance, draws closer to the other spouse. This could lead the therapists to reflect jointly on this phenomenon of a split alliance at that particular moment.

The therapists initiated the TEs, via strategic/interventional moves, more during the middle than beginning or end of the session. The first such moves focused on the difference between the time when the clients were a couple and their present situation of being a family, i.e., on the developmental task of the couple as system. During these interventional moves, only the SCRs of the therapists showed activation, as if they were anticipating the effect of their initiatives. This seemed to have an effect, as for the first time in the session, all the participants subsequently showed high SCRs. This observation of high SCRs shared by all the participants demonstrates the importance of the therapists' interventional moves.

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The SCRs and speech intensity followed different paths. For the clients, the SCRs began as an anticipatory reaction (or even as an orienting reflex due to inner dialogue (O’Gorman, 1979)), before the shift to the important/sensitive topics of the conversation. On the dialogue content level, the evaluation of past events and choices, and comparing these with the present, was not as arousing for the clients as anticipation, orienting towards the future, and dealing with the effort required for change. Moments or periods of high arousal are not necessarily the most optimal for dealing with sensitive issues in a constructive manner, an objective which calls for self-regulation and a sufficiently calm state of mind (Haapanen & Niemi, 2016). However, it is likely that these moments are needed for therapy to have an effect. Humans better remember events that are linked with strong emotions. Our brain is hard-wired by evolution to learn from powerful experiences, both positive and negative. However, learning from negative ones is more crucial for survival, and hence they are especially well remembered (Anderson, Wais, & Gabrieli, 2006).

In the present instance, it seems that the most sensitive topics for the couple (i.e. the most arousing issues) centered around their orientation towards the future. It seems important, therefore, that in similar cases when the conversation shifts towards future issues, the therapists should aim to enhance clients’ self-regulation of this intensity.

The entire session and therapeutic dialogue form both the context of change and the context of the intervention, for which there is no single right moment. Our study showed, however, that the therapists’ SNS activity varied across the TEs. Their arousal level remained rather low from the beginning up to TE 8. Their listening during this part of the session was responsive and unchallenging, and they were in interactional attunement with the clients (Laitila, 2016).

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In sum, the inclusion of SCR data and their analysis showed how the therapists responded bodily when engaged in couple therapy. When making interventional moves, they became aroused, anticipating the effect of their interventions and synchronizing with their clients, who also became more aroused. This synchrony helped the clients regulate their arousal level.

Among its various aims, Relational Mind has also been designed as a context for methodology development. SCRs can be analyzed in multiple ways; in this case study, our objective was to find a way that would align with the session- and topical episode-level perspectives on therapeutic dialogue and interaction.

It seems that including SCR analysis can help therapists detect topics that are sensitive from their clients' perspective and so aid them in regulating their interventions. Moreover, the use of SCRs also sheds light on the complex synchrony established among the participants in couple therapy, in which all parties participate bodily, and also on how therapists might "use" their body responses to help clients' regulate their emotions.

The two therapists in this case study used their clinical skills and responsiveness according to their own orientations and competencies without access to the ANS information. However, as Josephson (2015) points out, the family's systemic properties are congruent with numerous physiologic mechanisms (e.g., increase in heart rate accompanying a fall in blood pressure). Our research supports this notion by demonstrating the importance of "embodiment in action" in the clinical context, that is, of all the implicit aspects that "play a role" or "might have an influence" on the psychotherapeutic process. Therefore, awareness by therapists of their own embodiment (ANS reactions) during therapy and the effect of this awareness on their interventions could help them in their therapeutic work. Moreover, awareness of the

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effect that their interventions might have on the embodiment of their clients could also help therapists in regulating and/or timing interventions.

An incidental clinical contribution of the research design was the fact that all the participants were connected via electrodes to ANS measuring devices at the beginning of their measurement sessions. Thus, from the research perspective, all the participants were positioned on the same level, a situation which possibly reduced the impact of some of the potential hierarchies embedded in psychotherapy. It can further be assumed that the setting had an impact on the orientation of all the participants to the situation, including embodied experiences.

The theory of dyadic interaction and models of the long-term development of couple relationships provide a meta-picture as compared to laboratory-like micro research on couple interactions, or studies which include present-time measurements of the physiological reactivity of couples (Buehlman, Gottman, & Katz, 1992; Seikkula, et al., 2015). Our approach renders visible some of the intensity that therapeutic dialogue can generate when dealing with issues of relationship change in the couple context and shows how this intensity can be dialogically regulated in the therapeutic system. As explored in this study, therapists can on the one hand raise the level of intensity by initiating new openings in their mutual reflection, and by asking their clients strategic/reflexive questions, and on the other hand, via an approach characterized by speculation and curiosity, lower the level of intensity generated by the themes initiated by the clients.

Since the shifts in the therapeutic interaction in this study seemed marked on both the SNS and dialogical levels, further research should include exploration of participants' inner dialogue during such critical moments through Stimulated Recall Interviews. This information on changes in participants' thoughts and feelings would contribute a further

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dimension of meaning. Future research could also focus on the passages in sessions where the ANS responses of the one therapist are aligned with those of one client while the responses of the other therapist are aligned with those of the other client (as observed in our data). This could yield new knowledge on the phenomenon of split alliances, an issue that can be problematic in both couple and family therapy, and which has important implications for the therapeutic outcome.

Average amplitudes of standardized SCRs provided a general map for the session, which was sufficient for our purposes, since we were not aiming at a micro analysis. In future research, micro analysis of ANS measures combined with the session-level analysis described in this article could be used to detect the windows of tolerance with respect to stress of the participants, particularly clients. This could help to point the way from basic research to clinical applications.

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Table 1.

Topical Episodes: Results of the Dialogical and NPCS analysis

TE	Content	Interact.	Sem.	Quant.	Dialog.	NM-C1	NM-C2	NM-T4	NM-T7
1	Wife's return, relation with daughter	T1		C1	D	E-R	E	E-R	E
2	Husband's doubts about job	T1	C1	C2	M-D	I	E-R	R	E-R
3	Aside on wife's trip abroad	T1	T1	C1	D	E-R	E-R	R	E-R
4	Argument about where to live	C2-T2	T1	C2	D	E-R	E-R	R	R
5	Man's job, living in another city	T2	C2	C2	M-D	I-R	R-E	E	I-R
6	Both work-oriented	T1	T1	C2	D		E	E	
7	Evaluation of consequences of moving	C1-T2	C1	C2	D	E-R	E-R	E-R	R
8	What would it be like without Eva?	C2-C1	T1	C1	D	R-I	R	R	
9	Father – child relation; third wheel	C2	T1	C1	D	E-I-R	E	E-I-R	
10	Positions as parents	C1-T1	T2	C2	D	E-R	E-R	R-I	R-E
11	Ideal mother vs. mother-as-she-is	T2-T2	T2	C1	D	R-I-R-E	E-R	I-R	I-R
12	Reason for therapy - disconnection	T2-T1	C2	C1	D	E-R	I-R-E	E-R	R-E
13	What was different before having child?	T2-C2	T2	C2	M-D	E-R	E-R	E-R	E-R
14	The conversation here and now	C1-C2	T2	C1	D	I-R	E-R	E	I-R
15	Man holding back in therapy & life	T2-C1	T1	C2	D	R-E	E-I-R	E-R-I	R
16	Reasons for disconnecting	T2	C2	C1	D	I-R-E	R-E-I	E	I-R
17	Not “natural mother” – guilt	T2	C1	C1	D	R-I-E	E		E
18	Acceptance of others	C1	T2	C2	D	R	E-R	R	E-R
19	Role models	T2-T1	T2	T2-T1	D		E	R	R

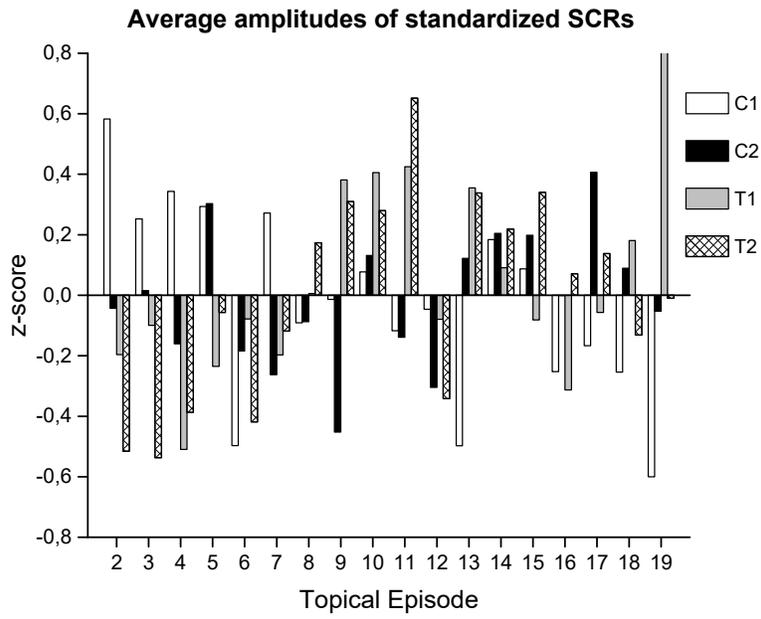


Figure 1.

Averaged standardized SCRs over TEs and participants. The y-axis indicates z-values and x-axis topical episodes.