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Significant moments in a couple therapy session: Towards the integration of different modalities of analysis

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Abstract

This chapter presents a couple therapy session from four different research perspectives: The verbal dialogue was analysed with the *Dialogical Investigations of Happenings of Change* method, the embodied reactions of each participant were analysed by examining *the electrodermal activity* of each participant, and *nonverbal synchrony* was observed between the participants. *Stimulated Recall Interviews,* conducted individually after the session, were used to gain insights on the participants' thoughts and feelings concerning particular moments in the session. We wished to determine what could be learned from the embodied reactions of the participants in couple therapy, including whether the data obtained via the different research methods were telling the same or different story about the same moment within the couple therapy session.

Keywords: "couple therapy", "embodied reactions", "dialogue", "inner dialogue", "mixed-methods", "modalities integration", "nonverbal synchrony"

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1. INTRODUCTION

In recent years, research in the social sciences has taken an affective turn. Hence, in attaching meanings to phenomena, it is considered necessary to take into account emotions, affects, and feelings, as well as spoken content (Cromby, 2012). Here, we present a case study on the significant moments of a single couple therapy session, our aim having been to integrate information gained from (i) the verbal dialogue and the therapeutic process, (ii) personal autonomic nervous system responses (skin conductance responses, i.e. SCRs), and (iii) observed nonverbal synchronization behaviour. After the session, all the participants were individually interviewed. Their personal accounts were viewed as giving meaning to their embodied reactions.

In this case study, we wished to discover what the embodied reactions of the participants might indicate concerning the therapy process, notably whether the data obtained from the different modalities were intertwined or independent from each other, i.e. whether they complemented each other or told different stories of a given moment. We also wanted to see if the differing roles of therapists and clients in the therapy situation were reflected in their autonomic nervous system responses, and in their nonverbal synchronization behaviour.

The data used in this study was collected in the project *Relational Mind in Events of Change in Multiactor Therapeutic Dialogues.* The project has aimed to increase our understanding of attunement and of the embodied quality of dialogues in couple therapy (Seikkula et al., 2015). The project was situated at the University of Jyväskylä, where data was gathered from 12 couple therapy cases. In all the cases the autonomic nervous system responses of both the therapists and the couple were measured, usually in the second and sixth sessions. After the measurement sessions the participants were individually interviewed, using the *Stimulated Recall Interview* method (hereafter SRI), which employs video clips to prompt recall of the participants' thoughts and feelings and bodily sensations at certain moments in the therapy session. The project has international collaborators at the Aristotle University in Thessaloniki, at the Nordhausen University of Applied Sciences, and at the Masaryk University in Brno, where additional data from psychotherapy cases has been collected.

In this chapter, we first present the research methods applied, indicating the type of information they provide. Thereafter, we give an overview of the session under study, referring to information provided by the methods applied. Finally, we integrate the information gained, concentrating on the four clips that were selected to the SRIs.

1.1. The Analysis of the Dialogue

In psychotherapy research the dialogue plays a crucial role, not just because it is the main communication tool, but also because it connects the participants to each other. In this study the Dialogical Investigations of Happenings of Change (DIHC) method was used for organizing the session into thematic entities (Seikkula, Laitila & Rober, 2012). DIHC focuses on the quality of the dialogue; so in addition to looking at the verbal content, it focuses on how things are said and how they are responded to (Olson, Laitila, Rober & Seikkula, 2012). Therefore, with DIHC it is possible to differentiate dialogical and monological dialogue in psychotherapy conversations. Dialogical dialogue refers to dialogue in which participants include, within their speech, ideas previously mentioned by other participants; moreover, utterances are expressed so that they allow the other participants to respond. The presence of dialogical dialogue in the therapy process has been related to the outcome of the therapeutic process (Räsänen, Holma & Seikkula, 2012; Vall, Seikkula, Laitila, Holma & Botella, 2014). In addition, DIHC is used to analyse the dominances in the dialogue, for instance interactional dominance (i.e. who regulates the speech turns). The use of the method provides a good base for analysing the embodied reactions of the participants by focusing on the thematic entities.

1.2. Autonomic Nervous System Responses: Skin Conductance Responses (SCRs)

In this study, electrodermal activity (EDA) was recorded to track arousal, as indicated by changes in sympathetic nervous system (SNS) activity. Increases in SNS activation are related to the increased physiological arousal that accompanies preparation for action and emotions causing an increase in action tendency (Boucsein, 2012; Kreibig, 2010). In particular, rapid changes in EDA – measured as skin conductance responses (SCRs) are thought to be a direct measure of SNS activity (Benedek & Kaernbach, 2010). In this case study, the SCRs were chosen because of the interest in looking at how aroused each participant was in the session.

In previous studies on SNS activity in psychotherapy, the client's arousal level has been shown to rise at moments of confrontation (Olson & Claiborn, 1990), and when one's identity is blamed (Päivinen et al., 2016) and when the therapist is empathic towards the client (Finset, Stensrud, Holt, Verheul & Bensing, 2011). It has been suggested that an increase in autonomic arousal could be a sign of active emotional engagement (del Piccolo & Finset, 2017). The client's electrodermal arousal decreases when the clinician uses affective communication (Sep, van Osch, van Vliet, Smets & Bensing, 2014). In couple therapy, the participants' arousal levels can thus reflect emotions, emotional engagement and preparation for action.

1.3. Nonverbal Synchronization

During interaction, people tend to implicitly synchronize their nonverbal behaviour, i.e. gestures, postures and tone of voice. This adaption has several functions, including that of making the dialogue smoother by regulating turns and creating a mutual connection. This tendency has been related to increases in liking (Chartrand & Bargh, 1999) and rapport (Lakens & Stel, 2011). It has been suggested as a mechanism for emotionally attuning to the other person, facilitating an understanding of the other person's emotions (Stel & van den Bos, 2010).

In psychotherapy, the synchronization of postures has been seen as an external sign of rapport (Sharpley, Halat, Rabinowicz, Wiland & Stafford, 2001; Trout & Rosenfeld, 1980) and as a sign of the therapist being attuned to the client (Davis & Hadiks, 1994; Raingruber, 2001).

Within psychotherapy, therapists and clients nod frequently. Therapists nod their heads when displaying and maintaining affiliation with clients (Muntigl, Knight & Watkins, 2012). During dialogue, the listeners' head nods are important in creating moment-by-moment collaboration (Bavelas, Coates & Johnson, 2000). The head nods are interpreted as expressing a wish for the speaker to continue talking, as well as expressing understanding (Stivers, 2008).

Another commonly occurring movement in therapy is self-touching. These movements, also called displacement behaviours, have been related to heightened arousal and are thought to act as self-soothing movements (Troisi, 2002). In the present study, the nonverbal synchronization of postures and movements were analysed.

1.4. Inner Dialogue Captured by the Stimulated Recall Interview (SRI)

The SRI is a video-assisted method for investigating what people recall concerning their own inner thoughts and emotions in an event in which they participated (Kagan, Krathwohl & Miller, 1963). In the field of psychotherapy research, SRIs have been used to study the therapists' and clients' inner dialogues. The clients use the SRI to gain insight about themselves, whereas the therapists use the SRIs to elaborate on therapeutic strategies and to manage the therapeutic process (Rober, Elliott, Buysse, Loots & De Corte, 2008; Vall et al., 2018). SRIs offer insight into information that is usually hidden when one looks only at transcripts of the session. In the present study, the information from the SRIs was used to gain an understanding of the embodied reactions of the participants during the therapy session.

In this case study we aimed to integrate the information from these aforementioned research methods to gain a fuller understanding of a couple therapy session, especially the participants' embodied reactions in relation to the dialogue and the therapeutic process.

2. METHOD

The data for this study were gathered within the Relational Mind research project (Seikkula et al., 2015) at the University of Jyväskylä Psychotherapy Training and Research Centre. The couple therapy was non-manualized and employed narrative, dialogical and reflective therapeutic approaches. Two therapists were present. The sessions were video-recorded. The participants' autonomic nervous system (ANS) reactions (i.e. heart rate, electrodermal activity and respiration) were collected from both the couple and the therapists in the second and sixth sessions. After the ANS sessions, SRIs were conducted with the participants individually. Thus, video clips from the session were shown to the participants, who were asked to recall their thoughts, feelings and bodily sensations at the corresponding moment during the session.

The video clips were chosen by the researcher to represent four significant moments of therapy. They were chosen on the basis of (i) visible emotional expression, (ii) a notable change in the interaction and (iii) visible synchrony between participants in the ANS measurements (EDA, respiration). The participants gave their informed written consent for the use of the data, and the Ethical Committee of the University of Jyväskylä had approved the research.

2.1. The Case

The session analysed for this study came from a couple therapy with Tom and Mary (pseudonyms). The couple had been referred to couple therapy by Mary's therapist. Mary had suffered from depression after their child Eva (pseudonym) was born. Tom and Mary came to therapy, wanting to learn how to better communicate with each other and to explore their feelings of disconnectedness. The session was the second session of the therapy. Within it, ANS reactions were measured and SRIs were conducted. The two therapists were experienced couple and family therapists (both male).

2.2. Research Procedure

The various research methods were first applied separately. The Dialogical Investigations of Happenings of Change (DIHC) method was conducted by Berta Vall (BV) and Aarno Laitila (AL), and the extraction of the SCRs was conducted by Valeri Tsatsishvili and Markku Penttonen. The analysis of observing nonverbal synchronization of body postures and movements was done by Petra Nyman-Salonen (PNS), and the SRIs were analysed by Maria Borcsa.

Integration of the information from the different analyses was conducted by focusing on the clips selected for the SRIs. First, we started by looking at the dialogue and the therapy process in

the session, in conjunction with the embodied reactions of each participant (SCRs and nonverbal synchronization). The integration analysis was conducted by PNS, BV and AL.

Thereafter, the analysis was conducted starting from the individual information that the participants shared in the SRIs, which was looked upon as information concerning individual emotions or personal stances towards the topic spoken of in the therapy session. The individual emotions and thoughts were then related to the individual's arousal level and nonverbal synchronization behaviours, as well to the actual dialogue in the session and the therapy process.

2.3. Dialogical Investigations of Happenings of Change (DIHC)

The session transcripts were investigated using the three steps of DIHC (Seikkula et al., 2012). Step 1 divides the session into thematic entities called *Topical Episodes* (TEs), within which the same topic is spoken about. Step 2 explores the quality of the therapeutic conversation as either dialogical or monological and the dominance present in the dialogue, differentiating among (i) quantitative (who speaks the most), (ii) semantic (who regulates the topics that are spoken of) and (iii) interactional dominance (who regulates the turns). Step 3 involves a detailed analysis of the data, in which the Narrative Processes Coding System (NPCS) is applied (Angus et al., 2012; Angus, Levitt & Hardtke, 1999; Laitila, Aaltonen, Wahlström, & Angus, 2005). There are three *modes* in the model, namely (i) *External mode* (E) (accounts and descriptions of events that can be both real and imagined and answering the question 'what'), (ii) *Internal mode* (I) (descriptions of experiences or feelings), and (iii) *Reflexive mode* (R) (referring to meaning-making, and to reflecting on meanings). The TEs comprised entities in relation to which the information from the other research methods were examined.

2.4. Electrodermal Activity: Skin Conductance Responses (SCRs)

Electrodermal activity was recorded using two electrodes attached to the palm of the participant's nondominant hand. Skin conductance was obtained via a GSR sensor, an amplifier, a data acquisition unit (ExG 16) and a data acquisition program (all from Brain Products, Germany).

SCRs, representing phasic changes of EDA related to movement-by-movement changes in SNS activity, were extracted with Ledalab, a Matlab-based software package designed for skin conductance analysis (Benedek & Kaernbach, 2010). Subsequently, the SCRs from each participant were resampled to 1Hz and z-scored. For each participant, the arousal level during the TE was expressed as the average SCR amplitude within the TE. The extraction method used in this study has been used in a case study conducted by Laitila et al. (2019). Here, the term *arousal level* is used to refer to the participants' skin conductance responses.

In this case study the arousal level was interpreted in a qualitative manner. Thus, arousal levels with a value near to 0 indicated a level near to that participant's average arousal in the session. When the SCR was greater than 0.3, it was classified as *high arousal*. Arousal between 0.1 and 0.3 was classified as *some arousal.* Values close to 0 were classified as *average arousal,* values of –0.1 to –0.3 were classified as *low arousal*, and values of less than –0.3 were classified as *very low arousal*.

2.5. Observing Nonverbal Synchrony (ONS)

The nonverbal synchronization of postures and movements was analysed via a method created by Nyman-Salonen (submitted). The nonverbal synchronization behaviour of the participants was observed continuously using the Noldus Observer programme. Posture-synchronization occurred when two or more participants were in a similar posture (either a mirror image or congruent), and movement-synchronization occurred when someone mimicked another's movement within 3 seconds. The synchronized movements were either head movements, arm movements (usually displacement behaviour, meaning touching of the head or face), leg movements (mostly shifts in leg positions), torso movements and hand movements (mostly displacement behaviours).

2.6. SRIs

The researcher had selected four episodes for participants to view in the SRIs. The participants viewed these clips from the session individually and recalled the thoughts and emotions they had had at these particular moments in the session.

3. RESULTS

3.1. Overview of the session

We begin with the dialogical analysis for the complete session under study, showing the division of the session into *topical episodes* (TEs) (Table 1). These are used in presenting the results for the individual SCRs (Fig. 1), and for the nonverbal synchronizations (Figs. 2 and 3).

3.1.1. The dialogue

Table 1 presents the topical episodes and the title that was given to each of them denoting the topic under conversation. The session as a whole was strongly dialogical, meaning that the clients were engaged in talking to each other. Initially, they mainly talked about their job issues (TEs 2, 3, 4, 5 and 7), with utterances expressing a reflective mode. However, Mary was already talking about her emotions in those moments. In the central part of the session (TEs 1, 8, 9, 10, 11, 13, 17, 18, 19), the conversation moved towards issues of motherhood and parenthood. In these moments, Tom started to talk about his emotions for the first time in the session. At the end of the session, the reason for being in therapy was discussed, which was related to the couple's feelings of disconnection (TEs 6, 12, 14, 15, 16). Within these moments, most of the participants talked emotionally, though in conjunction with external and reflective talk. This meant that they were jointly engaging in meaning-construction processes.

Table 1 Topical episodes in the session. The clips chosen for the SRIs occurred in TEs 12, 14 and 16–18 (shaded).

TE	Content	TE	Content
1	Wife's return, relation daughter	**11**	Ideal mother vs mother-as-she-is
2	Husband doubts about job	**12**	Reason for therapy–disconnection (SRI 1)
3	Aside to wife's trip abroad	**13**	What was different before child?
4	Argument about where to live	**14**	The conversation here and now (SRI 2)
5	Job man, living on another city	**15**	Man holding back in therapy & life
6	Both work oriented	**16**	Reasons for disconnecting (SRI 3)
7	Evaluation consequences of move	**17**	Not "natural mother" – guilt (SRI 4)
8	How would it be without Eva?	**18**	Acceptance of others (SRI 4)
9	Father-child relation; third wheel	**19**	Role models
10	Positions as parents		

In terms of dominance, it seemed that the couple talked to each other and were actively involved in the session, presenting dominance equally (regarding who talks more, who regulates what is talked about, and who regulates the turns). Primarily, it was the therapists who regulated the discussion (in 17 TEs out of 19), and the therapists also chose the topics of the conversation (in 12 TEs). In general terms, there was a natural exchange among participants. [1]

3.1.2. Electrodermal Activity as Manifested SCRs

Figure 1 presents the skin conductance responses for each participant in relation to their average in the session per TE. The results are presented from TE 2 onward, because TE 1 was omitted due to technical difficulties in recording the EDA. At the beginning of the session (TEs 2, 3, 4 and 7), Mary was more aroused, whereas the other participants were less aroused. Apart from in TE5, Tom's arousal was more evident later in the session, most notably in TE17. The therapists were more activated towards the middle and the end of the session: therapist 1 (hereafter T1) was aroused during TEs 9, 10, 11, 13, 18 and 19, while therapist 2 (hereafter T2) was aroused during TEs 9, 10, 11, 13, 14 and 15. In TE5 only the couple were aroused.

3.1.3. The Nonverbal Synchronization of Body Postures and Movements

Figures 2 and 3 present the dyadic nonverbal synchronization patterns in the session. Posture-synchronization occurred 12 times, with 9 of these instances occurring between the therapists. In TE 11, Mary and Tom were in posture-synchrony. There was no posture-synchronization within the episodes chosen for the SRIs.

All the participants were synchronized to each other's movements. The therapists were the most active (81 and 71) and then Mary (42) and Tom the least (26). Tom was more synchronized with Mary (13) than with the therapists (8), and Mary was more synchronized with the therapists (23) than with Tom (13).

Most of the synchronized movements in the session were head movements (81), i.e. head nods. The therapist-dyad were synchronized the most (49), followed by T2 and Mary (8), then Mary and Tom (7), T1 and Tom (6) and then other dyads or triads. Displacement behaviour synchronization occurred 21 times (arm movements 11 times, and hand movements 10 times).

At the beginning of the session, the therapists showed most synchrony (both in postures and head movements). Towards the end of the session, there was a rise in the frequency of synchronized

[1] Exhaustive explanation of the DIHC results is beyond the scope of this chapter.

movements between all the participants, until TE 17, when all movement synchronization stopped.[2] There was no difference in the amount of movement synchrony between the TEs selected for the SRIs and the other TEs.

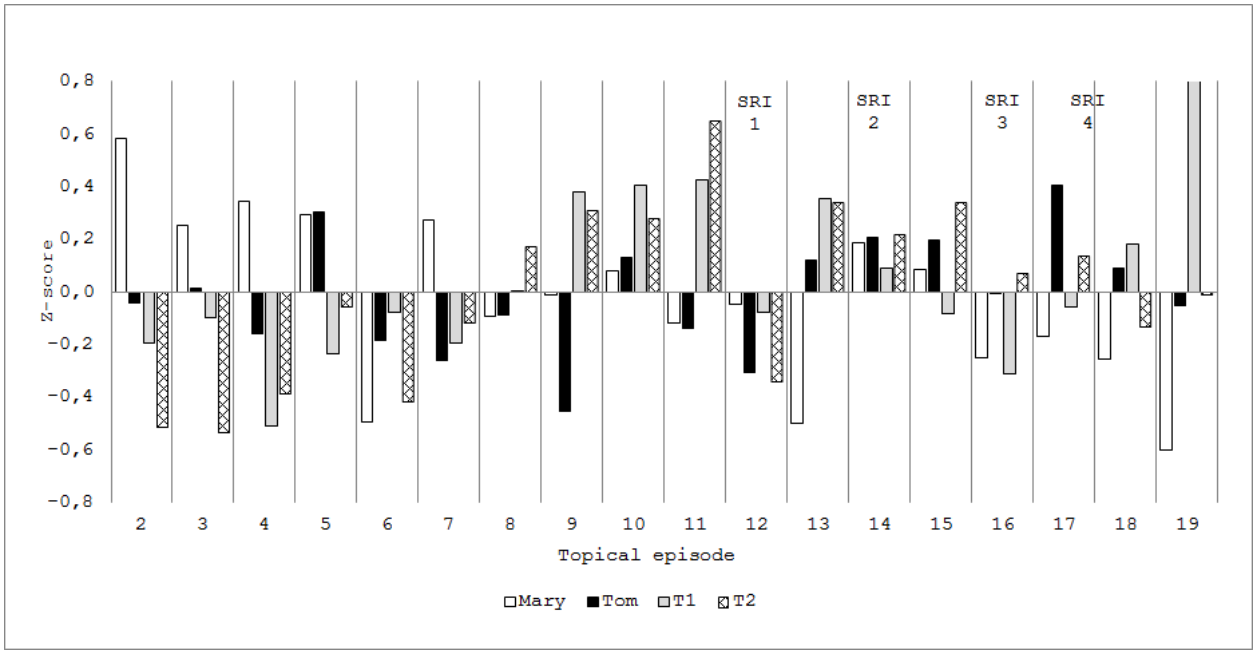

Fig. 1 Skin conductance responses for each participant, in relation to their average in the session per TE. A zero value refers to each participant's average during the session.

[2] This chapter is necessarily limited in scope; hence, not all the results obtained via this method are presented here.

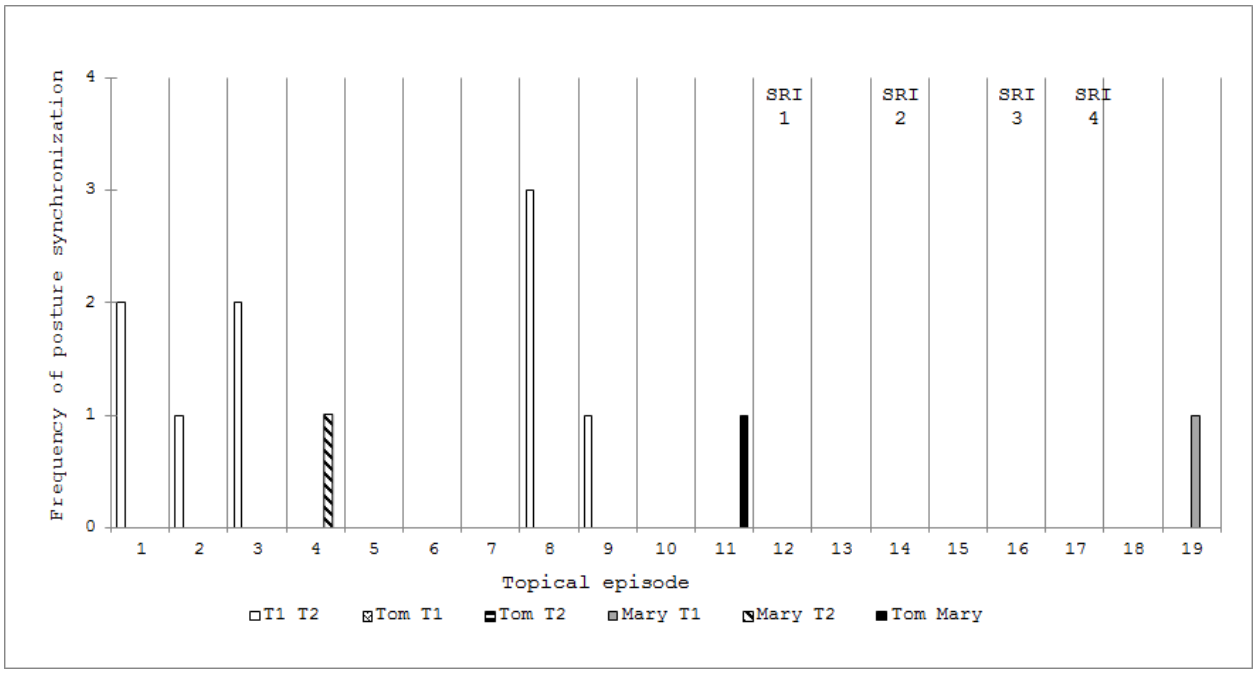

Fig. 2 Posture-synchronization per dyad in each TE.

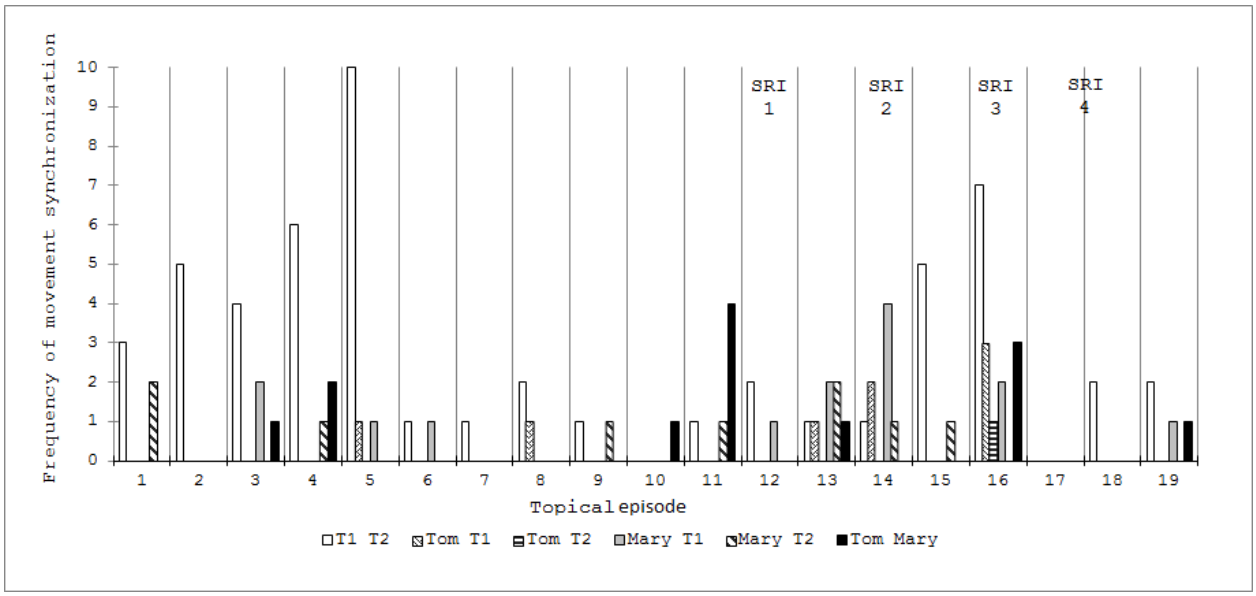

Fig. 3. Movement-synchronization per dyad in each TE.

3.2. Integration of the Information from the Different Research Methods Based on the Participants' Inner Dialogues (information from the SRIs)

The results here are presented separately for each SRI clip[3]. First of all, we present information on what happened *within the session* in the SRI clip shown to the participants. This includes the

[3] The length of the SRI clips differed from the length of the TEs. In some instances the SRI clips contained segments from one TE or covered more than one TE.

dialogue and the participants' arousal levels plus their nonverbal synchronization behaviour that were analysed for the corresponding TE (for an overview of these, see Figs. 1, 2 and 3). Thereafter, we present the participants' *individual SRI accounts*. Here we seek to integrate their personal account to the embodied reactions with the dialogue and therapy process. Finally, a summary of the results for each clip is given.

3.2.1. SRI Clip 1 (TE12)

The clip was chosen for the SRI because of visible emotion (crying, laughter) and the theme (motherhood) and also because of Tom's noticeable movements and his EDA that decreased concurrently with that of T1. This clip occurred in the middle part of TE12 ('reasons for therapy – disconnection')**.**

Within the session Mary did most of the talking (quantitative dominance), stating that she and Tom were disconnected and that they tried to talk to each other but lacked the necessary skills. Mary said she felt that Tom was still processing something, whereas Tom responded that he did not know what that might be. Mary reflected on her struggle of becoming a mother and of Tom just being a 'natural father'. Within the session the therapists regulated the conversation (interactional dominance). In analysing the therapeutic process, in this episode the therapists were preparing the ground for discussing the reason for therapy (disconnection).

Within the session (TE12), all the participants had low arousal levels, especially Tom and T2 had very low arousal (compared to their own personal arousal level means in the session) (see Fig. 1). The only synchronized movements in this clip were head movements between the therapists (T1 and T2) and between T1 and Mary (see Fig. 3).

Individual thoughts and emotions When Mary watched the video clip from the session, she shed tears. She said she had felt frustrated in the session because Tom had not been willing to address something – he was holding back, which meant that she had to bring up the difficult conversations they had had. She said she had been sad in the session because of them being disconnected. Mary's feelings of frustration were not visible in her arousal level in the session; however, her description of sadness would be in line with her low arousal level.

In the SRI, Tom said he had felt an unpleasant feeling in the session but simultaneously felt that they were getting somewhere, as in starting to make sense of their difficulties. Tom's SCR indicated very low arousal at this moment in the session. This could reflect a feeling that he had no need to react: he felt that they were getting somewhere in the therapy and that he could just let matters evolve. Tom was left outside the nonverbal synchronization in this episode.

In the SRI, T1 said that within the session he had been very pleased when Mary said that Tom was holding back, because it was the first critical comment on their relationship. This stance was also seen in the session, where T1 was nodding along with Mary. T1's arousal had been near to his average. He stated in the SRI that he had been somewhat annoyed at Tom in the session, because he talked so rationally and unemotionally, but his feelings of frustration didn't affect his arousal level.

In the SRI, T2 commented that during the session he had felt interest when Mary said she felt disconnected with Tom. However, T2's arousal level had been very low at that juncture, which could reflect that he felt it unnecessary to react or intervene in the therapeutic situation.

Summary At this moment the concurrent nods of the therapists during the session accorded with their comments in the SRI. Both said that they had felt that the topic was important. T1 had felt empathy with Mary's stance, and he nodded with her in the therapy, whereas Tom was 'left outside' the nonverbal synchronization. T2 also mentioned having been interested in Mary's point of view, but this did not appear in his nonverbal synchronization behaviour.

One reason for choosing the clip to SRI was the concurrent decreasing arousal levels of T1 and Tom. However, the SRI provided no definite explanation for this. One might have expected the decreasing arousal levels to reflect empathy between T1 and Tom. However, T1's account in the SRI conflicted with this interpretation. He had been annoyed with Tom and had empathized with Mary's situation.

3.2.2. SRI Clip 2 (TE14)

The clip was chosen for the second SRI clip because of the theme (man holding back) and visible laughter (Tom) and the EDA responses of T2, Tom and T1. This episode occurred within TE14 ('the conversation here and now')**.**

Within the session T2 asked if Mary and Tom felt connected during the therapy session. Mary answered that she had shown her emotions and talked about their issues. However, as she saw it, Tom was holding back. Tom answered, mentioning that after the previous session Mary had said to him 'I hope next week they pick on you'. However, they both indicated that the therapy had led them to do things differently in their everyday life, in terms of talking more. In the session, it was Mary who talked the most, though both she and Tom regulated the discussion. The therapists were not active.

When analysing the therapeutic process, we viewed this moment as an ambivalent moment in the therapy. There were two parallel processes going on: the couple were talking to each other (being very dialogical). However, although Mary raised the matter of Tom holding back, the theme was avoided thereafter by both Mary and Tom.

During the session (TE12), the SCRs of all the participants indicated some arousal, except for T1 who remained close to his average arousal level. T2 introduced the theme, which could be seen as a reason for his arousal (see Fig. 1). All the participants were involved in movement-synchronization behaviour with each other, and there were some synchronized displacement behaviours, between T1 and Mary and between T1 and Tom (see Fig. 3).

Individual thoughts and emotions In the subsequent SRI, Mary said that she had felt uncomfortable in the session throughout the clip chosen for the SRI, because she felt Tom was making her defend herself. She thought Tom had shifted attention towards her after they had talked about him holding back. This surprised her. She said that she had felt many emotions, first surprise, and in the end joy. The emotions could be seen in her SCR, which indicated some arousal. Another possible source to it was the fact that Mary and Tom were regulating the conversation, with no co-regulation on the part of the therapists. Mary's arousal might also have been connected to her doing displacement behaviours with T1.

In the SRI, Tom said that he had found it interesting that Mary said he was holding back. He was taken aback by her comment and felt that he needed to talk about it with her. In the actual session (TE 14), Tom's SCR indicated some arousal. This could be related to his feeling of surprise at Mary's comment or to the co-regulation of the conversation. Tom's arousal level could also be connected to him doing displacement behaviours in the session which T1 synchronized to.

In the SRI, T1 said he had felt pleased that Mary was showing her emotions in the session. He wondered if Mary was protecting Tom by showing her emotions, so that Tom did not have to show his. T1 felt that Mary's comment regarding Tom holding back contained a lot of truth, since he did not observe an emotional reaction from Tom. Within the episode, T1 had nodded along with T2 and did displacement behaviours with both Mary and Tom. This could reflect T1's endeavour to feel his way into their emotions (a bodily contagion process used as therapeutic empathy). T1 had not been highly aroused during this episode; it seemed that he was able to let the discussion take its course.

In his SRI, T2 said that the theme talked about in the session was very important. He had considered asking more about the topic. He was thus preparing for an action, which might be seen in his arousal level, as his SCR indicated some arousal. In the actual session, T2 followed the nodding of Mary and T1. This could have been a signal to the others that he felt the topic under discussion was important and that he was listening.

Summary At this moment, all the participants were aroused in the actual session. This could reflect the way in which the couple talked together and regulated the discussion while avoiding genuine exploration of the theme of Tom holding back. T2 was aroused, possibly because he was

preparing for an intervention. T1 was less aroused, although he was synchronized to both Mary's and Tom's displacement behaviour.

3.2.3. SRI Clip 3 (TE16)

The episode was selected for the SRI because of the theme (heart of our disconnectedness), Mary crying and the long silences. Clip 3 covered a moment mid-way through TE16 ('reasons for disconnecting').

Within the session Mary talked about her realization that they had had such completely different experiences of their child's first year. For Tom it had been the best time of his life, whereas for her it was very different, i.e. a struggle. They had been a strong unit previously, but their different experiences of the time after the birth of their daughter was the heart of the disconnectedness. She said that Tom had never made her feel bad about her struggles: he had only once said that it was the best time of his life, to which Tom answered that he knew how that would have made her feel. From the point of view of the overall therapeutic process, this episode was a significant moment: within it, Tom and Mary talked about the issue of being in therapy. Within the session Mary did most of the actual talking; however, Tom had chosen the topic, with T2 regulating it.

In the actual session (TE 16), Mary had had low arousal, and T1 very low arousal, whereas Tom and T2 had been averagely aroused (see Fig. 1). In this particular clip, there was considerable movement-synchronization (the highest amount per episode in the session as a whole). All the participants were synchronized in their movements, and very importantly, the couple was synchronized to each other (see Fig. 3).

Individual thoughts and emotions In the SRI, Mary said that the episode was a moment of insight in the therapy. She felt sadness because of their separate experiences. Within the session she was crying; moreover, her arousal was low. In the session, Mary was synchronized to Tom and T1 in their head nods and displacement behaviours. She also nodded simultaneously with Tom. The displacement behaviours that might have been thought to reflect arousal did not, in fact, show in Mary's arousal level. The head nods could be related to her signalling the importance of the topic under discussion.

Tom indicated the importance of the topic in his SRI, saying that this was the main issue they were dealing with. At this moment within the session, he had nodded together with each therapist separately and also with Mary. Tom said he had felt sad in the therapy session, but he now felt it even more in the SRI situation. He reflected on feelings of guilt for enjoying life with the baby while being aware of how it impacted on Mary. His arousal level within the episode had been near

to his average for the session. This could reflect the combination of feeling sad and a feeling of important issues being discussed. Importantly Tom's arousal level had not been high, even though he did displacement behaviours. Interestingly, Tom showed more feelings in the SRI situation than in the therapy session itself. It seemed as if the context (being alone with the interviewer) allowed him to experience (and share) emotions.

In the SRI, T1 reflected on the couple's history: they had been such a strong unit before, and now felt disconnected. He also recognized his own unease at Tom having words for everything, without very much emotion. T1's SCR had indicated very low arousal, which could reflect that he did not need to react in the situation; thus, his frustration with Tom's rational talk was not seen in his arousal level. Within the episode, T1 had been nonverbally synchronized all other participants and equally to Tom and Mary. He also nodded frequently with T2, expressing the importance of the topic.

In the SRI, T2 said that he had seen the topic as very important: it lay at the heart of the couple's disconnection. He said that he had been very interested in Mary's point of view and had wanted to know more about Mary's feelings. His interest could be seen in his head-nodding behaviour.

Summary In this moment Tom and Mary were nonverbally synchronized to each other in the actual session. It was the only episode chosen for the SRIs in which this occurred. It appeared to signal an embodied connection between them. The other participants were also involved in the nonverbal synchronization behaviour. This could signal the importance of the topic, with everyone actively collaborating in the discussion. When they discussed a significant issue, there was considerable movement-synchronization between everyone, but not a particularly high level of arousal in all the participants. The displacement behaviours were not accompanied by high arousal.

3.2.4. SRI Clip 4 (TE17 to TE18)

The clip was selected for the SRI because of the theme (gender roles), the couple's laughter, and it was chosen by the researcher to end the SRI situation with a less stressful episode. The clip was from the middle of TE17 ('not "natural mother" – guilt') to the end of TE18 ('acceptance of others').

Within the session The topic primarily concerned Tom's role as a father and their untraditional parental roles, within which Tom did much of the caring for Eva – something that had been very similar in Tom's family of origin. Mary and Tom did most of the talking. Mary and T2 regulated the discussion and introduced the topics. From the perspective of the therapeutic process, this was a moment where not so much intensive therapy work was done.

Within the session (TE17 and TE18), Mary's arousal had been below her average, whereas Tom had moved from very high arousal to an arousal level near his average of the session. T2 had moved in the same direction as Tom, from having had some arousal to low arousal. By contrast, T1's arousal went in the opposite direction: he had first had low arousal, and then his arousal level rose (see Fig. 1).

In this clip (TE 17 and 18), there was a very low frequency of nonverbal synchronization in the actual session, with only the therapists nodding together (on two occasions) (see Fig 3).

Individual thoughts and emotions In the SRI, Mary indicated that this clip was not as emotionally strong as the others had been. Her low arousal level confirmed this.

For his part, Tom observed that he looked more relaxed in the clip. However, as he recalled the session, he had not in fact felt so relaxed at this point. His recollection seemed to be closer to reality, since in the session he had shown high arousal (TE17), which then decreased (TE18).

T1 said that he thought the topics towards the end of the session had been increasingly interesting and important. T1 was anxious because of the important topics coming up and because he knew he would have to end the session earlier than expected. Within the session T1's arousal level was rising, which could relate to his feeling of unease.

T2 did not recall any specific emotion during the clip. He had felt curious about the couple's roles and Tom's family of origin. In his SRI he commented that the couple's situation was like a puzzle, becoming piece by piece more complete. This could possibly be seen in his arousal levels, which had gone in the same direction as Tom's, i.e. decreased.

Summary This moment was not a significant moment in therapy. This was also seen in the lower arousal levels of the participants during the actual session. Only T1 was aroused, and this was possibly related to his feelings of distress of having to end the session prematurely.

3.3. Summary of the Findings from the SRIs in Combination with the Findings on Autonomic Nervous System Arousal and Nonverbal Synchronization

In general terms, the analysis of the SRI conversations revealed the complexity of the embodied reactions, in that (for instance) when a participant had high arousal, it did not always mean that the discussion was particularly emotional or difficult. The differing roles of the therapists and the clients were also visible in their embodied reactions. The therapists were more active in synchronizing nonverbally to others. It could be that the therapists were using nonverbal synchronization to further the dialogue and to signal the importance of the topic under discussion but also as a therapeutic tool to understand the clients' experiences. In the SRIs the therapists were

more empathic towards Mary's point of view, but this was not seen in their embodied reactions (SCR and nonverbal synchronization).

It also seemed that the different embodied reactions of the participants were not in a linear relation to each other, meaning that when there was much movement-synchronization, there were no concurrent or consecutive higher or lower arousal levels among the participants. It would thus seem that the different embodied reactions (SCRs and nonverbal synchronization) within the session could have had different and independent functions within the therapy process. For example, the level of arousal was not directly connected to the emotional load of the dialogue or to the felt importance of it. When participants stated that the topic was important for them, they weren't highly aroused at that moment in the session.

4. DISCUSSION

In this case study, we wanted to know what the embodied reactions of the participants might indicate concerning the therapy process. We discovered that they were not easy to interpret. Earlier research on the autonomic nervous system responses has shown that many factors affect the arousal level of the participants in psychotherapy. We reached a similar conclusion. We discovered that the arousal patterns differed in different moments of the therapy process. As the therapists were preparing the ground for discussing the couple's reason for coming to therapy, all participants had low arousal. But in an ambivalent moment, where the couple avoided discussing the issue of Tom holding back, all participants were aroused. This could reflect them all being activated by the situation, as if interested in seeing how it would unfold, which was in line with earlier research indicating that active emotional engagement in the therapeutic process increases arousal (del Piccolo & Finset, 2017). But within a significant moment in the session where the issue of why the couple was in therapy was discussed, all participants had low arousal. This could be interpreted as a feeling of relief in the participants, which would be in line with earlier research suggesting that relief is accompanied by lower arousal levels (Kreibig, 2010). As for the qualities of dialogue (dialogicity, dominance and narrative mode), it did not seem that they were directly related to the arousal levels or nonverbal synchronies among the participants.

As for the combination of the arousal levels and nonverbal synchronization behaviour, our study suggests that the arousal level and the nonverbal synchronization behaviours contribute to the therapeutic situation in different ways. Autonomic nervous system activity occurs 'under the skin', whereas synchronized nonverbal behaviour is visible to all participants in the session. Thus, nonverbal behaviour can implicitly impact the therapeutic situation. In our case study one of the

therapists interpreted Tom as more rational. The implicit nonverbal synchronization patterns in this session might have contributed to this interpretation. In the session Tom was mostly synchronized to Mary, whereas Mary was more synchronized to the therapists. Thus, Mary was more connected to the therapists at the embodied level, whereas Tom was not. This might induce the therapist to interpret Tom as more distant.

It was notable that in the present therapy process, the therapists used their bodies differently. Thus, one therapist was involved mainly in the regulation of the dialogue, through the use of head nods, whereas the other therapist showed more contagion from the couple's displacement behaviour, which could be seen as a way of feeling his way into the client's arousal.

When considering the nonverbal synchronization behaviour of the participants in relation to the therapeutic process, one finding was that within all the moments chosen for the SRIs, there was no posture-synchronization. This was no surprise, since earlier research suggests that posture-synchronization is related to moments of high rapport (Trout & Rosenfeld, 1980). The lack of posture-synchronization in these moments could be a reflection of a choice of moments to the SRIs that contained emotionally loaded or therapeutically interesting topics, in preference to situations where there was high rapport between the participants.

As for movement-synchrony, all the SRI-clips showed head movement synchrony between participants. In the clips that were therapeutically more interesting, i.e. ambivalent or significant, there were more head nods between participants. This was in line with earlier research showing that head nods could be seen as a way of furthering the dialogue (Stivers, 2008) or marking interest in the topic discussed.

When one strives to integrate information from different research methods, straightforward conclusions are hard to make. Linear or correlational ways of thinking are challenged. It is too simplistic to think that arousal would rise as the emotional load of the dialogue, or the amount of nonverbal synchronization behaviour increases. The relations between the different modalities (i.e. autonomic nervous system responses, nonverbal synchronization and the dialogue) are by no means constant. They change depending on the therapeutic process and the challenge it forces the participants to face, their position or their role regarding the topic. The individual reactions of each participant can be seen as impacting on the dialogue, but they can also be a reaction to the dialogue or to each individual's personal agenda in the situation.

The individual agendas in the session could be accessed with the SRIs. It is a useful method to gain insight into the participants' inner thoughts and feelings during the session. The SRI is a valuable method because it narrows the gap between clinicians and researchers and promotes practice-oriented research (see Vall et al., 2018).

By using this kind of mixed-method procedure, it is possible to broaden our understanding of the therapeutic process and especially the impact the participants' embodied reactions have on it. Based on this study, further research combining the dialogue with embodied reactions is needed to clarify the functions of the different modalities.

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