




Master Thesis



**The Development of State Attachment Across Three Phases of a Creative Art Therapy-  
Focused Treatment Within Inpatients with Personality Disorders:  
A Multiple Baseline Single Case Experimental Design Research**

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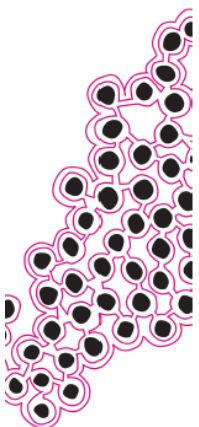
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## Abstract

**Background.** Creative Art Therapies (CATs) have been shown to be effective in treating one of the most difficult mental disorders to treat, personality disorders (PDs). As PDs often come along with relationship and attachment problems in adulthood, altering an attachment representation has shown to be an important mechanism of change in therapy. Attachment has shown to be highly dependent on contextual factors with three states of attachment, namely attachment avoidance, attachment anxiety and attachment safety. This study examined the development of state attachment safety, anxiety and avoidance during a three-phases treatment with one phase focusing on CATs within individuals suffering from complex PDs in an inpatient psychotherapy setting. **Method.** The sample consisted of 11 inpatients of De Boerhaven, a center of expertise for complex PDs. Participants filled out nine questions of the State Adult Attachment Measure (SAAM) on a weekly basis which resulted in before, during and after treatment data. A multiple baseline single case experimental design (SCED) was used to examine the effects within every individual. For statistical validation a Friedmans test without a control group was conducted. **Results.** Visual analyses showed high variability of measures within individuals. High anxiety and avoidance scores could be found within the study sample. Crisis admissions showed to have low scores on state attachment safety and high scores on anxiety shortly before becoming suicidal. Also, effects found were not stable during the post-measurement. Differences between before, during and after measurements could not be confirmed by statistical analyses. **Discussion.** Findings suggest that people fluctuated a lot as the treatment was intense in terms of social contacts and also negative attachment states were triggered as high scores of anxiety and avoidance implicate. Effects could only hardly stay stable stressing its variation. Also, people low on safety and high on anxiety seem to be vulnerable for becoming suicidal. These findings can be used in practical context in that the treatment should be tailored to the individual needs and that a safe attachment should be enhanced to prevent crises. Also, this research greatly contributes to the research area of SCED studies and CATs, as it is still in its infancy. Future research may benefit from an in-depth examination of factors contributing to a safe attachment and from a statistical investigation of the relationship between state attachment and CATs.

*Keywords:* personality disorders, creative art therapy, state attachment

## Introduction

The prevalence of personality disorders remains high within society, and they come with many societal and individual costs (Soeteman, Roijen, et al., 2008; Soeteman, Verheul, et al., 2008). Thus, it is important to find an effective treatment, which remains a challenge to mental health care (Fournier et al., 2008). Next to widely researched psychotherapy approaches, experimental approaches, like Creative Art Therapies (CATs) have shown beneficial effects (e.g., Elliott et al., 2013; Fuchs & Koch, 2014; Koch, 2017). As an individual burden, sufferers often have relationship problems, which have evolved in childhood, but are present in adulthood in daily life (Soeteman, Verheul, et al., 2008). Thus, altering attachment representations have shown to be an important mechanism of change (Diamond et al., 2010). This study examined the impact of three methods of CATs on state attachment within inpatients suffering from complex personality disorders by applying a relatively new research design within this research area, called multiple baseline single case experimental design. In the following, the theoretical background for the present research is introduced and discussed.

### Personality Disorders

With a worldwide prevalence of 7.8% (Winsper et al., 2020), a personality disorder (PD) is a very common mental disorder in the general population. PDs are defined by the American Psychiatric Association (2013) as “an enduring pattern of inner experience and behaviour that deviates markedly from the expectations of the individual’s culture”, which lead to distress and impairment. Distress experienced by sufferers is increased by the high comorbidity with other mental disorders such as eating disorders, mood disorders, anxiety disorders and substance abuse disorders (Davey, 2014; Samuels, 2011). With it, PDs are associated with morbidity, premature mortality, and high societal and individual costs (Lenzenweger, 2008; Soeteman, Roijen, et al., 2008; Soeteman, Verheul, et al., 2008; Winsper et al., 2020). On a societal level, suffering from PDs is associated with high medical costs for both inpatient and outpatient treatments as well as with a loss of productivity (Soeteman, Roijen, et al., 2008). Soeteman, Verheul, and colleagues (2008) found that burdens associated with PDs are higher than those associated with other mental diseases, such as generalized anxiety disorder or depression. On an individual level, people with PDs suffer from impairments in social, interpersonal, and occupational functioning. Hence, sufferers’ quality of life is decreased, which is comparable to individuals suffering from severe somatic illnesses (Soeteman, Verheul, et al., 2008).

## **Attachment**

As mentioned above, individuals suffering from a PD are most often impaired in interpersonal functioning. PDs often come along with relationship problems in adulthood, which might be a result of unfulfilled childhood needs such as “safe attachment” (Young et al., 2003). Bowlby (1973) hypothesised that mental representations of the attachment relationship formed in childhood during interactions with the primary caregiver, are similar to those of (romantic) relationships later in life. If a child experienced unstable and unsafe relationships, it will have problems to develop deep relationships in adulthood because in new relationships a person anticipates from old attachment representations (Young et al., 2003). These representations, which are interactions of memories, beliefs and goals, are considered to be stable. However, there is not only stable trait attachment but also state attachment stressing the co-existence. Attachment representations can differ across contexts depending on the context’s characteristics and (interpersonal) features (Baldwin et al., 1993). Thus, there are trait-like dimensions, called attachment styles, and state-like dimensions, called attachment states. Altering an attachment representation has shown to be an important mechanism of change in therapy (Diamond et al., 2010).

There are three states of attachment, namely attachment anxiety, attachment avoidance, and attachment safety, which represent individuals’ mental representations of the self, others and relationship orientations (Gillath et al., 2009). According to Gillath and colleagues (2009), individuals with attachment anxiety have a desperate need for interpersonal closeness and love. As a result of being insecure about their own worth, they are constantly worrying about getting abandoned or rejected. Secondly, attachment avoidance is about people who are reluctant to trust others, who do not look for others’ intimacy and who suppress their emotions. Hence, there is a certain degree of detachment from others and oneself. Attachment safety can be characterised by comfort with interdependence and intimacy, one’s own value and a feeling of trust in others’ responsiveness. Mikulincer and Shaver (2007) stated that people low in attachment anxiety and avoidance will score high in attachment safety. Hence, building safe attachments may be one of the most important mechanisms for change to develop better interpersonal relationships and thus to decrease individual costs.

## **Creative Art Therapies**

Since a few years, PDs are not seen as stable and persistent conditions anymore, but more as changeable because both genetic and environmental factors influence personality traits and disorders. Hence, recovery is possible (Verheul, 2009) although PDs belong to the most difficult mental illnesses to treat (Davey, 2014). Next to widely researched cognitive and behavioural techniques, experiential techniques are used to break maladaptive enduring patterns (Edwards & Arntz, 2012; Young et al., 2003) and have shown as many promising effects as cognitive behavioural therapy did (e.g., Elliott et al., 2013; Fuchs & Koch, 2014; Koch, 2017). Since the second half of the 20<sup>th</sup> century, Creative Art Therapies (CATs) have been used to address social, emotional, behavioural and physical problems (Malchiodi, 2005). This distinct approach covers several disciplines, such as art therapy, dance and movement therapy, drama therapy, psychodrama therapy, music therapy as well as poetry therapy. It can be applied to individuals of all ages, to groups and in several contexts, such as in medical, educational, rehabilitation and community setting as well as in mental healthcare (Orkibi, 2020). In CATs clients are actively engaging in their therapeutic process. They can express their (unconscious) internal thoughts and emotions into visual, musical, embodied, and enacted forms instead of verbally (De Witte et al., 2021). The bodily and physical experience induces bodily sensations and emotional responses. The sensory experience stimulates the emotional system in the brain, in the here and now, but also with a link to the past which is thought to be the working mechanism of CATs according to Czamanski-Cohen and Weihs (2016). That is a different starting point than in psychotherapy, where the body has a less prominent place, but instead logical reasoning is needed, which is often not readily available for individuals suffering from complex PDs (Czamanski-Cohen & Weihs, 2016).

Recently, the number of studies examining effects of CATs rapidly increased as it has shown to have positive effects on mental health. As an example, drama therapy showed to have a positive effect on self-esteem, social functioning and self-expression (e.g., Nitsun et al., 1974; Ruddy & Dent-Brown, 2007; Qu et al., 2000; Zhou, 2002). In psychomotor therapy, the body-oriented approach helps to improve physical ability, quality of life and cognitive functioning (Chen et al., 2016; Kaltsatou et al., 2015). Art therapy (AT) showed to have positive effects on self-esteem, self-expression, self-awareness and emotional well-being as found in a review with psychotic clients (Attard & Larkin, 2016). Most studies examining the effects of CATs on mental health involve individuals suffering from other mental diseases than PDs. Nevertheless, there are studies investigating effects within individuals suffering from PDs, but they solely include participants with borderline PD (e.g. Eastwood, 2012;

Morgan et al., 2012). There is one study of Haeyen and colleagues (2015) in which effects are examined within individuals suffering from cluster B PDs, namely antisocial PD, borderline PD, histrionic PD and narcissistic PD as well as cluster C PDs, such as avoidant PD, dependent PD and obsessive-compulsive PD within an outpatient treatment. Compared to verbal therapy, individuals participating in AT could more easily access their emotions. It was also effective in terms of emotional awareness and constructive emotion regulation, with which many sufferers struggle (Haeyen et al., 2015). However, it is unclear whether the effects also apply within an inpatient treatment including all types of PDs. Also, in this study only one type of CATs, namely AT, was included although other types also have been shown to be effective as well. Until now, there are only few studies including more than one discipline of CATs. Thus, it is unclear whether the positive effects found in each CAT discipline are added when using several CAT disciplines simultaneously or if other effects emerge.

In previous studies, CATs have shown to be effective in improving attachment (e.g., Durrani, 2014; Shore, 2014). According to Malchiodi and Crenshaw (2015) some key factors seem to be important to explain the success of CATs especially within individuals suffering from relationship problems. First, in CATs clients collect sensory experiences, which are especially important for individuals having attachment problems as it helps to come up with strategies for disrupted, insecure, or disorganized attachment (Siegel, 2012). Besides, CATs are relational inventions involving role plays, mirroring, sharing experiences, showing, witnessing and much more relational components (Malchiodi, 2005, 2012). The relationship between art therapist, client and art materials is unique to CATs and comes with a better therapeutic alliance, which positively influences the clients' responses to art therapy (Gazit et al., 2021). Non-verbal communication within CATs is another factor, which shows to have a big influence on attachment. Especially in early years, the caregiver and the infant are almost solely communicating non-verbally stressing its importance (Schore, 2003). Not all thoughts and feelings can be expressed by verbal language. Thus, CATs offer other methods to express one's emotions, such as with painting, movement or acting. Expressing emotions non-verbally is a way of communication, which is fundamental for attachment (Malchiodi & Crenshaw, 2015). Cassidy (1994) also found an empirical link between emotion expression and a secure attachment as individuals who minimized their emotion expression showed insecure and avoidant attachment. Also, people suffering from attachment problems often respond with hyperarousal. CATs are effective in affect regulation as the body's relaxation response is activated during those activities. Being more able to regulate one's emotions is related to a

better attachment to others (Malchiodi & Crenshaw, 2015; Waters et al., 2010). Hence, improvements in emotion expression and regulation, which many sufferers are affected from (Salsman & Linehan, 2012), seem to be connected to improvements in attachment.

Most studies examining the effect of CATs on attachment were conducted with individuals suffering from other mental diseases than PDs, such as Post-Traumatic Stress Disorder, eating disorders or autism (e.g., Durrani, 2014; Shore, 2014). As an example, in a study of Durrani (2014) AT facilitated attachment in individuals with autism, which stresses the effectiveness of AT for attachment-disrupted individuals. However, it is unclear how attachment evolves in individuals with PDs over the course of a CAT-focused treatment, including several CATs simultaneously.

### **Current study**

As the evidence of CATs is still in its infancy, working on scientific evidence of the effects of CATs is essential for the survival of this form of treatment. Until now, there is no study examining within-individual effects of several types of CATs on attachment simultaneously, which is an issue for most individuals suffering from a PD. Most studies examining attachment only include one type of CATs, most often AT, or examining effects within individuals suffering from other disorders than PDs. There is a need to examine state attachment to assess temporary fluctuations and the dynamic nature of attachment shaped by contextual factors and life events happening in therapy (Gillath et al., 2009). Hence, the current study examines effects of three methods of CATs on the three states of attachment within individuals suffering from complex PDs. Thus, this study is an answer to the following research questions:

*How does state attachment safety develop across three phases of a treatment, with one phase focusing on CATs, within individuals suffering from a complex personality disorder?*

*How does state attachment anxiety develop across three phases of a treatment, with one phase focusing on CATs, within individuals suffering from a complex personality disorder?*

*How does state attachment avoidance develop across three phases of a treatment, with one phase focusing on CATs, within individuals suffering from a complex personality disorder?*

## Method

### Setting

The present study examined effects of a treatment for individuals suffering from complex PDs provided by De Boerhaven, a Centre of Expertise for PDs. It belongs to the mental health institute Mediant, which offers a variety of effective treatments for all mental health disorders. The multidisciplinary treatment for the diverse target group, namely individuals with a complex PD, was based on schema therapy. As it was an inpatient setting, individuals stayed in this psychotherapeutic clinic from Monday to Friday for one year in total. Clinical psychotherapy was specifically indicated for this group who did not benefit from other, more standard forms of treatment. Next to psychotherapy, clients were provided with other kinds of therapy, namely sociotherapy, pharmacotherapy and CATs during the whole treatment. For CATs, there were psychomotor therapies being body-oriented, art therapies focusing on expressing emotions and drama therapies, training assertive skills, offered once a week.

The one-year treatment consisted of four phases inspired by Kellogg and Young (2006). In the first phase (eight weeks), the “*Acquaintance*” (KM) phase, a case conceptualisation was developed, and individuals had the chance to get to know each other and their new environment. The aim of the second phase (14 weeks), the “*Emotion Regulation*” (ER) phase, was that clients get to know their emotions and learn to express and deal with them in a healthy way as this is problematic for most sufferers of complex PDs (Salsman & Linehan, 2012). Besides other treatment options, CATs focusing on emotion regulation, were offered in this phase. It was important to successfully complete this phase, which was decided during an evaluation of the team, their therapy group and by the clients itself as some criteria had to be fulfilled before moving on with the next phase. If this was the case clients could start with the next phase, the “*Connection*” (VB) phase. Here, more negative emotions were evoked as traumas were addressed. This phase aimed to increase clients’ safety and attachment addressing the first basic need by more difficult therapeutic work. In the last treatment phase, autonomy, clients were trained how to make own decisions and were supported for returning home. All phases could be extended if desired and clients could join at any time. All taught methods were evidence- and practice-based therapeutic interventions.



## Research Design

This study was part of a larger project by Timmerman examining working mechanisms of CATs conducted in the same setting (in preparation). Data was collected from September 2020 – January 2022. It was approved by the Ethics Committee of the Faculty of Behavioural Sciences of the University of Twente (request number 160290).

As most CATs are given within a multidisciplinary treatment it is important to do good research. A multiple baseline single case experimental design (SCED), combined with a quantitative more naturalistic pre-and post-test design without a control group was used. Participants were randomly assigned to a length of the baseline measurement. By using the multiple baselines with randomization, it was possible to differentiate in time effects, which means that clients could become their own control (Videler et al., 2018). This design showed to be cost-effective, only a small group of respondents is needed, and it is well-applicable in a practical setting (Manolov & Moeyaert, 2017). Using only few participants enables researchers to assess the effect of treatment within individuals by seeing individual variances compared to a larger sample (Hadert & Quinn, 2008). A continuous repeated data collection after each session took place. Repeated measures means that the dependent variables were measured repeatedly over time within several individuals. Information about the course and process of change during each treatment phase within every individual was measured with 15-37 measurement points (Lane & Gast, 2014).

For a statistical validation, a within-subject, repeated-measures design was used. There was one independent variable, namely the *treatment* with three levels, pre-intervention (KM), intervention (ER), and post-intervention (VB). The dependent variables were *state attachment safety*, *state attachment anxiety* and *state attachment avoidance*.

## Materials

All participants were invited to fill in several questionnaires during the course of the treatment. Although numerous questionnaires were used in the larger study, only one was important in the current study, namely the State Adult Attachment Measure.

### *State Adult Attachment Measure*

To investigate within-person variation of recent attachment relationships, the State Adult Attachment Measure (SAAM) was used. This questionnaire was developed by Gillath and colleagues (2009) to measure state attachment as all other instruments are measuring trait attachment. The SAAM is a 3-dimensional construct measuring state attachment safety, state

attachment anxiety and state attachment avoidance. It consists of 21 items of which three items for each construct were selected, which showed to have the highest factor loadings. An example for an item measuring state attachment anxiety is *“Right now, I feel a strong need to be loved unconditionally”*. An example of state attachment safety is *“Right now, I feel loved”*. Items like *“Right now, the idea of being close to somebody makes me nervous”* measured state attachment avoidance. Participants could indicate on a 7-point Likert to what extent they agree on the items ranging from 1 “Strongly disagree” to 7 “Strongly agree”. In an evaluation study of Bosmans and colleagues (2014), the SAAM showed to have good internal reliability, discriminant, convergent and criterion validity, and a moderate stability. For the purpose of this study, the translation of the SAAM into Flemish-Dutch by Bosmans and colleagues (2014) was used.

### **Participants**

All clients who started their treatment in De Boerhaven between September 2020 and January 2021 were approached by psychotherapists working in the clinic to participate in the study. Inclusion and exclusion criteria for being admitted to the study were the same as the ones for the treatment. All clients suffered from a complex PD and have received outpatient treatment, day treatment or inpatient treatment before, but were non-responsive to it. Clients were not admitted when they showed to be non-fluent in the Dutch language to follow the treatment sufficiently, acute suicidality, younger than 18 years, a lower IQ than 80, and acute aggressiveness harming fellow clients.

In total, there were 20 respondents of which nine dropped out in the beginning of the measurement as they had difficulties with adherence to filling in the questionnaires every week and thus decided to quit the research. Hence, this data set consisted of 11 participants, 90.90 % being female ( $n = 10$ ) and 9.10 % being male ( $n = 1$ ). From these 11 participants two dropped out of treatment due to a crisis as they became suicidal. Another one experienced a crisis, came back, but dropped out of research as she did not fill in post-measurements. Nevertheless, their data were included in this research. Clients in this study were aged from 20 to 35 years ( $M = 26.18$ ,  $SD = 4.88$ ), all having a Dutch nationality. Often, clients suffered from more than one mental disorder. 36.36% ( $n = 4$ ) suffered from a Borderline PD, 18.18% ( $n = 2$ ) from an avoidant PD and 54.55% ( $n = 6$ ) from PD not otherwise specified. As comorbid disorders anxiety, Attention Deficit Hyperactivity Disorder (ADHD) and addiction were stated. 45.45% ( $n = 5$ ) received an extension of the ER phase.

## **Procedure**

During the intake, clients were notified about the scientific research and received information about it. Participation in this study was voluntarily and, in accordance with the guidelines of the Ethics committee, participants gave written informed consent prior to participation.

A variable baseline measure for every participant prior to intervention, in the introductory phase, took place. In week three to eight prior treatment participants were randomly assigned to start filling out the SAAM via an app once a week. After that, all participants continued filling out weekly measurements of state attachment (SAAM) ending five weeks after the emotion regulation phase to monitor the retention of change. Thus, in total there were 15-37 measurement points for every individual. The online links for the SAAM were sent every Tuesday after the therapy session. Participants who did not take part received a reminder on Friday. If they still did not fill in one of the measurements, they were not excluded but could take part in the upcoming one.

Questionnaires were administered, scored, and elaborated by Karin Timmerman, the researcher of the larger project.

## **Data Analysis**

To see if the treatment brought replicable changes of (unwanted) behaviour that lasts over time, well-designed graphic displays were used (Cooper et al., 2007). Line graphs presented ongoing data collected in this SCED study (Lane & Gast, 2014). Here, it was seen whether there was a change in state attachment since the introduction of the intervention. Besides, a visual analysis following the steps of Lane and Gast (2014) was conducted to see how every individual evolved over the course of the treatment. Here, both abrupt but also subtle changes over time could be greatly seen which enabled to analyse each client's behaviour by repeated measurement and evaluation. Instead of two phases, this analysis was conducted with three phases, in which the KM phase served as pre-measurement, the ER phase as intervention measurement and the VB phase as post-measurement as CATs focussing on emotion regulation were only given during the ER phase.

To start with, a within condition analysis was conducted to see data patterns within all three conditions, KM, ER and VB, individually. Here, a letter was assigned to every condition, an A for the baseline phase (KM), a B for the intervention phase (ER), and a C for the post-condition (VB). Then, the mean, median, range and stability envelope of 25%, so the variability across data (Gast, 2005), for each condition was calculated. In the next step, the

level change within each condition was computed, which was described by Gast (2005) as “the magnitude of the data”. Here, the median of the first half of the condition was extracted from the median of the second half of the same condition to get the relative level change. The absolute level change was determined by comparing the first value of a condition with the last value of the same condition. Then, the trend, so the direction (Wolery & Harris, 1982) or the progress over time (Gast, 2005), was calculated by the split-middle method which calculates the trend direction by using median values. Also, the percentages of data within and outside the stability envelope were counted.

After the within condition analysis, a between condition analysis was conducted to compare adjacent conditions and see if there were immediate changes between the three interventions in terms of trend and level. First, the trend directions were defined as accelerating, decelerating, or zero-celerating in a therapeutic or contra-therapeutic direction. Then, level changes between conditions were calculated by extracting the median of the second half of baseline from the median of the first half of intervention for the relative level change. On an absolute level, the last value of the baseline condition was compared with the first value of the intervention and the last value of the intervention with the first one of the post-measurements. To see mean and median level changes, the mean or median of each condition was extracted from the one of the adjacent conditions. A negative result indicated a decrease and a positive one an increase. In the end, the percent of non-overlapping data (PND) and overlapping data (POD) were calculated. Although both trend and level were analysed, trend changes were considered as more important, especially when there were contradicting results (Gast & Spriggs, 2014). As this was the case for most results, mostly trend directions were used to draw conclusions as there was no added value of level changes. In total, three graphs per participants, so 33 graphs, showing the progress within each client, were created. For drawing conclusions, choices on several patterns across participants were made as some graphs and analyses showed similar patterns. If at least three replications of a pattern could be seen across participants, it was concluded that a functional relation exists (Lane & Gast, 2014).

Besides visual analysis, Campbell and Herzinger (2009) recommended to execute statistical analysis as it is more objective and to make sure changes are also found there. Repeated measures data was imported and analysed using IBM SPSS Statistics version 25 with a significance level of  $< .05$ . Mean values for every participant and every phase, the KM, ER and VB phase, were computed, with which a repeated measures ANOVA was conducted. A Saphiro Wilk test of normality was conducted and revealed significant results which means

that data were not normally distributed. Thus, a non-parametric Friedmans test was used to see if there is a significant difference of attachment states in the pre-intervention, intervention and post-intervention phase.

## Results

As described above, line graphs presenting the data points, means and trend lines per conditions were created for every participant in which the changes and course over time can be seen (Appendix A).

### State Attachment Safety

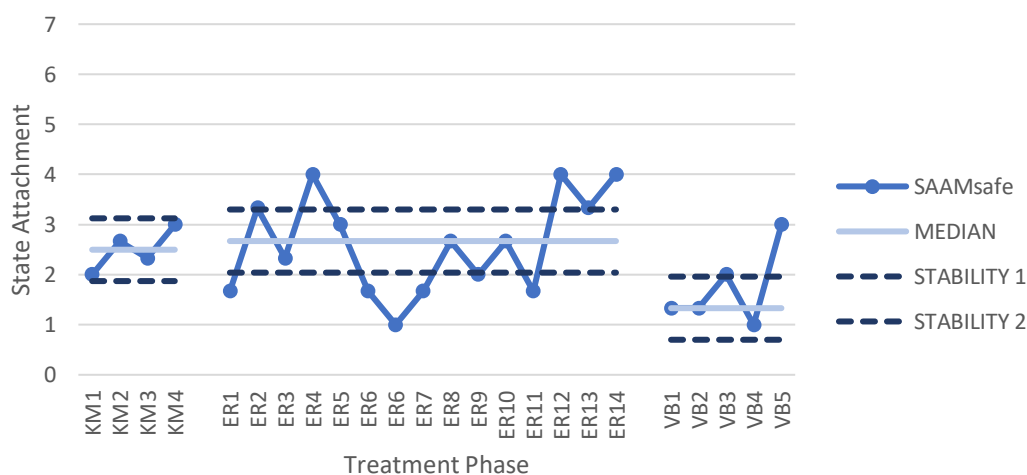
For the first research question, it was examined how state attachment safety developed across three phases of a treatment with one, namely ER, focussing on CATs within individuals suffering from a complex PD.

### Visual Analysis

For state attachment safety five different patterns were found. To start with, stability of the scores showed to be low for some individuals. As an example, participant 11 showed a stability of 50%, meaning that 50% of all data points fell outside of the stability envelopes (Figure 1). In Figure 1 one can see that especially in the ER and VB phase, spikes can be observed which demonstrate the high variability during these phases. This pattern was also observed in participants 4 (*Stability* = 78.38%), 5 (*Stability* = 76.47%) and 7 (*Stability* = 79.17%) as they showed a stability of less than 80% and thus variability within the several conditions. This means that the scores of these individuals are changing between high and low ones. Thus, a pattern with a lot of fluctuations was observed.

**Figure 1**

*Data Points, Median and Stability Envelopes of Participant 11 for State Attachment Safety*



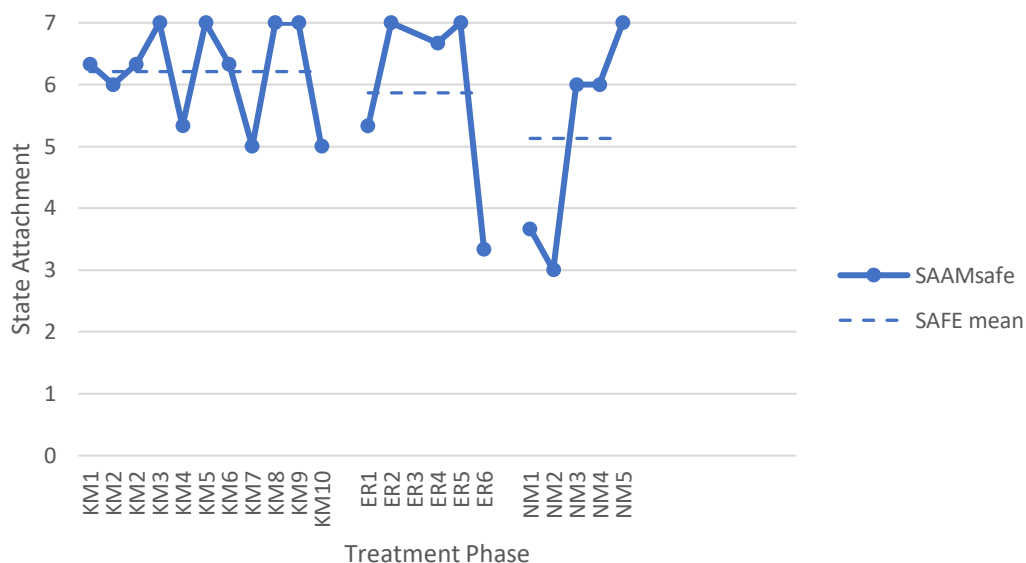
*Note.* This figure demonstrates the data points, median and stability envelopes of 25% of participant 11 for state attachment safety across the three phases KM, ER and VB.

Besides, different trend directions were observed across individuals. Participants 3, 5 and 8 showed no effect as their trend line was constant. Only participant 11 showed an increasing trend within the ER and the VB phase. Also, for participants 1, 7 and 10 trend was increasing during the intervention phase but decreasing again during post-measurement. All other participants showed decreases in terms of trend lines during the ER phase. Thus, for 27.27% ( $n = 3$ ) no effect regarding state avoidance in the ER phase was observed. For 36.36% ( $n = 4$ ), the feeling for being loved and safe in others' presence increased during the intervention phase although it could not last for all of them. As the opposite pattern could be observed in 36.36% ( $n = 4$ ) of the individuals, it seems that the intervention showed different effects for different individuals. Hence, looking at trend directions, three different patterns emerged, namely a constant trend, an increasing trend and a decreasing trend during the intervention phase.

There were three participants that were admitted to a crisis intervention, namely participant 2, 6 and 9. They all had similar patterns in their attachment scores. As an example, participant 2 had to leave treatment after 16 weeks because she became suicidal and thus had to change to a crisis ward. Although she showed relatively high mean scores (KM:  $M = 6.21$ , ER:  $M = 5.87$ , VB:  $M = 5.13$ ), shortly before getting admitted for the crisis intervention, the state attachment safety scores were as low as never before (Figure 2). Nevertheless, the participant could recover in terms of state attachment safety and could reach very high scores again as in the baseline and intervention phase with medians all being at least 6 (KM:  $Mdn = 6.33$ , ER:  $Mdn = 6.67$ , VB:  $Mdn = 6.00$ ). A similar pattern was found in participant 6 who left treatment after being in the emotion regulation phase for 17 weeks after already extending the ER phase because she did not show sufficient emotion regulation skills after the regular time. Also, the mean and median of state attachment safety for participant 9 were lower in the emotion regulation phase ( $M = 2.67$ ,  $Mdn = 2.67$ ) than in the baseline ( $M = 3.13$ ,  $Mdn = 3.17$ ) followed by a crisis after two weeks. Thus, for crisis admissions a pattern of low state safety scores was observed.

**Figure 2**

*Measurement Points and Mean of Participant 2 for State Attachment Safety*



*Note.* This figure demonstrates measurement points and means of participant 2 for state attachment safety during the KM, ER and NM phase.

### ***Statistical Analysis***

Friedman test was conducted to determine whether the state attachment scores differed before, during and after CAT-focused treatment. Friedmans test revealed non-significant results with  $\chi^2(2) = 3.12, p = .211$ . Thus, the null hypothesis was accepted which means that there was no significant difference between the group means of the KM, ER and VB phase of state attachment safety.

### ***Conclusion***

To conclude, five patterns for state attachment safety were found. First, fluctuations could be observed across the participants in the visual analysis. Second, a constant trend was shown by some clients. Third, a pattern of a decreasing trend was observed during the intervention phase for some participants. Fourth, the opposite was found with an increasing trend during the intervention phase for other clients. A fifth pattern was found within the crisis admissions, who all showed a drop of state attachment safety shortly before becoming suicidal. The statistical tests could not confirm that there was a significant difference between the pre-intervention, intervention and post-intervention phase.



### State Attachment Anxiety

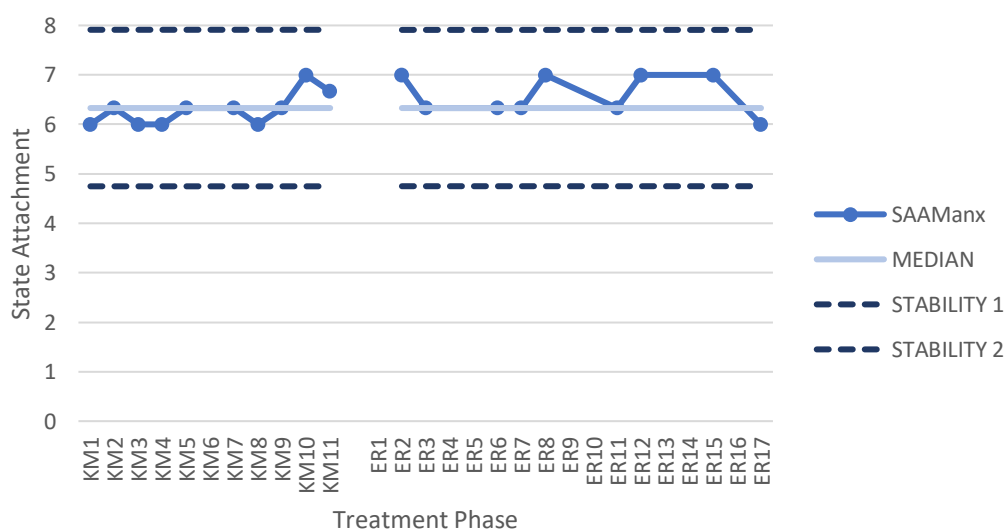
For the second research question, the development of state attachment anxiety was investigated within individuals suffering from complex PDs across three phases of a treatment with one phase focusing on CATs.

#### Visual Analysis

The visual analysis on state attachment anxiety revealed three patterns. Starting with stability, for participant 5 (*Stability* = 70.59%) and for participant 7 (*Stability* = 66.67%) many data points were outside the stability envelope, which speaks for variable data within these participants. Again, high fluctuations within participants 5 and 7 were observed as already seen in state attachment safety. However, stability showed to be high for all other individuals being above 80%. This is different than for state attachment safety, where many individuals showed variable scores. Participant 6 is a good example of showing that data seem to be stable with 100% of the measurement points being within the envelope (Figure 3). Participant 6 but also most others felt stable about their need to be loved unconditionally and if they want to share their feelings. Thus, the first pattern of state attachment anxiety found was high stability across participants.

**Figure 3**

*Measurement Points, Median and Stability Envelope of Participant 6 for State Attachment Anxiety*

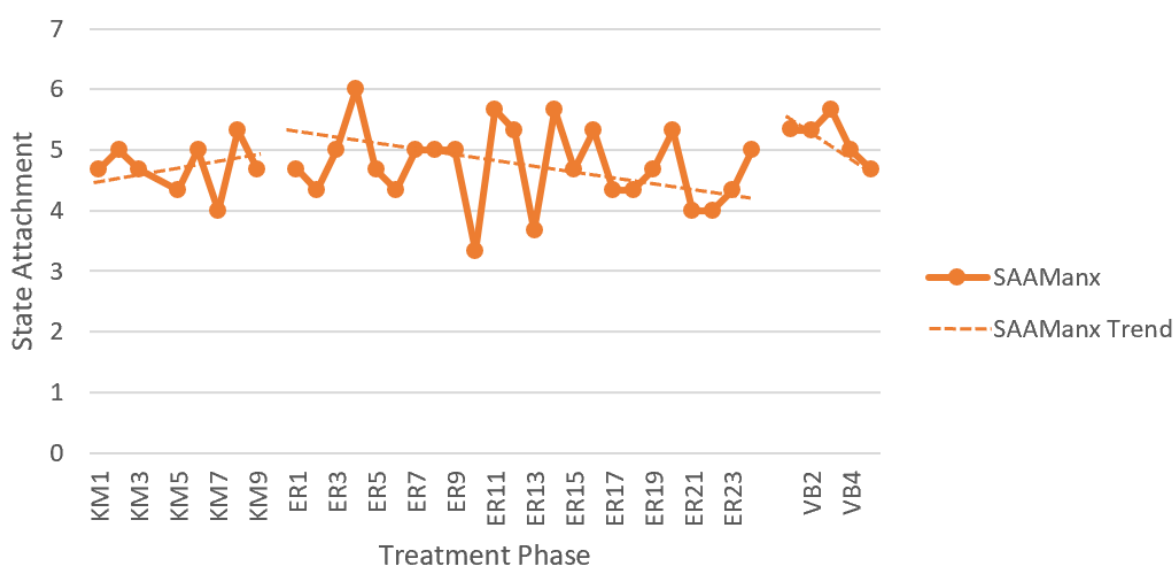


*Note.* This figure demonstrates data points, median and stability envelopes of 25% of participant 6 for state attachment anxiety across the three phases KM, ER and VB.

Analysing the trend of the 11 participants, often only small changes in trend were seen. Nevertheless, individual 4 showed continuous improvement in a therapeutic direction as this individual's state attachment anxiety increased during the KM phase, in which she got to know fellow clients, but decreased during the ER phase and VB phase (Figure 4). This pattern could also be observed in participants, 1, 2, 4, 5, 7, 8, 9 and 11 as they showed a decreasing trend in state attachment anxiety during the ER phase, which is desirable in this treatment. Although the trend of state anxiety decreased or stayed stable for most participants during the ER, it increased again for individuals 8, 9 and 11, which was seen in the post-measurement. Next to individual 4, also for individual 2 the effect could last as they showed a decreasing trend line in the post-measurement. As many more than three replications across participants were found, one can speak of a functional relation which makes up the second pattern, namely a decreasing trend of state attachment anxiety during the intervention phase.

**Figure 4**

*Measurement Points and Trend Line of Participant 4 for State Attachment Anxiety*



*Note.* This figure demonstrates trend lines and measurement points of participant 4 for state attachment anxiety across the three phases.

Besides, another pattern was observed within the individuals. All crisis admissions, namely participant 6 (KM:  $M = 6.30$ , ER:  $M = 6.59$ ), participant 2 (KM:  $M = 6.67$ , ER:  $M = 6.73$ , crisis:  $M = 6.53$ ) and participant 9 (KM:  $M = 5.63$ , ER:  $M = 5.79$ ) showed very high means scores all being above 5.50 in the baseline and ER phase. Thus, there might be

correlations between high state anxiety scores and crises. Not only the crisis admission, but also many other participants showed means above 4 of state attachment anxiety. The third pattern of state attachment anxiety included high scores of state anxiety for crisis admissions, but also for most other clients.

### ***Statistical Analysis***

For state attachment anxiety the null hypothesis could not be rejected with  $\chi^2(2) = 1.64, p = .441$ . Thus, the distribution of the pre-intervention, intervention and post-intervention measurements of state attachment anxiety was equal.

### ***Conclusion***

For state attachment anxiety three patterns were found. First, different than for state safety, for state anxiety scores were found to be stable. Second, trend line analysis showed that within the ER phase beneficial effects were found. That means that most individuals' anxiety dropped and thus they felt less anxious about being alone or rejected in the end of the ER phase than in the beginning. Third, high mean scores could be observed within individuals, especially for the participants who were admitted at a crisis ward. This suggests that there was a strong need to be loved unconditionally, but that this need seemed to decrease during the ER phase, in which CATs were given. However, no significant differences between the KM, ER and VB phase could be found in the statistical analysis.

### **State Attachment Avoidance**

For the third research question, it was examined how state attachment avoidance developed during a three phases treatment with one phase focusing on CATs within individuals suffering from a complex PD.

### ***Visual Analysis***

For state attachment avoidance four patterns were found during the visual analysis. In general, data showed to be variable as participants 1 (*Stability* = 70%), 6 (*Stability* = 78.95%) and 10 (*Stability* = 69.23%) showed a stability of less than 80%. For all others, namely for participants 2, 3, 4, 5, 7, 8, 9 and 11 more than 80% of all data points could be found within the stability envelope. Nevertheless, as three participants showed low stability, one can speak of a functional relation and thus a pattern of high fluctuations was observed.

Regarding trend, opposite patterns were found. In the intervention phase, increases in state attachment avoidance could be found for individuals 1, 8, 10 and 11. For participants 1 and 8 state avoidance decreased within the attachment phase, but for individuals 10 and 11 an increasing trend in the attachment phase was observed. State attachment avoidance decreased for participants 3, 5, 6, 7 and 9 in the ER phase. A decreasing trend line was also found in the attachment phase for individuals 5 and 9. Thus, both an increasing and decreasing pattern during the intervention phase was found for state attachment avoidance.

Apart from showing no trend direction at all, participant 2 had very low scores on the state attachment avoidance scale during all phases (KM:  $M = 1.18$ , ER:  $M = 1.00$ , VB:  $M = 1.00$ ) while having high scores on state attachment safety and anxiety as mentioned above. So, she was not afraid at all that someone would get too close to her and did not try to keep distance when someone comes closer. Participant 6, who was also admitted to a crisis showed a decrease of mean scores (KM:  $M = 2.76$ , ER:  $M = 2.21$ ), but participant 9 showed an increase of scores shortly before becoming suicidal (KM:  $M = 3.37$ , ER:  $M = 4.67$ , crisis:  $M = 4.53$ ). Thus, there are no conclusive results considering the crisis admissions. However, participants 4, 5, 8 and 11 showed high mean scores all being above 5 in all three phases and thus a third pattern of high mean scores of state attachment avoidance was found.

### ***Statistical Analysis***

For state attachment avoidance, results showed non-significant difference with  $\chi^2(2) = 0.14$ ,  $p = .933$ . Hence, also for state attachment avoidance the null-hypothesis had to be accepted as no statistically significant differences in state attachment avoidance before, during and after the CAT-focused treatment could be found.

### ***Conclusion***

During the visual analysis, four patterns for state attachment avoidance emerged. First, not only for state attachment safety, but also for state attachment avoidance, high fluctuations were found. As a second pattern, participants showed a decreasing trend during the intervention phase, which means that they did not detach themselves that much compared to the beginning of the ER phase. On the opposite, a pattern of an increasing trend was found. Lastly, a pattern of high mean scores emerged demonstrating that clients were nervous or did not want to get close to others. However, statistical analysis revealed that there was no significant difference between the three phases regarding state attachment avoidance.

**Other Findings**

Looking at the three scales all together, it was observed that participants 3, 5, 8 and 11 showed high state attachment avoidance scores, while being low in state attachment anxiety and safety. Thus, they try to detach themselves from others while fearing closeness and not feeling loved. Seeing this pattern in at least three participants, a functional relation can be assumed.

## Discussion

This study aimed to explore the development of state attachment safety, anxiety and avoidance in a three-phases treatment, with one phase focusing on CATs within individuals suffering from complex PDs. The findings intend to contribute to the scientific evidence of CATs, so that it will be maintained to be used in practice.

For all three states of attachment there were no significant changes in state attachment between the KM, ER and VB phase. Nevertheless, research questions were answered using the results of the visual and statistical analysis. The first research question regarding state attachment safety was answered with the findings that individuals showed high fluctuations on safety, a pattern of a constant, an increasing and a decreasing trend during the intervention phase was observed and people becoming admitted for a crisis intervention felt less loved and comfortable in presence of others shortly before as a drop in safety scores were found. The second research question about state attachment anxiety could be answered by concluding that data were stable across participants, most individuals' anxiety dropped during the ER phase and that very high scores of state anxiety could be observed across most participants, but especially within participants who became suicidal. The third research question was answered by the findings that scores of state avoidance were variable, some participants did not feel as nervous in the presence of others in the end of the ER phase compared to the beginning of the ER phase, others showed the opposite pattern and in general clients were reluctant to trust others and rather detached themselves as high mean scores of state avoidance were found. Nevertheless, effects found in the ER phase were only hardly stable during the post-intervention phase. In the following, these findings will be discussed considering prior research on state attachment, CATs and personality disorders.

### Main Findings

#### *Fluctuations*

In general, there was quite some variation for state attachment safety and avoidance within participants given that scores often fell besides the stability envelopes. Individuals suffering from PDs most often suffer from relationship problems (Young et al., 2003). Many are triggered and influenced very fast by contextual factors. Considering the context, all participants have been in an inpatient ward with many other people. Being surrounded 24/7 by other people might be unusual for most of them and thus their state attachment was triggered a lot. This might lead to high fluctuations within an individual. Variability confirms the finding of Bosmans and colleagues (2014) in that attachment states are greatly influenced by

recent relationships compared to long-term relationships because in therapy a bunch of new relationships are created. It is assumed that representations are activated when they are overlearned over a long time. Thus, representations of older relationships are not that sensitive for contextual variation than recent relationships (Bosmans et al., 2014). Also, seeing high fluctuations confirms the debate about the existence of state attachment besides trait attachment (Diamond et al., 2010). Thus, by this research, it could be proven that attachment is indeed highly influenced by contextual factors, which leads to high fluctuations depending on current living situation of the affected individual.

### ***Crisis Admissions***

Another finding was that participants who were admitted to a crisis ward have shown very low scores on safety and high scores on anxiety. Thus, they did not feel close and loved by others and feel that there is nobody to rely on. The relationship between anxious as well as unsafe attachment and suicide attempts was also found by Lizardi and colleagues (2011). They argue that people with a high attachment anxiety may have an impaired work functioning, which includes teamwork skills, sufficient communication skills and the ability to function independently. As a result, individuals' self-esteem is decreased wherefore the suicide risk increases. Thus, clients with a high attachment anxiety might have perceived themselves as incompetent in the CATs setting as their contact with fellow clients might have been impaired, leading to low self-esteem and in the end to suicidal intentions.

There was also one individual who showed increases in state avoidance shortly before becoming suicidal. She was extracting from intimacy and detached herself from others as she was nervous in presence of others. In a study by Näher and colleagues (2020) social isolation was related to suicide rates. Hence, not only low safety and high state anxiety, but also high state avoidance seems to be a risk factor for becoming suicidal.

### ***High Need to be Loved and Detach from Others***

In general, means of state anxiety and avoidance were relatively high compared to state attachment safety. Scoring high on state anxiety means a high need of being loved. This can be explained by the fact that individuals suffering from PDs most often experienced childhood neglect wherefore basic needs were not fulfilled. Unfulfilled needs during childhood, such as "safe attachment", create a big need of being loved in the individual's present (Young et al., 2003). However, most of the participants showed changes of anxiety in therapeutic direction in the ER phase. Hence, people who received CATs became more secure

about their own worth. The sensory experiences in CATs seemed to help individuals coming up with strategies for an insecure attachment as described by Siegel (2012). This confirms the finding of Attard and Larkin (2016) as well as Ruddy and Dent-Brown (2007) in that drama therapy and art therapy are effective in increasing one's self-esteem, at least for others than crisis admissions, as self-worth is a dimension of self-esteem (Owens, 1994). The high scores in state attachment avoidance indicate that clients do not look for others' intimacy, suppress emotions and detach themselves (Gillath et al., 2009). This might be explained by the criteria indicating a PD. According to the Diagnostic and Statistical Manual of Mental Disorders (5<sup>th</sup> version), sufferers have impairments in interpersonal functioning, which includes withdrawal and intimacy avoidance (Skodol, 2012).

High means in attachment anxiety and avoidance might also be explained by the fact that an inpatient treatment is intense especially when an individual has attachment problems. Living with others and sharing one's daily life with others might be very difficult and different than their regular daily life. In a qualitative study of Zahmat (2021) considering the clients' perspectives within the same setting as the current research it was found that many clients did not feel safe within the inpatient setting. The treatment on an inpatient ward, where it is much harder to avoid others than in regular life, might trigger negative parts of attachment but exactly this is thought to be the working mechanism of inpatient psychotherapy according to Hoekenga and colleagues (2021).

### ***Opposite trend directions***

On the one hand, for some clients an increasing trend of safety was observed during the ER phase. People seemed to be increasingly comfortable in the presence of others and trust in others' responsiveness during the ER phase with CATs being a big part. The environment of CATs is supposed to be characterized by safety and trust (Chiang et al., 2019). This clinical setting made it possible for clients who did not feel secure attachment, as in the beginning of the ER phase, to have new experiences with secure attachment within therapy, e.g. within CATs offered during the ER phase. Also, attachment safety might have been increased for some because a therapeutic relationship was created in which the client felt safe to be vulnerable and experiences support. Especially during CATs but also in daily life of an inpatient setting, there are many opportunities to form attachments with group members and to gain corrective experiences with them (Hulshof et al., 2009). On the other hand, also a decreasing trend of attachment safety was observed within some individuals during the intervention phase. Thus, some individuals seemed to perceive the inpatient setting as an



increasingly unsafe space. As found in the study by Zahmat (2021), some clients had a feeling of unsafety due to the group size, the diversity of mental health problems, adverse events, like self-harming behaviour, and disregard of boundaries of the clinical staff. This reason might not only account for the high scores of state anxiety and avoidance, but also for a decrease of state attachment safety.

Similarly, some individuals displayed opposite patterns regarding state attachment avoidance. This can be due to the different coping responses that individuals possess. Some might answer to negative events with avoidance, and others with coping responses like overcompensation or surrender (Young et al., 2003).

Opposite patterns demonstrate that there were different effects for different individuals. This might be because the intervention phase and CATs itself focused on emotion regulation skills, and not on attachment directly. Thus, attachment was only indirectly treated in this phase, e.g., by learning how to express and regulate emotions, which is related to improvements in attachment (Cassidy, 1994; Malchiodi & Crenshaw, 2015; Waters et al., 2010). Also, in connection with other clients and with therapists as well as the working staff, state attachment was possibly influenced in some way. Beside CATs, there were other treatment options before, during, and after the intervention phase which might have contributed to the different effects in that only few clients showed beneficial effects and others the opposite pattern.

### ***Maintenance of the effects***

Another finding was that effects during the intervention phase for all states of attachment could only hardly remain stable. The intervention phase, so the ER phase including CATs, focused on emotion regulation skills. These skills were needed for the post-measurement phase, namely the VB phase. Here, traumas were addressed, and thus negative emotions were evoked. Hence, emotion regulation difficulties increased (Villalta et al., 2018), and people actually had to apply their emotion regulation skills, which can trigger negative state attachment patterns, such as state anxiety and state avoidance. As a consequence, the positive effects found in the ER phase were easily diminished in the VB phase as therapeutic work became more difficult. It might also be argued that negative effects on attachment during the ER phase became positive during the VB phase as this is the phase which focuses specifically on connections and attachment.

### ***Connection of Three States of Attachment***

The three attachment states seem to be connected as seen in the visual analysis. When state attachment avoidance was high, state attachment safety and anxiety were low in many individuals. As suggested by Gillath and colleagues (2009), people high in attachment anxiety have a desperate need for interpersonal closeness and love. When this is not the case, people might not feel comfortable with intimacy and thus avoid looking for others closeness. However, the statement of Mikulincer and Shaver (2007), namely that people high in attachment safety are most often low in attachment anxiety and avoidance cannot be confirmed by the current research. The study of Mikulincer and Shaver (2007) explored trait attachment, but the connection does not seem to apply to state attachment which was examined in this research.

### **Strengths and Limitations**

To my knowledge, this study was the first examining effects of three methods of CATs on state attachment using a statistically new method for CATs studies, namely visual analyses. This uniqueness brings both a strength and a limitation. There are no previous studies examining a combination of three types of CATs, namely psychomotor, drama and art therapy. Also, studies examining CATs did not use visual analyses before. So, this study contributes to the unique knowledge on CATs and state attachment within a clinical setting with individuals suffering from a complex PD. This opens a new research area used to deepen and validate findings. However, as visual analyses were only scarcely used in previous research, it cannot be compared to prior findings. Following the steps of Lane and Gast (2014), researchers will get the same graphs, but interpretations across researchers might be different. With it, human errors were likely in this study as no practice applying the steps took place beforehand. It was advised that the analysis was conducted with more than one researcher to agree on findings (Lane & Gast, 2014), which was not the case in this study.

The longitudinal study design is another strength of this research. Change over a long period of time could be demonstrated by evaluating pre-intervention, intervention and post-intervention measurements. Thus, it could be seen if change persists, which is an important contribution to research. Besides having a longitudinal character, another strength of the present research is that the study population was drawn from a real clinical sample, which makes findings applicable to similar contexts. However, it is not clear whether effects found are actually due to CATs as many other treatment options were offered. Although an inpatient

setting is more controlled than an outpatient setting, also other components might have contributed to the effects found, which should be topic of future research.

Considering the multiple baseline SCED, its main advantage is that intra-individual changes across treatment can be seen (Hadert & Quinn, 2008). In a study examining inter-individual differences, some changes and effects, e.g., fluctuations found in this study, would be overseen and thus results seem to be incomplete and imprecise (Fisher et al., 2018). However, there are some threats to the internal validity of SCED studies which should not be ignored. When data were found to be variable in this research, it was not waited until data were stable as suggested by Kennedy (2005) and Wolery and Harris (1982). Thus, participants just started the next phase, although they showed to fluctuate a lot. Next, there were only a few KM and VB measures, but many ER measures. That made it hard to draw conclusions as some findings were based on 30 measurement points, and others on five as an example.

The measurement instrument used in this study had its strength in measuring state attachment and with it within-person variation instead of trait attachment as most other questionnaires do. This questionnaire can greatly capture the efficacy of various treatment in terms of attachment (Gillath et al., 2009). However, also this instrument has its limitations. In the SAAM all scales are unipolar, so there are no reverse coded items, which lowers reliability (Weems & Onwuegbuzie, 2001). Also, Mikulincer and Shaver (2007) found out that this scale does not measure the whole construct of state attachment anxiety. The fear of rejection does belong to the construct of state anxiety but is not measured by the SAAM.

## **Implications**

The first implication of this research is that the treatment should be more tailored to the individual needs. The individualised approach, namely the multiple baseline SCED, gave insights into the changes within clients which help to adapt or modify the treatment programme based on findings (Gast, 2005). It was found that the effects are very different for different individuals as high fluctuations and opposite findings suggest. Thus, attention should be paid to individual problem areas especially on the individual's attachment problems as they are very diverse instead of pursuing one general approach for every client.

Secondly, this study stresses the importance of a safe attachment of the clients to fellow clients, but especially to the (art) therapists for therapy being effective (Corem et al., 2015). As it was found that safety decreased and anxiety increased within many individuals shortly before becoming suicidal, it seems that working on a safe attachment is an important aspect of treatment to prevent crises. This suggests that during the treatment a therapeutic alliance is

key, and psychotherapists should focus on the interactions between clients during group therapy.

Thirdly, this study greatly contributes to the relatively new research area about within developments of individuals taking part in a CAT-focused treatment. It can be replicated to validate findings as detailed descriptions of procedures are given (Horner et al., 2005; Lane et al., 2007; Reichow et al., 2008).

### **Suggestions for Future Research**

For further research it is recommended to replicate the findings within a similar context using the same guidelines by Lane and Gast (2014), so that findings can be generalized to the population tested, sufferers of complex PDs. Also, in the present study the importance of safe attachment during treatment was stressed. Future research may benefit from in-depth exploration of factors influencing a safe attachment during an inpatient treatment with individuals suffering from complex PDs.

Besides, it is recommended to conduct the relationship between CATs and state attachment statistically as it is not clear whether the effects found are due to CATs or other components. As these CATs focused on emotion regulation and self-expression, it is advised to investigate the process of emotion regulation and self-expression in CATs, which can be greatly done with the help of Self-Expression and Emotion Regulation in Art Therapy Scale (SERATS). As a next step it is advised to analyse if the process of SERATS is related to the process of SAAM statistically.

### **Conclusion**

The findings suggest that the current treatment showed different effects for different individuals. An inpatient treatment seems to trigger also negative attachment states, such as attachment anxiety and attachment avoidance, as clients are constantly in presence of other people. These attachment states showed to be present for almost all clients which stresses their relationship problems as part of the diagnosis, such as a high need to be loved and their detachment of others. Effects found could only hardly stay stable in phases where no CATs were given. Besides, clients are varying between high and low levels of the several attachment states which stresses the role of contextual factors when it comes to attachment. Findings imply that individuals who do not feel loved by others but have a desperate need for love are likely to become suicidal. Thus, it should be paid attention to the clients' individual needs and to a safe attachment during therapy stressing a good therapeutic alliance. This

research greatly contributes to the research area of SCED studies and CATs, but it is suggested that further research replicates these findings and examines the relationship of CATs and state attachment statistically.

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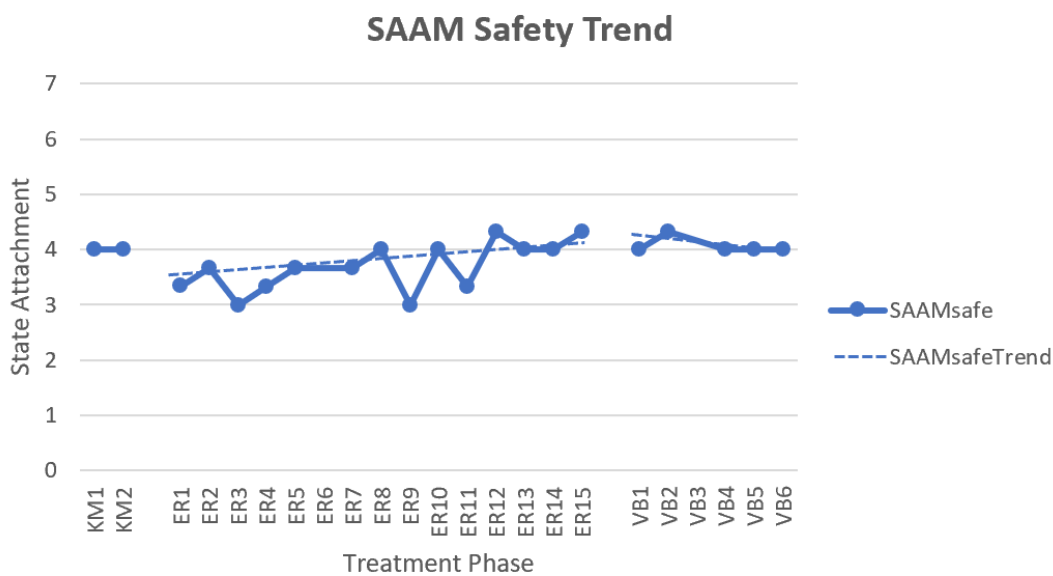
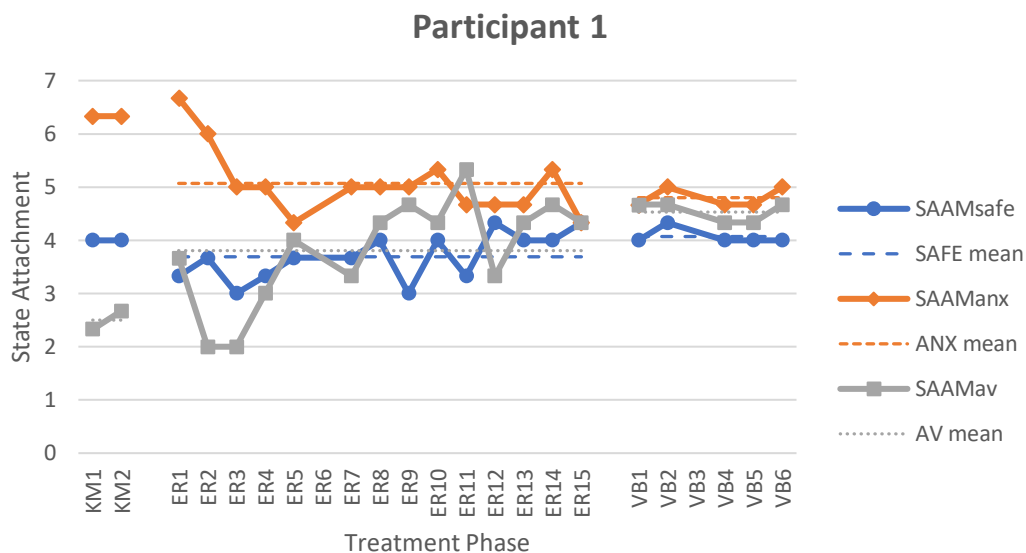
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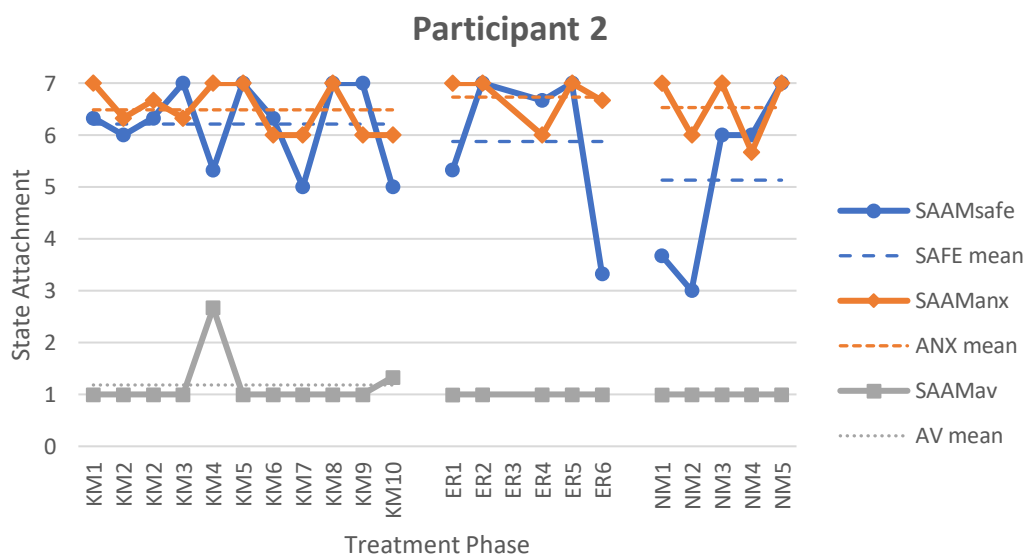
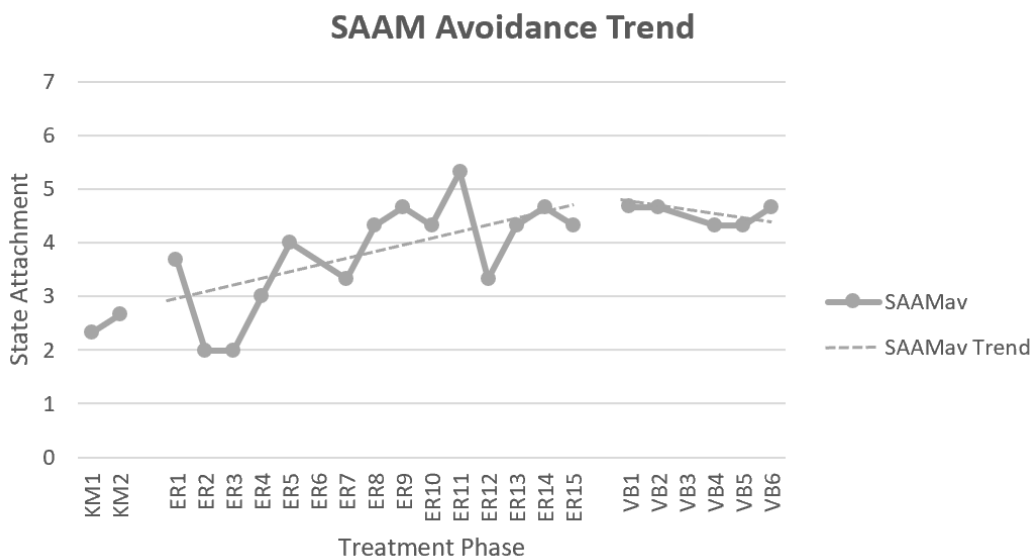
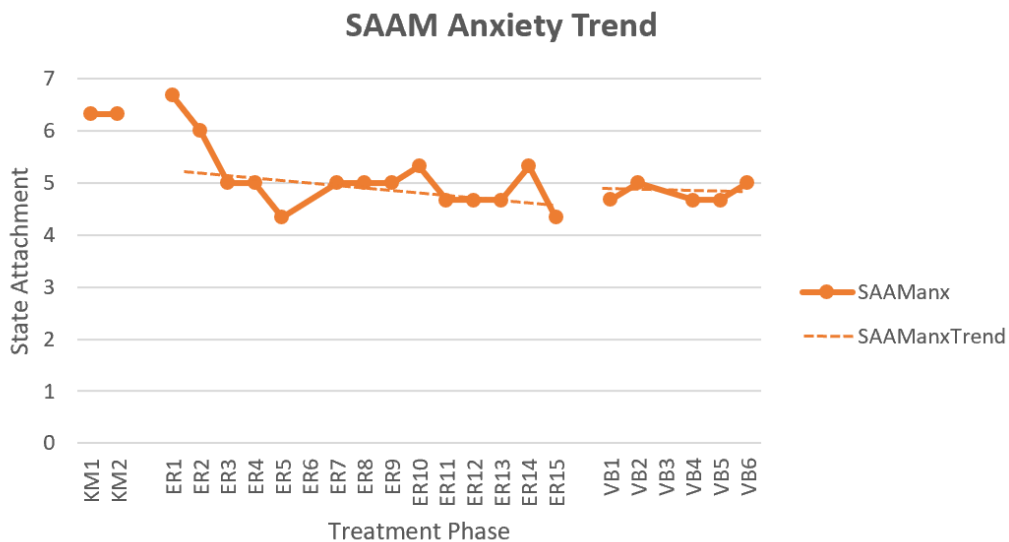
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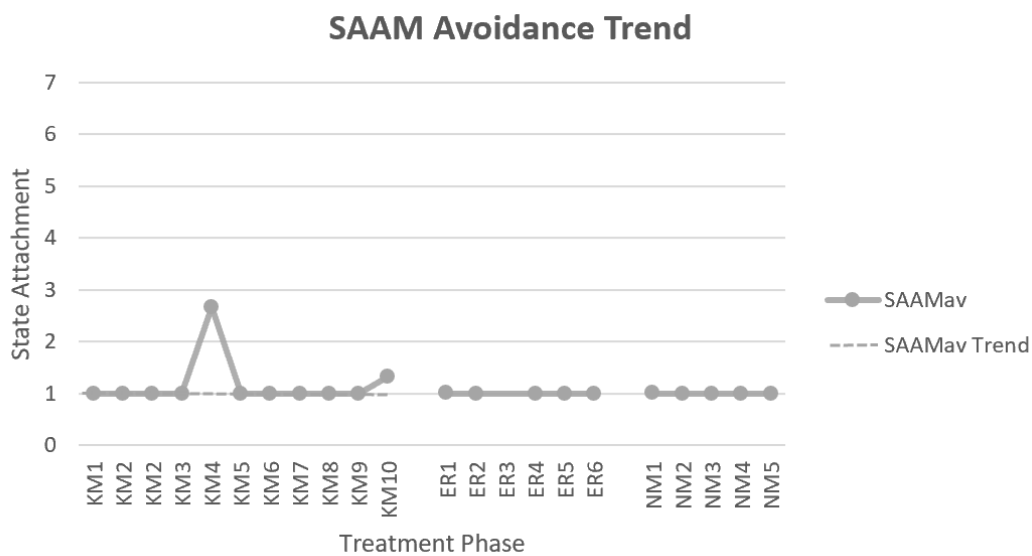
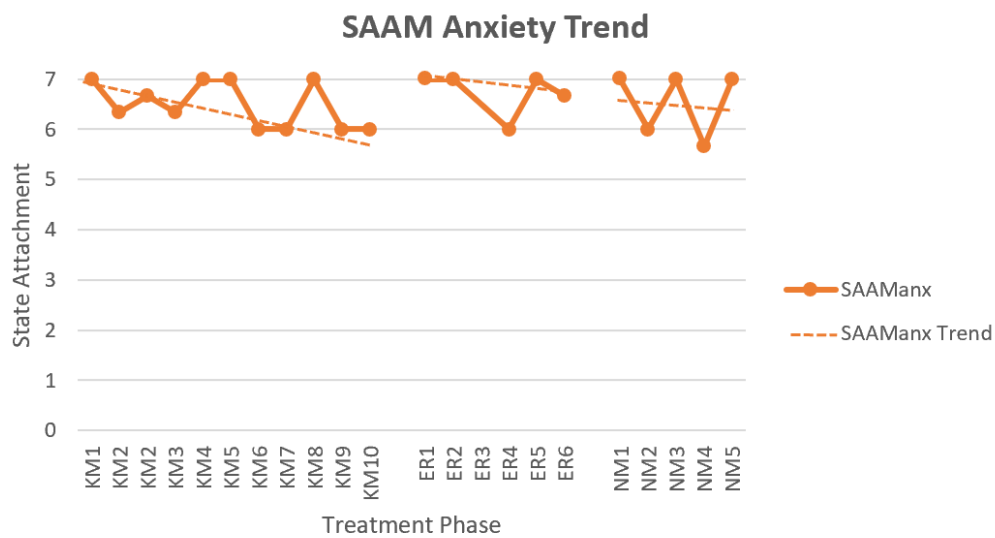
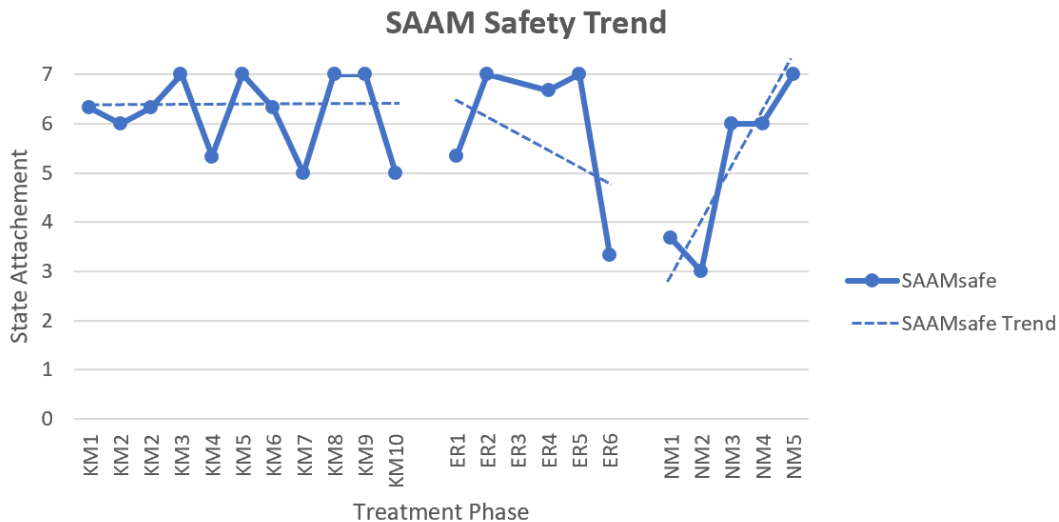
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## Appendix

### Appendix A: Data Points, Means, and Trend Lines for State Attachment Safety, Anxiety and Avoidance

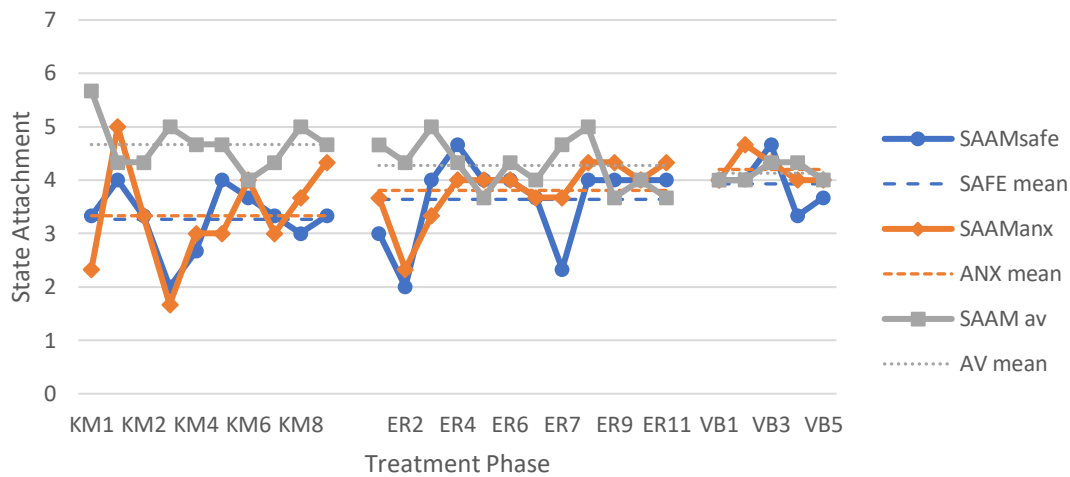




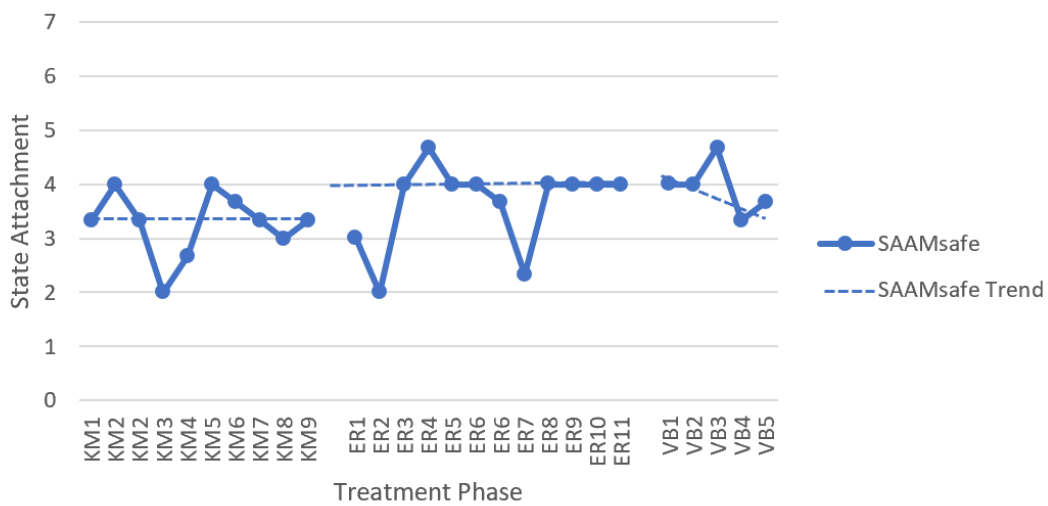




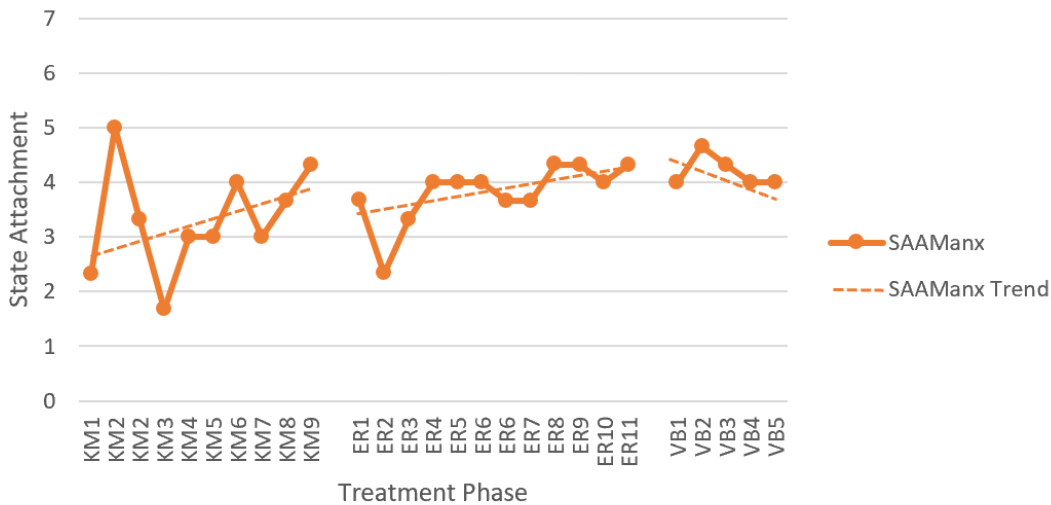
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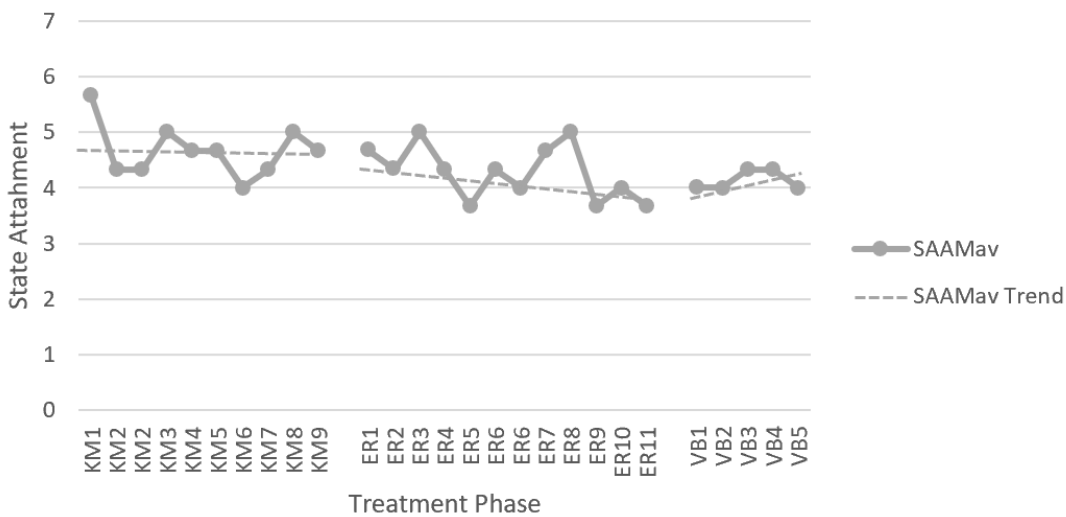
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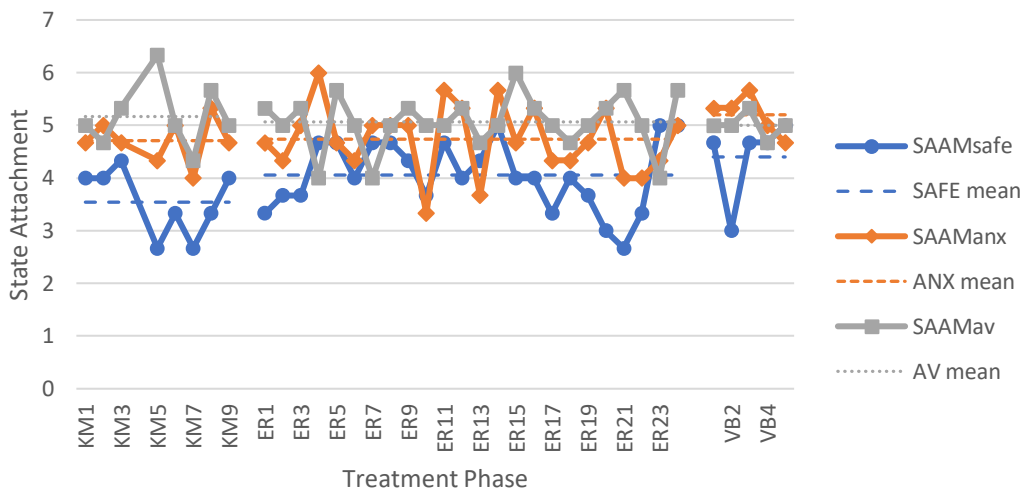
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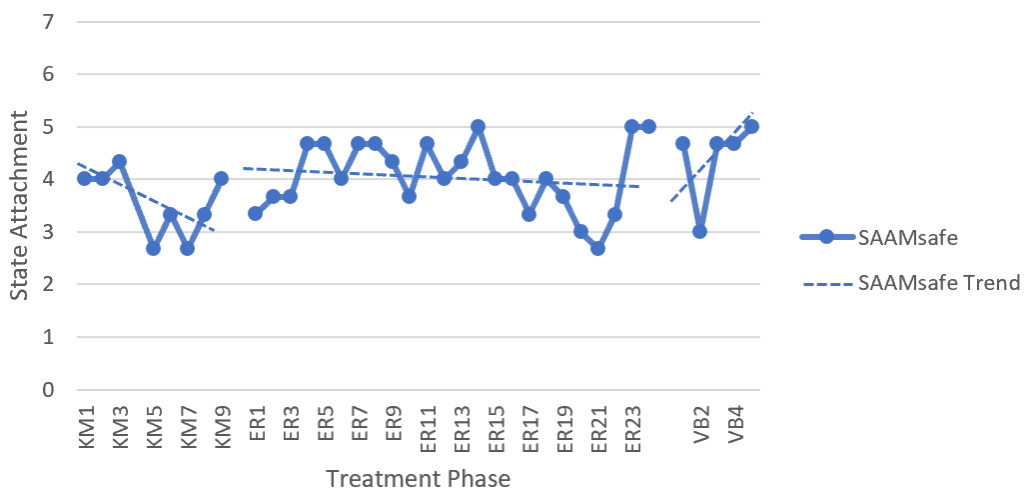
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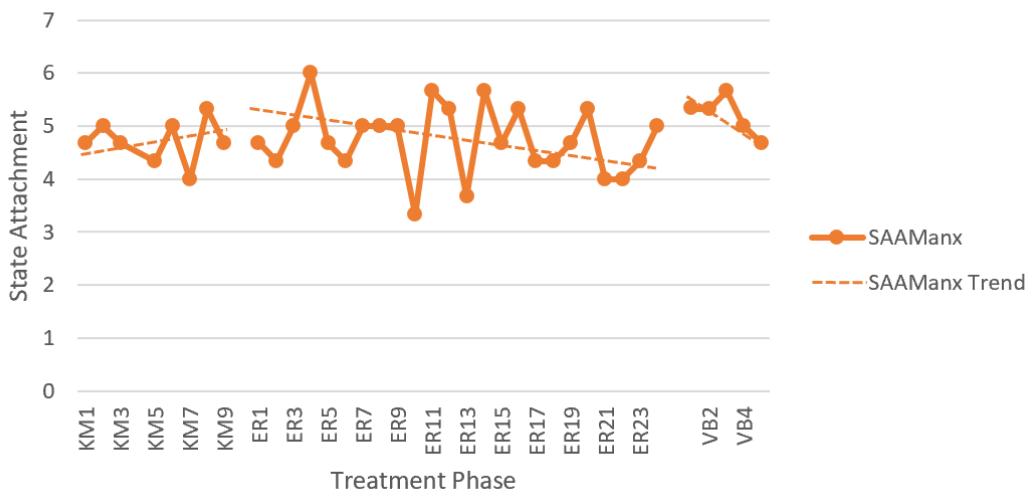
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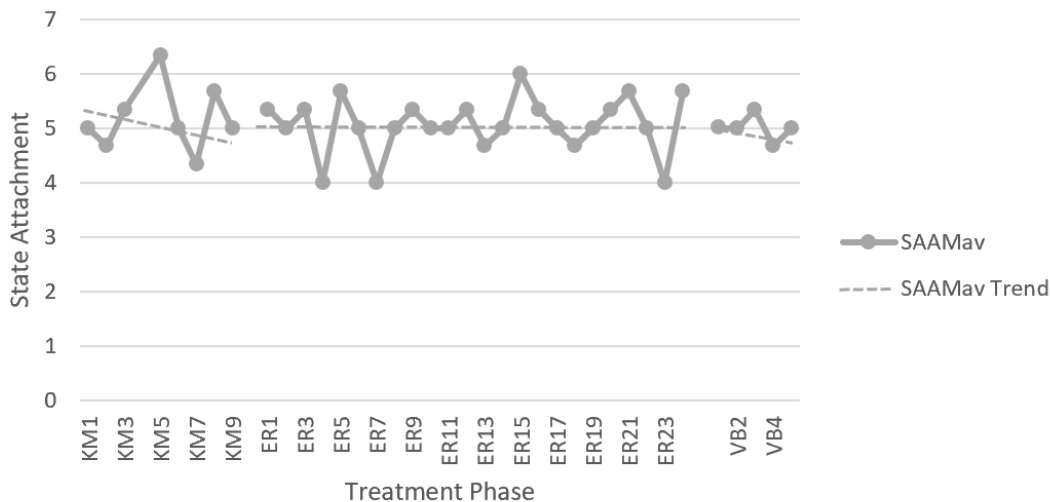
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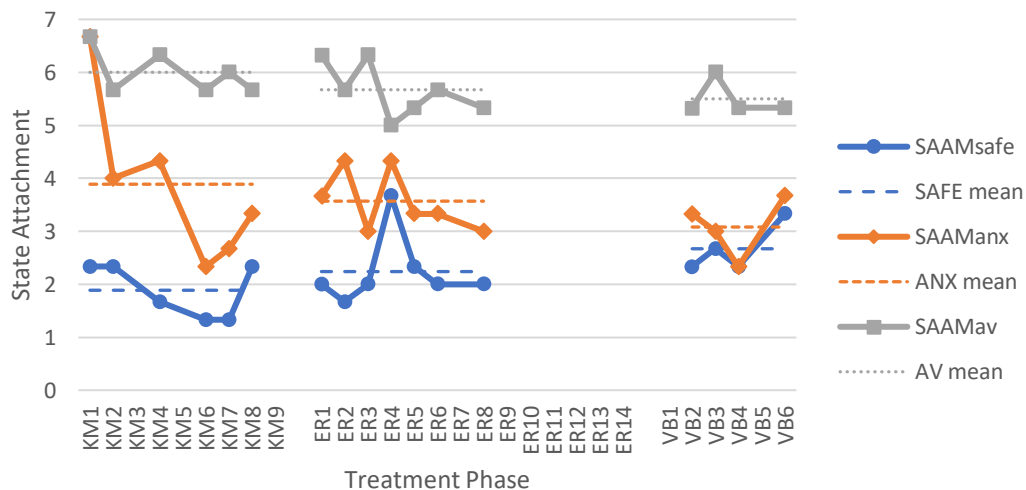
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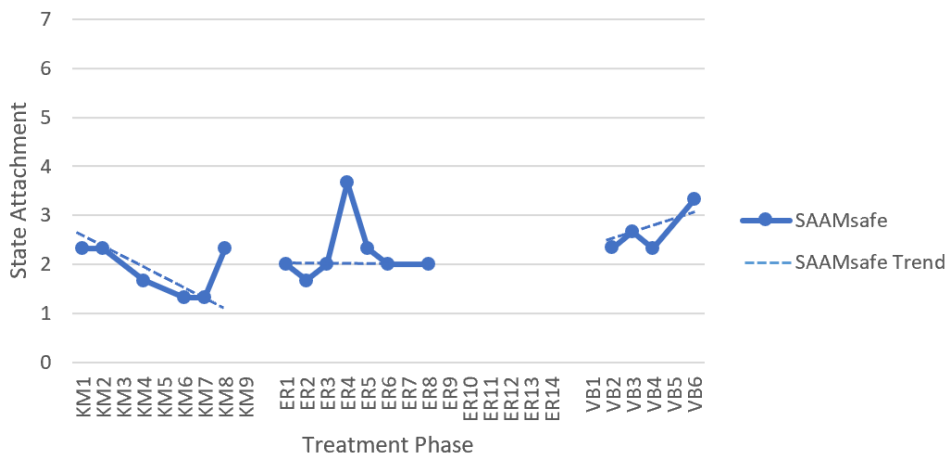
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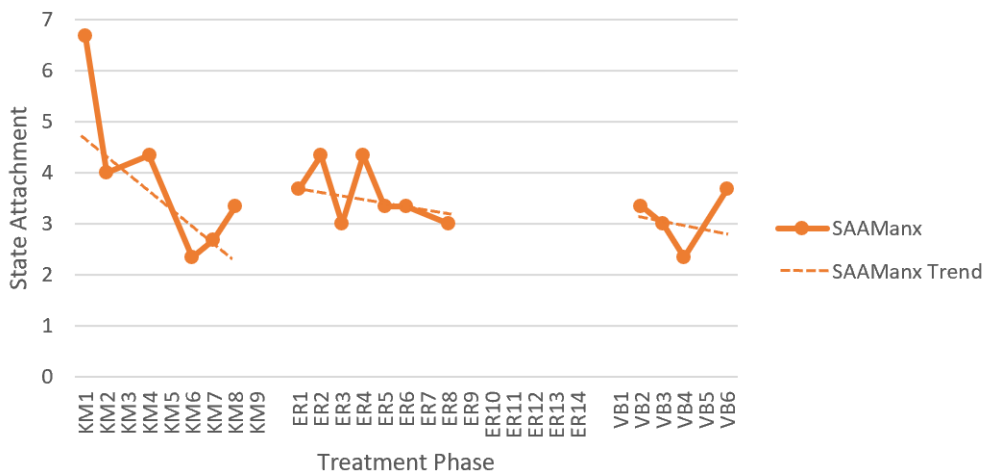
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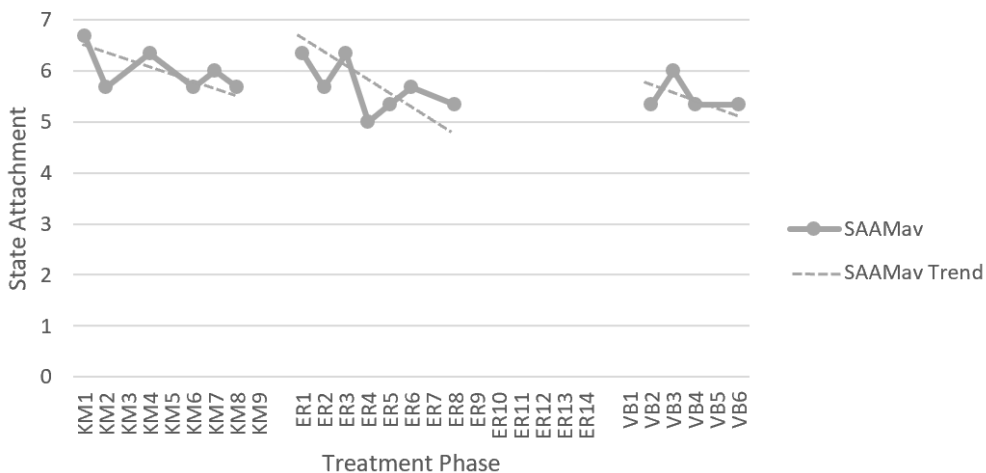
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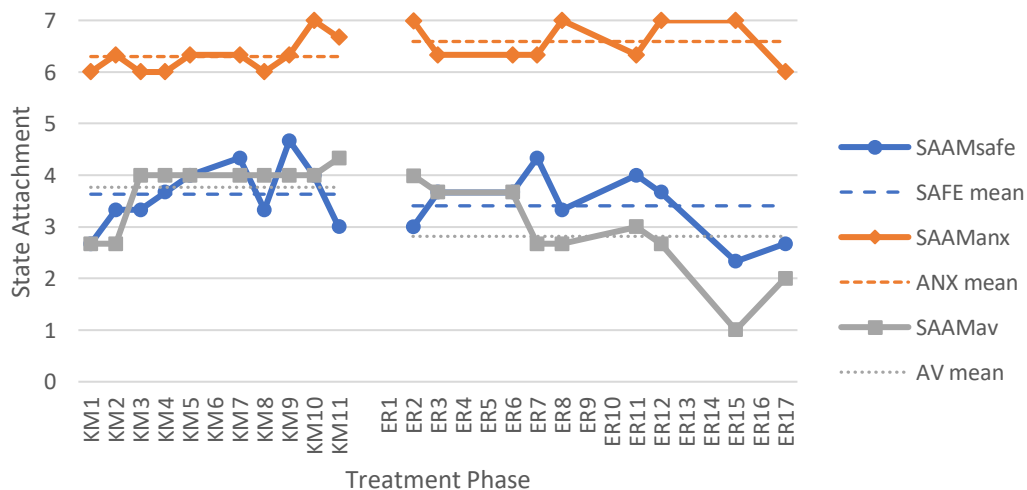
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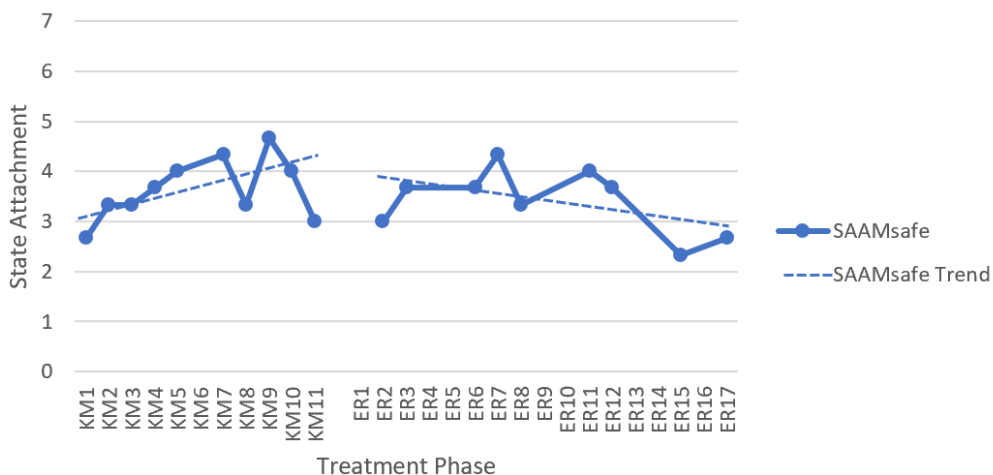
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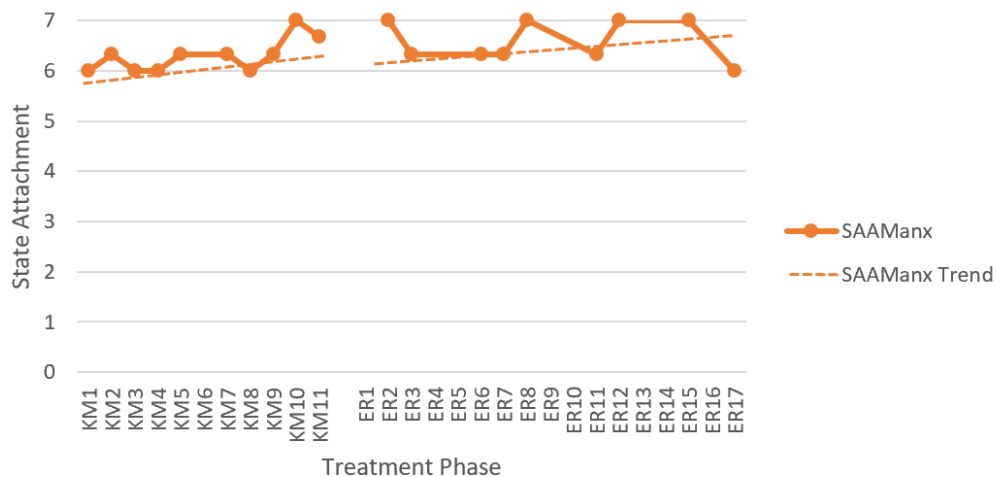
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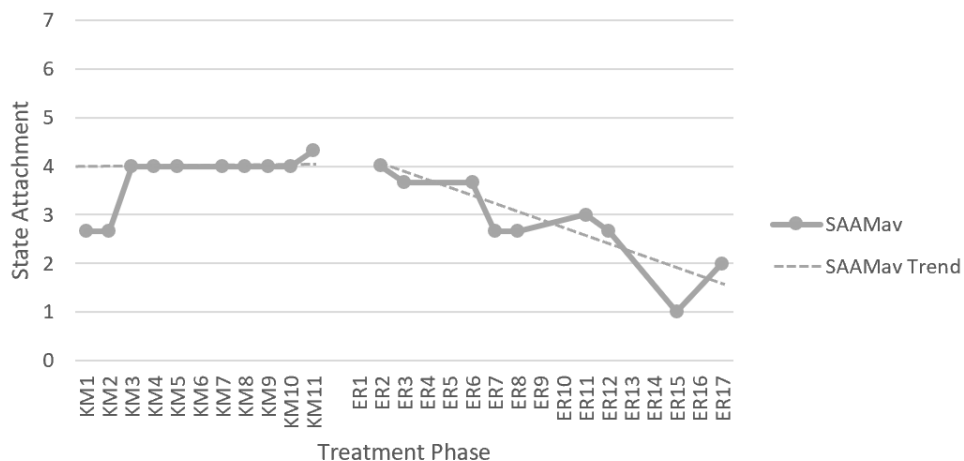
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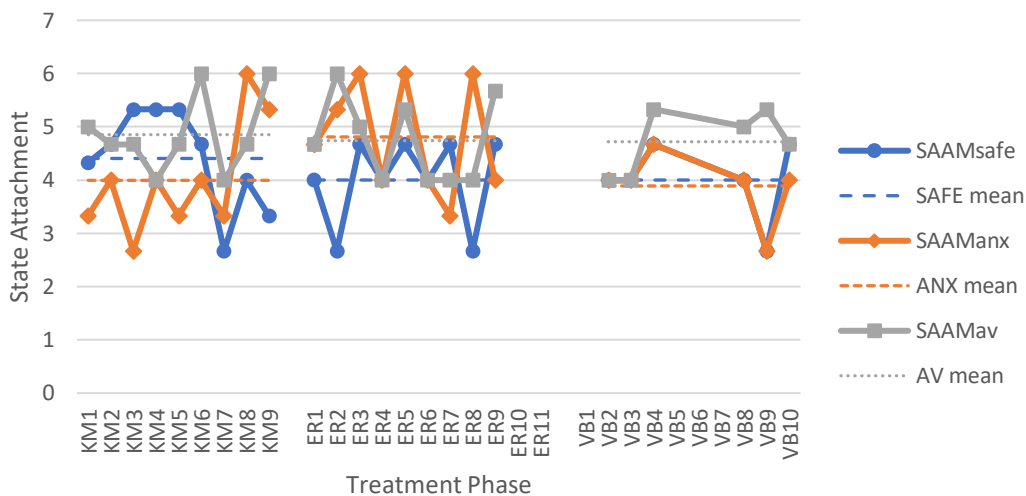
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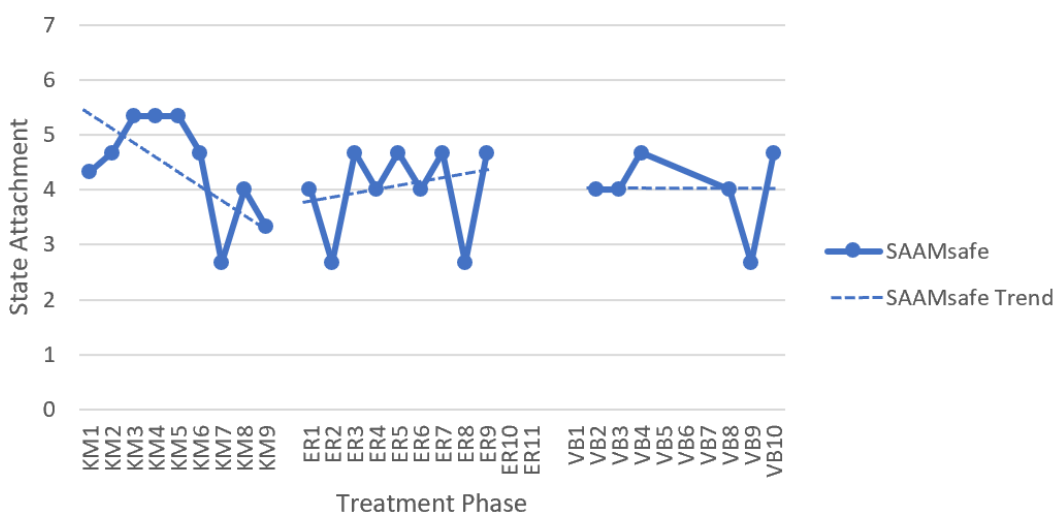
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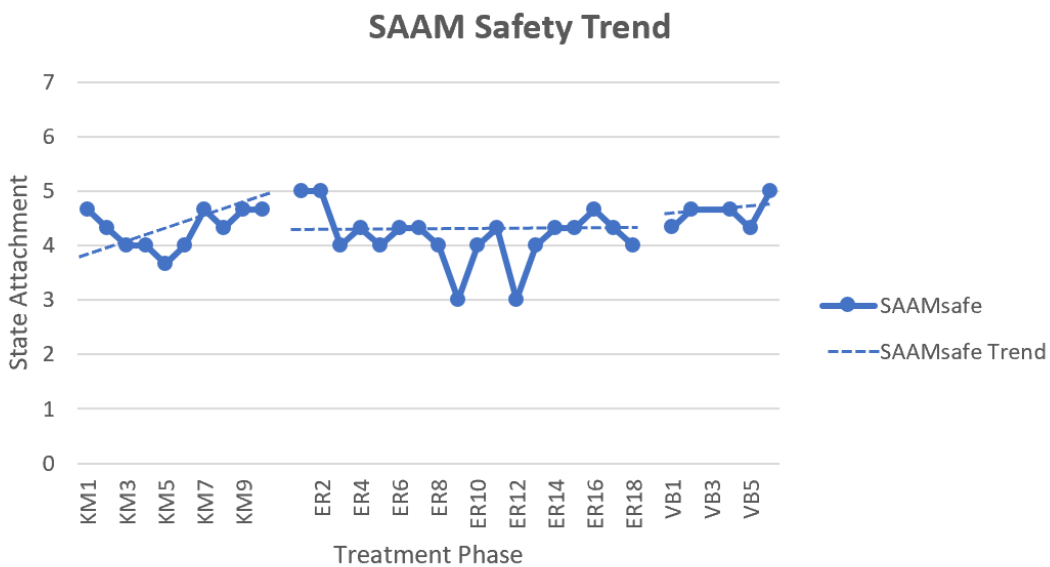
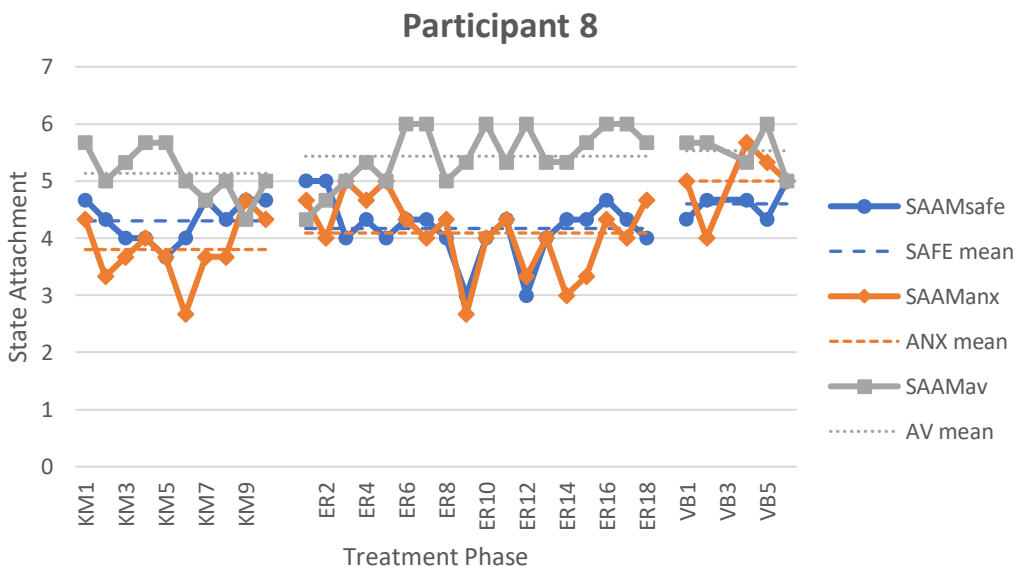
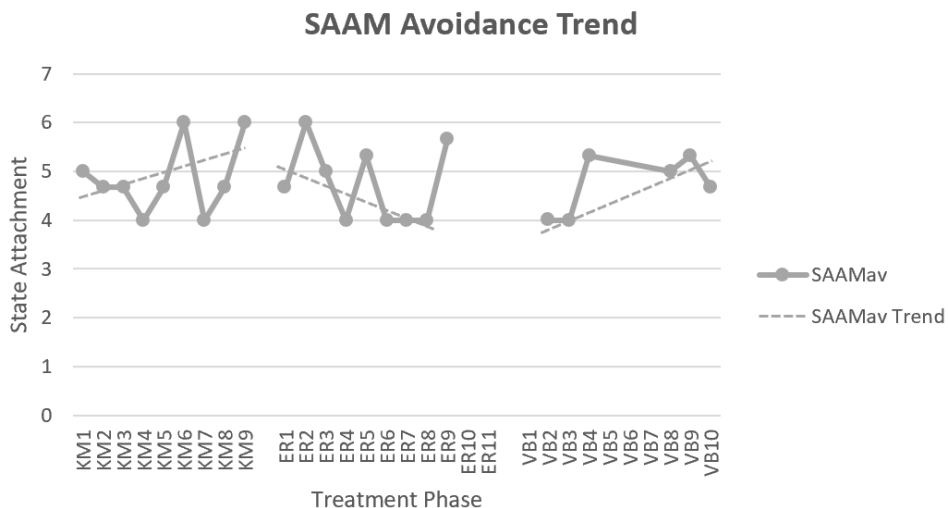


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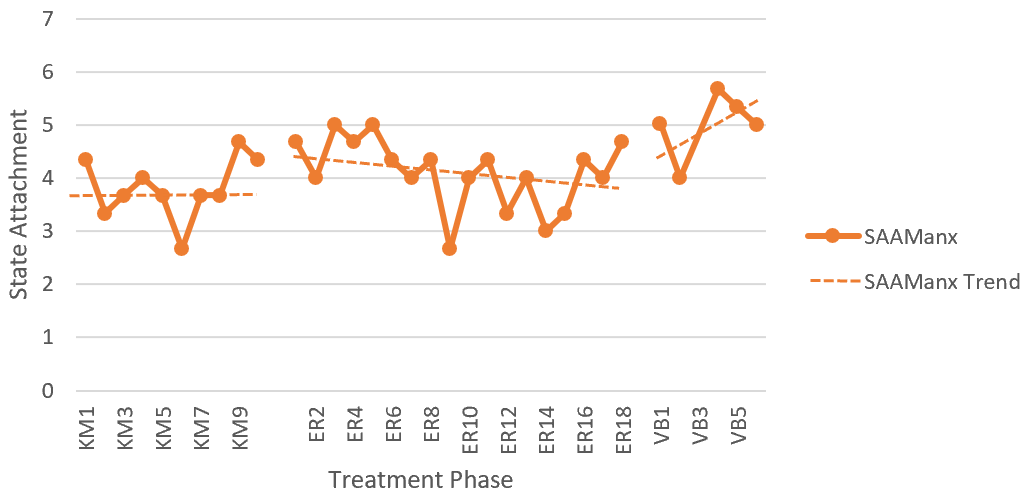
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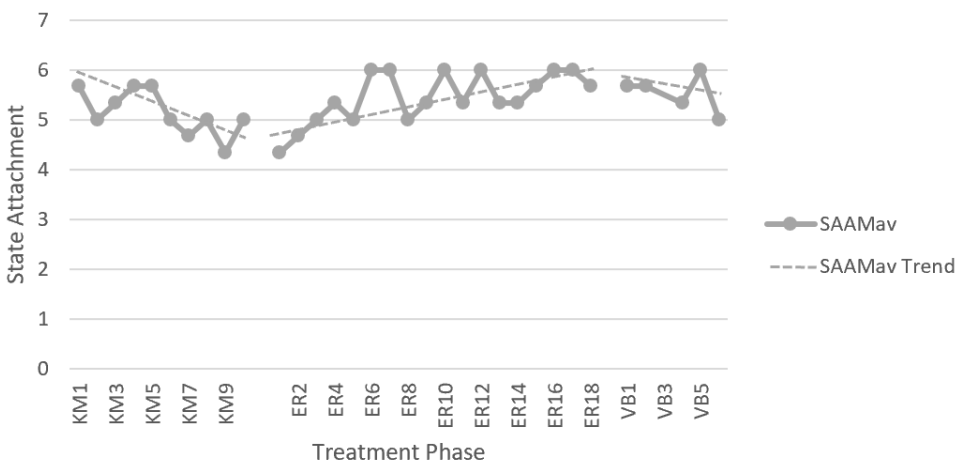




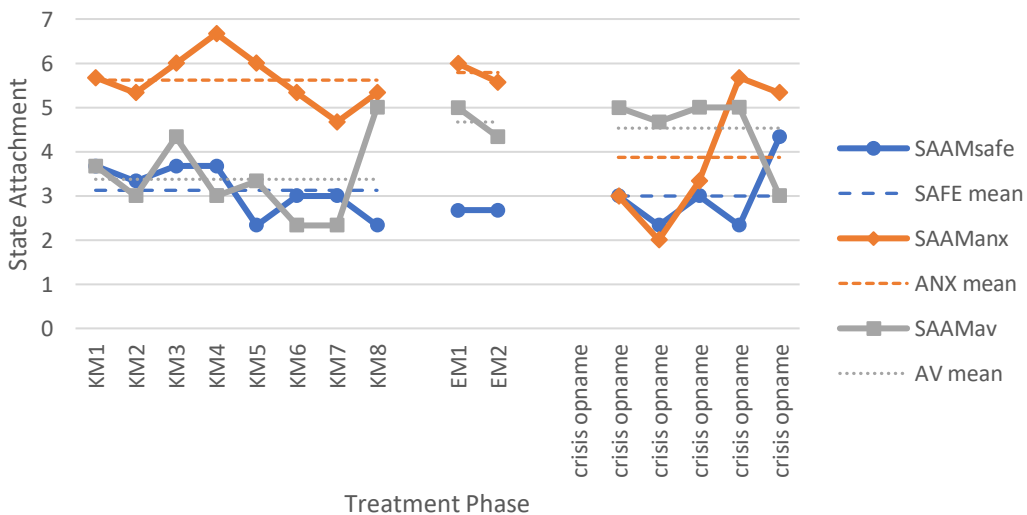
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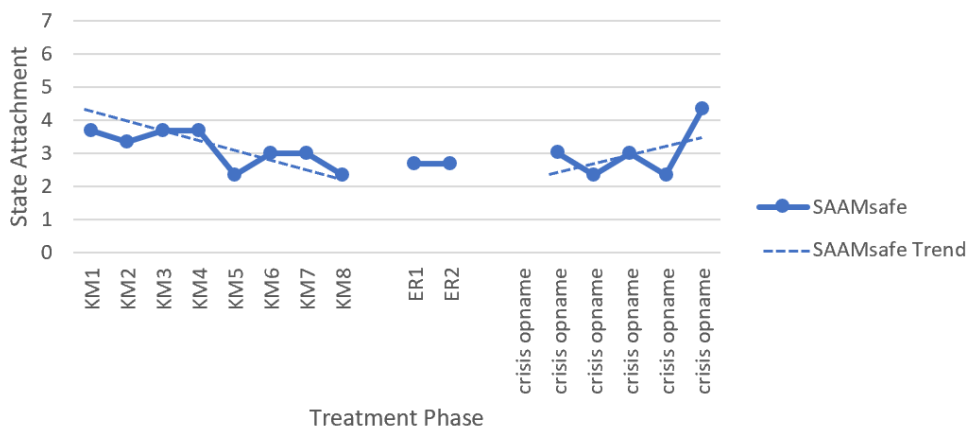
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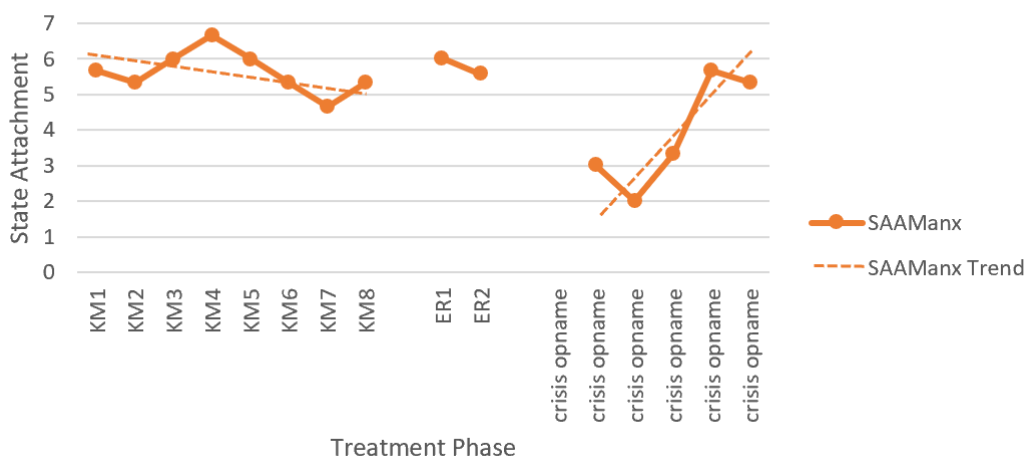
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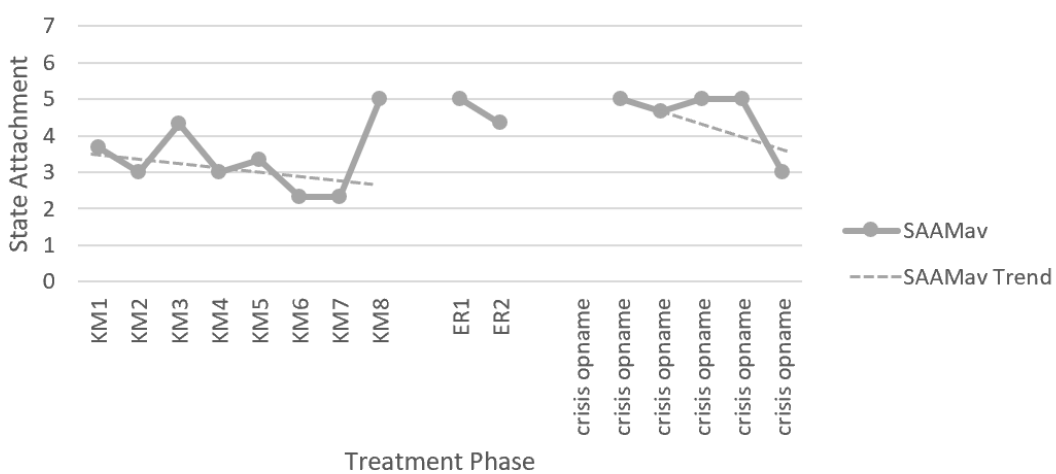
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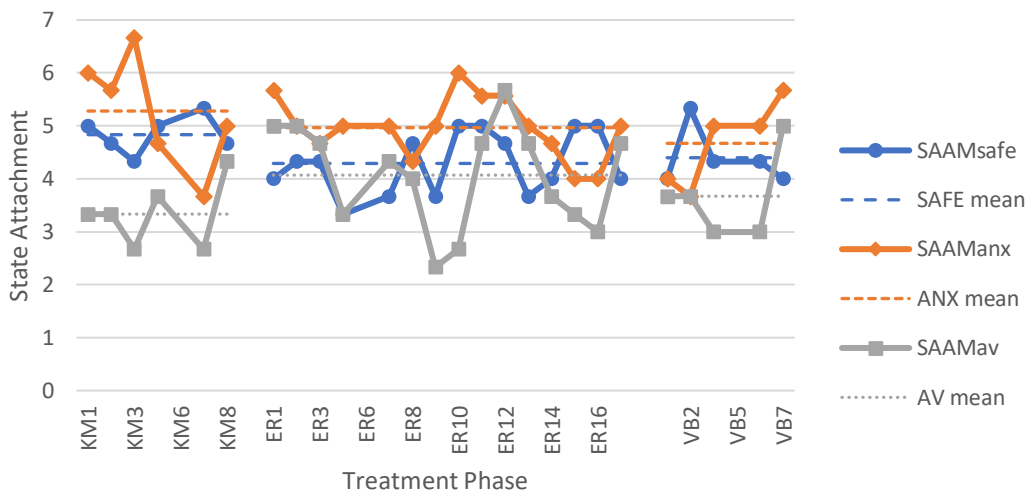
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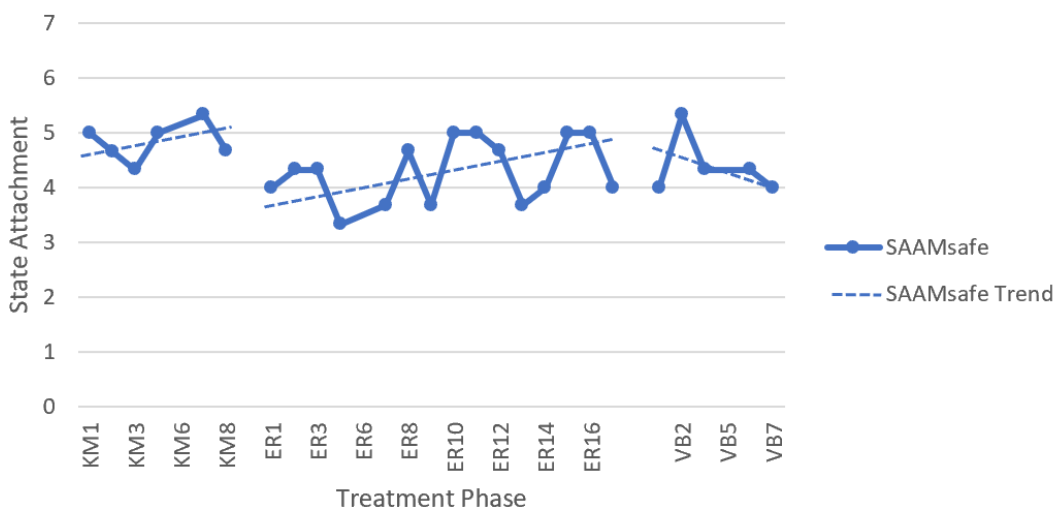
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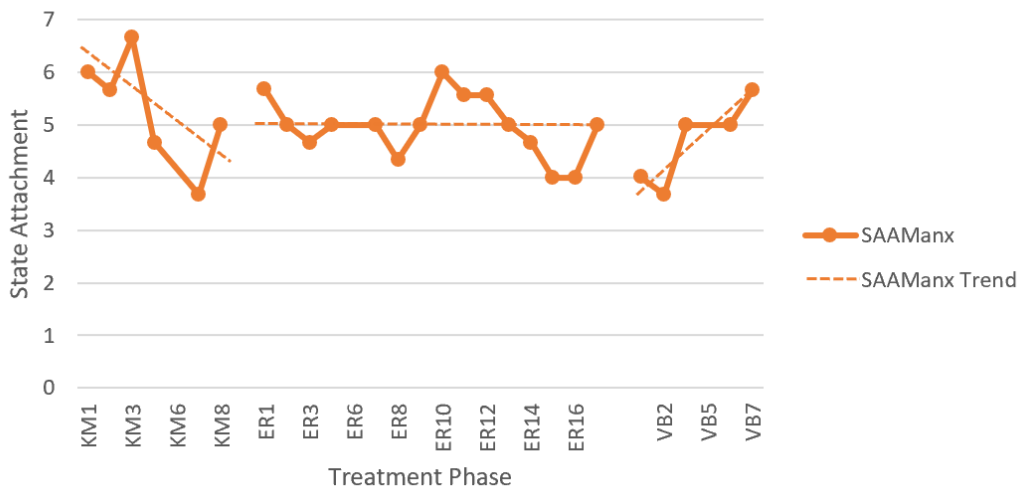
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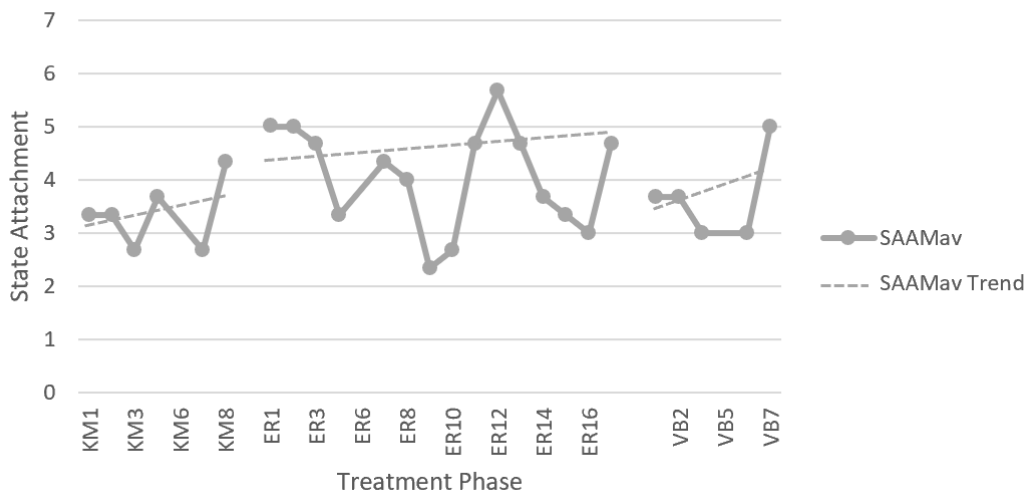
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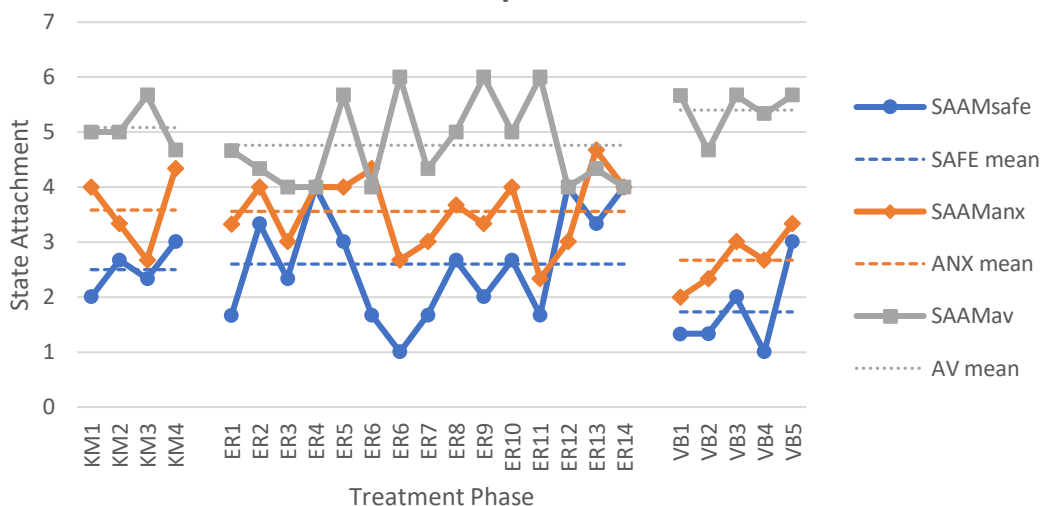
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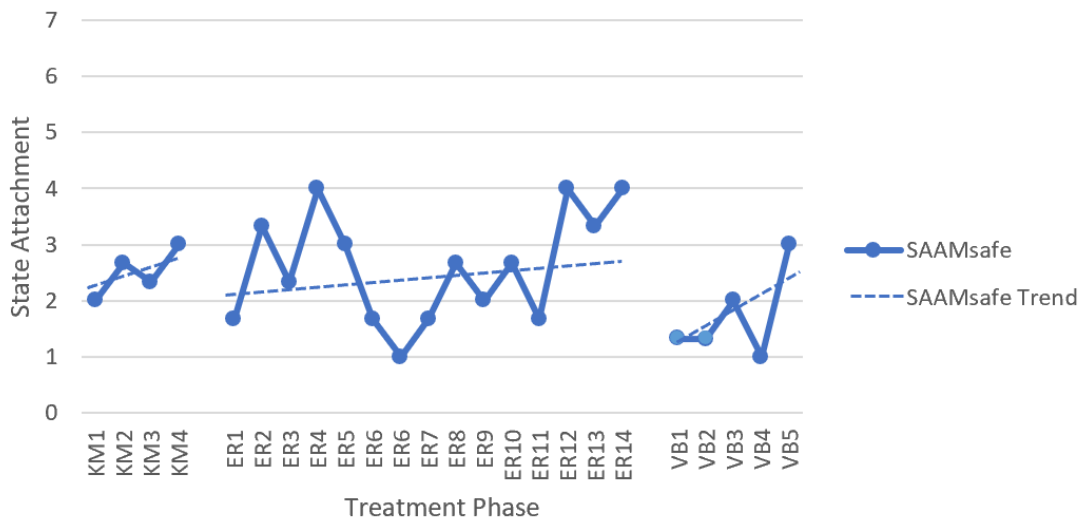
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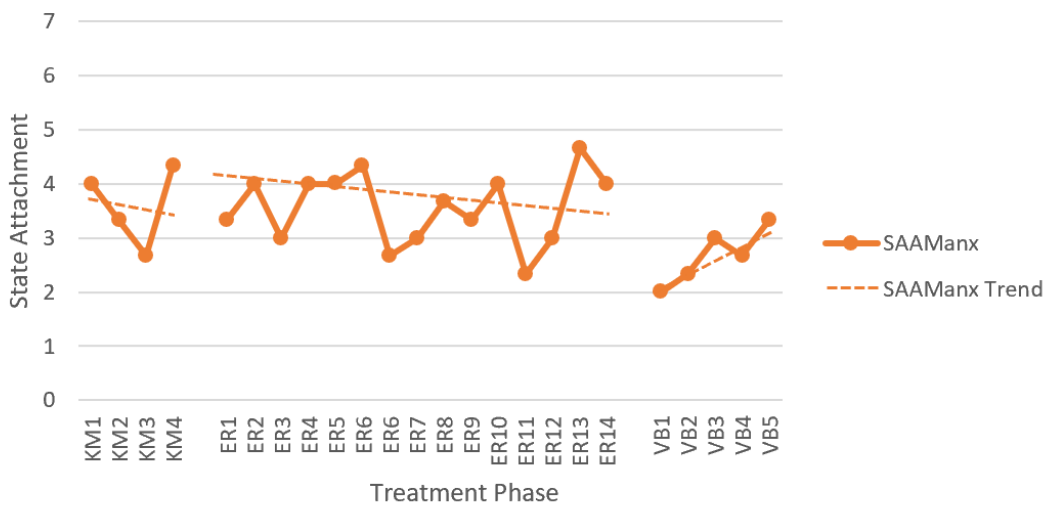
### Participant 11



### SAAM Safety Trend



### SAAM Anxiety Trend



### SAAM Avoidance Trend

