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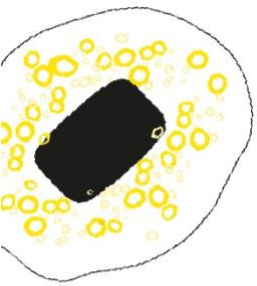
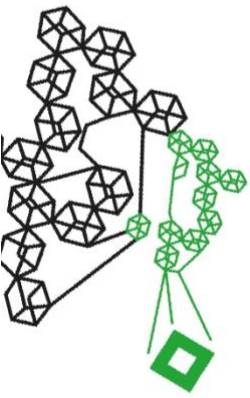


Investigating engagement with digital mental health interventions: Do patients benefit from the interventions on Therapieland and what determines their success?



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Abstract

Background: EHealth interventions are growing and they are said to be a promising way to effectively deliver treatment to patients in a non-traditional way. However, attrition rates are often high and adherence rates are low, which can limit their positive effects. One construct that has received more attention in the last decades regarding this issue, is engagement. Due to the lack of definition and the sometimes mixed literature, it is not entirely clear how engagement and efficacy are affected by other variables, like, for example, usage, age, professional contact, or peer contact. Therefore, the goal of this paper is to 1) investigate whether patients' symptom scores decrease after working on the programme, 2) explore the relation between engagement and symptom scores, 3) examine the relation between initial usage, engagement, and symptom scores, 4) study the relation between age, engagement, and symptoms scores, and 5) inspect the relation between professional contact or peer contact, engagement, and symptom scores.

Method: The participants of this study were real-world patients who either received blended care or only self-help content on the platforms Therapieland and Gezondeboel. The patients' symptoms and engagement were assessed using the Panic Appraisal Inventory (PAI) and the TWente Engagement with Ehealth Technologies Scale (TWEETS). Additionally, log-data was gathered using the software Matomo. The data were analysed using Linear Mixed Models (LMM).

Results: The analyses revealed a significant negative relationship between time and the anticipated panic and the panic consequences scores of the PAI. Next, it was found that higher engagement led to lower symptom scores over time and higher engagement was related to higher anticipation and consequences scores or vice versa. Age showed a significant negative relation to the consequences scale and seemed to moderate the relationship between engagement and the anticipation and consequences scores. Lastly, no significant relations were found between the log-data, professional contact, peer contact, and symptom scores or engagement.

Conclusion: The results of this study support previous knowledge by showing that symptoms decreased after treatment and that more engagement led to lower symptom scores over time. Moreover, the insights support the need for more research to be able to fully understand these concepts and possibly enable the optimisation of eHealth technologies and aid treatment delivery.

Keywords: EHealth, Engagement, Log-data, Age, Professional Contact, Peer Contact

Introduction

Mental disorders are still one of the leading causes of disabilities and their numbers increase worldwide. However, barriers such as long waiting lists or the associated stigma, still limit access to treatment (WHOa, 2022; Lungu, Jun, Azarmanesh, Leykin, & Chen, 2020). Additionally, the treatment of mental disorders is a high economic burden, which costs the global economy US$ 1 trillion annually (WHOb, 2022) and it becomes apparent that new solutions and advancements are needed in care delivery. One such solution could lie in the use of technologies to support health, well-being, and healthcare, which is called eHealth (Naslund, Marsch, McHugo, & Bartels, 2015; Burger, Neerincx, & Brinkman, 2020). Using technologies like, for example, websites, apps, or certain devices to treat patients or aid treatment can have substantial advantages. For example, treatment can be more cost-efficient since oftentimes no provider is needed, one example being self-help apps and websites, or the use of technology can increase the availability of mental health care, especially in times of crisis (Chandrashekar, 2018; van Lotringen, Jeken, Westerhof, ten Klooster, Kelder, & Noordzij, 2021; Feijt, de Kort, Bongers, & Ijsselsteijn, 2018). Despite the advantages and opportunities provided by technology, these tools are still underused in clinical practice with only a minority of mental health care practitioners implementing them in their treatment (Feijt, de Kort, Bongers, and Ijsselsteijn, 2018; Nicholas et al., 2017). One of the reasons for the reluctance to integrate eHealth to aid treatment delivery might be the reporting of low real-life efficacy, which could potentially cause some suspicion in professionals.

Much research has been dedicated to the efficacy of eHealth interventions with many studies reporting promising efficacy in research trials comparable to the results of face-to-face therapy (van Lotringen et al., 2021; Naslund, Marsch, McHugo, & Bartels, 2015; Bonet, Torous, Arce, Blanquer, & Sanjuan, 2020). However, the same results oftentimes cannot be obtained with real-life patients or users. EHealth interventions often suffer from high attrition rates and low uptake among clinical and general populations in real-world settings with one review reporting completion or sustained use rates of 0.5% to 28.6% (Sieverink, Kelders, & van Gemert-Pijnen, 2017; Ondersma & Walters, 2020; Bonet, Torous, Arce, Blanquer, & Sanjuan, 2020). Interestingly, previous research shows mixed results for individuals diagnosed with anxiety or panic, ranging from limited evidence to effectiveness comparable to face-to-face

interventions (Nordgren et al., 2014; Deady et al., 2017). More research could therefore be needed including this specific sample. Another issue concerns low adherence rates which can lead to limited or no positive effects (Sieverink, Kelders, & Gemert-Pijnen, 2017). The concept of adherence refers to using or following the technology or intervention as intended (Sieverink, Kelders, & Gemert-Pijnen, 2017). Chan et al. (2017) have shown in their study that only 2% of the sample still used the app at the 6-month follow-up, which might have been related to the app's design and subsequent engagement levels (Linardon & Fuller-Tyszkiewicz, 2020). Even though real-world efficacy seems to be a challenge, eHealth interventions could still be a promising option for treatment delivery and therefore further research is needed.

One concept that has received more and more attention, especially in relation to adherence, attrition, and eHealth in general, is engagement. However, engagement is still vaguely defined by how involved someone is with something or how much a technological intervention or device is being used (Kelders, Kip, & Greeff, 2020). Engagement in the context of this paper is defined "as the extent of usage and subjective experience characterised by attention, interest and affect" (Perski, Blandford, West, & Michie, 2017). According to this definition, engagement entails many more aspects than just how much an eHealth intervention is being used. Due to the combination of behavioural, cognitive, and emotional aspects of the concept, which are subjective and vary between individuals, might be the reason why some people benefit from an eHealth intervention while others do not (Kelders & Kip, 2019). Indeed, research has shown that poor engagement reduces the likelihood of meaningful initiation, participation in, and completion of treatment and might be seen as an important factor in determining the efficacy of eHealth technologies and interventions (Nicholas et al., 2017; Kelders, Kip, & Greeff, 2020; Bonet, Torous, Arce, Blanquer, & Sanjuan, 2020). Nevertheless, the concept is still vague and not clearly defined, which is why more research is needed to get a precise understanding of the various factors engagement entails.

One such factor could be the usage of an eHealth technology, however it is still unclear whether it is a part of engagement, as viewed in this paper, or a determining factor. It should be noted that usage can incorporate several aspects including frequency of interaction like log-ins, duration relating to the total minutes spent, or number of exercises that were completed or worked on, to name a few (Short et al., 2018). These aspects have previously been studied in regards to engagement and, due to the vague definition, sometimes used as a representation of it

or the behavioural aspects of engagement. For example, Baumel and Kane (2018) found in their study on real-world user engagement that usage was not associated with behavioural variables of user engagement, such as average app usage time or the percentage of users who still used the app 30 days after downloading it. Kelders, Kip, and Greeff (2020) on the other hand explain in their paper that behavioural aspects of engagement seem to relate more to making the usage a part of the patient's daily life and creating a routine. Interestingly, Short et al. (2018) distinguish between microlevel and macrolevel engagement and relate usage like number of activities completed, as well as the user experience to microlevel engagement. Macrolevel engagement, on the other hand, is defined as the "depth of involvement with the behaviour change process (Short et al., 2018). They point out that after effectively engaging with the technology or intervention at the microlevel the user may disengage with the intervention, but remains immersed in the behaviour change process and thus engages at the macrolevel (Short et al., 2018). This suggests that how much a patient initially interacts with the intervention might have an effect on the engagement and efficacy of said intervention. It becomes apparent that more research is needed to generate a clear distinction between the two constructs and gather more insight into their relationship.

In addition to usage, age has been investigated numerous times as a determinant for an individual's adherence to and engagement with eHealth interventions, as well as its efficacy. Surprisingly, many mixed results have been found, for example, 6 studies showed higher engagement for adults aged 30 and older while others illustrate that interest in using digital therapy interventions increases with age (Clough et al., 2022; Borghouts et al., 2021). These findings are surprising as younger individuals would have been expected to possess greater eHealth literacy, which is described as "a consumer's ability to search, find, understand, and appraise health information with the use of information technology" (Norman & Skinner, 2006). Due to this, younger individuals were expected to be more comfortable with it and experience more positive effects. Moreover, older individuals experience changes in their perceptual, cognitive, and motor abilities and technological development advances rapidly (Preschl, Wagner, Forstmeier, & Maercker, 2011). One explanation for why some studies have found higher engagement for older individuals might be the designers of the eHealth technologies or interventions were more considerate in adapting to the changes older individuals face. For example, designing the intervention to be more traditional or closer to paper-based interventions

and therefore more familiar. Nevertheless, more research would be useful to investigate the relation between age, engagement, and symptom scores further.

Lastly, engagement with and effectiveness of an eHealth technology could be influenced by the amount of professional or peer contact an individual is provided with. Many studies show that having frequent contact with a mental health professional and witnessing their attitude towards an eHealth technology could have an influence on the patient's engagement with it (Baumel & Kane, 2018; Borghouts et al., 2021). Similarly, it seems likely that having contact with peers greatly facilitates engagement and sometimes even more than professional contact (Borghouts et al, 2021; Dennison et al, 2014; Geramita et al, 2018). This suggests that the concept of engagement might also include some form of social component, like social connectedness. However, Borghouts et al. (2021) explain that human support could also somewhat be replicated by automated reminders or messages, giving rise to the question of how necessary contact with a professional truly is. Additionally, it may be argued that peer support could be simulated by computer-generated text messages or avatars, however this can give rise to unique ethical challenges, such as concerns about privacy or dependency (Fortuna et al., 2019). Therefore, it could be more feasible to safely connect patients with one another, however, more research needs to be done to investigate peer contact in digital mental health settings and its relation to efficacy and engagement.

To date, the construct of engagement and how it impacts the effectiveness of eHealth technologies and interventions is still largely vague. As described earlier, many factors can have an impact on engagement, but little conclusive research outlining its determinants or variables exists. This paper, therefore, aims to examine whether patients experienced fewer symptoms over time when working on an online module designed to treat panic symptoms. Furthermore, it is researched whether there is a relationship between engagement and the symptom scores over time. Thirdly, it is investigated whether there is a relation between initial usage, age, professional contact, and peer contact and the symptom scores and engagement over time. After reviewing the literature, the following hypotheses were established: For the first research question, it was anticipated that the patients' symptom scores decrease over time. For the second research question, it was predicted that engagement is negatively associated with the symptom scores. Lastly, for the third research question, it was assumed that initial usage, professional contact, and peer contact are positively related to engagement and negatively related to the symptom scores.

For age, on the other hand, a negative association with engagement and a positive relation to the symptom scores was expected.

Methods

Study Design

In order to investigate the relationship between symptom scores, engagement, initial usage, age, professional contact, and peer contact the data was gathered, from the 23rd of February 2015 until the 14th of December 2021, using the platforms Therpieland.nl and Gezondeboel.nl. Participants in this study are individuals who signed up to at least one of these platforms to receive self-help content or were referred by their therapist in addition to receiving face-to-face therapy. It was therefore possible to research the mentioned concepts in a real-world context. The collected data were quantitative self-report data and the experience of symptoms was assessed at two points, namely the baseline measure (T0) and the measurement after completing the programme (T1). Additionally, log-data was collected while the patients worked on the programme using the Matomo software.

Participants

In total, data was gathered from N = 21.844 patients, however not everyone filled in their age, gender, or the questionnaires. Overall, 15.906 people filled in their age, with a minimum age of 8, a maximum age of 88, and the mean age being M = 35.94 (SD = 14.063). Concerning the patients' gender, 20.347 people filled in their information and the majority of these patients were male (N = 13.905, 63.7%) compared to the females (N = 6.442, 29.5%). The patients included in this study were professionally treated for panic disorder or individuals who sought out self-help due to experiencing symptoms related to panic disorder. Therefore, they were eligible when they worked on the panic programme on either of the two platforms. In order to use the data efficiently, the patients were sorted into six samples based on the data needed to answer the research questions, namely the treatment effectiveness sample, the engagement sample, the log-data sample, the age sample, the professional contact sample, and the peer contact sample. Each of the samples had different inclusion and exclusion criteria, which can be found in table 1.

Table 1

Exclusion and Inclusion Criteria of the different samples used in the current study

Sample	Inclusion Criteria	Exclusion Criteria
Treatment Effectiveness	Having filled in the T0 and T1 of the panic appraisal inventory	Not filling in either the T0, T1, or both measures of the panic appraisal inventory
Engagement	Having filled in the T0 and T1 of the panic appraisal inventory	Not filling in either the T0, T1, or both measures of the panic appraisal inventory
	Having filled in the TWEETS questionnaire	Not filling in the TWEETS questionnaire
Log-Data	Having filled in the T0 and T1 of the panic appraisal inventory	Not filling in either the T0, T1, or both measures of the panic appraisal inventory
	Having filled in the TWEETS questionnaire	Not filling in the TWEETS questionnaire
	Having tracked sufficient usage data of a patient	Not being able to gather sufficient usage data from a patient
Age	Having filled in the T0 and T1 of the panic appraisal inventory	Not filling in either the T0, T1, or both measures of the panic appraisal inventory
	Having filled in the TWEETS questionnaire	Not filling in the TWEETS questionnaire
	The patient filled in their age	The patient did not fill in their age
Professional Contact	Having filled in the T0 and T1 of the panic appraisal inventory	Not filling in either the T0, T1, or both measures of the panic appraisal inventory
	Having filled in the TWEETS questionnaire	Not filling in the TWEETS questionnaire
	The patient exchanges text messages with a professional via the platform	The patient did not exchange text messages with a professional via the platform
Peer Contact	Having filled in the T0 and T1 of the panic appraisal inventory	Not filling in either the T0, T1, or both measures of the panic appraisal inventory
	Having filled in the TWEETS questionnaire	Not filling in the TWEETS questionnaire
	The patient joined at least one group on the platform	The patient did not join a group on the platform

Platforms

In this study, all data was gathered using the platform Therapieland.nl and Gezondeboel.nl. Both platforms are designed to make treatment accessible to everyone and lower the threshold for treatment uptake (Therapieland, 2022; Gezondeboel, 2022). Therapieland is focused on the treatment of mental disorders and offers self-help, as well as treatment administered by a professional (Therapieland, 2022). Furthermore, Therapieland enables peer contact by offering a variety of patient groups supporting contact with other people facing similar issues. Gezondeboel originated from Therapieland, however, its specialisation lies more in the prevention of mental complaints via self-help (Gezondeboel, 2022). Treatment via Gezondeboel is usually financed by an employer and access is given to all employees. Even though both websites set a different focus, they provide treatment in a similar way using technologies such as eHealth programmes, video bubbles, questionnaires, and Virtual Reality (Therapieland, 2022; Gezondeboel, 2022).

Interventions

Therapieland.nl and Gezondeboel.nl offer 230 online programmes with a variety of disorder- or self-help-related content to choose from like panic disorder. The panic programme (see Appendix A) includes 6 modules or overall topics, namely “welcome”, “physical complaints”, “thoughts”, “to do”, “closing”, and “social environment”. These topics are structured by a differing number of sub-headings, which give an introduction, psycho-education, as well as various exercises to work on. The patient is supposed to work through those topics as they are structured by the platform, but are allowed to access all content at once. In order to aid the patient with the exercises, optional examples about what could be filled in or which situation would be suitable for an exposure are provided. If the patient struggles with some aspect of the provided content or wishes to elaborate on it further the option to message their therapist is provided.

Figure 1

Example of the topic "thoughts", specifically the beginning of the sub-heading "thoughts"

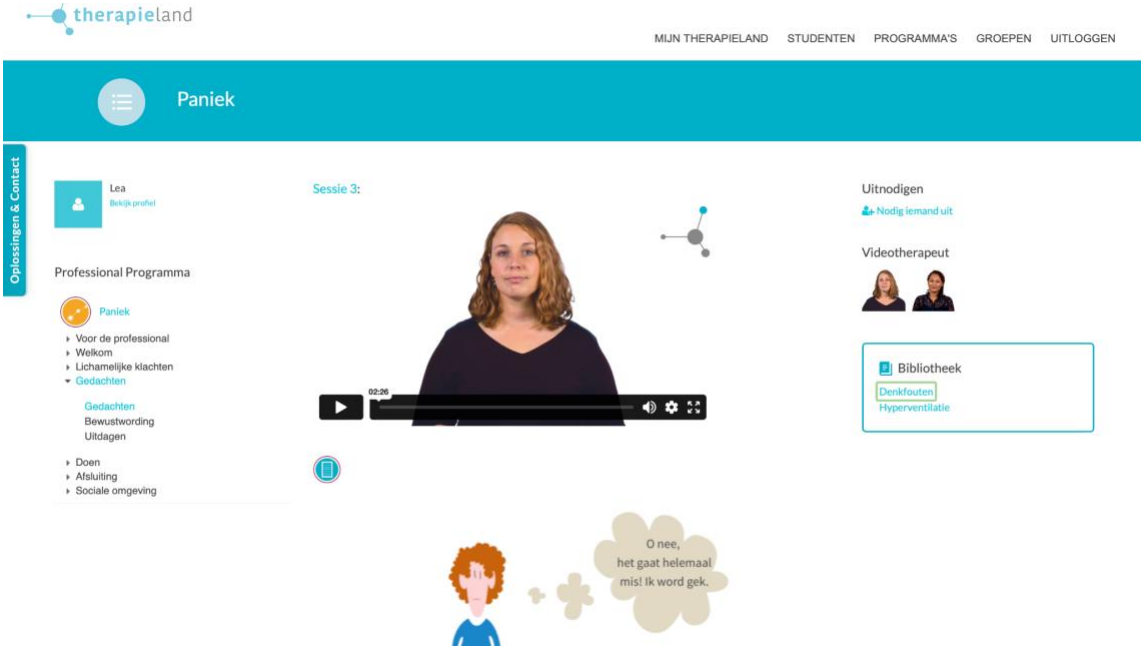


Figure 2

Example of the topic "thoughts", specifically the given example and start of the exercise in the sub-heading "awareness"

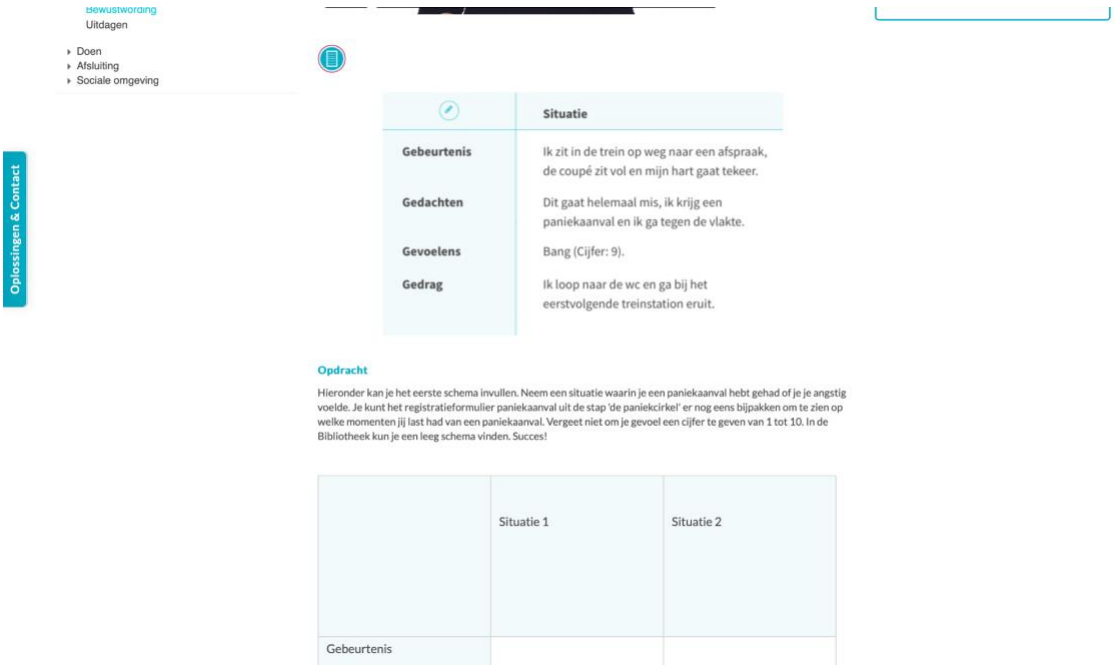
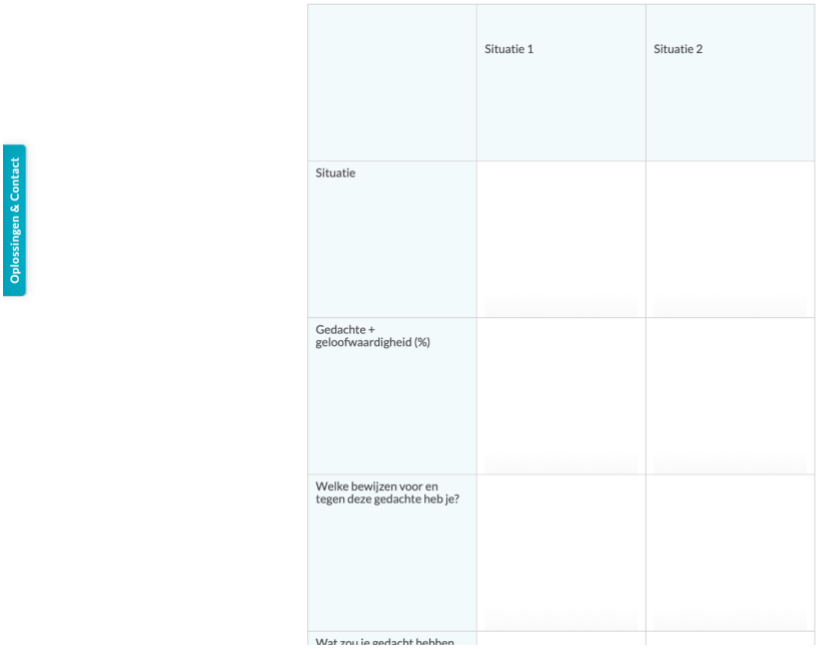


Figure 3

Example of the topic "thoughts", specifically the start of the exercise in the sub-heading "challenge"



Procedure

In this study, all data was gathered using Therapieland.nl and Gezondeboel.nl, meaning that all used questionnaires were built into the modules of the programme and therefore assessed at different time points of the treatment. At the sign-up to either website, the patients were informed that data on their demographics, symptoms, engagement, and usage would be collected. Before starting the programme the platforms presented the panic appraisal inventory (PAI) and the patients were asked to fill them out. The same questionnaire was administered to the patients by the platforms after finishing the programme, meaning after they completed the last module "social environment". However, both times answering the questions was optional. Data on the patients' engagement was collected after completing one-third of the programme by presenting the TWente Engagement with Ehealth Technologies Scale (TWEETS). The log-data was gathered throughout the programme, from the patient's sign-up until they filled in the second PAI after ending the programme.

Panic Appraisal Inventory (PAI)

The Panic Appraisal Inventory (PAI) is a self-report questionnaire and was developed by Telch (1987) to measure three aspects of panic appraisal, namely anticipated panic, panic consequences and panic coping (Telch, Brouillard, Telch, Agras, & Taylor, 1989). These cognitive aspects of panic represent the three scales this questionnaire is composed of. The first scale, anticipated panic, includes 15 items assessing the perceived likelihood of having a panic attack in mainly agoraphobic situations, like riding the bus or waiting in long lines (Feske & de Beurs, 1997; Embloom, 2022; Telch et al., 1989). Seven of these items represent the anticipation of experiencing panic in situations that give rise to high emotional arousal, such as being left by your significant other for someone else, or strong bodily sensations, like being out of breath due to a vigorous exercise (Feske & de Beurs, 1997). Patients are asked to score how likely they are to have a panic attack in a particular situation on a 10-point scale ranging from 0, no chance of panic occurrence, to 100, definite panic occurrence (Telch et al., 1989; Embloom, 2022).

The panic consequences scale consists of 15 items relating to possible negative consequences of panic attacks (Feske & de Beurs, 1997). Furthermore, this scale is divided into three derived subscales, including (a) physical concerns, (b) social concerns, and (c) loss of control concerns, consisting of five items each (Telch et al. 1989). The physical concerns subscale involves statements like “I may have a stroke”, “I may die”, or “I may have a heart attack”. Examples relating to social concerns are, for example “people may stare at me” or “people may think I’m weird”. Lastly, the loss of control scale includes phrases such as “I may scream” or “I may go insane” (Feske & de Beurs, 1997; Telch et al., 1989). Each item is again rated on a 10-point scale from 0, indicating the possible negative consequences being not troubling at all, to 100, being extremely troubling (Telch et al., 1989; Embloom, 2022).

The third scale of the PAI is the panic coping scale, which assesses the patient’s degree of confidence in coping with future panic attacks by, for example, using distractions or control the breathing (Feske & de Beurs, 1997; Telch et al., 1989). Similar to the first two scales, this scale also includes 15 items, which are rated on a 10-point scale ranging from 0, which represents that the patient feels not confident at all, to 100, meaning that the patient feels completely confident in coping with future panic attacks (Telch et al., 1989).

The PAI was first published in a 35-item version and in later revisions five items were added to the, then, 10-item anticipated panic and panic coping scales as well as replacements of

various items in these scales (Feske & de Beurs, 1997). In this study, this 45-item version of the PAI is used. Feske and de Beurs (1997) show excellent internal consistency with alphas ranging from 0.86 to 0.9 along with good inter-item correlations. Furthermore, they reported moderate inter-scale correlations (r = 10.351, range 10.15-0.591) next to adequate convergent and divergent validity.

TWente Engagement with Ehealth Technologies Scale (TWEETS)

The TWente Engagement with Ehealth Technologies Scale (TWEETS) was developed based on an interview study with engaged health app users and employs a definition of engagement including behaviour, cognition, and affect (Kelders, Kip, & Greeff, 2020). Additionally, it entails identity since engaged users seem to identify with the technology or its goal (Kelder, Kip, & Greeff, 2020). Furthermore, the TWEETS can be used to measure engagement at different points in time, more specifically expectations of engagement, current engagement, and past engagement. In this study, patients were only asked to answer the questions regarding their current engagement. Therefore, 9 items are included and are measured on a 5-point Likert scale (strongly disagree = 0, disagree = 1, neutral = 2, agree = 3, agree = 4). If a patient generates a higher total score it indicates that this patient is currently more engaged with the eHealth website. Items included are, for example, “Using this program is part of my routine” and “This program helps me to gain more insight into my situation”. Research investigating the TWEETS’ psychometric properties has shown good internal consistency with Cronbach’s alpha being p = 0.87 (Kelders, Kip, & Greeff, 2020). Moreover, the scale shows moderate test-retest reliability with values of 0.58 (T1-T2), 0.61 (T1-T3), and 0.74 (T2-T3), as well as predictive validity (Kelders, Kip, & Greff, 2020).

Log-Data

Data regarding the patient’s initial usage was collected by using the software Matomo. Matomo is similar to Google Analytics in that it enables the evaluation of the full user journey of individuals using a website (Matomo, 2022a). The software offers, among other things, 100% data ownership, reliability and security, and user-privacy protection, while valuing openness, transparency, and privacy (Matomo, 2022b). Since patient data should be handled respectfully, ensuring security and privacy, this software was used for this study. Unfortunately, there were

some complications with Matomo during the data collection process since users cannot be tracked if they did not have javascript enabled in their browser. In addition, an interaction between Matomo and the Therapieland database did not work properly and therefore visits could not be linked to specific programs. It was possible to gather data on the patient's number of actions with, total visits of, and total time spent with the platform. Due to this, the initial usage of the panic programme and its relation to efficacy and engagement could not be investigated. Instead, it was analysed whether the patient's number of actions with, number of total visits, and total time (in minutes) spent with the platform had an effect on the symptom scores and engagement.

Data Analysis

The software IBM SPSS Statistics version 29 was used for the statistical analyses. A *p*-value of < .05 was chosen as the cutoff score for statistical significance. First, to gain insight into whether the samples significantly differed from each other an independent samples t-test was used. The T0 mean scores and the engagement score were compared between the unedited full sample and the treatment effectiveness, engagement, log-data, professional contact, and peer contact samples (see table 1). Next, the T1 mean scores as well as the mean scores of the difference between T1 and T0 were compared for the six created samples (see table 1). The full sample was left out since it shows the same T1 and difference mean scores as the treatment effectiveness sample. All mean scores and the corresponding standard deviations of the T0, T1, and the computed difference between T0 and T1 measures of anticipated panic, panic consequences, panic coping, and the engagement scores are shown in table 2.

To investigate whether the patients experienced less symptoms (anticipated panic, panic consequences, and panic coping) after the treatment ended and the relationship between symptom scores, engagement, the log-data, age, professional contact, and peer contact, Linear mixed models (LMM) were chosen. The LMMs were used instead of a repeated measures ANOVA because they are able to recognize group and individual differences and include additional covariates (Krueger & Tian, 2004). These group and individual differences are estimated by including both fixed and random effects (Gurka & Edwards, 2007). Moreover, it is a good choice for repeated measures as it characterises individual behaviour patterns and therefore represents individual trajectories in a formal way, which makes it a more subject-

specific model (Krueger & Tian, 2004). In addition, the assumption of sphericity is violated by the systematic change in the variance for the repeated measure, which can lead to an inflation of the type 1 error rate for the ANOVA (Winer & Brown, 1991). The covariance structure "autoregressive order 1" was used because it characterises the relationships across repeated measures, which often decreases as the spatial distance between observations increases (Brammer, 2003).

In total, 4 LMMs were used. The first three LMMs each included a scale of the PAI, namely anticipated panic, panic consequences, and panic coping as the response variable. Time (T0, T1), engagement, the interaction term between time and engagement, number of actions, total visits, total time, age, the interaction term between age and engagement, professional contact, and peer contact were selected as fixed effects, while participant ID was chosen as a random effect to account for individual variation. The interaction terms of time and engagement as well as age and engagement are used to examine whether time or age moderates the relationship between engagement and the symptom scores. To investigate the relationship between the engagement and the PAI scales, the scores were standardized by converting them into z-scores.

The fourth model contained engagement as the response variable and the fixed effects number of actions, total visits, total time, age, professional contact, and peer contact. Since engagement was not a repeated measure, time was not included in this model. Similar to the first three models, however, participant ID was again selected as a random factor.

Results

Descriptive statistics

Table 2 provides an overview of the average scores and standard deviations for all samples from the pre-and post-measures of the PAI scales and engagement. All samples included more men (Full Sample: 63.7%, Treatment effectiveness: 64.8%, Engagement: 59%, Log-Data: 60.6%, Age: 63.6%, Professional Contact: 61.7%, Peer Contact: 71.4%) than women (FS: 31.7%, TE: 35.2%, E: 32.5%, LD: 29.9%, A: 35.6%, PC: 34.2%, PeC: 17.9%). The results of the independent samples t-test (Appendix B) revealed many significant differences between the samples and therefore results should later on be interpreted carefully. For example, the t-tests revealed main differences in T0 mean scores on the various scales between the full sample and

other samples, like the engagement sample, and between the treatment effectiveness sample and others. Furthermore, the treatment effectiveness sample showed significant differences in T1 mean scores compared to other samples like the engagement sample. Considering the mean scores of the difference between T0 to T1, the treatment effectiveness sample differed significantly from all other samples in terms of scores on the coping scale. Lastly, the t-tests were used to investigate the difference in mean engagement scores between the samples. The analyses revealed that many samples significantly differed in mean engagement scores, like the full sample and the treatment effectiveness sample, the peer contact sample and others, and the age simple and professional contact.

Table 2

Descriptive statistics of the T0, T1, Difference between T1 and T0 measures of anticipated panic, panic consequences, and panic coping, and engagement scores for all samples

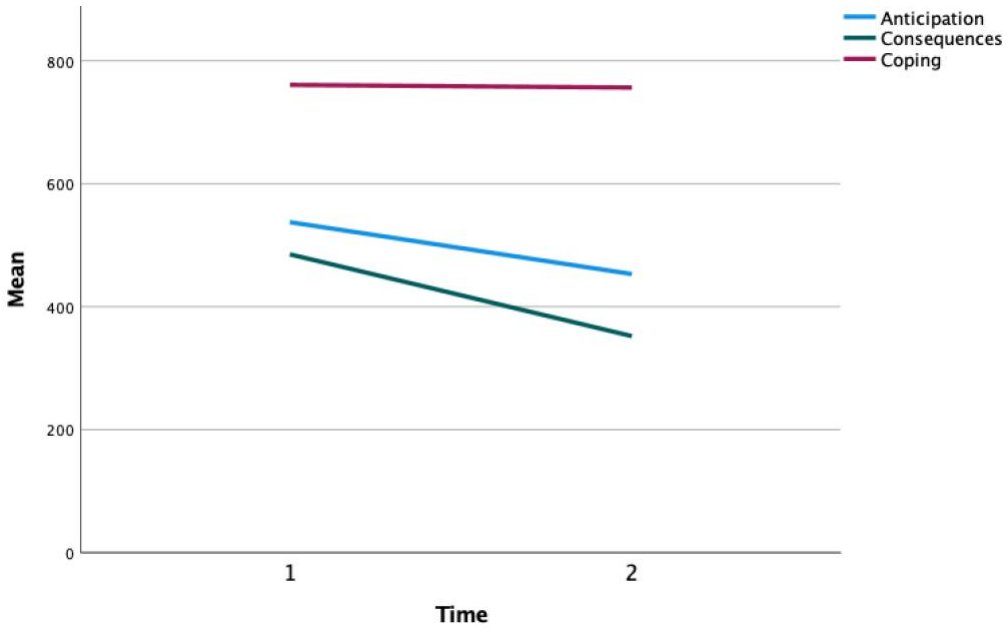
	Full Sample	Treatment Effectiveness	Engagement	Log Data	Age	Professional Contact	Peer Contact
N	21844	1719	717	472	542	193	28
t0 Anticipation (M;SD)	530.23; 290.81	537.57; 298.01	537.19; 307.92	555.88; 309.25	535,.83; 304.04	559.9; 311.60	641.39; 294
t1 Anticipation (M;SD)	-	453.16; 302.91	466.19; 312.57	489.4; 314	472.19; 313.26	489.13; 347.90	503.61; 287.18
t0 Consequences (M;SD)	490.50; 279.06	485.27; 282.05	485.85; 284.73	499.97; 293.99	483.74; 283.84	529.45; 288.86	611.18; 302.70
t1 Consequences (M;SD)	-	352.19; 280.07	363.84; 288.91	382.82; 302.84	368.05; 292.91	388.49; 316.02	442.21; 334.80
t0 Coping (M;SD)	740.12; 285.78	760.87; 283.04	663.26; 280.70	647.11; 270.99	662.56; 270.87	655.41; 293.16	569; 275.97
t1 Coping (M;SD)	-	756.46; 317.12	790.84; 339.12	774.42; 341.44	793.26; 335.57	786.58; 357.65	756; 337.07
Anticipation Difference (M;SD)	-	84.41; 231.38	68.99; 237.68	66.47; 229.72	63.64; 240.42	70.76; 248.82	137.79; 290.32
Consequences Difference (M;SD)	-	133.08; 238.13	122.01; 236.13	117.16; 238.04	115.69; 234. 18	140.96; 258.61	168.96; 326.61
Coping Difference (M;SD)	-	4.42, 333.53	-127.58; 319.18	-127.31; 308.39	-130.7; 322.25	-131.17; 355.21	-187; 354.55
Engagement (M;SD)	20.79; 5.54	21.44; 5.29	21.44; 5.29	21.70; 5.17	21.26; 5.34	22.22; 5.08	24.18; 5.64

Primary Analyses: Linear Mixed Models

The treatment effectiveness sample was analysed using three linear mixed model analyses to investigate whether the patients experienced fewer symptoms after working on the panic programme. Therefore, the response variables used in the models were anticipated panic, panic consequences, and panic coping. The analyses revealed a significant effect of time for anticipated panic, $F(1, 3435) = 68.956$, $p < .001$, and panic consequences, $F(1, 3435) = 195.573$, $p < .001$. When examining the slopes (Anticipation $b = -.278$; Consequences $b = -.461$) a negative relationship is revealed, which suggests that all patients' scores on these two scales decreased over time. Moreover, there seems to be a negative relationship ($b = -.015$) between the panic coping scale and time, however this was not significant and therefore it can be concluded that the scores did not significantly improve over time for all patients. No significant effect of participant ID was found which indicates that the change in outcomes is not significantly explained by individual differences.

Figure 4

Anticipated Panic, Panic Consequences, and Panic Coping mean scores of the pre- and post-measures



Note. Time 1 = T0, Time 2 = T1

Next, the engagement sample was analysed to investigate the relationship between the T0 and T1 scores on the PAI scales and engagement. The analyses revealed a significant effect of time for all models (see table 3). The slopes of the anticipated panic and time (b = - .221) and the panic consequences and time (b = - .513) show a negative relationship indicating that the scores on the scales decrease for all patients over time. On the other hand, the relationship between panic coping and time shows a positive relationship (b = .402), which suggests that the scores increase over time for all patients in this particular sample. Furthermore, a relation between engagement and the anticipated panic, $F(1,714.609) = 7.203$, $p = .007$, and of panic consequences scores, $F(1,714.718) = 5.216$, $p = .023$ was found. Due to the positive linear relationship (Ant b = .212, Con b = .239), these results suggest that the more engaged a patient was with the platform the higher the anticipation to have future panic attacks and the more negative consequences of panic attacks are perceived. The linear mixed model analyses revealed no significant association between engagement and panic coping (see table 3). Next, the interaction term between engagement and time was found to significantly predict the scores on the PAI scales (see table 3). The negative linear relationship of the interaction term and anticipated panic (b = - .8) and panic consequences (b = - .109) suggests that the more engaged the patient is, the lower their scores will be over time. However, the interaction term and panic coping show a positive linear relationship (b = .147) indicating that more engagement leads to higher scores over time. In addition, the random effect of patient ID showed no significance in any of the models (see table 3), indicating that the change in outcomes is not significantly explained by individual differences.

Table 3

Estimated Fixed and Random Effects and Information Criteria of the Linear Mixed Models for Anticipated Panic, Panic Consequences, and Panic Coping

	Anticipated Panic		Panic Consequences		Panic Coping	
	F	*p*	*F*	*p*	*F*	*p*
Intercept	11.49	< .001	9.18	.003	4.19	.045
Engagement	7.20	.007	5.21	.023	1.91	.167
Time	60.41	< .001	191.43	< .001	114.55	< .001
Engagement *Time	8.03	.005	13.25	< .001	15.70	< .001
Patient ID		.506		.513		.546
Schwarz's Bayesian Criterion	3574.02		3616.31		3857.02	
Restricted Log Likelihood	3552.22		3594.51		3835.20	
Akaike's Information Criterion	3558.22		3600.51		3841.20	

Furthermore, to examine the relationship between the log-data, the symptom scores, and engagement four LMMs were used with the log-data sample. Anticipated panic, panic consequences, panic coping, and engagement were the dependent variables. When adding the variables 'number of actions' with, 'total visits' of, and 'total time spent with the platform to the LMM, the analyses showed no significant association between the added variables and any of the three scales of the PAI (see table 4). Additionally, the retrieved log-data did not seem to predict the patients' level of engagement.

Next, it was investigated whether age had a relation to the patients' panic symptom scores and engagement and whether age moderated the relation between engagement and symptoms scores. The analyses revealed no significant association between age and anticipated panic, panic coping, and engagement (see table 4). However, age seemed to significantly relate

to the patients' scores on the consequences scale of the panic appraisal inventory, F(1,538.938) = 10.542, p = .001. Since this relationship is negative (*b* = - .009) it thus indicates that the older the patient is, the less they perceive possible negative consequences of future panic attacks. Furthermore, the analyses show that the interaction term between age and engagement is significantly associated with anticipated panic F(1,538.377) = 3.905, p = .049 and panic consequences F(1,538.526) = 4.113, p = .043. These results suggest that age seems to moderate the relationship between engagement and these two scales. The positive linear relationship between the interaction term and anticipated panic (*b* = .002) and panic consequences (*b* = .002) indicates that as age increases, the effect of engagement on symptom scores also increases. However, no significant relationship was found between the interaction effect and panic coping (see table 4).

The professional contact sample and the peer contact sample were analysed to examine their relationship with the symptom scores and engagement. The analyses revealed no significant association between the amount of professional contact and the symptom scores or professional contact and engagement. Similarly, the amount of peer contact did not seem to relate to the scores on the scales of the panic appraisal inventory or engagement (see table 4).

Lastly, the analyses showed some differences between the used samples. A significant effect of time for all models in all samples (see Table 4). All samples showed a negative linear relationship between time and anticipated panic and panic consequences, suggesting that these symptom scores decreased for all patients over time. The relationship between time and panic coping however revealed to be positive for all samples, indicating that this score increased over time for all patients. In addition, the random effect of patient ID showed no significance in any of the models in all samples, indicating that the patient's scores are not significantly explained by individual differences.

Table 4

Estimated Fixed and Random Effects and Information Criteria of the Linear Mixed Models for Anticipated Panic, Panic Consequences, Panic Coping, and Engagement

	Ant Panic		Panic Con		Panic Cop		Engagement	
	F	*p*	*F*	*p*	*F*	*p*	*F*	*p*
Intercept	8.09	.005	7.15	.008	3.34	.074	3.53	.06
Number of Actions	.07	.796	.01	.904	1.91	.168	.09	.76
Total Visits	.06	.797	.34	.561	1.66	.198	2.66	.103
Total Time	.07	.784	.03	.855	.37	.54	.02	.894
Age	.21	.646	11.06	.001	.44	.506	.71	.397
Age*engagement	3.98	.049	4.61	.043	3.38	.066	-	-
Professional Contact	2.4	.123	3.61	.059	3.39	.067	.01	.938
Peer Contact	1.13	.297	1.99	.17	.06	.807	.31	.579
Time	39.51	< .001	114.33	< .001	80.43	<.001	-	-
Patient ID		.516		.52		.558		-
Schwarz's Bayesian Criterion	2342.46		2379.48		2537.55		2691.94	
Restricted Log Likelihood	2321.93		2358.94		2517.01		2678.25	
Akaike's Information Criterion	2327.93		2364.94		2523.01		2682.25	

Discussion

The goal of this paper was to investigate whether patients experienced fewer symptoms after working on the panic programme on the platforms Therapieland or Gezondeboel and whether engagement had a relation to these symptom scores. Moreover, it was studied whether the retrieved log-data, age, professional contact, or peer contact had a relation to the symptom scores and engagement. To summarise, the results show a significant decrease in symptom scores from T0 to T1 for anticipated panic and panic consequences in all samples. Furthermore, engagement was found to be significantly positively related to the scores of anticipated panic and panic consequences. In addition, the interaction between engagement and time was revealed to be significant for all scales, with anticipated panic and panic consequences demonstrating a negative relationship and panic coping exhibiting a positive relationship. Next, age significantly predicted the scores of panic consequences, showing a negative relationship. Additionally, age seemed to moderate the relationship between engagement and the scores of anticipated panic and panic consequences. Further, no significant association was found between the log-data variables, professional contact, or peer contact and the symptom scores or engagement. Lastly, no significant relation was found for the random effect participant ID, indicating that the patients' scores could not significantly be explained by individual differences.

Discussion of the main findings

The outcomes of this study are partly in line with past research since they show a decrease in symptoms after treatment (van Lotringen et al., 2021; Bonet et al., 2020) considering the anticipated panic scores and the panic consequences scores. One explanation for this might be that the PAI scales represent cognitive aspects of panic, which might only partly be true for coping. It could be hypothesised that the intervention changes some of the more cognitive aspects of panic, however it is not able to fully reach behaviour. This seems logical as behaviour is difficult to change and oftentimes takes a long time and much practice. This is supported by the paper of van Merriënboer and Sweller (2009) about the cognitive load theory in health professional education as they explain that automated schemas develop for those behaviours that are consistent across task situations, such as routines. Therefore, the patients would have needed to consistently practice new coping behaviour in triggering situations to develop automated

behaviour. Another factor in this could be safety-seeking behaviours since these behaviours can be dysfunctional and maintain anxiety even after practising coping skills. The panic programme does involve options to practise new behaviour, like exposure, however it does not introduce safety-seeking behaviours to the patient. These behaviours could therefore lead to the exercise being ineffective. However, it should be noted that it is difficult to attribute these outcomes solely to what the patients learned and practised on the platforms since, for example, some patients might have had more exercise due to being in face-to-face therapy. More research is needed on how exactly the panic programme influences the panic coping scores to be able to draw conclusions and understand what role engagement plays.

Next, the results on engagement were surprising since it was expected that higher engagement would have a negative relationship with the symptoms scores, which was only true for the panic coping scores. These results could be interpreted in two ways as it is difficult to conclude a directionality. First, it might be reasoned that higher engagement leads to higher symptom scores. One possible explanation could lie in the nature of engagement itself since previous research points to engagement being a process rather than a state, as it is mainly seen (Kelders, Kip, & Greeff, 2020). In this study, engagement was only measured at one point during data collection, which might not accurately represent the relationship between engagement and symptom scores. Kelders, van Zyl, and Ludden (2020) explain that the process of getting engaged, staying engaged, disengaging, and re-engaging is sometimes perceived as more representative of actual engagement. Administering the TWEETS at one-third of the programme might show that, for example, more engagement increases the patients' awareness of their symptoms.

The second possible interpretation of the results ties into possible influences on or determinants of engagement. The results could also be interpreted in the way that a higher number of complaints increases the patients' motivation to work on themselves and thus increases their engagement with the programme. This relation between symptom severity and engagement is in line with previous research. For example, Yaeger, Shoji, Luszcynska, and Benight (2018) showed, in their longitudinal study on engagement with a trauma recovery internet intervention, that higher baseline PTSD symptoms were associated with greater intention to use the intervention. Additionally, previous research has shown that, generally, a longer duration of symptoms is connected with higher help-seeking behaviour (Boerema et al., 2016).

More research into this relation could be useful to grant deeper insights into the determinants of engagement.

Including the interaction between time and engagement in the analyses revealed that more engagement led to a decrease in anticipated panic and panic consequences scores over time. These findings are in line with previous research showing that when individuals can identify with the intervention or when they feel involved, effects can be larger (Kelders, van Zyl, & Ludden, 2020; Nicholas et al., 2017). It can be noted that engagement predicting more positive outcomes of interventions is a fairly consistent finding across previous literature. Due to this, it could be argued that even more attention should be paid to engagement in future research, as well as in the future design of eHealth interventions. More knowledge of the concept and its determinants could enable the design of optimised technologies and interventions, therefore combating the high attrition and low adherence rates that are oftentimes reported (Sieverink, Kelders, & van Gemert-Pijnen, 2017; Ondersma & Walters, 2020; Bonet, Torous, Arce, Blanquer, & Sanjuan, 2020).

Furthermore, the analyses revealed that age significantly predicted the panic consequences scores, indicating that the older the patient the lower their panic consequences score. One possible explanation for this finding could be that there is some form of difference in, for example, the perception of certain aspects of panic between age groups. This also seems probable when considering that anxiety is more prevalent in younger adults than it is in older adults (Wolitzky-Taylor, Castriotta, Lenze, Stanely, & Craske, 2010; Remes, Brayne, van der Linde, & Lafortune, 2016) since it points to some differences affecting whether an individual develops anxiety or not. Considering the results of this study, it could be hypothesised that older individuals either perceive less possible negative consequences or they perhaps do not dwell on these as long. This might also seem reasonable when taking into account that younger individuals could be more insecure and thus care more about, for example, how they are judged and seen by their peers. Therefore, being called ‘crazy’ by their peers could be perceived as worse by younger individuals. However, to this author’s knowledge, no study has investigated this particular relationship and thus more research would be useful in understanding it.

In addition, the analysis of the interaction between age and engagement showed that as age increases, the effect of engagement on symptom scores increases. This finding points toward engagement being more important for older patients to improve, which is not that surprising. The

previous literature has shown that older individuals usually possessed lower eHealth literacy, which was cited as one reason for lower uptake (Delello & McWhorter, 2017; Choi & DiNitto, 2013). This could mean that it is generally more difficult for older people to obtain the information provided on the platform and therefore engagement could be especially important. Engagement in older patients could be supported by the design of the intervention. Politi, Adsul, Kuzemchak, Zeuner, and Frosch (2014) pointed out in their study on clinician's perceptions of digital versus paper-based decision support interventions, that many participants themselves believed that older patients are more likely to be accepting of paper-based interventions and younger patients prefer digital ones. More research investigating these aspects could be useful to understand how different age groups might be reached and supported.

Next, it was surprising that no association was found between the log-data variables and the symptom scores or engagement. Previous research showed a dose-response relationship between usage and outcomes in which individuals who use the technology more also experience greater positive effects (Donkin et al., 2011; Yaeger et al., 2018). Engagement might be a crucial factor in this and there is some dispute on the influence or part usage has in the concept of engagement. For example, Kelders, Kip, and Greeff (2020) point to engagement relating more to making usage of the technology a part of the individual's daily life and creating a routine. If the usage part of engagement should be characterised as a part of the individual's daily life and routine, it could be possible that the log-data variables do not properly resemble this. Another explanation for the surprising findings could be that the tracked data could not be linked to the specific programme and therefore represented parts of the interaction with the platform. Moreover, the platform contains many programmes and it is likely that many patients used more than just the panic programme, therefore it is hard to relate the data to the panic symptom scores and engagement. Nonetheless, it would be beneficial to investigate the relationship between usage and engagement further in order to establish a common consensus on these concepts.

Lastly, finding no relation between professional contact, peer contact and symptom scores or engagement was surprising because, based on previous literature, different results were expected. For example, Borghouts et al. (2021), as well as Baumel and Kane (2018), indicate that witnessing a professional's attitude towards and usage of an eHealth technology or intervention has an influence on the patient's engagement. In addition, Pfeiffer, Heisler, Piette, Rogers, and Valenstein (2011) explain that when patients interact more with their peers by, for example,

joining more discussions and sharing experiences about their symptoms, they are more probable to benefit from an intervention (Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011). However, one explanation for the findings of the current study could lie in the form of measurement of both variables. Measuring professional and peer contact as the number of chat messages and the number of groups could have been an inaccurate representation of the variables. It would be useful to investigate these further with more information about, for example, whether the interactions were perceived as meaningful or whether face-to-face contact was provided.

Strengths and Limitations

One notable strength of the conducted study is that LMMs were used to analyse the data as they enabled the recognition of group, as well as individual differences, which would not have been possible using repeated measures ANOVA. Additionally, they are a good choice for repeated measures because LMMs are able to represent the course of individual behaviour patterns (Krueger & Tian, 2004). By being able to include both fixed and random factors to account for group and individual differences, the results should more accurately represent actual relationships and be more reliable. Even though no significant effect of participant ID was found using the repeated measures ANOVA instead of the LMMs would have probably been an option. However, when investigating a rather undefined construct such as engagement and examining real-world patients it would have seemed likely to find individual variation.

Furthermore, another strength of this paper relates to the study design and the sample since the participants were real-world patients. In order to ensure that developed eHealth interventions are actually effective for a larger population it is necessary to investigate real-life samples more. Investigating real-world patients gives the opportunity to generate a more accurate representation of constructs like engagement. Additionally, the patients were randomly sampled and the sample size was large, which supports generalizability. However, it should be noted that only patients who filled in the TWEETS and the T0 and T1 administration of the PAI were analysed, which could have biased the results to some degree. For example, it could be argued that individuals who filled in all questionnaires, and therefore probably completed the programme, represent a subset of patients who were to some degree engaged. It might be insightful to include individuals who have not completed the intervention or who have not filled in each measure in the analyses and investigate possible explanations for this in future research.

One limitation of the current study was measuring engagement at only one point during treatment, namely at one-third. This was done to keep the participant burden low, especially since the focus of Therapieland, Gezondeboel, and the programmes is not to research, but to treat mental disorders and support well-being (Therapieland, 2022; Gezondeboel, 2022). As stated before, engagement could be seen as a dynamic process rather than a static state or include multiple levels, like micro- and macro-level engagement. Insights into such aspects of a construct are unlikely to be uncovered by only one measurement and it could be useful to analyse engagement using repeated measures.

Furthermore, it was not identified which patients received blended care and which did not. This poses a serious challenge for interpreting the results as a patient who is simultaneously receiving face-to-face therapy due to a panic disorder might have more guidance or opportunities to practise, which would influence the symptoms scores and possibly engagement. It could have been interesting to register which patients received blended care and which did not to be able to compare the two groups in terms of, for example, differences in efficacy and engagement. This could have also yielded more insight into how professional contact might be related to these constructs, which could be considered for future research.

Recommendations for future research

Even though the results of the current study should be treated cautiously, it can still contribute to the scientific knowledge about the concept of engagement and which factors might aid in the eHealth treatment of individuals who experience symptoms of panic disorder. However, more research is needed to understand the nature of these concepts and their determinants. While the results of this study provide some insight into the concept of engagement and its relation to the symptom scores, they only represent engagement at one point in time. As discussed before, engagement might not just be a state an individual is in, but could be considered a process that includes, for example, getting engaged, staying engaged, disengaging, and re-engaging (Kelders, Kip, & Greeff, 2020; Kelders, van Zyl, & Ludden, 2020). In order to gain insight into such a process a different research method, like the experience sampling method (ESM), could be useful as it enables the gathering of individual experiences of various situations in order to understand the variability of mental states or psychological constructs (Verhagen, Hasmi, Drukker, van Os, & Delespaul, 2016). Moreover, this method could be advantageous because it

allows gathering data for between and within-participant comparison and thus might be useful in detecting fluctuations in engagement and its influence over a certain amount of time (Mehl & Conner, 2012). A future study could investigate engagement over the course of several days with multiple measurements each day to get a fuller picture of engagement. Of course this method has its limitations as well, such as the participant burden, which should be considered but it could pose as a viable option to investigate this construct.

Next, this study could not confirm whether usage aspects like number of actions, total time spent (in minutes), or number of total visits had a relation to engagement or symptom scores. Future research could fix the limitation of this study and track usage data specifically linked to the investigated programme. This would also provide the opportunity to investigate whether the initial interaction with the programme, as proposed in the introduction, has a relation to engagement and symptom scores and explore the concepts of micro- and macrolevel engagement. Moreover, additional measures of system usage data, such as number of log-ins and number of specific actions like pages viewed and modules or exercises viewed (Short et al., 2018), could be added as variables as well. This might be useful since it could support arriving at a shared conceptualisation of these data as well as possibly measuring engagement in terms of frequency, intensity, time, and type (Short et al., 2018). Doing so could provide further insight into the concept of engagement.

Lastly, the current study was not able to find a significant relationship between professional contact or peer contact and engagement or symptom scores. It could still be beneficial to investigate these topics further to find out whether it is valuable to fuse social contact with a technological intervention and which is the best way to do so. Concretely, looking at the limitations of the current study, a possible next step could be to register whether a patient receives face-to-face therapy in addition to the intervention by a simple yes or no question. This would also grant the opportunity to compare these two groups in terms of engagement and efficacy. Moreover, the system usage data that was discussed earlier could be included to possibly provide more insight into how the patient actually interacts with the group. Another step could also lie in comparing the effects of professional and peer contact with automated support in order to examine whether social contact is even necessary in terms of engagement and efficacy.

Conclusion

The current study contributed to the investigation of the efficacy of eHealth interventions and its possible determinants, specifically engagement. The generated results contribute and support previous scientific knowledge by showing an overall decrease in symptoms after treatment. However, this study cannot confirm that the change in symptom scores was caused specifically by the treatment. Additionally, it was observed that more complaints led to higher engagement, or the other way around, and that higher engagement led to lower symptoms over time. Furthermore, the results suggested that older patients scored lower on the panic consequences scale of the PAI and that as age increases, the effects of engagement on the symptom scores also increases. Lastly, no relation was found between the retrieved log-data, professional, contact, or peer contact and symptom scores or engagement.

In general, these insights support the need to develop engaging eHealth technologies and interventions to increase efficacy and to further research the discussed topics to be able to optimise such. Future research could investigate, for example, the concept of engagement as a process by using repeated measures, the relation between multiple system usage data and engagement, or the difference between age groups in terms of efficacy and engagement more closely.

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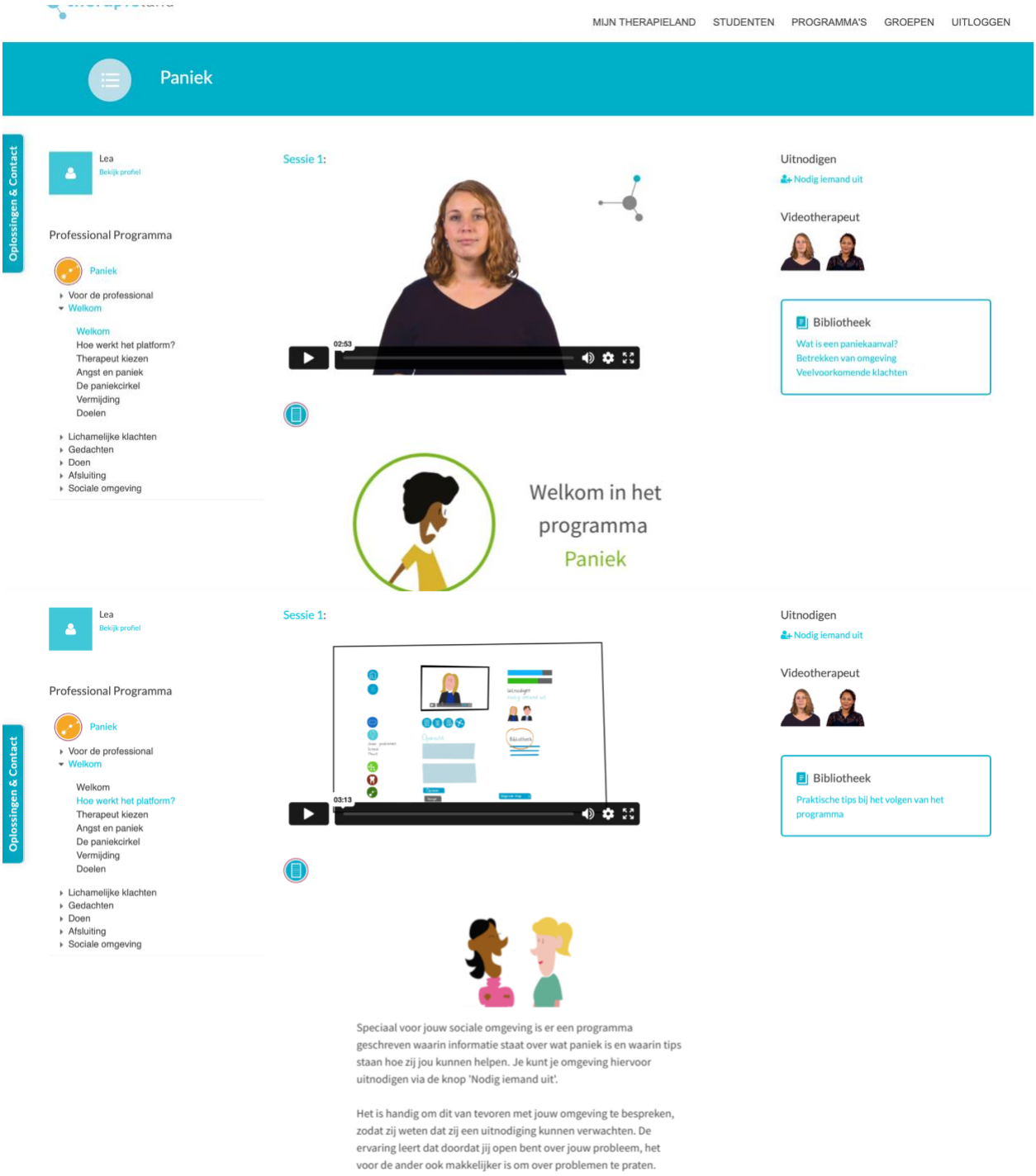
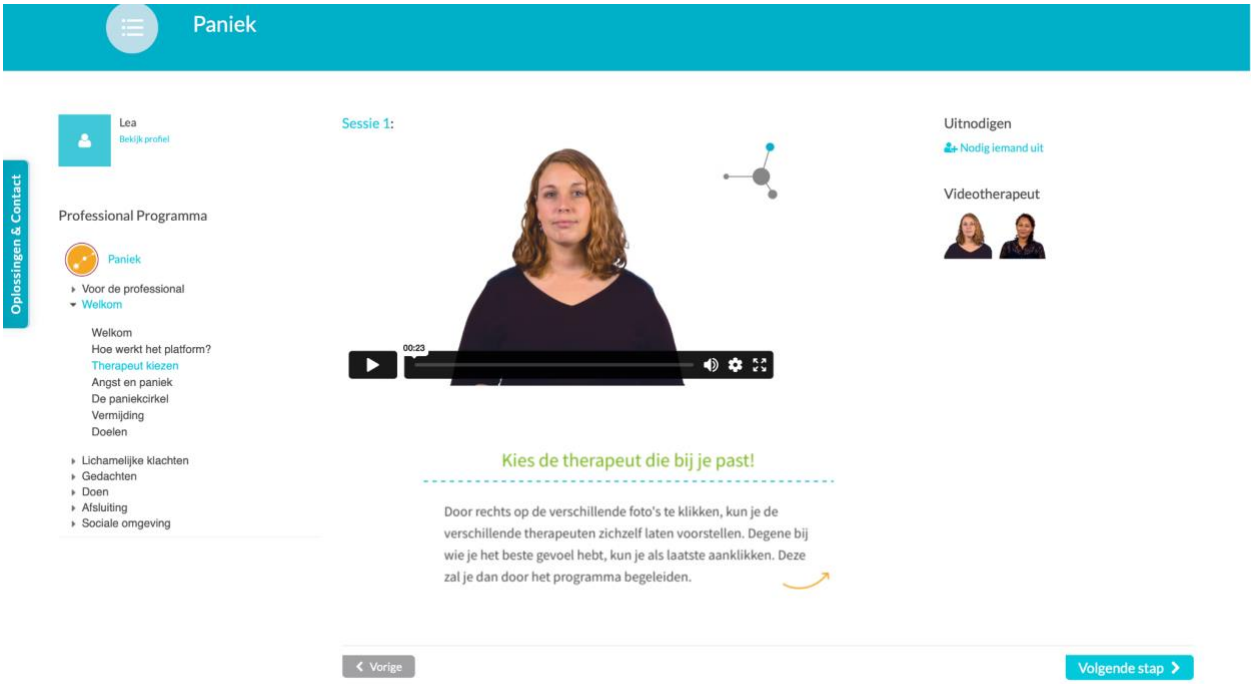
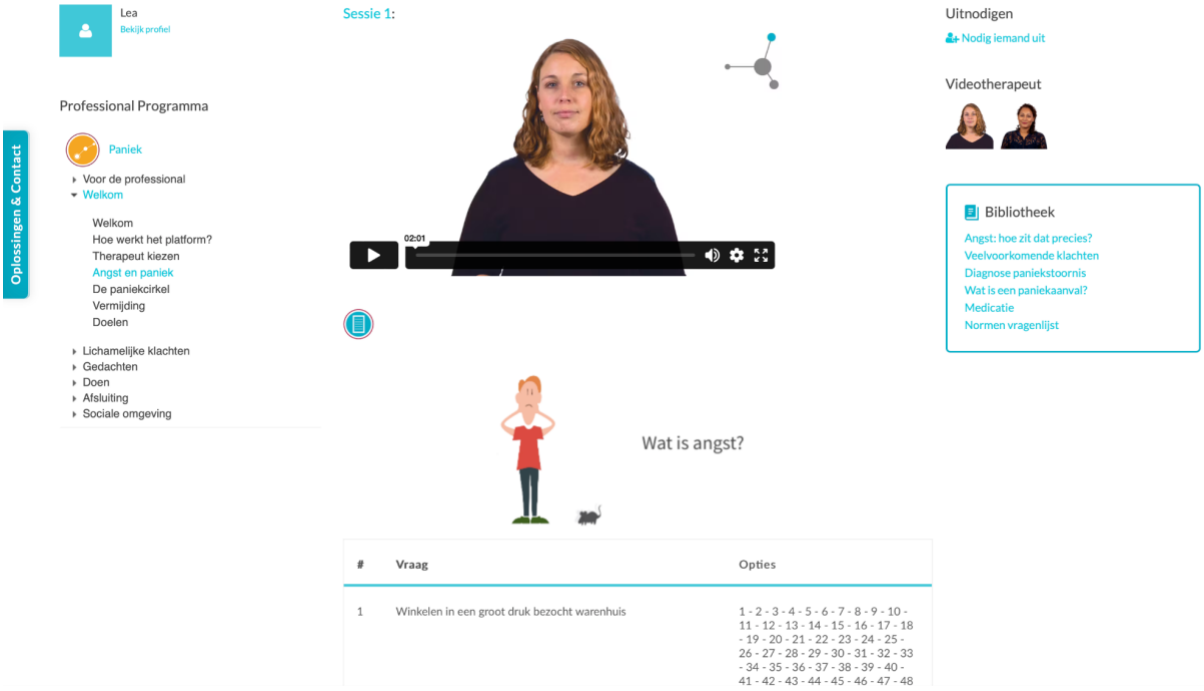
Appendix

Appendix A.

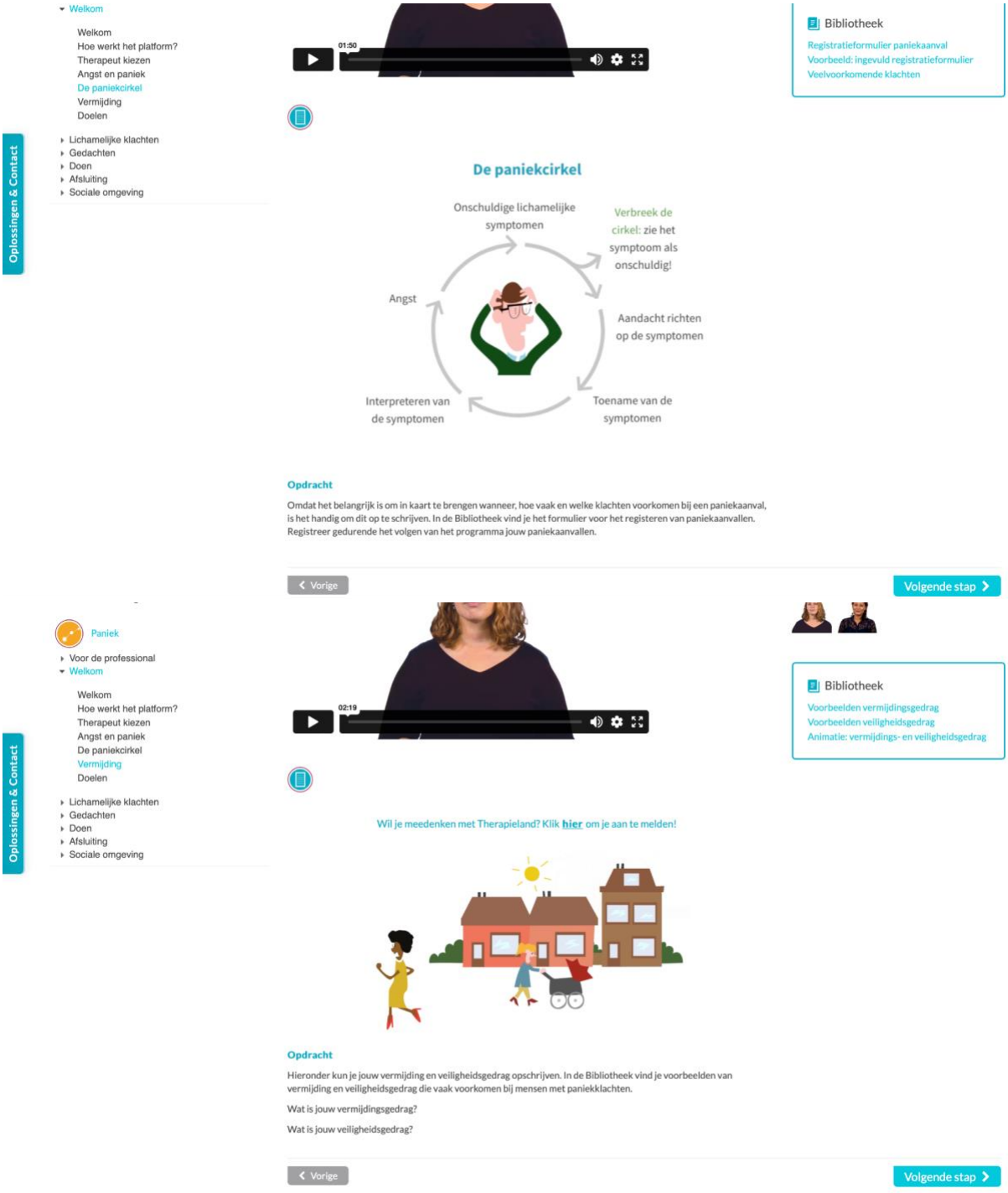
The Panic Programme







#	Vraag	Opties
1	Winkelen in een groot druk bezocht warenhuis	1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26 - 27 - 28 - 29 - 30 - 31 - 32 - 33 - 34 - 35 - 36 - 37 - 38 - 39 - 40 - 41 - 42 - 43 - 44 - 45 - 46 - 47 - 48


Welkom
Welkom
Hoe werkt het platform?
Therapeut kiezen
Angst en paniek
De paniekcirkel
Vermijding
Doelen
Lichamelijke klachten
Gedachten
Doen
Afsluiting
Sociale omgeving
Oplossingen & Contact
01:50
Bibliotheek
Registratieformulier paniekaanval
Voorbeeld: ingevuld registratieformulier
Veelvoorkomende klachten
De paniekcirkel
Onschuldige lichamelijke symptomen
Verbreek de cirkel: zie het symptoom als onschuldig!
Angst
Aandacht richten op de symptomen
Interpreteren van de symptomen
Toename van de symptomen
Opdracht
Omdat het belangrijk is om in kaart te brengen wanneer, hoe vaak en welke klachten voorkomen bij een paniekaanval, is het handig om dit op te schrijven. In de Bibliotheek vind je het formulier voor het registeren van paniekaanvallen. Registreer gedurende het volgen van het programma jouw paniekaanvallen.
Vorige
Volgende stap
Paniek
Voor de professional
Welkom
Welkom
Hoe werkt het platform?
Therapeut kiezen
Angst en paniek
De paniekcirkel
Vermijding
Doelen
Lichamelijke klachten
Gedachten
Doen
Afsluiting
Sociale omgeving
Oplossingen & Contact
02:19
Bibliotheek
Voorbeelden vermijdingsgedrag
Voorbeelden veiligheidsgedrag
Animatie: vermijdings- en veiligheidsgedrag
Wil je meedenken met Therapieland? Klik hier om je aan te melden!
Opdracht
Hieronder kun je jouw vermijding en veiligheidsgedrag opschrijven. In de Bibliotheek vind je voorbeelden van vermijding en veiligheidsgedrag die vaak voorkomen bij mensen met paniekklachten.
Wat is jouw vermijdingsgedrag?
Wat is jouw veiligheidsgedrag?
Vorige
Volgende stap

Therapeut kiezen
Angst en paniek
De paniekcirkel
Vermijding
Doelen

- Lichamelijke klachten
- Gedachten
- Doen
- Afsluiting
- Sociale omgeving

Oplossingen & Contact

Opdracht

Schrijf hieronder per vlak een doel op. Als je je doelen straks hebt opgeslagen kan je ze niet meer aanpassen, dus het is goed deze doelen nu al zo concreet mogelijk op te schrijven. Onder het doel zie je een balkje waarmee je kan aangeven hoe ver je bent in het bereiken van je doel. Later in het programma kan je dit weer invullen, zodat je kan zien hoe je voortgang is. Bovendien kan je dan ook extra doelen toevoegen als je dat zou willen.

Om aan je doelen te kunnen werken blijkt dat het ook belangrijk is dat je mogelijkheden hiervoor hebt. Hier stellen wij ook enkele vragen over om dit voor jou te onderzoeken. Stap voor stap kom je meer te weten en leer je meer vaardigheden om jouw doelen te kunnen bereiken. Het is logisch dat je nu nog niet zo ver bent, je bent pas net begonnen! Als je onder jouw doelen met de schuifjes kan aangeven welk cijfer je jezelf geeft, dan hebben we in ieder geval een startpunt. Succes!

Omschrijf een nieuw doel

In hoeverre heb je je doel bereikt?

Op dit moment bezit ik voldoende vaardigheden om mijn doel(en) te bereiken

Oplossingen & Contact

Lichamelijke klachten betekenen niet dat je een hartaanval krijgt of dat je gek wordt. Flauwvallen is praktisch onmogelijk; daarbij daalt je bloeddruk. Tijdens een paniekaanval stijgt je bloeddruk juist een beetje.

Opdracht

Vul in de tabel hieronder in waar je bij het doen van de oefening bang voor bent. Na de oefening kun je invullen of deze angstige verwachting is uitgekomen, hoe hoog je angstniveau was tijdens de oefening en of de lichamelijke klacht lijkt op een paniekaanval. In de Bibliotheek vind je een leeg registratieformulier dat je kunt printen, zodat je vaker kunt oefenen.

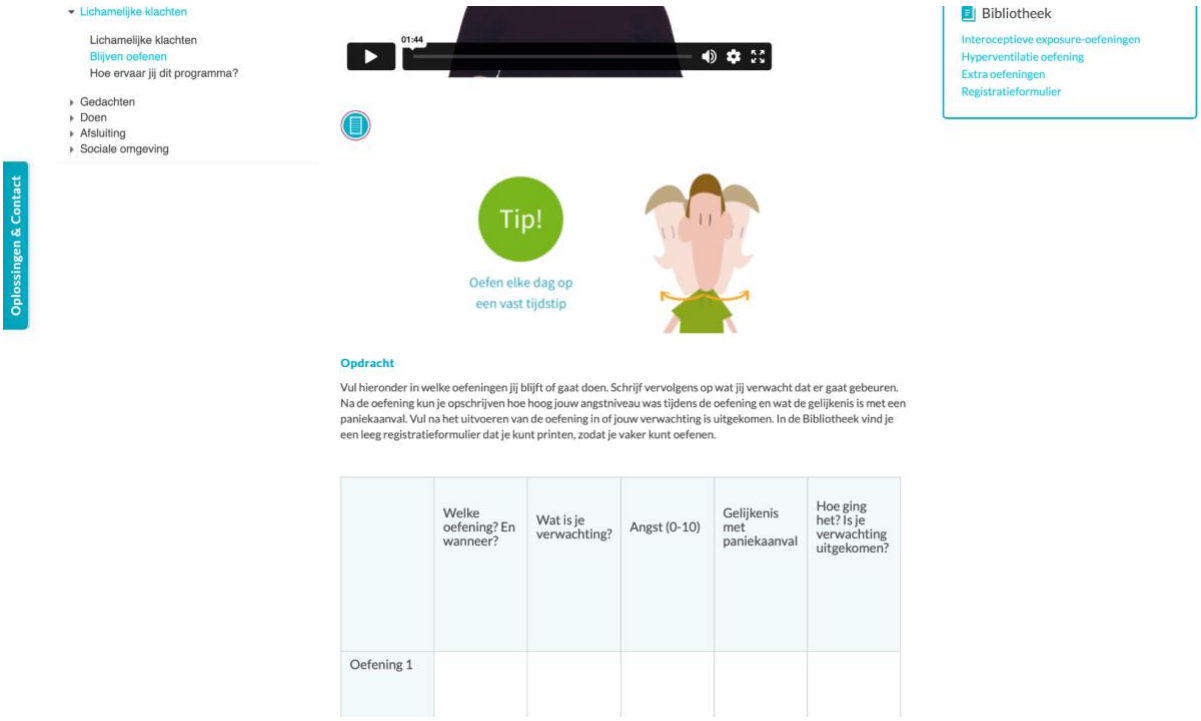
	Wat is je angstige verwachting?	Angst (0-10)	Gelijkenis met paniekaanval	Hoe ging het? Is je verwachting uitgekomen?
Oefening: Hijgen				

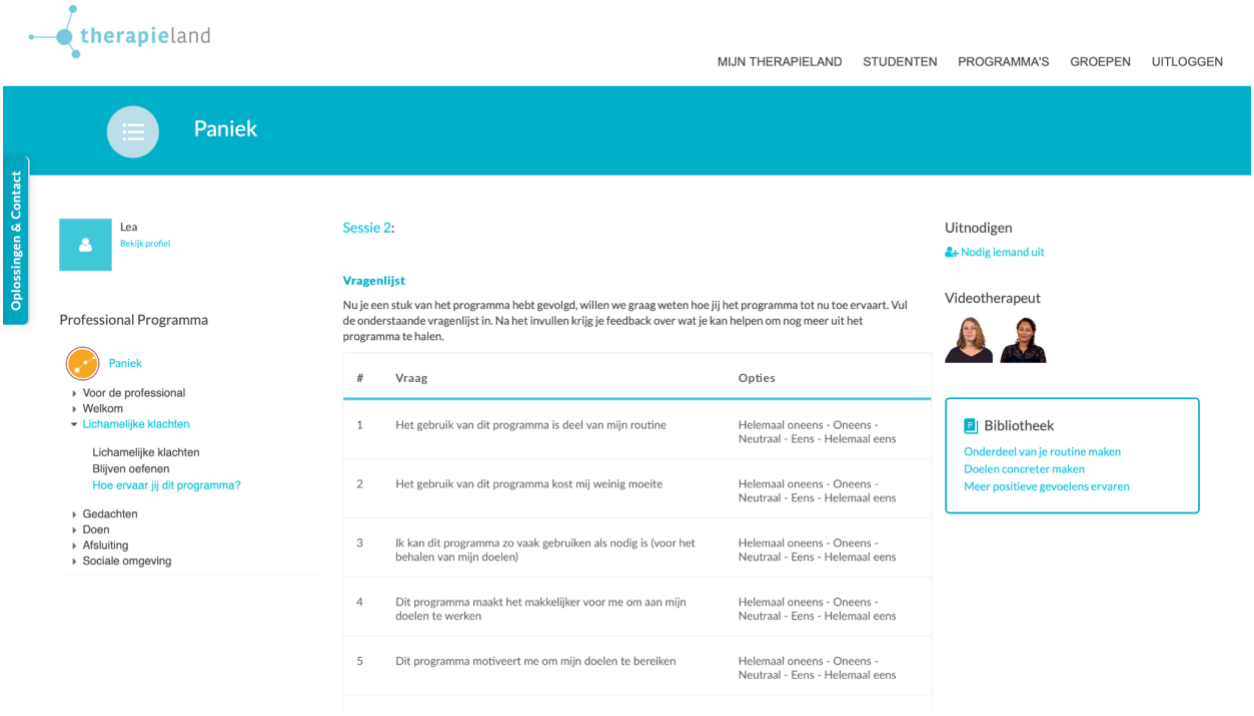
Oplossingen & Contact

Oefening: Hoofd schudden				
Oefening: Snel opstaan				
Oefening: Rennen				
Oefening: Adem inhouden				

Oplossingen & Contact

Oefening: Opdrukken				
Oefening: Ronddraaien				
Oefening: Staren				
Oefening: Rietje				


Lichamelijke klachten
Lichamelijke klachten
Blijven oefenen
Hoe ervaar jij dit programma?
Gedachten
Doen
Afsluiting
Sociale omgeving
01:44
Bibliotheek
Interoceptieve exposure-oefeningen
Hyperventilatie oefening
Extra oefeningen
Registratieformulier
Oplossingen & Contact
Tip!
Oefen elke dag op een vast tijdstip
Opdracht
Vul hieronder in welke oefeningen jij blijft of gaat doen. Schrijf vervolgens op wat jij verwacht dat er gaat gebeuren. Na de oefening kun je opschrijven hoe hoog jouw angstniveau was tijdens de oefening en wat de gelijkenis is met een paniekaanval. Vul na het uitvoeren van de oefening in of jouw verwachting is uitgekomen. In de Bibliotheek vind je een leeg registratieformulier dat je kunt printen, zodat je vaker kunt oefenen.
Welke oefening? En wanneer?
Wat is je verwachting?
Angst (0-10)
Gelijkenis met paniekaanval
Hoe ging het? Is je verwachting uitgekomen?
Oefening 1


therapieland
MIJN THERAPIELAND
STUDENTEN
PROGRAMMA'S
GROEPEN
UITLOGGEN
Paniek
Oplossingen & Contact
Lea
Bekijk profiel
Professional Programma
Paniek
Voor de professional
Welkom
Lichamelijke klachten
Lichamelijke klachten
Blijven oefenen
Hoe ervaar jij dit programma?
Gedachten
Doen
Afsluiting
Sociale omgeving
Sessie 2:
Vragenlijst
Nu je een stuk van het programma hebt gevolgd, willen we graag weten hoe jij het programma tot nu toe ervaart. Vul de onderstaande vragenlijst in. Na het invullen krijg je feedback over wat je kan helpen om nog meer uit het programma te halen.
Vraag Opties
1 Het gebruik van dit programma is deel van mijn routine Helemaal oneens - Oneens - Neutraal - Eens - Helemaal eens
2 Het gebruik van dit programma kost mij weinig moeite Helemaal oneens - Oneens - Neutraal - Eens - Helemaal eens
3 Ik kan dit programma zo vaak gebruiken als nodig is (voor het behalen van mijn doelen) Helemaal oneens - Oneens - Neutraal - Eens - Helemaal eens
4 Dit programma maakt het makkelijker voor me om aan mijn doelen te werken Helemaal oneens - Oneens - Neutraal - Eens - Helemaal eens
5 Dit programma motiveert me om mijn doelen te bereiken Helemaal oneens - Oneens - Neutraal - Eens - Helemaal eens
Uitnodigen
Nodig iemand uit
Videotherapeut
Bibliotheek
Onderdeel van je routine maken
Doelen concreter maken
Meer positieve gevoelens ervaren

Paniek

- Voor de professional
- Welkom
- Lichamelijke klachten
- Gedachten
  - Gedachten
  - Bewustwording
  - Uitdagen
- Doen
- Afsluiting
- Sociale omgeving

Oplossingen & Contact

Bibliotheek

Denkfouten

Hyperventilatie

Ik ga overgeven.

Ik ga flauwvallen.

Ik heb vast een hersentumor.

Ik krijg een hartaanval.

Ik ga stikken.

Ik ga me straks belachelijk gedragen.

Ik word blind.

Ik heb mijzelf straks niet meer in de hand.

Ik doe iemand straks nog wat aan.

Gedachten

- Gedachten
- Bewustwording
- Uitdagen
- Doen
- Afsluiting
- Sociale omgeving

Oplossingen & Contact

Voorbeeld schema

Leeg schema

	Situatie
Gebeurtenis	Ik zit in de trein op weg naar een afspraak, de coupé zit vol en mijn hart gaat tekeer.
Gedachten	Dit gaat helemaal mis, ik krijg een paniekaanval en ik ga tegen de vlakte.
Gevoelens	Bang (Cijfer: 9).
Gedrag	Ik loop naar de wc en ga bij het eerstvolgende treinstation eruit.

Opdracht

Hieronder kan je het eerste schema invullen. Neem een situatie waarin je een paniekaanval hebt gehad of je je angstig voelde. Je kunt het registratieformulier paniekaanval uit de stap 'de paniekcirkel' er nog eens bijpakken om te zien op welke momenten jij last had van een paniekaanval. Vergeet niet om je gevoel een cijfer te geven van 1 tot 10. In de Bibliotheek kun je een leeg schema vinden. Succes!

	Situatie 1	Situatie 2

Oplossingen & Contact

Gebeurtenis		
Gedachten		
Gevoelens		
Gedrag		

- Voor de professional
- Welkom
- Lichamelijke klachten
- Gedachten
  - Gedachten
  - Bewustwording
  - Uitdagen
  - Doen
- Afsluiting
- Sociale omgeving

Bibliotheek

Voorbeeld: uitdagen

Leeg schema

Oplossingen & Contact

Situatie	Ik zit in de trein op weg naar een afspraak, de coupé zit vol en mijn hart gaat tekeer.
Gedachte + geloofwaardigheid (%)	Dit gaat helemaal mis, ik krijg een paniekaanval en ik ga tegen de vlakte. Geloofwaardigheid: 90%.
Welke bewijzen voor en tegen deze gedachte heb je?	*Voor*: ik voel me niet goed en ik voel mijn hart daadwerkelijk tekeer gaan. *Tegen*: ik heb dit paniekgevoel eerder gehad en toen geen hartaanval gekregen.
Wat zou je gedacht hebben voordat je deze klachten kreeg?	Ik heb gehaast naar de trein, vandaar dat mijn hartslag hoger is. Daarnaast maken de vele mensen dat ik me benauwd voel. Even rustig aan en het zakt weer.
Wat zou je tegen een ander zeggen die dit denkt?	Het gevoel zakt weer na verloop van tijd. Paniek is heel vervelend, maar het gaat weer over.

Hoe groot is de kans op deze catastrofe?	Niet groot. Ik leef gezond en heb geen hartklachten.
Nieuwe gedachte	Ondanks dat mijn hart snel klopt, betekent het niet dat ik een hartaanval krijg.

Oplossingen & Contact

Opdracht

Beantwoord de vragen in de tabel hieronder voor jouw gedachten. In de Bibliotheek vind je een extra voorbeeld van een ingevuld schema en een leeg schema dat je kunt printen.

	Situatie 1	Situatie 2
Situatie		
Gedachte + geloofwaardigheid (%)		
Welke bewijzen voor en tegen deze gedachte heb je?		
Wat zou je gedacht hebben voordat je deze klachten kreeg?		
Wat zou je tegen een ander zeggen die dit denkt?		
Hoe groot is de kans op deze catastrofe?		

Oplossingen & Contact

Oplossingen & Contact

Nieuwe gedachte		

Oplossingen & Contact

Vorige

Sessie afronden

Professional Programma

- Paniek
- Voor de professional
- Welkom
- Lichamelijke klachten
- Gedachten
- Doen
  - Inleiding
  - Exposure
  - Plan
- Afsluiting
- Sociale omgeving

Videotherapeut

Bibliotheek

Situaties voor exposure

Exposure in vivo

Opdracht

Beschrijf hier nogmaals de activiteiten en/of situaties die je vermijdt. Het kan zijn dat je tijdens het programma nog meer situaties hebt ontdekt, dan kan je deze hier toevoegen. Probeer de situaties zo concreet mogelijk te beschrijven.

Volgende stap

- Welkom
- Lichamelijke klachten
- Gedachten
- Doen
  - Inleiding
  - Exposure
  - Plan
- Afsluiting
- Sociale omgeving

Oplossingen & Contact

Bibliotheek

Formulier voor exposure
Ingevuld voorbeeld
Situaties voor exposure
Als-dan-verwachting

Opdracht

Beschrijf hieronder de situatie waarin je gaat oefenen. Schrijf vervolgens op wat jouw verwachting is over wat er gaat gebeuren in die situatie. Na het opzoeken van de situatie kun je opschrijven of jouw verwachting is uitgekomen. In de Bibliotheek vind je een leeg formulier die je kunt gebruiken om meerdere keren te oefenen.

	Situatie 1	Situatie 2
Beschrijf de situatie		
Voor: wat is jouw verwachting? Hoe geloofwaardig is deze voor jou (in %)?		
Na: is jouw verwachting uitgekomen?		
Na: hoe geloofwaardig is jouw verwachting nu (in %)?		

Oplossingen & Contact

< Vorige

Volgende stap >

- Voor de professional
- Welkom
- Lichamelijke klachten
- Gedachten
- Doen
  - Inleiding
  - Exposure
  - Plan
- Afsluiting
- Sociale omgeving

Oplossingen & Contact

Bibliotheek

Situaties voor exposure
Interoceptieve exposure-oefeningen

Let erop dat je geen veiligheidsgedrag gebruikt bij het oefenen.

Opdracht

In de tabel hieronder kun je opschrijven welke exposure-oefeningen je de komende weken gaat doen.

	Week 1	Week 2
Maandag		
Dinsdag		
Woensdag		
Donderdag		
Vrijdag		

Oplossingen & Contact

Oplossingen & Contact

Zaterdag		
Zondag		

Oplossingen & Contact

Paniek
- Voor de professional
- Welkom
- Lichamelijke klachten
- Gedachten
- Doen
- Afsluiting
  - Vragenlijst
  - Terugvalpreventie
  - Afsluiting
  - Ben je geholpen door dit programma?
- Sociale omgeving

Vorige

Sessie afronden

Bibliotheek
Normen vragenlijst

Vul hieronder nogmaals de vragenlijst in

#	Vraag	Opties
1	Winkelen in een groot druk bezocht warenhuis	1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26 - 27 - 28 - 29 - 30 - 31 - 32 - 33 - 34 - 35 - 36 - 37 - 38 - 39 - 40 - 41 - 42 - 43 - 44 - 45 - 46 - 47 - 48 - 49 - 50 - 51 - 52 - 53 - 54 - 55 - 56 - 57 - 58 - 59 - 60 - 61 - 62 - 63 - 64 - 65 - 66 - 67 - 68 - 69 - 70 - 71 - 72 - 73 - 74 - 75 - 76 - 77 - 78 - 79 - 80 - 81 - 82 - 83 - 84 - 85 - 86 - 87 - 88 - 89 - 90 - 91 - 92 - 93 - 94 - 95 - 96 - 97 - 98 - 99 - 100
2	Een auto besturen 15 kilometer lang op een snelweg met druk verkeer	1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26 - 27 - 28 - 29 - 30 - 31 - 32 - 33

- Voor de professional
- Welkom
- Lichamelijke klachten
- Gedachten
- Doen
- Afsluiting
  - Vragenlijst
  - Terugvalpreventie
  - Afsluiting
  - Ben je geholpen door dit programma?
- Sociale omgeving

Oplossingen & Contact

Bibliotheek

Stoplichtoefening: leeg formulier
Voorbeeld stoplichtoefening

De stoplicht methode

Opdracht

Schrijf hieronder jouw signalen voor groen, oranje en rood op. Schrijf daarnaast op welke dingen jou helpen om je beter te voelen, dus om van rood naar oranje te gaan en van oranje naar groen.

	Signalen	Wat helpt mij?
Rood		
Oranje		
Groen		

Vorige

Volgende stap

Oplossingen & Contact

Oplossingen & Contact

Paniek
- Voor de professional
- Welkom
- Lichamelijke klachten
- Gedachten
- Doen
- Afsluiting
  - Vragenlijst
  - Terugvalpreventie
  - Afsluiting
  - Ben je geholpen door dit programma?
- Sociale omgeving

Goed gedaan!
Tot ziens

Opdracht

Als laatste vraag ik je om nog een keer in te vullen hoe ver je bent met het bereiken van je doel(en). Geef met de schuifjes aan hoe ver je bent met het behalen van je doel(en). Als je het werken met doelen als prettig hebt ervaren, kun je natuurlijk in de toekomst weer nieuwe doelen voor jezelf stellen.

Omschrijf een nieuw doel

In hoeverre heb je je doel bereikt?

Op dit moment bezit ik voldoende vaardigheden om mijn doel(en) te bereiken

Op dit moment heb ik voldoende mogelijkheden om mijn doel(en) te bereiken (denk aan tijd, een geschikte plek)

Ik zet op dit moment de juiste stappen op weg naar mijn doel(en)

Ik ben blij op dit moment (verdrietig - blij)

Vorige | Volgende stap

therapieland

MIJN THERAPIELAND | STUDENTEN | PROGRAMMA'S | GROEPEN | UITLOGGEN

Paniek

Oplossingen & Contact

Lea
Bekijk profiel

Professional Programma

Paniek
- Voor de professional
- Welkom
- Lichamelijke klachten
- Gedachten
- Doen
- Afsluiting
  - Vragenlijst
  - Terugvalpreventie
  - Afsluiting
  - Ben je geholpen door dit programma?
- Sociale omgeving

Sessie 5:

Vragenlijst

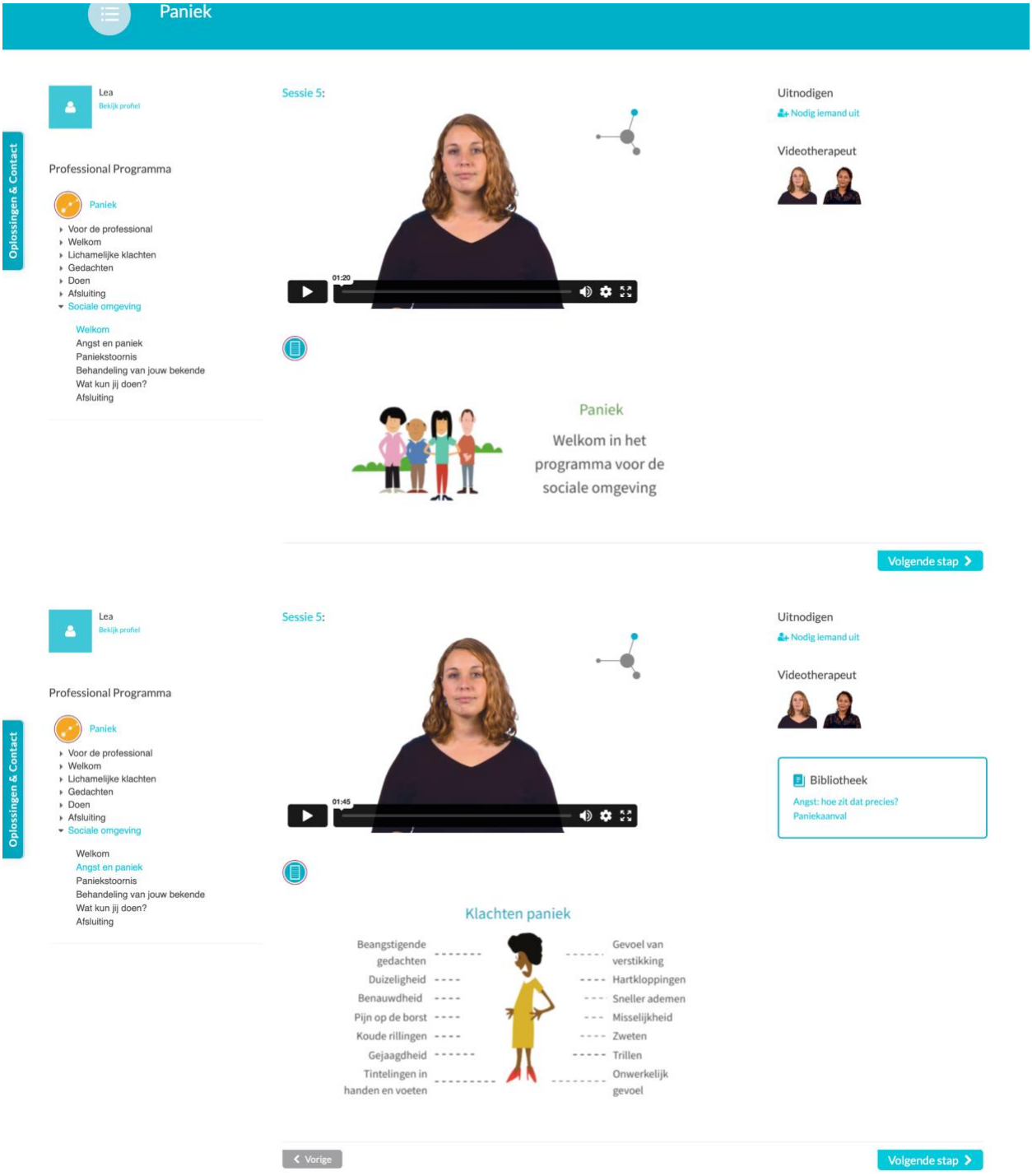
Je bent aan het einde gekomen van dit programma. We zijn benieuwd wat het voor jou heeft opgeleverd. Zou je onderstaande twee vragen voor ons willen invullen?

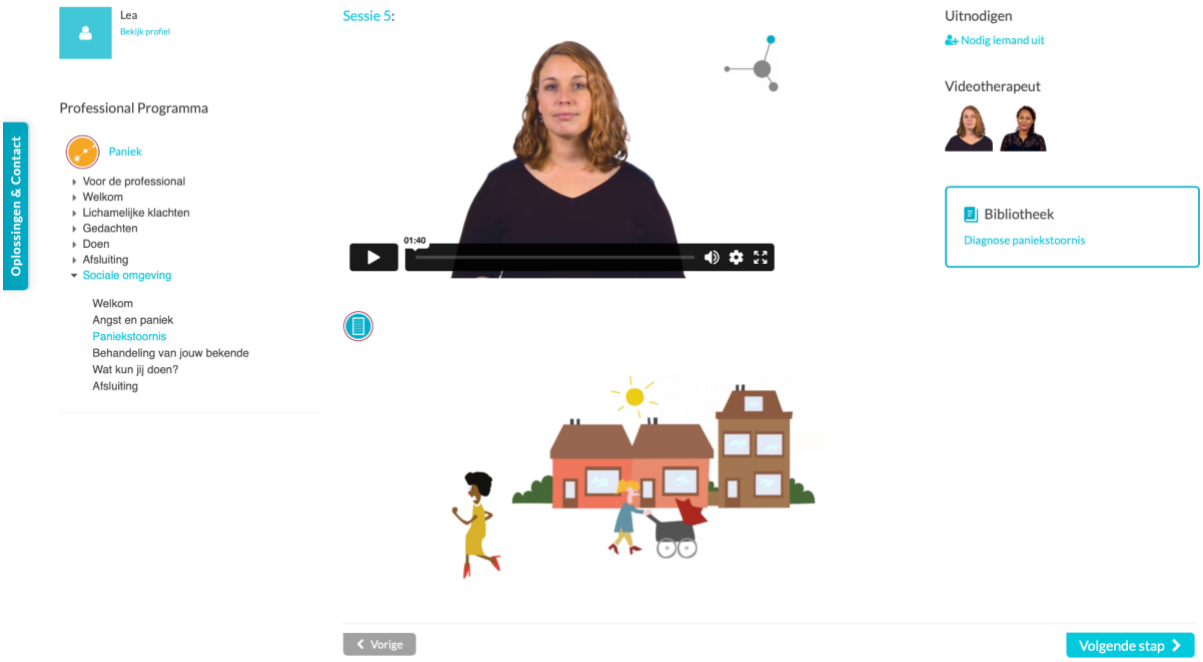
#	Vraag	Opties
1	In hoeverre voel je je geholpen door dit programma? (van 0 'helemaal niet geholpen tot 10 ' heel erg geholpen')	0 - 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

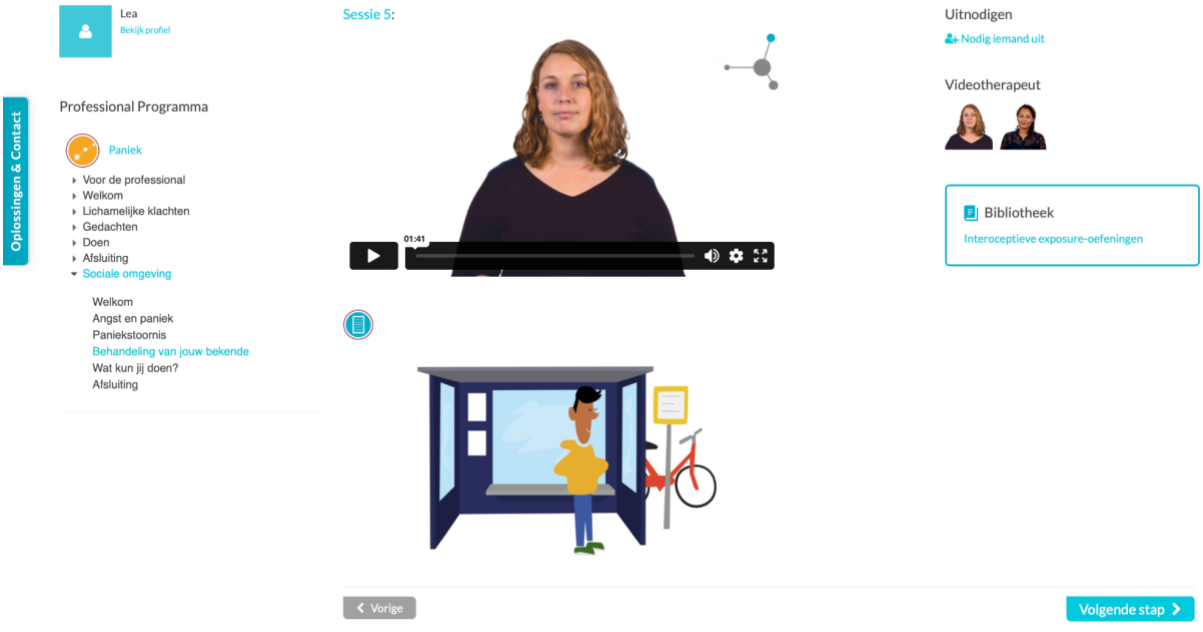
Uitnodigen
Nodig iemand uit

Videotherapeut

Vorige | Sessie afronden


Paniek
Oplossingen & Contact
Lea
Bekijk profiel
Professional Programma
Paniek
Voor de professional
Welkom
Lichamelijke klachten
Gedachten
Doen
Afsluiting
Sociale omgeving
Welkom
Angst en paniek
Paniekstoornis
Behandeling van jouw bekende
Wat kun jij doen?
Afsluiting
Sessie 5:
01:20
Uitnodigen
Nodig iemand uit
Videotherapeut
Paniek
Welkom in het programma voor de sociale omgeving
Volgende stap
Lea
Bekijk profiel
Professional Programma
Paniek
Voor de professional
Welkom
Lichamelijke klachten
Gedachten
Doen
Afsluiting
Sociale omgeving
Welkom
Angst en paniek
Paniekstoornis
Behandeling van jouw bekende
Wat kun jij doen?
Afsluiting
Sessie 5:
01:45
Uitnodigen
Nodig iemand uit
Videotherapeut
Bibliotheek
Angst: hoe zit dat precies?
Paniekaanval
Klachten paniek
Beangstigende gedachten
Duizeligheid
Benauwdheid
Pijn op de borst
Koude rillingen
Gejaagdheid
Tintelingen in handen en voeten
Gevoel van verstikking
Hartkloppingen
Sneller ademen
Misselijkheid
Zweten
Trillen
Onwerkelijk gevoel
Vorige
Volgende stap


Oplossingen & Contact
Lea
Bekijk profiel
Professional Programma
Paniek
Voor de professional
Welkom
Lichamelijke klachten
Gedachten
Doen
Afsluiting
Sociale omgeving
Welkom
Angst en paniek
Paniekstoornis
Behandeling van jouw bekende
Wat kun jij doen?
Afsluiting
Sessie 5:
01:40
Uitnodigen
Nodig iemand uit
Videotherapeut
Bibliotheek
Diagnose paniekstoornis
Vorige
Volgende stap


Oplossingen & Contact
Lea
Bekijk profiel
Professional Programma
Paniek
Voor de professional
Welkom
Lichamelijke klachten
Gedachten
Doen
Afsluiting
Sociale omgeving
Welkom
Angst en paniek
Paniekstoornis
Behandeling van jouw bekende
Wat kun jij doen?
Afsluiting
Sessie 5:
01:41
Uitnodigen
Nodig iemand uit
Videotherapeut
Bibliotheek
Interoceptieve exposure-oefeningen
Vorige
Volgende stap

Oplossingen & Contact

Professional Programma

Paniek

- Voor de professional
- Welkom
- Lichamelijke klachten
- Gedachten
- Doen
- Afsluiting
- Sociale omgeving

Welkom
Angst en paniek
Paniekstoornis
Behandeling van jouw bekende
Wat kun jij doen?
Afsluiting

Videotherapeut

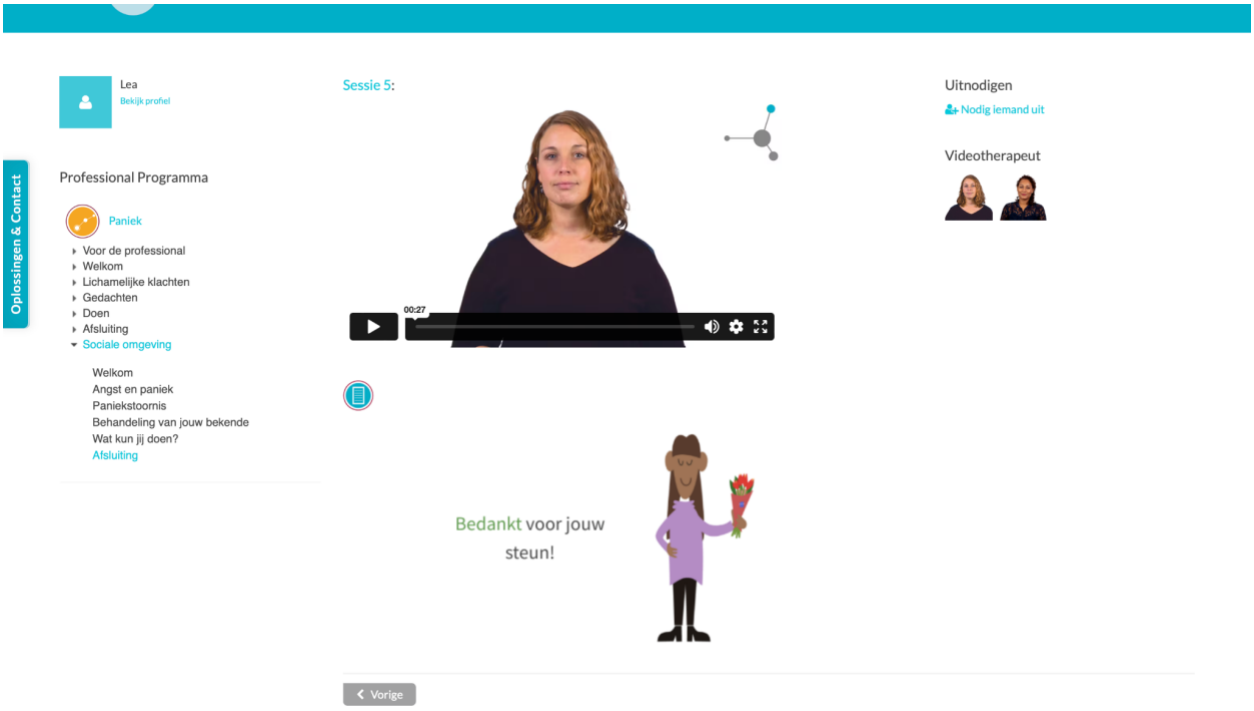
Tips om je bekende te helpen

1. Probeer zelf rustig te blijven als jouw goede bekende een paniekaanval heeft. Het kan heel lastig en een beetje eng zijn als zij een paniekaanval heeft, maar als jij zelf in paniek raakt is de kans groot dat dit haar paniekaanval alleen maar verergert.
2. Geef aan dat je er voor jouw goede bekende bent en dat je haar een luisterend oor wilt bieden. Probeer open te staan voor wat zij vertelt over haar angst, anders voelt zij zich niet gehoord.
3. Probeer aan te moedigen om met het oefenen aan de slag te gaan, maar laat haar daar wel zelf over beslissen. Zij moet het natuurlijk uiteindelijk wel zelf willen.
4. Voor jouw goede bekende kan het veilig voelen als jij meegaat met het oefenen. Soms zijn mensen met paniek minder bang als er iemand bij hen is. Ook al voelt dit misschien goed om voor haar te doen, het is belangrijk dat zij uiteindelijk alleen oefent. Anders blijft de angst alsnog aanwezig. Wel zou je eerst een keer samen kunnen oefenen en later niet meer mee kunnen gaan. Mocht je het moeilijk vinden om dit te bepalen, kun je haar ook altijd vragen om dit met haar behandelaar te bespreken.
5. Stel voor om iets ontspannends of leuks te doen. Jouw goede bekende heeft waarschijnlijk veel behoefte aan ontspanning tussen het oefenen door.
6. Van lieve dingen, zoals een bedankje, complimentje of kaartje wordt iedereen altijd vrolijk, dus denk hier af en toe aan.
7. Accepteer dat je niet altijd iets kunt doen. Het zijn haar gevoelens en de gedachten en jij kunt deze niet beïnvloeden.
8. Stel voor jezelf ook grenzen. Als het je teveel is, geef dit dan ook aan. Ook kan je kijken of er bij jouw in de buurt een bijeenkomst is van lotgenoten.

< Vorige

Volgende stap >

Oplossingen & Contact



Appendix B.

The output from the independent samples t-test

T0

	M	SD	t	p	Cohen's d
FS,TE ANT	530.23, 537.57	290.816, 298.015	-.961	.337	-.025
FS, TE CON	490.50, 485.27	279.065, 282.059	.729	.466	.019
FS, TE COP	740.12, 760.87	285.784, 283.045	-2.83	.005	-.073
FS, E ANT	530.23, 535.19	290.816, 307.922	-.42	.674	-.017
FS, E CON	490.5, 485.85	279.065, 284.734	.433	.665	.017
FS, E COP	740,12, 663.26	285.784, 280.7	7.014	< .001	.269
FS, LD ANT	530.23, 555.88	290.816, 309.25	-1.773	.077	-.088

FS, LD CON	490.5, 499.97	279.065, 293.992	-.723	.47	-.034
FS, LD COP	740.12, 647.11	285.784, 270.992	7.308	< .001	.326
FS, A ANT	530.23, 535.83	290.816, 304.042	-.421	.674	-.019
FS, A CON	490.5, 483.74	279.065, 283.849	.552	.581	.024
FS, A COP	740.12, 662.56	285.784, 270.871	6.515	< .001	.272
FS, PC ANT	530.23, 559.9	290.816, 311.606	-1.405	.16	-.102
FS, PC CON	490.5, 529.45	279.065, 288.868	-1.923	.054	-.139
FS, PC COP	740.12, 655.41	285.784, 293.16	4.086	< .001	.296
FS, PeC ANT	530.23, 641.39	290.816, 294	-2.02	.043	-.382
FS, PeC CON	490.5, 611.18	279.065, 302.705	-2.108	.044	-.432
FS, PeC COP	740.12, 569	285.784, 275.976	3.165	.002	.599

	M	SD	t	p	Cohen’s d
TE, E ANT	537.57, 535.19	298.015, 307.922	.178	.859	.008
TE, E CON	485.27, 485.85	282.059, 284.734	-.047	.963	-.002
TE, E COP	760.87, 663.26	283.045, 280.7	7.776	< .001	.346
TE, LD ANT	537.57, 555.88	298.015, 309.25	-1.172	.241	-.061
TE, LD CON	485.27, 499.97	282.059, 293.992	-.994	.32	-.052
TE, LD COP	760.87, 647.11	283.045, 270.992	7.805	< .001	.406

TE, A ANT	537.57, 535.83	298.015, 304.042	.118	.906	.006
TE, A CON	485.27, 483.74	282.059, 283.849	.11	.912	.005
TE, A COP	760.87, 662.56	283.045, 270.871	7.123	< .001	.351
TE, PC ANT	537.57, 559.9	298.015, 311.606	-.982	.326	-.075
TE, PC CON	485.27, 529.45	282.059, 288.868	-2.058	.04	-.156
TE, PC COP	760.87, 655.41	283.045, 293.16	4.89	< .001	.371
TE, PeC ANT	537.57, 641.39	298.015, 294	-1.829	.068	-.348
TE, PeC CON	485.27, 611.18	282.059, 302.705	-2.34	.019	-.446
TE, PeC COP	760.87, 569	283.045, 275.976	3.56	< .001	.678

	M	SD	t	p	Cohen's d
E, LD ANT	535.19, 555.88	307.922, 309.25	-1.132	.258	-.067
E, LD CON	485.85, 499.97	284.734, 293.992	-.826	.409	-.049
E, LD COP	663.26, 647.11	280.7, 270.992	.984	.325	.058
E, A ANT	535.19, 535.83	307.922, 304.042	-.037	.971	-.002
E, A CON	485.85, 483.74	284.734, 283.849	.131	.896	.007
E, A COP	663.26, 662.56	280.7, 270.871	045	.964	.003
E, PC ANT	535.19, 559.9	307.922, 311.606	-.98	.324	-.08
E, PC CON	485.85, 529.45	284.734, 288.868	-1.882	.06	-.153

E, PC COP	663.26, 655.41	280.7, 293.16	.342	.733	.028
E, PeC ANT	535.19, 641.39	307.922, 294	-1.872	.073	-.345
E, PeC CON	485.85, 611.18	284.734, 302.705	-2.279	.023	-.439
E, PeC COP	663.26, 569	280.7, 275.976	1.744	.082	.336

	M	SD	t	p	Cohen's d
LD, A ANT	555.88, 535.83	309.25, 304.042	1.039	.299	.065
LD, A CON	499.97, 483.74	293.992, 283.849	.894	.372	.056
LD, A COP	647.11, 662.56	270.992, 270.871	-.906	.365	-.057
LD, PC ANT	555.88, 559.9	309.25, 311.606	-.152	.879	-.013
LD, PC CON	499.97, 529.45	293.992, 288.868	-1.179	.239	-.101
LD, PC COP	647.11, 655.41	270.992, 293.16	-.35	.727	-.03
LD, PeC ANT	555.88, 641.39	309.25, 294	-1.425	.155	-.277
LD, PeC CON	499.97, 611.18	293.992, 302.705	-1.942	.053	-.378
LD, PeC COP	647.11, 569	270.992, 275.976	1.48	.139	.288

	M	SD	t	p	Cohen's d
A, PC ANT	535.83, 559.9	304.042, 311.606	-.938	.348	-.079
A, PC CON	483.74, 529.45	283.849, 288.868	-1.912	.056	-.16

A, PC COP	662.56, 655.41	270.871, 293.16	.308	.758	.026
A, PeC ANT	535.83, 641.39	304.042, 294	-1.794	.073	-.348
A, PeC CON	483.74, 611.18	283.849, 302.705	-2.309	.021	-.448
A, PeC COP	662.56, 569	270.871, 275.976	1.781	.076	.345

	M	SD	t	p	Cohen's d
PC, PeC ANT	559.9, 641.39	311.606, 294	-1.302	.194	-.263
PC, PeC CON	529.45, 611.18	288.868, 302.705	-1.391	.166	-.281
PC, PeC COP	655.41, 569	293.16, 275.976	1.468	.144	.297

T1

	M	SD	t	p	Cohen's d
TE, E ANT	453.16, 466.19	302.912, 312.57	-.959	.338	-.043
TE, E CON	352.19, 363.84	280.07, 288.91	-.927	.354	-.041
TE, E COP	756.46, 790.84	317.12, 339.12	-2.324	.02	-.106
TE, LD ANT	453.16, 489.4	302.912, 314	-2.284	.022	-.119
TE, LD CON	352.19, 382.82	280.07, 302.843	-1.977	.048	-.107
TE, LD COP	756.46, 774.42	317.12, 341.442	-1.028	.304	-.056
TE, A ANT	453.16, 472.19	302.912, 313.267	-1.265	.206	-.062
TE, A CON	352.19, 368.05	280.07, 292.914	-1.137	.256	-.056
TE, A COP	756.46, 793.26	317.12,	-2.323	.02	-.114

		335.573			
TE, PC ANT	453.16, 489.13	302.912, 347.906	-1.379	.169	-.117
TE, PC CON	352.19, 388.49	280.07, 316.023	-1.53	.127	-.128
TE, PC COP	756.46, 786.58	317.12, 357.655	-1.122	.263	-.094
TE, PeC ANT	453.16, 503.61	302.912, 287.18	-.875	.382	-.167
TE, PeC CON	352.19, 442.21	280.07, 334.806	-1.415	.168	-.32
TE, PeC COP	756.46, 756	317.12, 337.076	.008	.994	.001

	M	SD	t	p	Cohen's d
E, LD ANT	466.19, 489.4	312.57, 314	-1.251	.211	-.074
E, LD CON	363.84, 382.82	288.91, 302.843	-1.087	.277	-.064
E, LD COP	790.84, 774.42	339.12, 341.442	.815	.415	.048
E, A ANT	466.19, 472.19	312.57, 313.267	-.337	.736	-.019
E, A CON	363.84, 368.05	288.91, 292.914	-.254	.799	-.014
E, A COP	790.84, 793.26	339.12, 335.573	-.126	.9	-.007
E, PC ANT	466.19, 489.13	312.57, 347.906	-.83	.407	-.072
E, PC CON	363.84, 388.49	288.91, 316.023	-.979	.328	-.084
E, PC COP	790.84, 786.58	339.12, 357.655	.153	.878	.012
E, PeC ANT	466.19, 503.61	312.57, 287.18	-.623	.533	-.12

E, PeC CON	363.84, 442.21	288.91, 334.806	-1.4	.162	-.27
E, PeC COP	790.84, 756	339.12, 337.076	.533	.594	.103

	M	SD	t	p	Cohen's d
LD, A ANT					

	FS	TE	E	LD	A	PC	PeC
FS	-	-	-	-	-	-	-
TE	-	-	L: p = .338 Con: p = .354 Cop: p = .017	L: p = .022 Con: p = .039 Cop: p = .284	L: p = .206 Con: p = .256 Cop: p = .02	L: p = .124 Con: p = .092 Cop: p = .217	L: p = .382 Con: p = .093 Cop: p = .994
E	-	-	-	L: p = .211 Con: p = .277 Cop: p = .415	L: p = .736 Con: p = .799 Cop: p = .9	L: p = .377 Con: p = .303 Cop: p = .878	L: p = .533 Con: p = .162 Cop: p = .594
LD	-	-	-	-	L: p = .383 Con: p = .431 Cop: p = .377	L: p = .992 Con: p = .829 Cop: p = .681	L: p = .815 Con: p = .317 Cop: p = .781
A	-	-	-	-	-	L: p = .531 Con: p = .415 Cop: p = .816	L: p = .604 Con: p = .195 Cop: p = .567
PC	-	-	-	-	-	-	L: p = .834 Con: p = .405 Cop: p = .671
PeC	-	-	-	-	-	-	-

Difference Scores

	FS	TE	E	LD	A	PC	PeC
FS	-	-	-	-	-	-	-
TE	-	-	L: p = .137 Con: p = .295 Cop: p = < .001	L: p = .135 Con: p = .198 Cop: p = < .001	L: p = .071 Con: p = .137 Cop: p = < .001	L: p = .441 Con: p = .666 Cop: p = < .001	L: p = .228 Con: p = .432 Cop: p = .003
E	-	-	-	L: p = .856 Con: p = .73 Cop: p = .988	L: p = .694 Con: p = .637 Cop: p = .864	L: p = .928 Con: p = .333 Cop: p = .892	L: p = .137 Con: p = .31 Cop: p = .336
LD	-	-	-	-	L: p = .849 Con: p = .921 Cop: p = .864	L: p = .831 Con: p = .254 Cop: p = .889	L: p = .117 Con: p = .275 Cop: p = .324
A	-	-	-	-	-	L: p = .726 Con: p = .211 Cop: p = .987	L: p = .116 Con: p = .251 Cop: p = .37
PC	-	-	-	-	-	-	L: p = .194 Con: p = .606 Cop: p = .438
PeC	-	-	-	-	-	-	-