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To cite this article: F. Jackie June ter Heide, Simone de la Rie, Annelies de Haan, Manon Boeschoten, Mirjam J. Nijdam, Geert Smid, Tim Wind & Trudy Mooren (2021) Wellbeing and clinical videoconferencing satisfaction among patients in psychotrauma treatment during the coronavirus pandemic: cross-sectional study, European Journal of Psychotraumatology, 12:1, 1906021, DOI: [10.1080/20008198.2021.1906021](https://doi.org/10.1080/20008198.2021.1906021)

To link to this article: <https://doi.org/10.1080/20008198.2021.1906021>



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Published online: 11 May 2021.



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SHORT COMMUNICATION



## Wellbeing and clinical videoconferencing satisfaction among patients in psychotrauma treatment during the coronavirus pandemic: cross-sectional study

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### ABSTRACT

**Background:** The coronavirus pandemic appears to put psychiatric patients with pre-existing symptomatology at risk of symptom increase, but evidence is scarce. While the pandemic and stringent governmental measures have accelerated the use of clinical videoconferencing (VCT), patient satisfaction with VCT is unclear.

**Objective:** Aim of the study was to assess the wellbeing of patients in psychotrauma treatment during the coronavirus pandemic and to evaluate their use of and satisfaction with VCT.

**Method:** This study used data from a routine outcome monitoring assessment completed by patients in treatment at a specialized psychotrauma institute and administered before the easing of governmental measures in June 2020. Wellbeing (Brief Symptom Inventory, Cantril Ladder, perceived stress level, and symptom change), VCT use and VCT satisfaction, and their association with demographic variables (gender, age, education level, and refugee status) were analysed.

**Results:** Of the 318 respondents (response rate 64.5%), 139 (43.7%) reported a symptom increase, which was associated with a higher coronavirus-related stress level and general psychopathology as well as lower life satisfaction. There were significant effects of age and education level on wellbeing. VCT was reported to have been used by 228 (71.7%) patients. VCT satisfaction ratings were higher among women and those with lower levels of stress ( $r = -.20$ ,  $p < .01$ ) and general psychopathology ( $r = .21$ ,  $p < .01$ ). No difference in treatment satisfaction was found between patients who used VCT versus those who did not (mean difference =  $-.09$  95% CI:  $-.79$  to  $.62$ ,  $p = .81$ ).

**Conclusions:** The coronavirus pandemic has aggravated mental health complaints according to a substantial percentage of patients in psychotrauma treatment. Although VCT was found to be acceptable, face-to-face treatment may remain necessary for specific target groups with limited access to VCT (such as refugees) and patients with high levels of general psychopathology.

### Bienestar y satisfacción con la videoconferencia clínica en pacientes en tratamiento por psicotrauma durante la pandemia por el coronavirus: un estudio transversal

**Antecedentes:** La pandemia por el coronavirus parece incrementar el riesgo de un aumento de síntomas a los pacientes psiquiátricos con sintomatología preexistente, pero la evidencia es escasa. Si bien la pandemia y las estrictas medidas gubernamentales han acelerado el uso de la videoconferencia clínica (VCT, por sus siglas en inglés), la satisfacción del paciente con la VCT no está clara.

**Objetivo:** El objetivo del estudio fue el de evaluar el bienestar de los pacientes en tratamiento por psicotrauma durante la pandemia por el coronavirus; además, evaluar su uso y su satisfacción con la VCT.

**Método:** Este estudio empleó los datos de las evaluaciones rutinarias de control clínico de un instituto especializado en psicotraumatología completadas por pacientes y realizadas antes de la flexibilización de las medidas gubernamentales en junio del 2020. Se analizaron el bienestar (Inventario Breve de Síntomas, Escalera de Cantril, nivel de estrés percibido y cambio de síntomas), el uso de la VCT, la satisfacción con la VCT y su asociación con variables demográficas (género, edad, nivel educacional y condición de refugiado).

**Resultados:** De los 318 encuestados (tasa de respuesta del 64,5%), 139 (43,7%) reportaron un aumento de síntomas, lo cual se asoció con niveles de estrés asociado al coronavirus más altos y con psicopatología general, así como con una menor satisfacción con la vida. Hubo efectos significativos entre la edad y el nivel educativo sobre el bienestar. 228 (71,7%) pacientes reportaron haber usado la VCT. Los índices de satisfacción con la VCT fueron más altos entre

### ARTICLE HISTORY

Received 1 October 2020

Revised 11 March 2021

Accepted 13 March 2021

### KEYWORDS

Coronavirus; psychotrauma; wellbeing; symptom change; life satisfaction; general psychopathology; treatment satisfaction; clinical videoconferencing

### PALABRAS CLAVE

coronavirus; psicotrauma; bienestar; cambio de síntomas; satisfacción de vida; psicopatología general; satisfacción del tratamiento; videoconferencia clínica

### 关键词

冠状病毒; 心理创伤; 幸福感; 症状改变; 生活满意度; 一般性精神病; 治疗满意度; 临床视频会议

### HIGHLIGHTS

- The coronavirus pandemic may aggravate existing mental health problems and has quickened the implementation of clinical videoconferencing (VCT).
- In this study, the majority of patients in treatment for psychotrauma felt worse during the corona crisis, but VCT offered some relief.

las mujeres y entre aquellos con menores niveles de estrés ( $r = -.20, p < .01$ ) y de psicopatología general ( $r = .21, p < .01$ ). No se encontraron diferencias entre la satisfacción con el tratamiento en pacientes que usaron la VCT en comparación con aquellos que no lo usaron (diferencia media =  $-.09$  IC del 95%:  $-.79$  a  $.62, p = .81$ ).

**Conclusiones:** La pandemia por el coronavirus ha agravado las quejas de salud mental en un porcentaje importante de pacientes en tratamiento por psicotrauma. A pesar que se halló que la VCT era aceptable, el tratamiento presencial puede seguir siendo necesario para grupos específicos con acceso limitado a la VCT (como los refugiados) y para los pacientes con altos niveles de psicopatología general.

### 冠状病毒疫情期间接受心理创伤治疗患者的幸福感和床视频会议满意度:横断面研究

**背景:** 冠状病毒疫情似乎使先有症状的精神病患者有增加症状的风险,但缺乏证据。尽管疫情和严格的政府措施已加快了临床视频会议 (VCT) 的使用,但患者对VCT的满意度尚不清楚。

**目的:** 本研究旨在评估在冠状病毒疫情期间接受心理创伤治疗患者的健康状况,并评估其对VCT的使用和满意度。

**方法:** 本研究使用常规结果监测评估中得到的数据,在2020年6月政府措施放松之前由名在一家专业心理创伤机构接受治疗的患者完成及管理。分析了幸福感(简短版症状问卷,坎特里尔阶梯量表,感知压力水平和症状改变), VCT使用和VCT满意度,及其与人口统计学变量(性别,年龄,受教育水平和难民身份)的关系。

**结果:** 在318名应答者中(应答率为64.5%),有139名(43.7%)报告了症状增加,这与冠状病毒相关压力水平和一般性精神病水平较高以及生活满意度较低有关。年龄和受教育水平对幸福感有显著影响。228名(71.7%)患者报告使用了VCT。女性和压力水平较低 ( $r = -.20, p < .01$ ) 和一般性精神病水平较低 ( $r = .21, p < .01$ ) 的人的VCT满意度较高。使用VCT的患者与未使用VCT患者之间的治疗满意度无差异(平均差异 =  $-.09$  95%CI:  $-.79$ 至 $.62, p = .81$ )。

**结论:** 根据大量接受心理创伤治疗的患者,冠状病毒疫情加剧了心理健康问题。尽管发现VCT是可接受的,但对于难以获取VCT机会的特定目标群体(例如难民)和一般性精神病水平较高的患者,可能仍然需要面对面的治疗。

The coronavirus pandemic poses a threat to mental health as well as to the continuity of mental healthcare. The pandemic has many characteristics of a disaster and as such may be considered a source of great psychological stress. Specifically, there is a sudden life threat that leads to a loss of safety, a dependency on other people's help and compliance with governmental measures, a break-down of infrastructure, and a disruption of social networks and structures (Gersons, Smid, Smit, Kazlauskas, & McFarlane, 2020). There is a growing body of evidence on the psychological effects of COVID-19 on the general public and subgroups including COVID-19 patients themselves, their relatives and loved ones, and healthcare workers. These groups may be at risk of developing posttraumatic stress disorder, prolonged grief disorder, and anxiety and mood disorders (Cabrera, Karamsetty, & Simpson, 2020; Davydow, Gifford, Desai, Needham, & Bienvenu, 2008; Eisma, Tamminga, Smid, & Boelen, 2021; Kisely et al., 2020). Recent studies have also shown a worsening of psychiatric symptoms in patients with pre-existing psychiatric disorders, but research on this group is scarce (Vindegaard & Benros, 2020).

The obvious solution to continue mental healthcare within a pandemic has been to offer telehealth and internet interventions, especially clinical videoconferencing (VCT). VCT psychotherapy has shown promise in the treatment of posttraumatic stress disorder (Morland et al., 2020) as well as comorbid

disorders such as anxiety and mood disorders (Berryhill et al., 2019) and prolonged grief disorder (Boelen, Eisma, Smid, De Keijser, & Lenferink, 2020). Yet, the overall implementation of e-mental health services in routine care has been slowed down by numerous factors including acceptability and feasibility among patients themselves (Vis et al., 2018).

Patients' wellbeing and VCT use became a primary concern in the Netherlands from 16 March 2020 onwards, when the country went into a partial lockdown: all schools were closed, workers were advised to work from home, and group gatherings were prohibited. Providing mental healthcare without putting patients and therapists at risk was a major challenge, which worked as a catalyst for implementing telehealth (Wind, Rijkeboer, Andersson, & Riper, 2020). At ARQ Centrum'45, a national centre for the treatment of complex psychotrauma, great efforts were made to replace face-to-face contacts by VCT in all phases of patient care: at intake, during treatment, and during psychological assessments. Within weeks, a telehealth package was implemented consisting of online psychotherapy sessions, online EMDR and Narrative Exposure Therapy facilities, and online treatment modules. When the partial lockdown was gradually downscaled at the beginning of June, therapists were keen to know how their trauma-exposed patients were affected by the stress posed by the pandemic and the lockdown, and how they were experiencing VCT. To that end, a routine outcome

monitoring (ROM) assessment was administered to help patients and their therapists make any necessary therapeutic changes.

Given the limited data on the wellbeing of psychiatric patients during the coronavirus pandemic and on their use of and satisfaction with VCT, we conducted a cross-sectional study using data from said ROM assessment among patients in trauma treatment during the coronavirus pandemic. The aim of the study was to determine (1) patients' wellbeing in terms of general psychopathology, quality of life, levels of stress, and perceived symptom change, (2) patients' use of and satisfaction with VCT, and (3) associations between outcome measures, and between outcome measures and demographic variables that are frequently used in studies with trauma-exposed populations (gender, age, level of education, and being a refugee) (Barawi, Lewis, Simon, & Bisson, 2020; Brewin, Andrews, & Valentine, 2000). Our hypothesis was that older participants, those with lower education levels, and refugees would have lower levels of wellbeing, VCT use and VCT satisfaction during the pandemic, given that these groups may be more prone to social isolation and may have less access to information (Gersons et al., 2020), and may be less able to satisfactorily use VCT because of problems such as limited understanding, limited access or lack of privacy (Vis et al., 2018).

## 1. Method

### 1.1. Setting

ARQ Centrum'45 is a national institute for diagnostics and treatment of complex psychotrauma complaints, located in Diemen and Oegstgeest, the Netherlands. The institute treats a variety of patients including patients affected by World War II, the postwar generation, asylum seekers and refugees, military veterans and police officers.

### 1.2. Procedure

All patients at ARQ Centrum'45 regularly fill out digital ROM assessments at the beginning, during and at the end of treatment. Outcomes are used to monitor treatment and are available in the patient's medical file. The Leiden University medical ethics committee has declared ROM assessments at our institute to be exempt from the obligation for medical-ethical review as they are conducted primarily for treatment purposes, and has permitted the use of ROM data for scientific purposes. As instructed by the medical ethics committee, before completing the assessment patients are informed of this policy and the data of those who object are not included in the scientific ROM database.

In order to assess the effects of the most stringent coronavirus measures on individual patients, an extra ROM assessment was inserted between regular assessments between 3 June and 31 July 2020, i.e. starting the week before governmental measures were downscaled. All patients of 21 years and older who were able to independently complete a Dutch-language online assessment and who had agreed at enrolment to receive email invitations for ROM assessments were invited to take part. An automatic email was sent explaining the purpose of the extra assessment and asking patients to participate. Questionnaires were made available through an internet link in a secure electronic system with limited data access. Reminders were sent out after four and six weeks.

### 1.3. Participants

Of the 493 patients who received email invitations, 318 (64.5%) completed the assessment. Women were more likely to participate than men ( $\chi^2(1, N = 493) = 4.85, p < .05$ ), and participants were significantly older than non-participants ( $t(df = 491) = -4.51, p < .001$ ). Participation was not affected by level of education.

Of the 318 participants, 188 (59.1%) were men and 130 (40.9%) were women, with a mean age of 52 years old (range 21–89;  $SD = 11.9$ ). The majority of participants ( $n = 248$ ; 78%) were born in the Netherlands; the others were from 29 different countries of origin. As for trauma background as indicated at referral: the largest group of participants was from the postwar generation ( $n = 90$ ; 28.3%), followed by occupational trauma (mainly police officers;  $n = 69$ ; 21.7%), refugees ( $n = 52$ ; 16.4%), and military veterans ( $n = 47$ ; 14.8%). The majority of patients ( $n = 233$ , 73.3%) were in treatment for posttraumatic stress disorder, 17% ( $n = 54$ ) for anxiety or mood disorders, and 9.1% ( $n = 29$ , 9.1%) for various other disorders such as dissociative identity disorder. Patients had been in treatment for on average 16.6 months ( $SD = 20.6$ ).

### 1.4. Measures

Wellbeing during the coronavirus pandemic was assessed using the Brief Symptom Inventory (BSI), Cantril Ladder, and two additional questions.

#### 1.4.1. Brief Symptom Inventory

The BSI (Derogatis & Spencer, 1993) is a well-validated, 53-item self-report rating scale that assesses the severity of general psychopathology during the past week and across nine domains: somatization, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobia, paranoia, and psychoticism. Items are scored on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). A mean severity score was calculated for the total



scale. In comparison with a norm group of Dutch psychiatric outpatients, scores may be interpreted as follows: 0.00–0.23 very low; 0.24–0.55 low; 0.56–0.89 below average; 0.90–1.26 average; 1.27–1.75 above average; 1.75–2.53 high; 2.54–4.00 very high (De Beurs & Zitman, 2005). Questionnaires containing more than one missing item were excluded from the analyses. The internal consistency of the scale in the present study was high (Cronbach's  $\alpha = 0.97$ ).

#### 1.4.2. Cantril Ladder

The Cantril Ladder (Cantril, 1965) is a three-item measure that assesses life satisfaction on a scale from 0 (*the worst possible life*) to 10 (*the best possible life for you*), in the present, five years ago and five years from now. In this study, we used only one item assessing life satisfaction during the past two months (i.e. covering two full months of stringent governmental coronavirus measures).

In addition, the following questions were asked. (1) In the past two months, did your symptoms increase/decrease/stay the same? (2) How stressful has the corona crisis been for you in the past two months, rated on a scale from 0 (*not at all stressful*) to 10 (*as stressful as can be*)?

Videoconferencing use and satisfaction were assessed using two questions. (1) How did you stay in touch with your therapist during the past two months: face-to-face, via videoconferencing, by telephone, through e-mail/chat, not at all? For this question, multiple responses could be given. (2) How satisfied were you with this form of contact, rated on a scale from 0 (*not at all satisfied*) to 10 (*as satisfied as can be*)?

### 1.5. Statistical analyses

All analyses were conducted using SPSS version 23 for Windows. Associations between variables were investigated using Pearson product-moment correlation coefficient. A MANOVA with a post-hoc Bonferroni-corrected multiple comparisons test, MANCOVA, separate ANOVA and  $\chi^2$ -tests, binary logistic regression, independent-samples t-test, and ANCOVA were conducted to examine differences in outcome measures between groups. Preliminary analyses were performed

to ensure no violation of the relevant assumptions occurred. All tests were two-tailed and  $p$ -values less than .05 were considered statistically significant.

## 2. Results

### 2.1. Missing values

Of the 318 assessments, 10 participants had more than one missing item on the BSI, 12 participants did not fill out the Cantril Ladder nor any additional questions and two participants filled out only two and three of the additional questions, respectively. Where possible, pairwise deletion was used for missing variables.

### 2.2. Wellbeing

Average psychopathology as assessed by the BSI was 1.64 (SD = .80), i.e. in the above-average range for patients in outpatient care. Average life satisfaction was 4.35 (SD = 1.83); average coronavirus stress level was 6.2 (SD = 2.66). A symptom increase was reported by 139 (43.7%) participants, 119 (37.4%) reported no change and 48 (15.1%) reported a symptom decrease.

#### 2.2.1. Clinical variables

All clinical outcome variables were significantly correlated: a medium, positive correlation between corona stress level and general psychopathology ( $r = .38$ ,  $n = 296$ ,  $p < .001$ ); a medium, negative correlation between corona stress level and life satisfaction ( $r = -.30$ ,  $n = 305$ ,  $p < .001$ ); and a large, negative correlation between life satisfaction and general psychopathology ( $r = -.61$ ,  $n = 296$ ,  $p < .001$ ). Reported symptom change was a significant predictor on all three outcomes: corona stress level ( $F(2, 293) = 17.41$ ,  $p < .001$ ), life satisfaction ( $F(2, 293) = 41.97$ ,  $p < .001$ ), and general psychopathology ( $F(2, 293) = 38.04$ ,  $p < .001$ ). Bonferroni comparisons between the three groups are shown in Table 1.

#### 2.2.2. Demographic variables

In order to examine differences in general psychopathology, corona stress level, and life satisfaction in relation to gender, refugee status, age, and education level, a MANCOVA was performed. Results are shown in Table 2.

**Table 1.** Comparing outcome variables between participants reporting symptom increase, decrease or no change ( $N = 296$ ).

Dependent variable	Symptom (i)	Mi (SDi)	Compared to (j)	Mj (SDj)	Mdiff i-j	p-value
Mean general psychopathology	Increase	1.98 (.71)	No change	1.42 (.72)	.55	<.001
	Increase	1.98 (.71)	Decrease	1.01 (.70)	.97	<.001
	No change	1.42 (.72)	Decrease	1.01 (.70)	.42	<.01
Life satisfaction (scale 0–10)	Increase	3.49 (1.56)	No change	4.77 (1.74)	–1.29	<.001
	Increase	3.49 (1.56)	Decrease	5.85 (1.55)	–2.36	<.001
	No change	4.77 (1.74)	Decrease	5.85 (1.55)	–1.07	<.01
Corona stress level (scale 0–10)	Increase	7.07 (2.36)	No change	5.72 (2.57)	1.34	<.001
	Increase	7.07 (2.36)	Decrease	4.76 (2.89)	2.31	<.001
	No change	5.72 (2.57)	Decrease	4.76 (2.89)	.96	.09

**Table 2.** Predicting clinical outcome variables based on age, level of education, gender, and refugee status ( $N = 270$ ).

Multivariate Tests					
Predictors (full factorial)	Dependent variable	Pillai's trace	$F$	df, dferror	$p$ -value
Age	All	.05	4.29	3, 262	<.01
Level of education	All	.06	5.43	3, 263	<.01
Gender	All	.02	1.73	3, 264	.16
Refugee status	All	.02	1.98	3, 265	.12
Gender*Refugee status	All	.02	1.54	3, 266	.21
Univariate tests					
Predictors (full factorial)	Dependent variable	Mean square	$F$ -value	df, dferror	$p$ -value
Age	Life satisfaction	4.73	1.43	1, 264	.23
	General psychopathology	4.34	7.29	1, 264	<.01
	Corona stress level	10.73	1.52	1, 264	.22
Level of education	Life satisfaction	11.74	3.54	1, 264	.06
	General psychopathology	7.45	12.52	1, 264	<.001
	Corona stress level	66.82	9.47	1, 264	<.01
Gender	Life satisfaction	8.32	2.51	1, 264	.11
	General psychopathology	2.07	3.48	1, 264	.06
	Corona stress level	.89	.13	1, 264	.72
Refugee status	Life satisfaction	10.10	3.04	1, 264	.08
	General psychopathology	2.16	3.62	1, 264	.06
	Corona stress level	27.72	3.93	1, 264	<.05
Gender*Refugee status	Life satisfaction	4.26	1.28	1, 264	.26
	General psychopathology	2.08	3.49	1, 264	.06
	Corona stress level	.70	.10	1, 264	.75

Using Pillai's trace, there were significant effects of age and education level on the clinical outcome variables. There were no significant main or interaction effects for life satisfaction. General psychopathology scores tended to significantly decrease with age ( $r = -.19$ ,  $p < .01$ ) and higher levels of education ( $r = -.23$ ,  $p < .001$ ). Corona stress level tended to significantly decrease with higher levels of education ( $r = -.18$ ,  $n = 278$ ,  $p = < .01$ ) and refugees reported higher levels of stress ( $M = 7.10$ ,  $SD = 2.66$ ) than non-refugees ( $M = 6.09$ ,  $SD = 2.65$ ). ANOVA and  $\chi^2$ -tests showed no significant differences in gender, age, refugee status, and education level between those who reported a symptom increase, no change, or symptom decrease.

### 2.3. Treatment modality

Of the 318 participants, 228 (71.7%) reported having received treatment via VCT, either as stand-alone or combined with other forms of treatment (face-to-face, via telephone, via email, or chat); 50 (15.7%) reported receiving other forms of treatment without VCT; and 26 (8.2%) reported receiving no treatment at all (4.4% missing data). An LR-forward stepwise binary logistic regression was performed to examine whether VCT use differed according to gender, age, level of education, refugee status, and general psychopathology. Predictor effects are listed in Table 3.

Only refugee status and psychopathology score were found to significantly add to the model, correctly predicting VCT use in 76.5% of the cases. Refugees were less likely to use VCT (43.9% of refugees compared to 76.4% of non-refugees) and general psychopathology scores were higher in the non-VCT group ( $M = 1.94$ ,  $SD = .83$ ) than in the VCT-group ( $M = 1.53$ ,  $SD = .76$ ).

Examining only those who reported having received treatment ( $N = 278$ ), participants reported a mean satisfaction score of 6.06 ( $SD = 2.55$ ; range 0–10) with their treatment modality. There was no significant difference in treatment satisfaction between the VCT group ( $M = 6.36$ ,  $SD = 2.23$ ) versus the non-VCT group ( $M = 6.44$ ,  $SD = 2.56$ ;  $t(276) = -.237$ ,  $p = .81$ ).

#### 2.3.1. Clinical variables

Among those who reported using VCT, there was a small, negative correlation between VCT satisfaction and coronavirus stress level ( $r = -.21$ ,  $n = 228$ ,  $p < .01$ ); and between VCT satisfaction and general psychopathology ( $r = -.18$ ,  $n = 221$ ,  $p < .01$ ); and a small, positive correlation between VCT satisfaction and life satisfaction ( $r = .27$ ,  $n = 228$ ,  $p < .001$ ).

#### 2.3.2. Demographic variables

An ANCOVA examining treatment satisfaction based on gender, age, education level, refugee status, and

**Table 3.** Results of binary logistic regression (forward: LR) predicting VCT use ( $N = 281$ ).

Included variables	B (SE)	95% CI for Odds Ratio			$p$ -value
		Wald	Lower	Odds ratio	Upper
Constant	.81 (.51)				
Refugee status	1.35 (.39)	12.05	1.80	3.86	8.28
Psychopathology	-.58 (.18)	10.75	.39	.56	.79

$R^2 = .15$  (Nagelkerke), improvement step 2 over step 1:  $\chi^2(2) = 29.67$ ,  $p < .001$

general psychopathology revealed significant main effects of both gender ( $F(1, 196) = 10.60, p < .01$ ) and general psychopathology ( $F(1, 196) = 6.61, p < .05$ ), as women ( $M = 6.97, SD = 2.18$ ) were more satisfied with VCT than men ( $M = 5.93, SD = 2.18$ ) and participants tended to be less satisfied when general psychopathology increased (see correlation under clinical variables). No effects on VCT satisfaction were found based on age, refugee status, or level of education.

### 3. Discussion

#### 3.1. Main outcomes

The objectives of this study were to assess the wellbeing of patients in trauma treatment during the coronavirus pandemic, and to investigate their usage of and satisfaction with VCT. Cross-sectional assessments performed at the end of the period of the most stringent governmental measures showed that a large group (43.7%) of patients perceived their symptoms to have worsened over this period. This translated into more severe COVID-19-related stress and general psychopathology as well as lower life satisfaction, as compared to patients who perceived their symptoms to be at a similar or lower level than before. Especially refugees and participants with lower education levels reported experiencing increased COVID-19-related stress. The percentage of patients who reported symptom worsening during the pandemic was relatively high compared to the percentage of other patients with pre-existing psychiatric problems who reported symptom worsening (20.9–56.2%; Vindegaard & Benros, 2020) as well as compared to the percentage of patients who reported a reliable post-treatment symptom worsening during treatment in two other studies at our institute (16.7% in police officers; edited out for blind review; and 23.8% in refugees; Martinmäki, Van der Aa, Nijdam, Pommée, & Ter Heide, 2021; Ter Heide, Mooren, Van de Schoot, De Jongh, & Kleber, 2016).

More than two-thirds of the patients reported having used VCT during treatment. Satisfaction with VCT was generally in the average range (a medium of 6.36), with higher ratings among female patients and among patients who had lower levels of stress and general psychopathology. In addition, satisfaction ratings were similar between patients who used VCT and patients who were treated using other modalities. However, VCT satisfaction was relatively low compared to the overall treatment satisfaction reported by patients in 2019, which was 8.01 (measured on a 10-point scale), suggesting that patients may not consider VCT the most optimal form of treatment.

#### 3.2. Strengths and limitations

This study was conducted among an ethnically diverse sample of patients with a range of trauma backgrounds.

The response rate was high (64.5%). As this study used ROM data only, data were limited to two questionnaires, four brief questions, and demographic data, and excluded possibly relevant factors such as specific COVID-19 stressors (e.g. falling ill or losing a loved one) and factors relevant to VCT use and satisfaction (such as association with therapeutic alliance). Last, perceived symptom change was measured by one self-report item only rather than by self-reported or clinician-administered repeated measures.

### 4. Conclusion and recommendations

This study has shown that patients in psychotrauma treatment – especially refugees and those with lower education levels – may experience symptom increase due to the coronavirus pandemic and associated governmental measures. While VCT psychotherapy is acceptable to this group, it is less so for those who experience more stress and psychological symptoms. In particular, it may be less feasible for those patients who lack privacy and computer supplies, such as refugees, and patients who are more distressed. Based on these findings, a careful continuation of psychotrauma treatment during the coronavirus pandemic is recommended using both VCT and face-to-face care.

### Acknowledgments

The authors thank Niels van der Aa, Ruud Jongedijk, Carien de Kloet, Irene Martens and Josse Poppenk for their contributions to the study design.

### Data availability statement

The data that support the findings of this study are available from the corresponding author, FJJtH, upon reasonable request. Data were collected primarily for clinical purposes and are not deposited in a community recognized repository because participants have not provided informed consent for sharing data outside of the institute.

### Disclosure statement

No potential competing interest was reported by the author(s).

### Ethics statement

Data in this study were collected as part of regular ROM assessments. Data of patients who objected to the inclusion of their data in the dataset were excluded. This procedure was presented to the Leiden University medical ethics committee which ruled the assessments to be exempt from the obligation for full medical-ethical review.

### Funding

No funding was received for conducting this study.

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