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# Traumatized Refugees in Psychotherapy

## Long-Term Changes in Personality, Mental Health, Well-Being, and Exile Life Functioning

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**Abstract:** This pre- and posttreatment study of 22 severely traumatized adult refugees spanned a mean of 6.5 years. Changes in personality functioning, mental health, and well-being were examined using the Rorschach Performance Assessment System, Harvard Trauma Questionnaire, Hopkins Symptom Checklist–25, and the World Health Organization's Quality of Life–BREF questionnaire. A paired samples *t*-test revealed significant improvement after psychotherapy in traumatic ideation and initial severe disruptions in thought processes, reality testing, perception, self and other representations, and relational capacity (Cohen's  $d = 0.46$ – $0.59$ ). Symptoms of anxiety, depression, and posttraumatic stress were significantly reduced ( $d = 0.54$ – $0.84$ ), quality of life in the physical health and psychological health domains increased significantly ( $d = 0.87$  and  $0.97$ ), and percentage of participants with exile language proficiency and work/study status increased significantly. The findings demonstrate the potential of psychotherapy to contribute to normalizing perceptual, cognitive, and relational capacities in severely traumatized refugees, paramount to well-being and functioning in exile.

**Key Words:** Traumatized refugees, psychotherapy, personality changes, posttraumatic stress, mental health symptoms, quality of life

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Traumatized refugees, fleeing from areas of mass conflict, have frequently survived a multitude of adverse and life-threatening events (e.g., Bäärnhielm et al., 2017). The consequences for mental health of torture and other human rights violations in war-ridden and persecutory regimes (e.g., Steel et al., 2009), the perils of flight (e.g., Ekblad, 2015), and the hardships of exile (e.g., Li et al., 2016) have been amply documented. Such experiences may also deeply affect various aspects of personality functioning (Viglion et al., 2012a).

This study investigated traumatized refugees' long-term improvement during and after psychotherapy in naturalistic treatment settings in Norway. Traumatized refugees' past often entails diverse and often severe trauma from childhood and on (Opaas and Varvin, 2015; Riber, 2017), and a present with new stressors related to economy, housing, and communication in the host country (Bogic et al., 2015; Malm et al., 2020). They present with complex health problems including physical (Berthold et al., 2014; Pavli and Maltezos, 2017) and multifaceted mental health disorders (Fazel et al., 2005) that have often persisted for years before they receive mental health treatment. All of these make them a vulnerable clinical group, whose treatment response is often low (Riber, 2017).

In general, positive effects of psychotherapy for traumatized individuals with comorbidity and psychosocial problems are small (e.g.,

Lambert, 2013). Research on psychotherapy with severely traumatized refugee patients has yielded varying treatment results, ranging from no or limited effect (Buhmann et al., 2016; ter Heide et al., 2016) to significant and promising results (Stammel et al., 2017). Refugees' treatment responses also vary highly between individuals. Factors contributing to these differences are only starting to be deciphered (Haagen et al., 2017). Of note is that psychotherapies with traumatized refugee patients frequently are compromised by postmigration stressors (Bruhn et al., 2018). Despite statistically significant treatment gains found in some studies, many refugee patients retain their diagnosis after treatment (Stammel et al., 2017).

A systematic review of seven naturalistic interventions in refugee populations (van Wyk and Schweitzer, 2014) concluded that refugee patients benefitted from naturalistic interventions and that improvement was maintained over time. The decreases in symptoms were of moderate to large effect sizes, although a naturalistic design sets limits to the degree to which improvement can be ascribed to the treatment received. Furthermore, systematic reviews and meta-analyses of controlled and randomized controlled studies (RCTs) of trauma-focused interventions for this patient group have found positive, medium to large effects on symptoms of posttraumatic stress disorder (PTSD) and depression for those receiving the intervention compared with control conditions (e.g., treatment as usual [TAU]) (e.g., Kip et al., 2020; Lambert and Alhassoon, 2015; Raghuraman et al., 2021; Thompson et al., 2018; Tribe et al., 2019; Turrini et al., 2019). However, limitations noted in these reviews include great between-study heterogeneity, small sample sizes, potential researcher allegiance to intervention, and lack of long-term outcomes. Effect sizes were found to be smaller when compared with active control conditions like TAU, rather than, for example, a waitlist. Measures of functioning and well-being were not reported frequently enough to be included in meta-analyses or were too few to give conclusive results. Thus, the clinical significance of results for this patient group's overall well-being and functioning remains unclear.

Meta-analyses report effect sizes of the difference between the results of the intervention and the control groups. Changes from baseline to follow-up are generally not supplied. One exception was Kip et al.'s (2020) study, where the effect sizes of the reduction in symptoms for the waitlist controls from pre- to postintervention and to follow-up assessment (1 to 12 months later) were provided. For the waitlist controls, a trend indicated remission of PTSD symptoms of small effect size (Hedges'  $g = 0.29$ ; confidence interval [CI],  $-0.04$  to  $0.59$ ) at the time of postassessment but was not retained at follow-up. Depressive symptoms were significantly reduced at follow-up for the waitlist controls ( $g = 0.37$ ; 95% CI,  $0.07$ – $0.68$ ), representing a small to medium effect. Thus, it is uncertain if spontaneous and lasting remission can be expected in refugees with trauma-related mental health symptoms.

Refugees generally have a higher burden of symptoms than the host country population (e.g., Fazel et al., 2005). Their sufferings often last for a long time (e.g., Marshall et al., 2005) but may slowly diminish over decades (Vaage et al., 2010). The Norwegian follow-up study by Vaage et al. showed that the self-reported psychological distress of a nonclinical group of resettled refugees decreased significantly over time; still, a substantial proportion of the group remained above threshold scores after 23 years of resettlement.

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In a recent study, Frost et al. (2019) found that complex presentations of PTSD in a sample of refugees were predicted by interpersonal traumas like serious neglect, physical and sexual assaults, and cumulative traumatic exposure, whereas “simple” PTSD was predicted by situational traumatic experiences, like being a civilian in conflict environments or being involved in a serious accident. Complex forms of PTSD add problems with emotional regulation, a negative self-concept, and disturbed relational functioning to the fear-based symptoms of PTSD. Furthermore, Haagen et al. (2017) found that pretreatment severe depression predicted poorer outcome for refugee patients treated for PTSD, and Nickerson et al. (2015) found that emotional regulation difficulties in severely traumatized treatment-seeking refugees mediated the relationship between trauma and postmigration psychological symptoms and between trauma and problems in living. Depression, psychosomatic problems, and personality changes are frequent among refugee trauma patients (e.g., Bäärnhielm et al., 2017; Campbell, 2007). Thus, refugee trauma may require special treatment efforts.

Personality functions such as emotional regulation, self-regulation more generally, relational capacities, attention, perception, and reality testing are often impaired in traumatized individuals. On a theoretical level, benign inner representations of relationships, safe attachment patterns, and stable capacity for emotional regulation are seen as aspects of personality functioning formed through childhood experiences with empathic and loving caregivers and further developed through experiences with significant others (Bowlby, 1988; Fonagy and Target, 2005). However, the development of these functions might be upset by intensely negative and stressful experiences early in life or disturbed by later traumatic experiences (Labouvie-Vief, 2015, p. 60). Reality testing, described as the ability to discriminate between externally and internally generated perceptions (Freud et al., 1920) or between ideas and perception (Hartmann, 1956), is seen as a continuing developmental process. Reality testing should function reliably in normal adults, at risk, however, of being lost in times of stress. Hartmann (1956) suggested that problems with reality testing of inner reality were associated with neuroses, whereas problems with reality testing of outer reality were related to psychosis. Attentional and perceptual bias, which is connected to reality testing of external stimuli, has been related to posttraumatic and acute stress in various studies (e.g., Esterman et al., 2013; Kleim et al., 2012). Esterman et al. (2013) proposed a processing style among trauma-affected individuals, where all visually salient stimuli (emotional and nonemotional) are treated as potentially threatening, disturbing the volitional, goal-directed attentional system. According to Esterman et al. (2013), this processing style may explain attention failures reported in daily life. Kleim et al. (2012) found a perceptual processing bias for trauma-related stimuli and a reduced awareness of cues indicating normality and security. The authors suggested such processing bias contributes to the involuntary triggering of intrusive trauma memories in PTSD and a perception of the surroundings as hostile and unsafe. Intrusive, involuntary memory is described as an associative process where a cue alone may elicit the memory, whereas voluntary effort may not (Brewin et al., 2010).

Visual intrusive imagery tends to bring about stronger emotional responses than verbal representations of traumatic or fear-evoking experiences (Brewin et al., 2010). This finding is relevant to the present study, and to the use of the Rorschach personality assessment method (Exner, 2003; Meyer and Viglione, 2008; Rorschach, 1942), which builds on visual perceptual and associative processes. Smith et al. (2010) compared Rorschach protocols of students with and without a trauma history and found that traumatization was associated with severe thought disturbance, poor perceptual accuracy, intrusive/traumatic imagery, and seeing oneself and the world as damaged or with a depressive quality. In traumatized individuals, evidence of thought disorder and impaired reality testing on the Rorschach test often coincides with otherwise intact reality testing in clinical interviews (e.g., Brand et al., 2006). Thus, posttrauma deficits in perception and cognition are regarded as

content specific, if predominantly occurring when the individual is affected by trauma reminders. However, refugees hosted in foreign countries have been found particularly vulnerable to developing a psychotic disorder relative to the native population and to other migrants (Brandt et al., 2019; Hollander et al., 2016). Therefore, Rorschach indications of thought disturbance and perceptual distortions may be a risk factor for nonresponse to therapy, chronicity, further decline, and psychosis.

In a study including the refugee trauma patients of the current study, Opaas and Hartmann (2013) performed a principal components analysis of selected Rorschach variables, which resulted in two pretreatment Rorschach personality dimensions, Trauma Response and Reality Testing, that characterized aspects of the participants' personality functioning. The participants' results on the Trauma Response dimension varied on a scale from constricted to flooded. Constricted (avoidant/restrained) responses entailed Rorschach scores pertaining to limited associative richness, little emotional expression, and relatively less trauma-related content, whereas flooded responses entailed traumatic intrusions, emotional regulation problems, signs of being overwhelmed, and logical breaches in thinking. Thus, there were indications of difficulties with inner testing of reality (i.e., Hartmann, 1956) in the flooded end of the Trauma Response dimension, described by Opaas (2016, p. 53) as a “short circuiting of the mind, resulting from high emotional stress and hyper-activation.”

The perceptual-based Reality Testing dimension varied from impaired to adequate and consisted of Rorschach scores indicating ability to notice ordinary aspects of the environment and perceive events and objects in ways that correspond with realities and how others perceive them. Impaired perceptual reality testing among the participants could thus be seen as problems with reality testing of external stimuli (Hartmann, 1956). The impaired perceptual reality testing resulted sometimes from a biased attention to details perceived as signaling danger, ignoring the context, and sometimes from a “perceptual veil” (Opaas, 2016, p. 52), a global imprecise perceptual style, where the respondents seemed to protect themselves from perceiving cues that might trigger unpleasant associations and emotions. In a mixed effects analysis of mental health and quality of life (QOL) outcome in a 3-year follow-up study of the same participants (Opaas et al., 2016), the Reality Testing component significantly predicted individual differences in mental health and QOL over time. The modeled trajectories demonstrated that participants with Rorschach scores indicating adequate perceptual reality testing improved markedly within the first year and retained the improvement over the next 2 years. Patients with scores indicating impaired perceptual reality testing deteriorated during the first year after therapy start and were barely back to their pretreatment scores at the 3-year follow-up.

The Rorschach is a performance-based method that assesses personality structure and function, with particular weight on evaluating a combination of implicit and explicit underlying psychological processes. Many researchers view the Rorschach as useful for assessing traumatized individuals (e.g., Arnon et al., 2011; Brand et al., 2006; Hartmann and Benum, 2019; Kaser-Boyd and Evans, 2008; Viglione et al., 2012a). The visual and nonverbal Rorschach images require no translation, thus making it suited for cross-cultural and refugee research (Allen and Dana, 2004). The method enables the recognition of difficult thoughts and emotions and has proven ability to detect more covert deficits such as impaired reality testing, disturbed cognitive processes, and invasive trauma-related imagery that may be hard to identify through interviews and self-report tools (Meyer et al., 2011; Mihura et al., 2013).

Personality traits usually stay relatively stable over time (McGrath, 2008), unless deeply affected by, for example, traumatic experiences in a negative direction or psychotherapy in a—hopefully—positive direction. A meta-analysis and its reanalysis by Grønnerød (2003, 2006) showed high test-retest temporal stability of Rorschach variables for test takers who had not been in psychotherapy. Moderate to high temporal stability of Rorschach variables was also demonstrated in a 9-year follow-up study

by Hartmann et al. (2013) for test takers with recurrent depression who had also not been under treatment.

During the last decades, the Rorschach has made important contributions to the prediction (e.g., Opaas et al., 2016; Smith et al., 2014; Stokes et al., 2003) and assessment of psychotherapy outcome (e.g., Fowler et al., 2004; Grønnerød, 2004). In his meta-analysis of studies on Rorschach assessment of changes after psychotherapy, comprising 29 samples and 1202 participants, Grønnerød (2004) found differences between test and retest with an average effect size of  $r_w = 0.26$  (i.e.,  $r$  weighted by sample size), and nearly half the variables obtained effect sizes higher than 0.30. Retest periods varied from 6 weeks to 5 years, with an average of 18.7 months. Effect sizes increased substantially with longer and more intensive therapy. However, smaller effect sizes were obtained in studies using blind scorers and including the results of other instruments than the Rorschach.

During psychotherapy, personality traits may change at a slower pace than symptoms, and the effect sizes of their changes may be smaller. Fowler et al. (2004) demonstrated positive changes after therapy of small and medium effect sizes in Rorschach measures, whereas changes in symptoms and behavioral functioning assessed by axis V scales of the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV)*; American Psychiatric Association, 1994) were of large and medium effect size.

The present long-term follow-up study of 22 traumatized refugee patients from a larger sample (Opaas, 2016; Opaas and Hartmann, 2013; Opaas and Varvin, 2015; Opaas et al., 2016) focused specifically on changes in personality functioning, seen in relation to changes in symptoms of PTSD, anxiety, and depression; four aspects of QOL; and two aspects of exile life functioning assessed before and after psychotherapy in outpatient mental health services. Long-term follow-up studies of refugees, whether population based or clinical, are still scarce and have focused mainly on self-reported symptoms. In the refugee literature, there are calls for a more comprehensive overview of the effectiveness of services for refugees, comprising longitudinal studies with greater length of interventions, greater length of follow-up, and the use of personality, QOL, and exile life functioning as outcome measures in addition to PTSD and other mental health symptoms (e.g., Giacco and Priebe, 2018; Stammel et al., 2017; Tribe et al., 2019; Van Wyk and Schweitzer, 2014). This study, although limited in the number of participants, has qualities seldom investigated among refugee trauma patients, including investigation of long-term personality changes.

## Hypotheses

We predicted positive changes in trauma-related aspects of personality function, evidenced by the difference in mean scores on selected Rorschach variables from treatment start until after termination. In addition, we expected to find positive changes in symptoms of PTSD, anxiety, and depression; in four aspects of QOL; and in two measures of exile life functioning—exile language competence and work/study status. In accordance with Fowler et al. (2004), we also assumed that the possible reduction in mental health symptoms and the improvement in QOL and exile life functioning would yield larger effect sizes than the possible positive alterations in Rorschach personality characteristics.

## METHODS

From 2006 to 2009, 54 traumatized adult refugees were recruited from public specialist mental health outpatient services in Norway to a longitudinal and naturalistic psychotherapy follow-up study. Many of the refugees who took part in the study were characterized by chronicity, comorbidity, and complex traumatization by childhood adversities, mass conflict, and human rights violations (Opaas and Varvin, 2015). The study followed individual participants for up to more than 10 years, before, during, and after psychotherapy. Repeated face-to-face interviews included the Hopkins Symptom Checklist-25 (HSCL-25), the Harvard Trauma Questionnaire (HTQ), the World Health Organization Quality

of Life-BREF (WHOQOL-BREF) questionnaire, and exile life functioning (see Measures in the Methods section). During the pretreatment assessment, 51 of the patients completed the Rorschach (see Opaas and Hartmann, 2013; hereinafter termed “the index study”).

## Participants

Between 2009 and 2017, after the refugees' individual psychotherapy terminations, 41 among the 51 index study participants were asked to take part in this study. Nine former participants were not asked, as they had only agreed to join the study for 3 years. Among the remaining participants, 10 did not respond to letters or phone calls, 3 had moved abroad, 6 declined, and 1, who had developed increasingly severe mental problems during the course of the study, was not asked. Thirteen male and nine female participants agreed and took part in a posttreatment assessment. They represented 43.1% of the index study participants and 53.7% of those who were asked to participate.

The 22 participants originated from 11 countries in the Middle East/Asia ( $n = 14$ ), Africa ( $n = 3$ ), and Europe ( $n = 5$ ) and had a history of severe and repeated trauma. At treatment start, their age ranged from 21 to 51 years (mean = 38.4, SD = 8.2), schooling from their country of origin ranged from 0 to 16 years (mean = 10.5, SD = 3.7), they had lived 0.6 to 19.8 years in Norway (mean = 10.7, SD = 5.9), 13 (59%) spoke Norwegian, 7 (31.8%) were employed or studying, 15 (68.2%) were married, and 18 (81.8%) had children. All but one were residing in ordinary housing. In addition to a range of adverse childhood experiences (see Opaas and Varvin, 2015), the participants had experienced a multitude of trauma events related to war and persecution (mean = 17.1, SD = 6.5; HTQ Part I), mainly in young adult years. Almost all had experienced bombings, violent loss of family members or close friends, life-threatening situations, and 13 (59.1%) had been victims of torture.

We found no significant differences in the pretreatment assessment results between the 22 participants of the current study and the remaining 29 from the index study, in demographic variables, trauma exposure, mental health symptoms, or QOL variables. The  $t$ -test  $p$ -values ranged from 0.144 (working or studying) to 0.942 (anxiety); mean  $p$ -value among the 16 included variables was 0.567, indicating only minor differences at treatment start between the two groups. From treatment start to the 3-year follow-up, the differences in number of therapy sessions and improvement in symptoms of PTSD, anxiety, depression, and QOL were also not statistically significant between the participants of this and the remaining index study participants. The  $t$ -test  $p$ -values ranged from 0.271 (QOL physical health) to 0.830 (QOL environmental conditions) (mean  $p = 0.596$ ).

## Therapy, Therapists, and Clinician-Assessed Diagnoses

There are no special treatment services for refugees in Norway. Traumatized refugees are to be served through the ordinary mental health services. In this study, treatment took place mostly during first parts of the years 2006 to 2017, under naturalistic conditions, in specialist-level, outpatient mental health services, independently of the research center in charge of this study. The participants received psychotherapy that addressed their life history, traumatic experiences, present relationships, and daily life problems. The therapies varied in duration from less than a year to several years, were not manualized or part of any refugee program, and the therapists adhered to different theoretical orientations. The therapists, nine clinical psychologists, five psychiatrists, and two clinical social workers, were mostly experienced therapists specialized in psychotherapy. Treatment followed Norwegian health laws and ethical principles for the professions involved.

In the clinical units, the participants were diagnosed according to the *International Classification of Mental and Behavioral Disorders (ICD-10)*; World Health Organization, 1994), which is the diagnostic system used in the Norwegian health care system. There, the participants had been given the following diagnoses: 63.6% ( $n = 14$ ) had been

given the *ICD-10* diagnosis of PTSD (F43.1); 18.2% ( $n = 4$ ), the “enduring personality change after catastrophic experience” diagnosis (F62.0); and 13.6% ( $n = 3$ ), adjustment disorders. Moreover, 77.1% ( $n = 17$ ) had been diagnosed with a depressive disorder (F32.1, F32.2, F32.9, F33.1, F32.2, and F33.1), 9% ( $n = 2$ ) with an anxiety disorder (F40.1 and F41.0), 18.2% ( $n = 4$ ) with a dissociative disorder (F44.3, F44.7, and F44.9), 13.6% ( $n = 3$ ) with a somatoform disorder (F45.4), and 4.5% ( $n = 1$ ) with a transient psychotic disorder (F23.8). The diagnoses reflect the pathology that, according to the therapists, was part of the clinical picture during treatment. The clinics do not reassess diagnoses at termination.

## Reassessment

When the psychotherapies were terminated, we were able to conduct a second Rorschach interview with 22 of the 51 participants who initially completed the Rorschach. Concomitantly, the participants were reassessed with the questionnaires tapping mental health symptoms and QOL and again registered for their exile life functioning, as we had at inclusion into the study. Thus, several methods, directed at several aspects of the participants' health, well-being, and functioning, were used as indications of the patients' suffering and their recuperation.

## Measures

The Rorschach examines personality functioning by a visual and behavioral problem-solving task that demonstrates features of the respondent's personality and processing style (Meyer et al., 2011). The task requires an interplay between perceptual processes, associative processes, and a critical checking back and forth of one's ideas. The task also requires verbalization and explanation of one's responses.

All Rorschach systems use the same set of 10 cards with semiambiguous, artistically enhanced, and multiple suggestive inkblots that Herman Rorschach designed in 1921. The set consists of five cards in shades of black and white; two in shades of black, red, and white; and three in shades of pastel colors. The administration procedure is standardized: in the initial response phase, the examiner introduces each card and asks the test taker to look at them one by one and answer the question “What might this be?” The examiner behaves in a nondirective way to minimize his/her influence on the test taker's performance. Responses are transcribed verbatim. Responses may correspond to one part of the image, several parts, sometimes in interaction, or to the whole image. The test taker may give more than one response to each card. In the clarification phase, the examiner reviews each card with the test taker, asking open-ended questions about where and how every response was seen, and what quality of the inkblot contributed to form the response. The location of each response is circled on a sheet with a copy of the 10 cards. What is seen may resemble the shapes, shading, and colors of that location very well, acceptably, vaguely, or not at all. The different colors, shades, and shapes of the cards have been found to elicit different reactions in different individuals, including giving more or fewer responses, better or less fitting responses, and emotional or neutral responses. When human shapes or animals are seen in a card, these may be seen as moving or still, as wounded or intact, in friendly or neutral interaction, or as fighting. Responses may be “popular,” that is, seen by many; they may be relatively ordinary and good-fitting, unusual but cleverly seen, or nonfitting. Nonfitting responses, when given by an individual who is cooperating to the testing, are understood as reflecting internal processes in the individual more than an interplay between perceptual processes, associative processes, and a critical checking of one's ideas. All of the above examples are connected with exact coding rules. Over the years, different coding systems have been developed, which have been subjected to critical research. The most widely used system until now has been the comprehensive system (CS; Exner, 2003).

Traumatized individuals frequently produce so-called brief Rorschach protocols with less than 14 responses, that is, less than 2

responses per card. Generally, brief protocols yield sparse information about the person and are excluded. However, brief protocols of traumatized individuals are often rich in content, including dramatic themes and uncommon ways of viewing the inkblot images. As their exclusion could bias the findings, brief records have been included in Rorschach research on traumatized individuals (see, e.g., Arnon et al., 2011; Brand et al., 2006; Kaser-Boyd and Evans, 2008; Opaas and Hartmann, 2013).

The Rorschach Performance Assessment System (R-PAS) was developed by Meyer et al. (2011). The individual R-PAS variables are assigned to four conceptually organized domains: Engagement and Cognitive Processing, Perception and Thinking Problems, Self and Other Representation, and Stress and Distress. R-PAS provides valid assessments of mental characteristics such as impaired reality testing, disorganized cognitive processes, intrusion of trauma-related imagery, and destructive self and other mental representations, which are not readily available through other normed assessment tools (Meyer et al., 2011; Mihura et al., 2013). It is the newest, the most evidence based, and internationally oriented system for administration, scoring, and interpretation of the Rorschach (Mihura and Meyer, 2018). The system contains international norms based on globally collected adult reference samples (Meyer et al., 2007). The construct validity of Rorschach CS variables and scales was studied in a large meta-analytic review (Mihura et al., 2013). In the R-PAS manual, the 60 variables with good meta-analytic support are clearly separated from the 26 variables with tentative support that need more research.

An initial reliability study containing 50 R-PAS records showed good to excellent interrater reliability (Viglione et al., 2012b), and a recent study by de Almeida Schneider et al. (2020) demonstrated excellent interrater reliability for most of the variables. In an effort to standardize the test taker's number of responses, R-PAS introduced the following changes to standard Rorschach administration: at the outset, the examiner informs the respondent that two or three responses are desired for each card. When the respondent only gives one response to a card, the examiner should prompt for more responses (*i.e.*, “Okay, that's good. Remember, try to give two responses to each card; maybe three”), and, finally, ask for the card back when the respondent gives more than four responses. After administering the test, the examiner codes the responses following R-PAS guidelines and enters these coding scores into a secure, online scoring and interpretation program ([www.r-pas.org](http://www.r-pas.org)). The program calculates the single and composite scores and provides test results that compare the client's data to norms using standardized scores like those used on self-report tests (Mihura and Meyer, 2018). For research, the calculated scores for each individual's protocol can easily be transported to programs for statistical analyses.

For our analyses, we selected eight of the 60 R-PAS variables that we expected to be trauma related and to show improvement from the assessment at psychotherapy start until the assessment after termination: from the Engagement and Cognitive Processing domain—a) Complexity and b) Color-Dominated responses (CF + C); from the Perception and Thinking Problems domain—c) the Ego Impairment Index-3 (EII-3), d) Severe Cognitive Codes (SevCog), and e) Form Quality-minus percentage (FQ-%); from Self and Other Representation domain—f) The Mutuality of Autonomy-Pathology (MAP), and g) Poor Human Representations (PHR); and from the Stress and Distress domain—h) Critical Contents percent (CritCont%). We also included number of responses (*R*) from engagement and cognitive processing, but we had no hypothesis if *R* would change from pre- to posttreatment (Table 1). Elevated scores on variables b to h, compared with international normative reference sample means, all signify pathological processes—the higher, the more pathological (unless the test taker intentionally gives highly odd responses), whereas the interpretation of “complexity” depends on the quality of responses, the context of the assessment, and the person's history of functioning (see the R-PAS manual; Meyer et al., 2011). In the present assessment, there was nothing in the context that should motivate the participants to respond in a particular way.

**TABLE 1.** R-PAS Variable Abbreviations, Their Full Expression, and Psychological Meaning

Abbreviation	Full Expression	What Is Measured	Associated With/Interpretation
R	Number of responses	Number of responses	Associated with variability in cognitive ability and motivation.
Complexity	Complexity	Measures rich use of various features of the inkblots.	When responses correspond well with features of the inkblots and are organized, differentiated, and integrated, higher scores indicate cognitive strengths and flexibility and are associated with age, education, and intelligence. When combined with critical content and poor form quality, complexity may be related to confusion, poor psychological boundaries, and being overwhelmed with upsetting and poorly controlled ideas and emotions.
CF + C	Color-Dominated responses	Color responses with vague or lacking form.	Related to poor cognitive control and modulation of emotional reactions. Even a lower mean, in the relative absence of FC, <i>i.e.</i> , color responses with definite form, signifies emotional regulation problems.
EII-3	The Ego Impairment Index-3	An index combining scores on impaired reality testing, disturbing thought content, and disturbed relation to self and others.	A broadband measure of cognitive disturbance and severity of psychological problems, indicating general personality dysfunction.
SevCog	Severe Cognitive Codes	Responses demonstrating disorganized thinking and speech.	Associated with serious lapses in conceptualization, reasoning, communication, and thought organization, often indicative of psychotic-level disturbance.
FQ-%	Form Quality–minus percentage	Visual misperceptions or misinterpretations.	Related to visual misperception and problems with reality testing.
MAP	The Mutuality of Autonomy–Pathology	Responses describing interactions that are aggressive, harmful, or dominating and that compromise the autonomy of another object, <i>i.e.</i> , with a marked power imbalance and a marked lack of mutuality.	Associated with difficulties in relating to others in mature and mutually supportive and autonomous ways, and interpersonal relationships that are characterized by destructive, self-centered, and malevolent attributions.
PHR	Poor Human Representations	Responses where humans are perceived as distorted, damaged, malevolent, unrealistic, or vulnerable.	A measure of problematic or less adaptive understanding of oneself and other people, indicating problematic ways of perceiving self and others, such as distorted, confused, illogical, damaged, aggressive, unrealistic, and/or vulnerable.
CritCont%	Critical Contents percent	Responses with trauma-related, aggressive, anatomical, sexual, and morbid content.	A measure suggesting trauma, abuse, and dissociative propensities.

R-PAS variables. Reference: Meyer et al. (2011).

The HTQ (Part I and IV; Mollica et al., 2004) was developed to assess refugee trauma. Part I is a checklist of different kinds of potentially traumatic experiences related to war and persecution, including imprisonment, torture, and rape. Our version of the checklist consists of 37 items with a maximum sum score of 37. Part IV, questions 1 to 16, is a list of symptoms of PTSD based on the *DSM-IV* (American Psychiatric Association, 1994), grouped into reexperiencing (four items), arousal (five items), and avoidance (seven items) symptoms. Symptoms occurring during the last week are scored from 1 (not at all) to 4 (extremely). Mean score indicative of PTSD is 2.5 or higher (clinical cutoff). This symptom checklist for PTSD was used because the study started in 2006, long before the *DSM-5* with its extended criteria for PTSD was launched.

The HSCL-25 (Mollica et al., 2004) assesses anxiety (10 items) and depression (15 items). Symptoms occurring during the last week are scored from 1 (not at all) to 4 (extremely). Cutoff score indicating a clinical level of anxiety or depression is greater than 1.75.

The WHOQOL-BREF (WHOQOL Group, 1998) contains 26 items divided into four domains: a) physical health (seven items), b) psychological health (six items), c) social relationships (three items), and d) environmental conditions (eight items). Scores indicating QOL in each area range from 0 (very poor) to 100 (excellent). An international field study including 11,830 sick and well responders in 23 rich and poor countries gave a mean of 64.8 on physical health, 60.0 on psychological health, 57.2 on social relationships, and 54.0 on environmental conditions (Skevington et al., 2004).

### Exile Life Functioning

The categorical variables “speaking/not speaking Norwegian” and “working or studying/not working or studying” were assessed with a simple “yes” (1) or “no” (0) by the interviewer, according to whether or not the participant was able to take part in the interview without an interpreter and was presently employed or engaged in formal studies.

### Procedures

The Norwegian Regional Committee for Medical and Health Research Ethics approved the study in 2006 and with additions in 2012 (Norwegian REC Southeast). The study adhered to the Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects (World Medical Association, 2008/2018; <https://www.wma.net/wp-content/uploads/2018/07/DoH-Oct2008.pdf>). Initially, the participants gave their written consent to take part in the study, which was first planned for 3 years, whereas after 3 years, a majority of the participants consented to further participation.

At pretreatment, many participants needed or preferred to have the symptom checklists and the QOL questionnaire read out to them (and translated by an interpreter, if needed). One of the researchers was present at all times, ready to answer questions and explain the meaning of items. The participants' questions, their associations and examples of experiences given to the items, and their facial expression

helped us discover if an item was not understood, so that we could explain the item in other words.

The reassessment mostly took place at the Norwegian Centre for Violence and Traumatic Stress Studies in Oslo, whereas the therapies and former research interviews had been conducted at the mental health outpatient clinics. Time interval between the assessments at treatment start and after termination varied, due to, for example, time constraints or the unavailability of participants. Accordingly, in this study, the term “posttreatment,” when used, refers to varied distances in time between treatment termination and posttreatment assessment.

Upon inviting the participants, we informed them that we wanted to conduct a retest with the Rorschach and the methods used at previous interviews. We made sure that we had scheduled sufficient time to deal with and work through any emotional reactions with each participant at retesting. Interpreters, when employed, were instructed to translate the test taker's words as accurately as possible.

Time interval between the pre- and postassessments varied from 2.9 to 10.3 years (mean = 6.5, SD = 2.6), due, in part, to great variations in length of therapy, which varied from 0.6 to 8.9 years (mean = 4.4, SD = 3.4). Number of therapy sessions varied from 4 to 319 sessions (mean = 94.1, SD = 88.4). The time from the last therapy session to the reassessment with the Rorschach varied between days and 8.2 years (mean = 1.8 years, SD = 2.2).

Whereas the first author had administered the pretreatment Rorschach, the first and second authors administered the posttreatment Rorschach to 8 and 14 participants, respectively. When the participants became uneasy by the Rorschach images or the test situation, the examiners gave support and time for the participants to express feelings and calm down. As the participants seemed rather shy or inhibited at the outset of the test, we deviated from standard procedure of the Rorschach system prevailing at the time of the pretreatment testing (CS; Exner, 2003) by using prompting and by including new responses given during the clarification phase, when the participants had gotten more accustomed to the task and seemed to let themselves more free. From 2011, we followed the R-PAS administration guidelines but still included responses given during clarification. Following the guidelines of the R-PAS scoring system (Meyer et al., 2011; Mihura and Meyer, 2018), the authors jointly rescored the pretreatment Rorschach protocols and scored the posttreatment protocols twice, and entered the scores into the online scoring program. The first author administered the posttreatment HSCL-25, the HTQ Part IV, and the WHOQOL-BREF in a same day interview session after the administration of R-PAS.

## Statistical Procedures

For computation of interscorer reliability, we randomly selected 20 of the 44 Rorschach protocols, equally many pre- and posttest, none twice from the same participant, and masked for pre- and posttest information. An R-PAS expert blind to the purpose of the study scored the protocols on the R-PAS Internet site (<https://r-pas.org>). Interscorer reliability, using intraclass correlation (ICC), two-way random effects model, and absolute agreement, was computed by the syntax provided by r-pas.org. According to Cichetti (1994), ICC values up to 0.395 represents poor; 0.396 to 0.595, fair; 0.596 to 0.745, good; and above 0.745, excellent interrater reliability.

For all selected R-PAS variables, we checked skew and kurtosis. Many Rorschach variables have naturally skewed and kurtotic distributions, according to Meyer et al. (2001), sometimes because they are expressions of pathology, with few or no occurrences found in normal populations and with an accumulation in clinical populations. We used the guidelines of Curran et al. (1996) to determine what represented a problematic nonnormal distribution: a skew of 0.0 and kurtosis of 0.0 represent a normal distribution, a skew greater than 2.0 or kurtosis greater than 7.0 is considered a moderately nonnormal distribution, and a skew greater than 3.0 or kurtosis greater than 21.0 represents a severely

nonnormal distribution. To compare our results with the R-PAS reference data ( $N = 640$ ) modeled from the International 1396 Adult Reference Sample for the CS (Meyer et al., 2007, 2011), we computed  $z$ -scores by subtracting our mean scores from the reference sample means and dividing by the standard deviation of the reference sample means. Because our  $R$  (number of responses) deviated considerably from the  $R$  of the reference sample, we controlled for  $R$  on complexity, CF + C, SevCog, MAP, and PHR. Variables EII-3, FQ-%, and CritCont% are inherently controlled for  $R$ . Greg Meyer (February 19, 2021) provided us with the corresponding means and standard deviations of the R-PAS reference sample variables, controlled for  $R$ , and with more decimals for the norm data on all included variables.

For the analyses of changes in personality function (the selected R-PAS variables), symptoms of anxiety and depression (HSCL-25), posttraumatic stress symptoms (HTQ Part IV items 1–16), and exile life functioning (exile language competence and work/study status) from pre- to posttreatment, we used paired samples  $t$ -tests with two-tailed significance tests. We calculated Cohen's  $d$  effect sizes as the difference between pre- and posttreatment means, divided by their pooled standard deviations. For variables with skew and kurtosis outside the reference range, we used a square root transformation before using the parametric statistical  $t$ -test, and for comparison, we also used a nonparametric test, the Wilcoxon signed rank test. For the Wilcoxon signed rank test, resulting in the test statistic  $z$ , we calculated the effect size as  $r = (z/\sqrt{\text{number of observations}})$ , in this case  $22 + 22$ . According to Cohen's (1992) guidelines, values around  $d = 0.2$  represent a small effect size; 0.5, a medium effect size; and 0.8, a large effect size; values around  $r = 0.1$  represents a small effect size; 0.3, a medium effect size; and 0.5, a large effect size. To show changes over time in percentage of participants reaching diagnostic level of symptoms, we included results also from the 3-year follow-up, calculated for the 22 participants of the current study from the data set of Opaas et al. (2016), which included 51 participants. In our analyses, missing data were left missing. Eighty percent of the items constituting each symptom and QOL variable had to be completed for inclusion in the analyses. Trend results with  $p$ -values from 0.050 to 0.100 will also be included and discussed. Analyses were performed by SPSS Statistics Version 26.

## RESULTS

The interscorer reliability between our scoring and the blind scoring of the Rorschach protocols, computed for the eight main R-PAS variables used in our study, resulted in a mean single measures ICC = 0.886 (SD = 0.088). The ICCs of the eight variables ranged from 0.772 (FQ-%) to 0.991 (complexity) (Table 1). The ICC of  $R$  was 0.997 and was not included as part of the mean ICC value. All ICCs were considered excellent (*i.e.*, >0.745; Cichetti, 1994). After having finished his scoring, the blind scorer was given access to the file with ours and his scores. He computed the interscorer reliability with a different method and obtained the same results as we did. Consequently, no changes in our scoring were made. Our results are in agreement with the findings of de Almeida Schneider et al. (2020) (Table 2).

Table 3 provides the descriptive statistics for the results obtained at treatment start and after termination of the selected R-PAS variables, their associated  $z$ -scores, and the modeled reference sample norms (Meyer et al., 2011), all controlled for  $R$ . Skew and kurtosis were within benchmarks, suggesting suitability for parametric tests for all variables, except for posttreatment SevCog (skew, 3.1; kurtosis, 10.9). We regarded the highly nonnormal distribution of SevCog as unproblematic for the computations represented in Table 3.

Number of responses ( $R$ ) to the Rorschach cards varied from 10 to 34 (mean = 18.6) at psychotherapy start and from 10 to 29 (mean = 18.0) after psychotherapy termination, which is lower than for other client groups (Meyer et al., 2011). So-called brief protocols ( $R < 14$ ) seem thus to be a robust finding among traumatized individuals, supporting

**TABLE 2.** Interscorer Reliability of R-PAS Scoring

Variable	M_blind scorer <sup>a</sup>	SD_blind scorer	M_authors <sup>b</sup>	SD_authors	ICC <sup>c</sup>
R	18.70	6.18	18.80	6.24	0.997
Complexity	61.30	32.91	61.65	32.19	0.991
CF + C	1.60	1.76	2.60	2.54	0.781
EII-3	0.86	1.51	0.92	1.65	0.960
SevCog	1.95	3.71	1.80	2.84	0.864
FQ-%	12.00	9.60	15.75	11.14	0.772
MAP	3.40	2.82	2.85	3.38	0.776
PHR	4.45	4.10	4.35	3.38	0.882
CritCont%	44.60	26.49	45.50	30.69	0.953

N = 20 for all.

<sup>a</sup>The blind scorer was a certified R-PAS examiner, an experienced R-PAS scorer, and teacher of the R-PAS.

<sup>b</sup>The authors were also experienced in using and scoring the Rorschach/R-PAS.

<sup>c</sup>Single-measure ICC. ICCs 0.745 and greater are regarded as excellent (Cicchetti, 1994). We used absolute agreement and the two-way random effects model.

the practice of not excluding them in studies of traumatized informants (e.g., Arnon et al., 2011).

The z-scores show that, at psychotherapy start, SevCog was 4.9 SDs above the reference sample means; CritCont%, 3.0 SDs; MAP, 2.8 SDs; PHR, 2.0 SDs; EII-3, 2.1 SD; and FQ-%, 1.5 SDs, all in a pathological direction. Only complexity and CF + C deviated with less than 1 SD from the reference sample means. After psychotherapy termination, all R-PAS means were substantially decreased, signifying less psychological problems, although MAP and SevCog were still 1.9 SDs, CritCont% 1.3 SDs, and PHR and EII-3 were 1.0 SD higher than the reference means (Table 3).

### Improvement From Psychotherapy Start Until After Termination

For the computation of improvement in R-PAS scores from pre- to posttest, presented in Table 4, the standard scores were used, because R was not significantly different between the two measurements. Skew and kurtosis were also within benchmarks here, except for SevCog at posttest, where skew indicated a severely nonnormal distribution and kurtosis a moderately nonnormal distribution (see notes to Table 4). For the t-test, we therefore used the square root transformed variable Sqrt SevCog, whose skew and kurtosis were within benchmarks. The effect size *d* was 0.58, a medium effect. For comparison, the nonparametric Wilcoxon signed rank test also revealed a statistically significant reduction in SevCog from pre- to posttest ( $z = -3.04, p = 0.002$ ), also indicating improved cognitive functioning, with effect size  $r = 0.65$ , considered a large effect (Cohen, 1992). Therefore, we regard Cohen's *d* of the Sqrt SevCog as a moderate expression of the effect size of changes in SevCog.

The results of the paired-samples t-tests (Table 4) show that for R-PAS personality variables, there was a significant decrease from therapy start until after termination on CritCont%, Sqrt SevCog, PHR, and EII-3, implying improved functioning, with Cohen's *d* medium effect sizes ranging from 0.46 (EII-3) to 0.59 (CritCont%). A trend toward significance ( $p \leq 0.86$ ) indicated changes also in complexity, MAP, and FQ-%, with Cohen's *d* effect sizes ranging from 0.27 (MAP; a small effect) to 0.54 (FQ-%; a medium effect).

The questionnaire results regarding mental health symptoms and QOL revealed significant improvements from therapy start until after termination with moderate to large effect sizes ranging from Cohen's *d* = 0.54 (depression) to 0.97 (PTSD arousal symptoms and QOL variable psychological health). Exceptions were QOL environmental conditions, with significant *p*-value and small to medium effect size ( $p = 0.025$ , Cohen's *d* = 0.39), and QOL social relationships, a trend result with medium effect size ( $p = 0.061$ , Cohen's *d* = 0.47). The results also demonstrated significant improvement in exile life functioning: The

**TABLE 3.** Statistics for the R-PAS Variables of This Study and of the International Reference Sample

R-PAS Variables <sup>a</sup>	Traumatized Refugee Patients (N = 22)										Reference Sample <sup>b</sup>			
	Pretreatment				Posttreatment				Z-scores <sup>c</sup>				(N = 640)	
	Mean	SD	Skew	Kurtosis	Mean	SD	Skew	Kurtosis	M <sub>z</sub>	SD <sub>z</sub>	M <sub>z</sub>	SD <sub>z</sub>	Mean	SD
Engagement and cognitive processing														
R	18.6	7.20	0.79	-0.04	17.95	4.87	0.31	-0.30	-1.2	1.5	-1.3	1.0	24.2	4.7
Complexity/R	3.48	0.93	0.71	0.12	3.10	0.80	0.84	0.05	0.5	1.2	-0.0	1.0	3.10 <sup>d</sup>	0.79 <sup>d</sup>
CF + C/R	0.14	0.10	0.61	-0.34	0.13	0.10	0.82	0.24	0.7	1.3	0.5	1.3	0.09 <sup>d</sup>	0.08 <sup>d</sup>
Perception and thinking problems														
EII-3	1.50	1.75	0.26	-0.64	0.63	1.99	1.98	4.43	2.1	2.3	1.0	2.6	-0.14 <sup>d</sup>	0.78 <sup>d</sup>
SevCog/R	0.17	0.26	2.41	6.88	0.08	0.17	3.06	9.93	4.9	8.3	1.9	5.4	0.02 <sup>d</sup>	0.03 <sup>d</sup>
FQ-%	19.7	17.0	1.65	2.95	12.1	10.6	1.38	2.16	1.5	2.5	0.4	1.6	9.62	6.68
Self and other representation														
MAP/R	0.20	0.25	2.01	4.34	0.15	0.19	1.23	0.16	2.8	4.2	1.9	3.2	0.04 <sup>d</sup>	0.06 <sup>d</sup>
PHR/R	0.27	0.20	1.37	3.14	0.19	0.18	1.14	0.63	2.0	2.6	1.0	2.2	0.11 <sup>d</sup>	0.08 <sup>d</sup>
Stress and distress														
CritCont%	60.3	42.03	0.81	0.95	38.36	31.25	1.07	0.93	3.0	3.1	1.3	2.3	20.41	13.51

<sup>a</sup>Variables of the R-PAS (Meyer et al., 2011), all controlled for R, either inherently or explicitly.

<sup>b</sup>Modeled Reference Sample (Meyer et al., 2011).

<sup>c</sup>Z-scores were computed by subtracting the Reference sample means (controlled for R) from our means (controlled for R), and dividing by the standard deviations of the reference sample means (controlled for R). Figures are reported with maximum three digits, for a meaningful level of accuracy.

<sup>d</sup>Reference sample means and standard deviations controlled for R provided for us by Greg Meyer, February 19, 2021.

**TABLE 4.** Changes From Pre- to Posttreatment in Personality Variables, Mental Health Symptoms, QOL, and Exile Life Functioning

Variables	Pretreatment		Posttreatment		Paired Differences		
	Mean	SD	Mean	SD	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
R-PAS personality variables <sup>a</sup>							
Engagement and cognitive processing							
Complexity	64.6	31.2	55.5	20.9	-1.85	0.079	0.35
CF + C	2.82	2.44	2.32	1.70	-0.58	0.279	0.02
Perception and thinking problems							
EII-3	1.50	1.75	0.63	1.99	-2.09	0.049*	0.46
SevCog <sup>b</sup>	2.86	3.66	1.14	2.30			
Sqrt_SevCog <sup>c</sup>	1.21	1.21	0.60	0.90	-3.06	0.006**	0.58
FQ-%	19.7	17.0	12.1	10.6	-1.80	0.086	0.54
Self and other representation							
MAP	3.36	3.40	2.27	2.59	-1.83	0.082	0.27
PHR	4.73	2.98	3.27	2.62	2.77	0.032*	0.52
Stress and distress							
CritCont <sup>g</sup>	60.3	42.0	38.4	31.3	-2.50	0.011*	0.59
HSCL-25 <sup>d</sup>							
Anxiety	2.86	0.65	2.39	0.73	-3.06	0.003**	0.68
Depression	2.97	0.51	2.58	0.88	-2.36	0.014*	0.54
HTQ-PTSD <sup>e</sup>							
Total	2.86	0.48	2.33	0.75	-3.39	0.002**	0.84
Reexperiencing	2.92	0.74	2.39	0.91	-3.16	0.003**	0.64
Arousal	3.17	0.47	2.50	0.86	-3.59	0.001**	0.97
Avoidance	2.61	0.54	2.17	0.70	-2.46	0.012*	0.70
WHOQOL <sup>f</sup>							
Physical health	28.0	13.5	43.8	21.9	3.96	0.001**	0.87
Psychological health	24.1	16.6	41.0	18.3	3.87	0.001**	0.97
Social relationships	29.8	16.3	39.3	23.4	1.63	0.061	0.47
Environmental conditions	45.1	20.1	52.9	20.1	2.10	0.025*	0.39
Exile life functioning							
Speaking Norwegian, % <sup>a</sup>	59.1	0.50	77.3	0.43	2.16	0.042*	0.39
Working/studying, % <sup>a</sup>	31.8	0.48	54.5	0.51	2.49	0.021*	0.46

Paired samples *t*-test.

Figures are reported with maximum three digits, for a meaningful level of accuracy. Two-tailed significance tests. \*\**p* < 0.01; \**p* < 0.05.

<sup>a</sup>The R-PAS (Meyer et al., 2011) assessing personality functioning, *N* = 22, *df* = 21.

<sup>b</sup>Posttreatment SevCog (only) had skew and kurtosis that exceeded recommended values: skew = 3.07, kurtosis = 10.87, and was therefore square root transformed.

<sup>c</sup>Square root transformed due to the nonnormal distribution. Transformed variable skew at pretreatment = 0.41 and kurtosis = -1.24. Transformed variable skew at posttreatment = 1.41 and kurtosis = 1.46.

<sup>d</sup>The HSCL-25 (*N* = 22, *df* = 21) assessing anxiety and depression.

<sup>e</sup>The HTQ Part IV, questions 1 to 16 (HTQ; *N* = 20 pre + post, *df* = 19) assessing posttraumatic stress.

<sup>f</sup>The WHOQOL-BREF questionnaire (*N* = 19 pre + post, *df* = 18) assessing QOL in four areas.

percentage of refugees who were working or studying increased by 22.7% points, from 31.8% to 54.5%, and the percentage who could speak Norwegian increased by 18.2% points, from 59.1% to 77.3%. The effect sizes were medium, Cohen's *d* = 0.46 (working/studying), and small to medium, Cohen's *d* = 0.39 (speaking Norwegian).

Because number of therapy sessions and variables related to time varied greatly in our study, we performed a post hoc correlational analysis of the relations between improvement in outcome variables (personality variables, mental health symptoms, and QOL) and variables related to therapy, the time that had passed between pre- and posttest, between treatment termination and posttest, and length of stay in Norway (Table 5).

The correlational analysis showed a significant and negative relation between length of stay in Norway at pretreatment assessment and degree of improvement from pre- to posttreatment in SevCog

(*r* = -0.48, *p* = 0.024), and tentatively in EII-3 (*r* = -0.40, *p* = 0.064) and FQ-% (*r* = -0.38, *p* = 0.083). There was also a negative relation between time of stay in Norway at the posttest and degree of improvement in SevCog (*r* = -0.55, *p* = 0.008), but no other systematic relationships in any outcome variables between length of stay in Norway at the posttest and degree of improvement. Number of therapy sessions was significantly and negatively related to improvement in SevCog (*r* = -0.47, *p* = 0.027) and in EII-3 (*r* = -0.44, *p* = 0.042) and was neither significantly nor tentatively related to changes in any other outcome variable. Time between pre- and posttest was significantly related in a positive direction to improvement in QOL environmental conditions (*r* = 0.48, *p* = 0.039) and in depression (*r* = 0.44, *p* = 0.039), and tentatively in anxiety (*r* = 0.36, *p* = 0.100). The time from treatment termination to posttest was significantly related in a positive direction to several variables, to improvement in QOL psychological health (*r* = 0.58, *p* = 0.010), in symptoms



**TABLE 5.** Correlations Between Improvement, Therapy, and Time Variables (Ad Hoc Analysis)

Improvement from Pre- to Posttreatment	Time of Stay in Norway at Pretest	No. Therapy Sessions	Time from Pre- to Posttest	Time from Treatment Termination to Posttest	Time of Stay in Norway at Posttest
	<i>r</i> ( <i>p</i> )	<i>r</i> ( <i>p</i> )	<i>r</i> ( <i>p</i> )	<i>r</i> ( <i>p</i> )	<i>r</i> ( <i>p</i> )
Complexity	0.10 (0.653)	0.29 (0.278)	-0.21 (0.342)	-0.39 (0.073)	0.01 (0.977)
CF + C	0.16 (0.492)	0.15 (0.494)	-0.04 (0.873)	-0.02 (0.917)	0.12 (0.586)
EII-3	-0.40 (0.064)	-0.44* (0.042)	0.00 (0.996)	0.27 (0.220)	-0.36 (0.105)
Sqrt_SevCog	-0.48* (0.024)	-0.47* (0.027)	-0.32 (0.142)	0.06 (0.800)	-0.55** (0.008)
FQ-%	-0.38 (0.083)	-0.30 (0.181)	0.31 (0.158)	0.43* (0.049)	-0.21 (0.344)
MAP	0.14 (0.548)	-0.08 (0.714)	0.02 (0.938)	-0.04 (0.870)	0.13 (0.574)
PHR	-0.05 (0.816)	-0.13 (0.573)	0.06 (0.794)	0.01 (0.969)	-0.02 (0.917)
CritCont%	-0.19 (0.410)	-0.00 (0.990)	0.30 (0.176)	0.16 (0.472)	-0.05 (0.838)
PTSD	-0.27 (0.242)	-0.27 (0.248)	0.29 (0.216)	0.55* (0.012)	-0.14 (0.564)
Anxiety	-0.30 (0.172)	-0.08 (0.717)	0.36 (0.100)	0.54* (0.010)	-0.13 (0.576)
Depression	0.10 (0.660)	0.03 (0.895)	0.44* (0.039)	0.53* (0.011)	0.26 (0.239)
QOL physical health	-0.32 (0.184)	-0.14 (0.564)	0.33 (0.167)	0.33 (0.167)	-0.17 (0.499)
QOL psychological health	-0.30 (0.219)	-0.19 (0.429)	0.34 (0.151)	0.58* (0.010)	-0.14 (0.569)
QOL social relationships	-0.16 (0.520)	-0.05 (0.840)	0.28 (0.245)	0.20 (0.421)	-0.04 (0.887)
QOL environment	-0.15 (0.543)	0.07 (0.779)	0.48* (0.039)	0.16 (0.524)	0.05 (0.837)

Post hoc explorative analysis. Pearson correlations. Two-tailed significance tests. Improvement in R-PAS codes means lower scores at posttest (pretest minus posttest), although for complexity, the interpretation depends on the quality of the responses. Improvement in anxiety, depression, and PTSD means lower symptom scores at posttest (pretest minus posttest). Improvement in QOL means higher QOL scores at posttest (posttest minus pretest).

\**p* < 0.05.

\*\**p* < 0.01.

of PTSD (*r* = 0.55, *p* = 0.012), in anxiety (*r* = 0.54, *p* = 0.010), in depression (*r* = 0.53, *p* = 0.011), and in FQ-% (*r* = 0.43, *p* = 0.049).

### Changes in Diagnostic Level of Symptoms

According to the established cutoff scores of the symptom checklists (HTQ, Part IV and the HSCL-25), 81.0% (17 of 21) qualified for a diagnosis of PTSD at treatment start, 57.9% (11 of 19) at the 3-year follow-up, and 38.1% (8 of 21) after treatment, representing a 53.0% decrease totally. For major depression, 100% qualified for the diagnosis at treatment start, 90.9% (20 of 22) at the 3-year follow-up, and 72.7% (16 of 22) after treatment, which represents a decrease of 27.3%. Finally, 95.5% (21 of 22) had clinically significant anxiety at treatment start, 81.8% (18 of 22) at the 3-year follow-up, and 81.8% (18 of 22) after treatment, representing a 14.3% decrease. The reduction in number of participants reaching threshold scores for a diagnosis was significant for PTSD (*t* = 3.56, *df* = 19, *p* = 0.002) and for depression (*t* = 2.81, *df* = 21, *p* = 0.011), but not for anxiety (*t* = 1.37, *df* = 21, *p* = 0.186).

## DISCUSSION

### Improvement From Pre- to Posttreatment Assessment

In accordance with our hypotheses, we found significant improvement from pre- to posttreatment assessment in pathological personality functioning, indicated by R-PAS variables CritCont%, SevCog, PHR, and EII-3. This means there were less references to potentially traumatic content and less indication of severe lapses in conceptualization, reasoning, communication, or thought organization; of maladaptive understanding of self and others; and of general personality dysfunction. There was also a trend showing improvement in MAP and FQ-%, indicating less harmful or dominating representations of others and less visual misperceptions. Moreover, there was a trend showing reductions in complexity, here possibly indicating less loss of ideational control. These changes

suggest less indications of being confused and overwhelmed by trauma (CritCont%), reductions in general ego impairment, disorganized thinking, inaccurate perception and inadequate reality testing (EII-3, SevCog, and FQ-%), less problems in understanding self and others, and more adaptive relational functioning (PHR and MAP) after therapy termination.

All the significant changes in Rorschach scores listed above, and MAP and FQ-%, were of medium effect size, whereas the change in complexity was of small to medium effect size. There was no significant changes in CF + C related to integration and regulation of affects. The effect size of changes found in this group of traumatized refugees is comparable with Grønnerød's (2004) meta-analytic findings of Rorschach changes in individuals who had received psychotherapy and differs markedly from the moderate to high test-retest stability of Rorschach results in groups of individuals who had not been in psychotherapy during the follow-up interval (Grønnerød, 2003; Hartmann et al., 2013).

We also found significant improvement in all mental health symptoms and in all QOL variables except social relationships. Changes were mostly of large or medium to large effect size. This is comparable to the effect sizes of changes found in the systematic review of naturalistic interventions for refugees by van Wyk and Schweitzer (2014). The effect sizes reported by meta-analyses of controlled and randomized studies of trauma-focused interventions (e.g., Thompson et al., 2018), as discussed in the introduction, reported medium to large effects in PTSD and depression of the difference between intervention groups and control group, but no information was provided for the effect size from baseline. However, the remission of PTSD symptoms from baseline in waitlist controls reported by Kip et al. (2020) was of small effect size at treatment termination but was not upheld 1 to 12 months later. There was a significant remission of symptoms of depression in the waitlist controls of small to medium effect size at follow-up after 1 to 12 months. Without more evidence of the occurrence and size of potential spontaneous remission of symptoms of PTSD, depression, and anxiety in clinical groups of refugees, without information of effect sizes

from baseline in intervention groups in RCTs, and without longer follow-up of their results, we cannot directly compare the effect sizes obtained in this study with theirs.

Finally, we found significant increases in the percentage of participants who could communicate in Norwegian in the posttreatment interview and in the percentage that was now engaged in paid work or in qualifying education. These changes suggest improved exile life functioning, as mastering the exile language and holding employment have been found central to integration, mental health, and well-being of refugees after settlement in a foreign host country (e.g., Kartal et al., 2019; Schick et al., 2016; Wood et al., 2019).

Despite a low *N*, the findings show significant improvements and moderate to large effect sizes for most of the included variables. As expected and in agreement with Fowler et al. (2004), the effect sizes were larger for the improvement in all mental health symptoms, except depression, and for QOL in the physical and psychological health domains, than for the changes in personality characteristics related to the Rorschach variables (Table 3). It is, however, worth noting that the effect sizes of the changes in R-PAS variables CritCont%, SevCog, and FQ-% turned out to be larger than or similar to the effect size of changes in depression, and all of these plus PHR had larger effect sizes than QOL domains social relationships and environmental conditions, speaking Norwegian, and working/studying.

### Associations Between Improvement, Therapy “Dose,” and Time Variables

The post hoc correlational analysis between improvement in outcome variables, time variables, and number of therapy sessions gave some interesting results but must be interpreted with caution. The analysis showed that the longer the stay in Norway before the patient started treatment, the less reduction from pre- to posttreatment in disorganized thinking (SevCog) and tentatively in ego impairment (EII-3) and visual misperceptions (FQ-%). Our understanding is that refugees who came for therapy long after their arrival in Norway had developed a more chronic disorder and responded less to therapy.

The number of attended therapy sessions at posttreatment ranged from 4 to 319 sessions, with a median of 68.5 sessions. The correlational analysis showed that number of therapy sessions had no significant positive associations with improvement. On the contrary, number of sessions was significantly associated with an increase in disorganized thinking (SevCog) and in general ego impairment (EII-3). According to Lambert (2013), 50% of the general patient population has been found to achieve clinically meaningful change after 11 to 18 weekly sessions, and 75% after 50 sessions. Improvement does not increase incrementally with more therapy sessions; rather, patients generally improve more quickly in the beginning of therapy and with smaller increments thereafter. Patients recovering at a slower speed and patients with more severe initial psychopathology require more sessions to improve. About 5% to 10% also deteriorate while in therapy (Lambert, 2013, pp. 12–13 and 185–192). In the current study, almost half of the patients (45.5%) had more than 100 sessions—without much progress showing in the means. Judging from the qualitative interviews with the participants, we have reason to believe that some improved decisively at later stages of a longer-lasting therapy, whereas others stagnated or seemed to deteriorate—maybe not because of but despite therapy.

Over the course of time between pre- and posttreatment assessment, spanning 2.9 to 10.3 years, the participants' environmental conditions significantly improved, and their depression significantly decreased. However, length of stay in Norway at the time of the posttest was not related to improvement; rather, it was even more strongly related to an intensification of disorganized thinking (SevCog) than at treatment start, possibly signifying deterioration over these years.

Finally, the time interval between termination and the posttreatment assessment varied from days to about 8 years (mean = 1.8 years).

In contrast to the scarcity of significant correlations above, symptoms of PTSD, anxiety, and depression, and indications of visual misperception (FQ-%) decreased with increasing length of time between termination and the posttreatment assessment. This could imply that much improvement happened in the months and years after psychotherapy termination. Lambert (2013, p. 184), for instance, noted that patients tend to maintain or display additional improvement at follow-up. We believe, instead, or in addition, that an explanation may be found in the results of Opaas et al. (2016), showing that participants with relatively adequate reality testing at treatment start improved rapidly over the first year after admittance to therapy and maintained their improvement during the next 2 years. We suspect that patients with such trajectories in our study may not have stayed in therapy for years but may be among the improved cases with a long follow-up time from termination to our posttreatment assessment. Relevant to this hypothesis is the finding that former patients who continue to participate in data collection after termination are the ones who maintain treatment gains to a greater degree (Lambert, 2013, p. 183).

### Perceptual Distortions, Thought Disturbances, and Risk of Psychosis

As noted in the introduction, there is an increased chance of psychosis in refugees (Brandt et al., 2019; Hollander et al., 2016). In R-PAS, reality-testing problems are signified by, for example, visual misperception (a high FQ-%) and disorganized thinking processes (a high SevCog). A high FQ-% has acquired good support in the research literature as strongly related to reality disturbance and psychopathology, and a high SevCog is considered indicative of psychotic-level lapses in conceptualization, reasoning, communication, or thought organization (Meyer et al., 2011, p. 359). According to the thinking of Hartmann (1956), discussed in the introduction, high values of SevCog, which may be termed failures in reality testing of internal thought processes, may be less severe in terms of risk of psychosis than high values of FQ-%, which may be termed failures in reality testing of external stimuli. In the Rorschach literature, the higher SevCog of trauma-affected individuals on the Rorschach is seen as related to the triggering of traumatic images that disrupt thinking and judgment; however, these functions remain intact when not affected by trauma-related associations (Brand et al., 2006; Kaser-Boyd and Evans, 2008; Viglione et al., 2012a).

In Opaas and Hartmann's (2013) study, described in the introduction, only the more extreme values of the Trauma Response component (including SevCog) correlated with impaired perceptual reality testing (including FQ-%). In Opaas et al.'s (2016) study, impaired perceptual reality testing predicted a negative response to therapy. In the pre- and posttreatment results of the participants in the present study, FQ-% deviated considerably less from the normative reference sample than SevCog, and at posttreatment, FQ-% only deviated 0.4 SD from the norm. Moreover, general ego impairment (EII-3) was 2.1 SDs above norms at pretreatment and was reduced to 1.0 SD above norms at posttreatment. With SevCog probably being a less severe indication of reality testing problems and risk of psychosis, unless extremely high, this coincides with our clinical impression during assessments that few of the 22 participants were at great risk of psychosis. In line with contemporary thinking of psychoses in dimensional terms and as continuous syndromes, relevant R-PAS variables may provide useful tools for assessing degrees and severity of psychotic processes (Buckingham et al., 2020).

### Intrusions, Traumatic Flooding, Constriction, and Dissociation

Traumatic intrusions, signified by trauma-related content on the Rorschach (CritCont%), were significantly reduced during the study period but were still well above the normative mean. In comparison, the R-PAS variable that indicates relatively unfiltered experience of immediate impressions and emotional regulation problems (CF + C), did

not come out as pathologically high at pre- or posttreatment. However, when inspecting the data file, there were few color responses at all, indicating low or restrained emotional reactions to the environment. The scarcity of color responses may be understood as an example of a constricted response style—a defensive holding back among trauma-affected individuals that was especially noticeable on the pretreatment Rorschach (Opaas and Hartmann, 2013). Several authors have noted the oscillation between constriction, that is, a defensive silencing of inner life, associations, thoughts, memories, and feelings, and flooding, that is, becoming overwhelmed by trauma-related recollections and feelings, frequently found among traumatized individuals (Ephraim, 2002; Horowitz, 1976; Opaas and Hartmann, 2013; van der Kolk, 1994; Viglione et al., 2012a). Traumatic content on the Rorschach has been related to dissociation (Armstrong and Loewenstein, 1990; Brand et al. 2006), and low responsiveness to color to emotional distancing (Viglione et al., 2012a). Viglione et al. suggested that the trauma-relevant imagery included in the CritCont% “may either stimulate dissociation or reveal the failure of dissociation to suppress such disturbing content” (p. 141). According to Brand et al. (2006), an individual's responses indicating emotional flooding and dissociative distancing may occur in close succession on the Rorschach. Overall, the participants' results on the Rorschach were compatible with indications of flooding and dysregulated emotions and with cognitive and emotional distancing or constriction.

### Relational Capacity and Self and Other Representations

Interpersonal traumatization, such as torture, child maltreatment, persecution, persistent domestic violence, intentional cruelties of warfare, and other human rights violations, is known to effect more severe disturbance in mental health and well-being than natural disasters and accidents (Briere, 2004). Moreover, in the description of the F62.0 diagnosis of the *ICD-10* and of the complex PTSD diagnosis in *ICD-11* (World Health Organization, 2018), core elements in addition to the classical symptoms of PTSD are a negative self-concept and difficulties in relationships. In the Rorschach trauma literature, to our knowledge, difficult relations to self and others are not much discussed. However, Ephraim (2002) noted that severely traumatized individuals often report permanent disturbance in their self-perception and depict themselves as weak, fragile, and helpless. Moreover, he found interpersonal thematic imagery suggesting social and interpersonal isolation. In our study, the Rorschach posttreatment results indicated that relating to others was still difficult (MAP was still markedly elevated), and the way the participants perceived themselves and others was also still problematic (still elevated PHR). The medium-size improvement in social relationships, which was a nonsignificant result, whereas all the other changes in symptoms and QOL variables were significant, indicated great variability between participants in how they perceived their social life. Taken together, these results indicate that the former traumatized refugee patients struggled with their perception of self and others and with interacting with others in mutually enhancing ways, after psychotherapy and long time after resettlement.

### Conclusion and Implications

Research has shown that the sufferings of traumatized refugees may last for years (e.g., Vaage et al., 2010). Our study revealed that at treatment start, the refugee patients had severe mental health problems, even though a mean of 10 years or more had passed since their exposure to war, persecution, and flight trauma. Despite the participants' severe pretreatment posttraumatic stress symptoms comorbid with depression, known to predict poor treatment outcome (Haagen et al., 2017), we found, as hypothesized, significant improvement in trauma-related aspects of personality functioning, symptoms of mental disorder, QOL, and exile life functioning, including a significant decline in number of participants reaching threshold scores for PTSD and major depression.

For many of the patients, treatment termination probably took place at points when the individual patient and therapist felt that the patient had attained some therapeutic help. The assessments after treatment termination were performed at arbitrary points in time, varying from weeks to several years after the last therapy session. If the therapeutic experience only had transient positive effects, many of the refugees' sufferings would probably have reappeared at the posttreatment assessment. Moreover, the personality changes, assessed by the Rorschach, were in accordance with changes of individuals who had been in psychotherapy but not with the temporal stability of those who had not (Grønnerød, 2003, 2004; Hartmann, 2013). Furthermore, the size of changes in symptoms and QOL was comparable to other naturalistic studies (van Wyk and Schweitzer, 2014). Based on this reasoning, we propose that the improvement of the patients on a broad array of indicators at least in part was due to the therapy experience. The results suggest that traumatized refugees may benefit from psychotherapy in important areas of personality functioning, mental health, QOL, and exile life functioning.

The long stay in Norway, the severity of mental health suffering, and the low level of functioning in terms of exile language, employment, and qualifying studies upon entering therapy, underline the importance of getting access to mental health care before a negative spiral of poor health and functioning settles. Moreover, there is a need to address the high levels of depression and anxiety, as well as PTSD. For those who are struggling with the repercussions of trauma, mental health care combined with measures outside the therapy room, such as better methods of language education and efforts at inclusion into work life, might mutually benefit each other. Finally, using R-PAS as a clinical assessment tool may guide therapy toward areas of the personality that are severely affected by trauma and alert the clinicians to signals of possible pending psychosis.

### Strengths and Limitations

Control tests showed no significant differences at treatment start between our participants and the remaining index study individuals. Thus, according to the variables used in the study, our 22 participants did not represent a biased part of the original group. The naturalistic design of the study ensured high external validity. Our participants were typical of refugee trauma patients receiving therapeutic help from ordinary Norwegian mental health specialist services at the time of the study, as were the therapies, including nonmanualized approaches of different theoretical orientations, which to a greater or lesser extent addressed the patients' traumatic experiences.

The use of the research-based R-PAS probably was an important reason for obtaining so many significant Rorschach results. Another quality was the use of both implicit, performance-based (R-PAS), explicit self-report assessment methods and registering the participants' exile language skills and employment/student status over time. Self-report instruments depend on the respondents' self-knowledge, willingness, and ability to reveal information about themselves. In comparison, instances of exile life functioning are objective measures, and the Rorschach provides information about personality characteristics that the test taker may not be aware of or may want to hide.

The most serious limitations of the study are the low number of participants and the lack of a control or comparison group. Another serious limitation is that the number of treatment sessions, the treatment length, and the time between last therapy session and the posttreatment assessment varied widely, making it difficult to draw conclusions about the effect of treatment on the investigated variables. These facts limit the potential for generalizations and claims of causation. Still, most of the refugees' accounts at pretreatment indicated multiple adverse and traumatic war-related experiences. Many had also experienced extensive childhood losses and trauma. Moreover, most of them had substantial postmigration stress and complex physical, mental, and functional

impairment throughout their refugee period in Norway. When entering therapy, a long time had passed for most of the participants since the preflight traumatic events had taken place and since arrival to Norway. We think these circumstances, taken together, lend support to our cautious suggestion that the improvements were propelled by the psychotherapeutic experience and not solely by the passing of time.

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### DISCLOSURE

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