

# New treatment approaches: integrating new media in the treatment of war and torture victims\*

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## Abstract

The diagnostic process and treatment of victims of war and torture is associated with a number of difficulties. This article will provide an overview of three different approaches on how the new media may be integrated into the treatment of survivors of torture and war to face some of the challenges. Illiteracy is a common problem and makes it difficult to apply standardized psychological assessment procedures. Also, the majority of survivors of torture and war do not have access to any psychotherapeutic treatment due to geographical limitations or limitations concerning psychotherapeutic treatment capacity. Furthermore, chronic psychological disorders such as (complex) Post-traumatic Stress Disorder (PTSD) are often seen with comorbid chronic pain disorders, which present a therapeutic challenge. The Treatment Center for Torture Victims, Berlin, in cooperation with the University of Zurich, developed a number of approaches to address these challenges: 1) MultiCASI - to standardize the diagnostic process an

audiovisual diagnostic tool was developed which allows illiterate individuals to answer standardized psychological questionnaires without the help of interpreters; 2) A virtual treatment center for posttraumatic stress disorder for traumatized patients in Iraq and other Arab speaking post-conflict countries; 3) Utility of Biofeedback (BF) in chronic (somatoform) pain and in traumatized patients: to address the chronic pain syndrome presented by most survivors, a biofeedback-supported cognitive-behavioral therapy approach was developed and successfully tested in a pilot study.

*Key words:* victims of torture and war, PTSD, pain, assessment, treatment, computer

Warfare and torture, occurring on a large scale around the world causes many victims to flee their countries. As reported by the International Organization for Migration<sup>1</sup> and UNHCR,<sup>2</sup> migrants and refugees comprise a large group worldwide with approximately 175 million and 19.2 million respectively at the end of 2004. Both voluntary and forced migration lead to excess risk of physical illness<sup>3</sup> and psychiatric morbidity,<sup>4</sup> particularly when associated with traumatic experiences and resettlement in unfamiliar environments. According to a recent meta-analysis,<sup>5</sup> about 10% of refugees in western countries suffer from Posttraumatic Stress Disorder (PTSD), 5% are diagnosed with major depression, and there is evidence for

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high psychiatric comorbidity. When diagnosing and treating survivors of war and torture, clinicians are frequently faced with a number of challenges. In this article, three approaches on how the integration of computer and the new communication pathways might help to overcome some of the problems occurring during diagnostics and treatment will be introduced: a multilingual computer-based diagnostic tool (MultiCASI), an internet-based treatment of PTSD in post-conflict countries and a biofeedback-based pain therapy.

### 1. MultiCASI

Illiteracy and limited reading and writing skills are common problems in many countries and are often observed in refugee populations. The application of standardized psychological assessment is therefore resource consuming, as interpreters are necessary, and poses methodological problems, as the validity of ad hoc translations of questionnaires during interviews is unclear. To face this challenge the Berlin Center for Torture Victims and the Outpatient Clinic for Victims of Torture and War, University of Zurich developed a computer based diagnostic tool (MultiCASI, multilingual computer assisted self-interview,<sup>6</sup>) to facilitate questionnaire-based standardized assessment of samples that consist of people who speak diverse languages and have limited reading or writing skills. MultiCASI consists of two separated surfaces. The interviewee works on a surface where single items of a given questionnaire are presented and read aloud in the interviewee's native language after being activated by touching them through a touch screen. Only one question is presented at a time on the screen (see Figure 1). After having completed the questionnaire, results are automatically exported into a statistics program. On the second surface any ques-

tionnaire can be entered in a wide range of different languages and fonts. The interview modalities (i.e. language, the selection and order of questionnaires, rules for skipping of items/questionnaires, audio on/off, single/multiple choice) can be individually adapted.



Figure 1. Example of a Russian item with MultiCASI.

The program eases the process of data collection considerably for therapists. In general, computer-assisted assessments offer a number of advantages such as data completeness and standardization, immediacy of data entry and elimination of transcription costs and errors.<sup>7</sup> Another possible advantage of this system is the anonymous interview setting. It has been argued that the use of computers reduces the tendency to respond in a socially desirable way. This is especially true for more sensitive or potentially stigmatizing information.<sup>8</sup> In previous studies with similar systems it was repeatedly shown that the under-report of sensitive behavior or pathological symptoms as a result of embarrassment, privacy concerns, or fear of negative reactions is a common problem. Furthermore, traditional paper-and-pencil self-report instruments can be easily transferred to computer-based administration. Ritter, Lorig, Laurent, and Matthews<sup>9</sup> compared the psychometric properties of internet-based versus paper-and-pencil questionnaires. They found that questionnaires

administered via the computer were reliable and answered as often as the paper-and-pencil questionnaire with less recruitment effort required. MultiCASI was developed in collaboration with psychologists, psychiatrists, ethnologists and computer specialists. The tool has been tested with migrants from different cultures and languages (including illiterates). Respondents so far have understood the program rapidly and have accepted it very well. An unexpected side effect was that several patients expressed their satisfaction and surprise that they were actually able to work on a computer given the fact that they were unable to read and write. Although this induction of self-efficacy was initially unintended we interpreted this as a further indication of acceptability of this diagnostic approach. Due to its simple operational structure, the program is also suited for surveys with children and is currently being applied in an epidemiological study in four West-African countries. Currently, the Berlin Center for Torture Victims and the Outpatient Clinic for Victims of Torture and War, University of Zurich are conducting a feasibility study where the acceptability and response patterns of MultiCASI are compared to traditional paper-and-pencil approaches.

Although we are well aware of the challenges and complexity cross-cultural diagnostic assessment implies, we intentionally omitted the discussion of whether a standardized assessment of DSM-criteria can and should be applied to individuals with a different cultural background. In addition, we chose not to focus on whether instruments used to assess the presence of psychological disorders may accurately reflect the given psychopathological condition within non-western cultures. This controversy has been discussed in great detail elsewhere<sup>10,11</sup> and will therefore not be replicated here.

## **2. A virtual treatment center for post-traumatic stress disorder for traumatized patients in Iraq and other Arab speaking post-conflict countries**

In 2002, the UN Commission on Human Rights pointed out "the systematic, widespread and extremely grave violations of human rights and of international humanitarian law by the Government of Iraq, resulting in an all-pervasive repression and oppression sustained by broad-based discrimination and widespread terror".<sup>12</sup>

A recent survey by Gallup showed that 6.6% of Baghdad's residents had experienced the execution of household members, a figure that projects to at least 60,000 executions in Baghdad alone.<sup>13</sup> This number agrees with estimates by Human Rights Watch and other human rights organizations that between 300,000 and 500,000 Iraqis were executed by the Ba'ath regime. In a recent survey of 2,000 Iraqi households in southern Iraq, conducted by Physicians for Human Rights, more than 1,000 incidents of severe human rights abuses by the Ba'ath regime were reported, including torture, killings, disappearance, beatings, kidnappings, forced amputation and rape.<sup>14</sup> In addition, the consequences of war dramatically increased the likelihood of being exposed to traumatic experiences, which implies the urgent need for immediate rehabilitation. Due to the highly critical security situation in Iraq only a very limited number of governmental and non-governmental organizations (NGOs) are present in this war-torn and conflicted region. This is in strong contrast to the actual need of the population in this country. Besides the lack of medical and infrastructural help, psychological support in this region is also sparse. There is a recognized urgency and priority to set up and strengthen processes in the Iraqi health sector.

These problems are confirmed by our own experiences in Iraq. In 2005 the Treatment Center for Torture Victims in Berlin, Germany, opened a treatment center for torture victims in Kirkuk, Iraq. The demand for psychological treatment was immense, and only a small percentage of people in need were able to receive treatment. In addition, more treatment facilities for patients located in the Northern part of Iraq and psychological support for those in other more unstable parts of the country are urgently needed.

As outlined previously, a major problem frequently found in survivors of torture and war is posttraumatic stress disorder. According to an estimate of prevalence by the Swiss Refugee Council, up to 50% of the Iraqi population suffers from various forms of post-traumatic stress.<sup>15</sup> This is in line with results from other high-risk populations, such as individuals originating from post-conflict areas and torture victims, where a high prevalence of PTSD (43-52%) was found.<sup>16</sup> As a recent study shows, these high prevalence rates are in large part due to the cumulative effect of traumatic experiences in conflict areas.<sup>17</sup>

### *2.1 Relevance of the project to Iraq and other Arabic post-conflict countries*

Only a small percentage of victims of torture and war are able and have the resources to flee their country. The vast majority is forced to stay in the conflicted areas where there is usually no sufficient psychotherapeutic support structure. In addition to living with violence, many of these individuals are also living in poverty, and are often dependent on humanitarian aid. Therefore, any psychotherapeutic work that takes place must be brief given the large numbers of people and limited financial resources. Any broad-scale treatment program must be pragmatic and easy for local personnel to learn, even with little or no access to medical or psy-

chological education or additional training. Consequently, the method must be easily implemented and adaptable to any environment regarding safety. The evolving communication technology offers new delivery channels for psychotherapeutic treatments, which provides a unique possibility to offer therapeutic treatment to areas without psychosocial infrastructure. Because therapist and patient are geographically independent, the approach is applicable even in high-risk areas, where no help systems exist due to the associated danger. Another advantage is the anonymity of the Internet, which offers new treatment possibilities in Iraq and other Arabic post-conflict countries.

### *2.2 Internet-based therapy for PTSD*

Traumatic experiences are often associated with stigmatization and intense feelings of shame and guilt.<sup>18</sup> The Internet provides a protected environment where participants can easily control and regulate the degree of intimacy they want to share without the fear of real-life judgment, rejection, or devaluation. This way of communicating lessens social risks and inhibitions and encourages the disclosure of painful experiences or shameful thoughts.<sup>19-21</sup> In past years, a highly effective Internet-based treatment approach for posttraumatic stress disorder (Interapy) has been developed.<sup>22-24</sup> The treatment consists of structured writing assignments that take place through a database implemented on the Internet; it is delivered without any face-to-face contact and therefore is accessible all over the world. All studies repeatedly found substantial, significant and enduring improvements on posttraumatic stress symptoms and anxiety and depressed mood. Due to its high efficacy, Interapy is already integrated into the regular health care system in the Netherlands and is accessible nationwide. Interapy was evaluated cross-culturally

in numerous randomized controlled trials.<sup>25-27</sup> In cooperation with the Kirkuk Center for Torture Victims located in the Northern part of Iraq, a self-sustained virtual out-patient clinic for traumatized patients was initiated ([www.ilajnafsy.org](http://www.ilajnafsy.org); [www.virtual-trauma-center.org](http://www.virtual-trauma-center.org)). This approach is based on the widely tested and proven protocol-based Interapy treatment approach and will be conducted in Arabic. Within this approach all contact between patient and therapist takes place exclusively via email and is based on a clinically evaluated treatment protocol. During the seven-week treatment patients communicate with their individual therapists. As the Internet allows geographical independence, the Arabic-speaking therapists can be located anywhere in the world.

### 2.3 Interapy

Potential patients browse through the website, which provides information about PTSD, the treatment, the therapists and other potential treatment alternatives. Potential participants can log in and fill out the screening questionnaires online. The screening is a set of standardized clinical questionnaires for all relevant disorders. As soon as those who pass the screening give written informed consent, they are admitted to treatment. The online therapy is accessible for anyone; patients, however, who are under 18, and/or who are too unstable (e.g. psychotic, suicidal, severely depressed) cannot be treated through the Internet. All therapists also participate in weekly supervision sessions and contribute to the Arabic Online Supervision Forum.

### 2.4 InterapyAID treatment protocol

Patients are set two weekly 45-minute writing assignments over a period of approximately five weeks, with the therapist and patient communicating exclusively by e-mail.

After every second essay, patients receive feedback and further instructions from the therapist. These instructions (which are sent within one working day) are based on a cognitive-behavioral treatment protocol, but tailored to the individual patient's needs. At the beginning of each phase of treatment, patients receive psycho-education on the principles of the treatment module.

Subsequently, the three treatment phases, including examples of the therapists' writing instruction and an excerpt from the case illustration of a patient will be described. Each treatment phase includes an example of the therapists' writing instruction and an excerpt from the case illustration of a patient: The patient, Ms. N., is a 32-year-old Iraqi woman who was detained due to the human rights activities of her husband. During detainment Ms. N. was repeatedly raped by police officers. Until starting the InterapyAID she was unable to talk about her experiences in prison and the suffering that came in the years afterwards.

#### 2.4.1. First phase – self-confrontation

First, patients are instructed to write two essays on the circumstances of the traumatic event or the death of a significant person. They are asked to express all their fears and thoughts about the event and to focus on sensory perceptions in as much detail as possible. Participants are asked to write their essays in the present tense, in the first person, and without worrying about grammar, style, or the logical chronology of events. The following is an example of the therapists' writing assignment set for essays 3 and 4:

*Therapist instruction:* "For the next two texts, I would like to ask you to choose one moment of your traumatic event. One moment that you can hardly bear

to think about, but that keeps intruding on your thoughts. Write down the most painful memories and emotions you have when you think about it and describe everything that you experience – every feeling, every thought and physical reaction.”

*Example of the patient's text:* “I wish I would not be a woman ... I am ready to reveal any information he demands but he does not want any information. He wants something different. He hits me in the face and starts to rip off my clothes. I smell and taste blood - the other guard is restraining my hands. I cannot move ... I never hated myself as much as I do now. I never hated my body as much as I do now. I am scared; I am scared to die. My heart is racing – I am just pain – pain I cannot bear. I am worthless. I am not worth to be the mother of my son ... I cannot live anymore. My head explodes, everywhere is blood, I cannot breathe, I cannot move. God, don't let them hurt my son ...”

#### 2.4.2. Second phase – cognitive reappraisal

In this cognitive restructuring phase, patients are instructed to write a supportive and encouraging letter to a hypothetical friend. They are asked to imagine that this friend had also experienced the same kind of traumatic experience and was now facing the same difficulties. The letter should reflect on guilt feelings, challenge dysfunctional automatic thinking and behaviour patterns, and correct unrealistic assumptions. The aim is to foster the development of new perspectives on the traumatic event and its circumstances. An example instruction of the therapist for the first two essays in this phase is as follows:

*Therapist instruction:* “Imagine you are writing a supportive letter to your friend Nailah, who experienced the same situation as you. Could she have foreseen what happened? Do you think she was responsible for this?”

*Example of the patient's text:* “I can understand that you feel that you can't go on living – but we are not the ones who determine that. Stop blaming yourself. Why do you double all what happened by thinking about it continuously and blame yourself for something that was out of control. It was not your fault. It was not your fault. I know I ask for a lot, but you know I do this to help you .... Why do you think these people (neighbours) invite you? Why do they look for your company? Because they see something inside of you that you cannot see anymore. Don't let your sadness and feelings of guilt and shame prevent those relationships. Don't let the monsters from the past win again over your heart and your body.”

#### 2.4.3. Third Phase – social sharing and farewell ritual

During the third phase, patients receive psycho-education about the positive effects of social sharing. In a final letter they then take symbolic leave of the traumatic event. Patients can address the letter either to themselves, to a close friend, or another significant person involved in the traumatic event. The letter did not ultimately have to be sent.

*Therapist instruction:* “You wrote that you would like to write the letter to yourself. First, I would like to ask you to describe the circumstances that happened. Which moments were so important that you would like to tell yourself about them? It

is important to give the past, the present and the future the same weight in this letter.”

*Example of the patient's text:* “I can see that you feel better...you are stronger and your will seem stronger. Your sadness became less and you're thinking less about the past. What happened is part of your life and it does not have to be more than that. Try to live now! You bought yourself a new dress yesterday – how long ago has that been? Allow yourself to enjoy your life just as yesterday, get in touch with people you like and don't let your doubts and fears hinder you. You are a human being just as they are human beings and you have a right to take part in this life.”

### 2.5 Limitations of this approach

As any other psychotherapeutic approach this internet-based treatment approach suits only a selected population. As indicated before, patients have to be psychologically stable enough, have to have sufficient reading and writing abilities and must have access to the Internet. Also, some patients might feel uncomfortable to share these intimate details though the Internet. However, for many this is the first approach, which provides an opportunity for treatment in areas where no psychosocial structure is available. Currently a randomized controlled trial is being conducted to test the efficacy of this approach in an Arabic speaking population. For more information and participation, readers are referred to [www.ilajnafsy.org](http://www.ilajnafsy.org) or [www.virtual-traumacenter.org](http://www.virtual-traumacenter.org).

### 3. The Treatment of chronic pain in traumatized refugees

Chronic pain and “medically unexplained somatic symptoms” are frequent conditions in migrants<sup>28</sup> causing individual suffering and increased health care utilization. The

International Association for the Study of Pain<sup>29</sup> defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage”. The diagnosis Somatoform Pain Disorder (SPD) is made when pain has existed for at least six months, if there is strong evidence that psychological factors have caused or are maintaining the pain, and if the pain causes distress that is clinically significant or impairs work, social or personal functioning. The prevalence of chronic pain syndromes in North America's and Europe's general population is estimated to be between 7 and 44%.<sup>30</sup> Not surprisingly, SPD occurs particularly frequently after torture, and prevalence rates of 28-48% are reported.<sup>31</sup> One of the key features of SPD is a communication problem between patient and physician concerning the nature of the disease (organic/somatic vs. mental/psychic). This often results in fruitless and costly diagnostic activities, while at the same time effective treatment approaches, or at least reasonable clinical management strategies, are missed. Patients suffering from multiple somatoform disorders tend to focus on physical symptoms and catastrophising cognitive strategies related to those symptoms.

### 3.1 Interrelation of traumatic stress and chronic (somatoform) pain

The interrelation between SPD and PTSD<sup>16,32</sup> is well known. In individuals with a primary diagnosis of PTSD, chronic pain was one of the most commonly reported symptoms regardless of the nature of the trauma,<sup>33</sup> with a prevalence of 34-80%.<sup>34</sup> Also in refugees high rates of comorbidity between PTSD and SPD have been found.<sup>35</sup> Torture victims appear to be at particularly high risk for developing both PTSD and SPD, for they are not only se-

verely traumatized in terms of psychological impact, but have usually experienced severe physical damage. High rates of comorbidity between PTSD and SPD have lately been found in Bhutanese refugees (41% of the non-tortured and 62% of the tortured respectively,<sup>35</sup>). In a Swedish study of torture victims, chronic back pain was the most common complaint,<sup>36</sup> and the severity of physical torture correlated with PTSD symptom levels. Physical injury has also been identified as a PTSD risk factor in other trauma populations, such as combat veterans and accident survivors.<sup>37,38</sup>

The co-occurrence of SPD and PTSD suggests that the two disorders may have implications in terms of an individual's experience of both conditions and may interact in such a way as to negatively impact the course and outcome of treatment of either disorder.<sup>39,40</sup> Compared to non-affected individuals, lower pain thresholds have been observed among individuals with PTSD.<sup>41</sup> Theoretically it is assumed, that the experience and perception of pain after a traumatic event involving bodily harm is affected by the mental aspects of trauma, e.g. re-experiencing of trauma. On one hand, pain acts as a trigger that elicits re-experiencing symptoms; on the other hand, pain can also be precipitated "psychologically" by intrusive memories, thus assuming the role of a "somatic flashback".<sup>42</sup> This hypothesis is supported by the findings of increased PTSD re-experiencing symptoms being related to increased pain<sup>43</sup> and physical symptoms.<sup>44</sup> From a clinical perspective it is obvious that patients with SPD related to traumatic stress experience more intense pain and affective distress, higher levels of life interference and greater disability than SPD patients without trauma. Furthermore, persistent physical impairment may slow down remission of PTSD.<sup>45</sup>

### 3.2 Therapeutic interventions for posttraumatic chronic pain and PTSD - CBT-Biofeedback

Patients suffering from both PTSD and SPD tend to present a more complicated clinical picture and appear less responsive to treatment.<sup>34</sup> In their review Morley et al.<sup>46</sup> showed that CBT was found to be effective in the treatment of SPD. With co-occurring PTSD and/or transcultural problems, the available data get scarcer. This is comparable to PTSD - generally speaking, exposure based CBT is the method of choice for PTSD and associated problems.<sup>47</sup> In the case of comorbid PTSD and SPD, no clear treatment strategies exist so far. As demonstrated by the research of Richardson et al.<sup>48</sup> with Vietnam veterans, most professionals have difficulties dealing with multiple idiopathic physical symptoms in patients with psychological trauma. This frequently results in responsibility confusion, while mental health providers tend to view the veterans' physical symptoms as physical illness requiring medical therapies, physicians view the syndrome as a psychological illness requiring psychological treatment.

In their review, Otis et al.<sup>34</sup> found that only a few studies investigated treatments designed to address co-occurring SPD and PTSD, and results were inconsistent; the authors report no well-controlled studies investigating the efficacy of individually tailored treatments which might be needed in these cases. In two studies on patients suffering from headache after traumatic brain injury those with PTSD were found to need longer pain-focused treatment compared to those without PTSD.<sup>49,50</sup>

### 3.3 Utility of Biofeedback (BF) in chronic (somatic) pain and in traumatized patients

For more than three decades Biofeedback (BF) has been widely utilized in the treatment of both chronic pain and anxiety disorder-



ders. It is a technique in which a physiological signal is recorded and fed back to the patient while she/he is instructed to apply a strategy to alter the signal in a predefined direction. The aim of BF is to increase the patient's awareness of a specific physiological function and to improve his/her control over that function. BF is usually applied in combination with relaxation techniques such as Progressive Muscle Relaxation PMR, see<sup>51</sup> for review and CBT techniques.<sup>52</sup> BF showing correlations between psychophysiological processes and cognitive coping strategies functions as a bridge between body focused medical treatment and psychotherapy.<sup>53</sup>

The efficacy of various forms of BF such as EMG-BF, temperature BF, or heart rate BF has been well demonstrated for a variety of chronic pain syndromes such as tension headache, low back pain, or migraine.<sup>51,54,55</sup> Tsushima and Stoddard<sup>56</sup> found no differences in EMG-BF efficacy between ethnic groups. In anxiety disorders, for example respiratory,<sup>57</sup> heart rate,<sup>58</sup> and EEG [electroencephalogram<sup>59</sup>], have been successfully used as BF modes. However, its suitability for the treatment of the latter, especially PTSD, has been discussed controversially.<sup>60,61</sup> In PTSD patients, two types of studies have been conducted: (1) studies utilizing BF to predominantly treat PTSD symptoms, where BF is regarded as a rather non-specific relaxation technique,<sup>62,63</sup> and (2) studies addressing chronic pain in patients with comorbid PTSD.<sup>49,50,64</sup> In the first cluster of studies, rather low efficacy has been reported. The studies of the second cluster report poorer treatment efficacies for chronic pain sufferers with comorbid PTSD as compared to pain patients without PTSD.<sup>65</sup> Blanchard and associates<sup>49,50,51</sup> emphasized that PTSD symptoms in chronic pain patients need to be addressed in order to achieve sufficient pain improvement.

### 3.4 A pilot BF treatment study

The feasibility of a BF-approach was tested in a pilot study in three centers (Berlin Center for Torture Victims; Outpatient Clinic for Victims of Torture and War, University of Zurich; Charité Virchow-Clinic, Department of Anesthesiology and Critical Care Medicine) between December 2005 and February 2006. For the purpose of our study, manualized standard Biofeedback procedures<sup>51,66</sup> were slightly adapted to the needs of our population. The treatment protocol for this study consists of 10 sessions of CBT-BF, including psychoeducation about the interrelation between traumatization, stress and pain, as well as different relaxation strategies. The manual was especially expanded to the specific needs of patients with SPD secondary to traumatization (e.g. inclusion of vicious circle between pain and trauma-related symptoms). The treatment protocol consisted of 10 weekly sessions of 90 minutes within three months. Every session lasted 90 minutes each. In the initial sessions, the predominant physical and psychological problems as well as problems of the patient's current life situation were discussed. Furthermore, psychoeducation was delivered and an individual model of the patient's current complaints and possible ways to recovery was developed. In sessions three through nine, therapist and patient focused on the individual primary pain. Different relaxation strategies were introduced and trained with the help of CBT-BF. In addition, patients received daily homework to exercise progressive muscle relaxation PMR.<sup>67</sup> In session nine, pain-related problems such as dysfunctional cognitions and behavior, or inactivity were modified using standard CBT techniques. In session ten, the learned methods and strategies for coping with chronic pain were reviewed and evaluated regarding their use in future pain situations.

Farewell at termination of treatment was included. In general, the procedure was accepted very well. Some small apparent difficulties (e.g. frequency and duration of sessions) were adapted after the pilot study. Initially, 13 patients were included in the pilot treatment study. Eleven patients completed the protocol, while two patients (15%) dropped out of treatment. Overall, a significant improvement with regard to pain levels and coping behavior was found which was maintained during a 3-month follow-up period. A detailed description of the pilot study is given in Mueller et al.<sup>68</sup>

#### 4. Conclusion

The aim of this paper was to introduce three different approaches on how new communication pathways and technology can be usefully integrated into the psychological care of traumatized refugees. As indicated before, these approaches are by no means panaceas but might provide new ways to overcome some of the challenges faced when working with this specific population.

#### References

1. World migration report 2005. International Organization for Migration, 2005. [www.iom.int](http://www.iom.int).
2. 2004 Global refugee trends: overview of refugee populations, new arrivals, durable solutions, asylum seekers and other persons of concern to UNHCR. UNHCR, 2005. [www.unhcr.ch/statistics](http://www.unhcr.ch/statistics) [cited 04.08.2005].
3. Gavagan T, Brodyaga L. Medical care for immigrants and refugees. *Am Fam Physician* 1998;57:1061-8.
4. Hollifield M, Warner TD, Lian N, Krakow B, Jenkins JH, Kesler J et al. Measuring trauma and health status in refugees: a critical review. *JAMA* 2002;288:611-21.
5. Fazel M, Wheeler J, Danesh J. Prevalence of serious mental disorder in 7000 refugees resettled in western countries: a systematic review. *Lancet* 2005;365:1309-14.
6. Knaevelsrud C, Mueller J. Multilingual computer assisted self-interview (MultiCASI) System for psychiatric diagnostic of migrants. 1.0 ed. Heidelberg: Springer 2007 (in press).
7. Taylor CB, Luce HL. Computer- and internet-based psychotherapy interventions. *Current Directions in Psychological Science* 2003;12(1):18-22.
8. Turner CF, Ku L, Rogers SM, Lindberg LD, Pleck JH, Sonenstein FL. Adolescent sexual behavior, drug use, and violence: increased reporting with computer survey technology. *Science* 1998;280:867-73.
9. Ritter P, Lorig K, Laurent D, Matthews K. Internet versus mailed questionnaires: a randomized comparison. *J Med Internet Res* 2004;6(3):e29.
10. Bracken PJ, Giller JE, Summerfield D. Psychological responses to war and atrocity: the limitations of current concepts. *Soc Sci Med* (1982) 1995;40:1073-82.
11. Silove D. The psychosocial effects of torture, mass human rights violations, and refugee trauma: toward an integrated conceptual framework. *J Nerv Ment Dis* 1999;187:200-7.
12. Question of the violation of human rights and fundamental freedoms in any part of the world: report of the special rapporteur, Andreas Mavrommatis, on the situation of human rights in Iraq. UN Commission on Human Rights, 2002.
13. Gallup poll of Baghdad. The Gallup Organization, 2003.
14. Physicians for Human Rights report on Iraq. Physicians for Human Rights, 2003.
15. Kirschner M. Irak: Die Aktuelle Lage. In: Länderanalyse S, ed. SFH Länderanalyse, 2004.
16. Van Ommeren M, de Jong JT, Sharma B,

- Komproe I, Thapa SB, Cardena E. Psychiatric disorders among tortured Bhutanese refugees in Nepal. *Arch Gen Psychiatry* 2001;58:475-82.
17. Neuner F, Schauer M, Karunakara U, Klaschik C, Robert C, Elbert T. Psychological trauma and evidence for enhanced vulnerability for posttraumatic stress disorder through previous trauma among West Nile refugees. *BMC psychiatry* 2004;4:34.
  18. Kubany ES, Haynes SN, Abueg AFR, Brennan MFP. Development and validation of the Trauma-Related Guilt Inventory (TRGI). *Psychol Assess* 1996;8:428-44.
  19. Suler J. Assessing a person's suitability for online therapy: the ISMHO clinical case study group. *International Society for Mental Health Online. Cyberpsychol Behav* 2001;4:675-9.
  20. Hopps SL, Pepin M, Boisvert JM. The effectiveness of cognitive-behavioral group therapy for loneliness via inter relaychat among people with physical disabilities. *Theor Res* 2003;40:136-147.
  21. Walter JB. Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Commun Res* 1996; 23:3-43.
  22. Lange A, van de Ven JP, Schrieken B. Interapy: treatment of post-traumatic stress via the internet. *Cogn Behav Ther* 2003;32:110-24.
  23. Lange A, Rietdijk D, Hudcovicova M, van de Ven JP, Schrieken B, Emmelkamp PM. Interapy: a controlled randomized trial of the standardized treatment of posttraumatic stress through the internet. *J Consult Clin Psychol* 2003;71:901-9.
  24. Lange A, van de Ven JP, Schrieken B, Emmelkamp PM. Interapy, treatment of posttraumatic stress through the Internet: a controlled trial. *J Behav Ther Exp Psychiatry* 2001;32:73-90.
  25. Knaevelsrud C, Maercker A. Does the quality of the working alliance predict treatment outcome in online psychotherapy for traumatized patients? *J Med Internet Res* 2006;8(4):e31.
  26. Wagner B, Knaevelsrud C, Maercker A. Internet-based cognitive-behavioral therapy for complicated grief: a randomized controlled trial. *Death Studies* 2003;30:429-53.
  27. Knaevelsrud C, Maercker A. Internet based treatment for PTSD reduces distress and facilitates the development of a strong therapeutic alliance: a randomized controlled trial. *BMC Psychiatry* (accepted).
  28. Allison TR, Symmons DPM, Brammah T, P, H, A, R, Roxby M et al. Musuloskeletal pain is more generalised among people from ethnic minorities than among people in Greater Manchester. *Ann Rheum Dis* 2002;61:151-6.
  29. IASP Task Force on Taxonomy. Classification of chronic pain. Second edition. In: Merskey H, Bogduk N, eds. Seattle: IASP Press, 2004:209-14.
  30. Nickel R, Raspe HH. Chronic pain: epidemiology and health care utilization. *Nervenarzt* 2001;72:897-906.
  31. Moisander PA, Edston E. Torture and its sequel – a comparison between victims from six countries. *Forensic Sci Int* 2003;137:133-40.
  32. Asmundson GJ, Wright KD, Stein MB. Pain and PTSD symptoms in female veterans. *Eur J Pain* 2004;8:345-50.
  33. Asmundson GJ, Coons MJ, Taylor S, Katz J. PTSD and the experience of pain: research and clinical implications of shared vulnerability and mutual maintenance models. *Can J Psychiatry* 2002;47:930-7.
  34. Otis JD, Keane TM, Kerns RD. An examination of the relationship between chronic pain and post-traumatic stress disorder. *J Rehabil Res Dev* 2003;40:397-405.
  35. Van Ommeren M, Sharma B, Sharma GK, Komproe I, Cardena E, de Jong JT. The relationship between somatic and PTSD symptoms among Bhutanese refugee torture survivors: examination of comorbidity with anxiety and depression. *J Trauma Stress* 2002;15:415-21.
  36. Edston E. [Bodily evidence can reveal torture. 5-year experience of torture documentation]. *Läkartidningen* 1999;96:628-31.
  37. Koren D, Norman D, Cohen A, Berman J, Klein EM. Increased PTSD risk with combat-related injury: a matched comparison study of injured and uninjured soldiers experiencing the same combat events. *Am J Psychiatry* 2005;162:276-82.
  38. Schnyder U, Mörgeli H, Klaghofner R, Buddeberg C. Incidence and prediction of posttraumatic stress disorder symptoms in severely injured accident victims. *Am J Psychiatry* 2001;158:594-9.
  39. Bryant RA, Marosszeky JE, Crooks J, Baguley JJ, Gurka JA. Interaction of posttraumatic stress disorder and chronic pain following traumatic brain injury. *J Head Trauma Rehabil* 1999;14:588-94.
  40. Sharp TJ, Harvey AG. Chronic pain and post-traumatic stress disorder: mutual maintenance? *Clin Psychol Rev* 2001;21:857-77.
  41. Shalev A, Peri T, Canetti L, Schreiber S. Predictors of PTSD in injured trauma survivors: a prospective study. *Am J Psychiatry* 1996;153:219-25.
  42. Salomons TV, Osterman JE, Gagliese L, Katz J. Pain flashbacks in posttraumatic stress disorder. *Clin J Pain* 2004;20:83-7.
  43. Beckham JC, Crawford AL, Feldman ME, Kirby

- AC, Hertzberg MA, Davidson JR, et al. Chronic posttraumatic stress disorder and chronic pain in Vietnam combat veterans. *J Psychosom Res* 1997;43:379-89.
44. McFarlane AC, Atchison M, Rafalowicz E, Papay P. Physical symptoms in post-traumatic stress disorder. *J Psychosom Res* 1994;38:715-26.
  45. Blanchard EB, Hickling EJ, Vollmer AK, Loos WL, Buckley TC, Jaccard J. Short-term follow up of posttraumatic stress symptoms in motor vehicle accident victims. *Behav Res Ther* 1995;33:369-77.
  46. Morley S, Eccleston C, Williams A. Systematic review and meta-analysis of randomized controlled trials of cognitive behaviour therapy and behaviour therapy for chronic pain in adults, excluding headache. *Pain* 1999;80(1-2):1-13.
  47. Foa EB, Keane TM, Friedman MJ. Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies. New York: Guilford Publications, 2000.
  48. Richardson RD, Engel CC, Jr., McFall M, McKnight K, Boehnlein JK, Hunt SC. Clinician attributions for symptoms and treatment of Gulf War-related health concerns. *Arch Intern Med* 2001;161:1289-94.
  49. Tatrow K, Blanchard EB, Silverman DJ. Posttraumatic headache: an exploratory treatment study. *Appl Psychophysiol Biofeedback* 2003;28:267-78.
  50. Hickling EJ, Blanchard EB, Silverman DJ, Schwarz SP. Motor vehicle accidents, headaches and post-traumatic stress disorder: assessment findings in a consecutive series. *Headache* 1992;32:147-51.
  51. Arena JG, Blanchard EB. Biofeedback and relaxation therapy for chronic pain disorders. In: Gatchel RJ, Turk DC, eds. *Psychological approaches to pain management: a practitioner's handbook*. New York: Guilford Press, 1996:179-230.
  52. Schwartz MS. *Biofeedback: A practitioner's guide*. 2nd ed. New York: Guilford Press, 1995.
  53. Rief W, Hiller W, Margraf J. Cognitive aspects of hypochondriasis and the somatization syndrome. *J Abnorm Psychol* 1998;107:587-95.
  54. Sherman RA, Arena JG. Biofeedback in the assessment and treatment of low back pain. In: Bazmajian J, Nyberg R, eds. *Spinal manipulative therapies*. Baltimore: Williams & Wilkins, 1992:177-97.
  55. Flor H, Birbaumer N. Comparison of the efficacy of electromyographic biofeedback, cognitive-behavioral therapy, and conservative medical interventions in the treatment of chronic musculoskeletal pain. *J Consult Clin Psychol* 1993;61:653-8.
  56. Tsushima WT, Stoddard VM. Ethnic group similarities in the biofeedback training of pain. *Med Psychother* 1990;3:69-75.
  57. Clark ME, Hirschman R. Effects of paced respiration on anxiety reduction in a clinical population. *Biofeedback Self Regul* 1990;15:273-84.
  58. Gerlach AL, Mourlane D, Rist F. Public and private heart rate feedback in social phobia: a manipulation of anxiety visibility. *Cogn Behav Ther* 2004;33(1):36-45.
  59. Peniston EG, Kulkosky PJ. Alpha-theta brain-wave neuro-feedback for Vietnam veterans with combat-related posttraumatic stress disorder. *Medical Psychotherapy* 1991;4:47-60.
  60. Banner CN, Meadows WM. Examination of the effectiveness of various treatment techniques for reducing tension. *Br J Clin Psychol* 1983;22 (Pt 3):183-93.
  61. Silver SM, Brooks A, Obenchain J. Treatment of Vietnam war veterans with PTSD: a comparison of eye movement desensitization and reprocessing, biofeedback, and relaxation training. *J Trauma Stress* 1995;8:337-42.
  62. Watson CG, Tuorila JR, Vickers KS, Gearhart LP, Mendez CM. The efficacies of three relaxation regimens in the treatment of PTSD in Vietnam War veterans. *J Clin Psychol* 1997;53:917-23.
  63. Carlson JG, Chemtob CM, Rusnak K, Hedlund NL, Muraoka MY. Eye movement desensitization and reprocessing (EDMR) treatment for combat-related posttraumatic stress disorder. *J Trauma Stress* 1998;11(1):3-24.
  64. Medina JL. Efficacy of an individualized outpatient program in the treatment of chronic post-traumatic headache. *Headache* 1992;92:180-3.
  65. Onorato VA, Tsushima WT. EMG, MMPI and treatment outcome in the biofeedback therapy of tension headache and posttraumatic pain. *American Journal of Clinical Biofeedback* 1983;6:71-81.
  66. Flor H, Birbaumer N, Schugens MM, Lutzenberger W. Symptom-specific psychophysiological responses in chronic pain patients. *Psychophysiology* 1992;29:452-60.
  67. Jacobson E. *Progressive relaxation*. Chicago: University of Chicago Press, 1938.
  68. Mueller J, Karl A, Denke C, Mathier F, Dittmann J, Rohleder N, et al. Somatoform pain disorder and PTSD in migrants – initial findings on the efficacy and feasibility of CBT-Biofeedback (submitted).