

Holistic neuropsychological rehabilitation in Finland: The INSURE program—a transcultural outgrowth of perspectives from Israel to Europe via the USA

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Given the interaction of cognitive, behavioural, psychological, and physical factors resulting from traumatic brain injury (TBI), a comprehensive, multidisciplinary, and neuropsychologically oriented rehabilitation could prove to be particularly promising and efficacious in the neuropsychological rehabilitation of post-acute brain-injured individuals. Kurt Goldstein, an eminent pioneer in the development of holistic rehabilitation, stated that brain-injured patients need environments that help them to avoid catastrophic reactions. In his view, the tasks of rehabilitation are to create, for the brain-injured individual, an environment that will minimize the chances for the occurrence of catastrophic responses. In this environment, the individual can engage optimally in various remedial activities, which will gradually culminate in the individual finding new meaning in life after rehabilitation. Yehuda Ben-Yishay incorporated many of Goldstein's ideas and developed a milieu or holistic rehabilitation program in 1978 in New York. The emerging role of psychotherapy for patients and their family members was characteristic of the Neuropsychological Rehabilitation Program that Prigatano established in 1980 in Oklahoma. In Europe, Anne-Lise Christensen, who was also influenced by the work of A. R. Luria, started a holistic program at Copenhagen University in 1985. Based on these pioneering programs, several similar programs were established in Europe. A Finnish program, INSURE, was established in 1993 in Helsinki. The INSURE program is a post-acute, interdisciplinary, 6-week rehabilitation program for selected groups of TBI patients. The core of the program is neuropsychological rehabilitation and psychotherapy with vocational interventions, and follow-up support. In recent years, a holistic rehabilitation program was also established in Turku for children with acquired brain injury. The European Holistic Working Group was founded in 2001, and the authors will also discuss their personal experiences and future of holistic neuropsychological rehabilitation in terms of ongoing research work, computer-administered cognitive remediation, and quality of life assessment.

Les lésions cérébrales traumatiques du cerveau LCT se traduisent par une interaction de facteurs cognitifs, comportementaux, psychologiques, et physiques. Par conséquent, une réadaptation compréhensive, multidisciplinaire et orientée vers la neuropsychologie pourrait mieux servir les personnes avec LCT. En effet, la réadaptation neuropsychologique semble particulièrement prometteuse et efficace chez les individus avec une blessure au cerveau en état post-aigu. Kurt Goldstein, un pionnier éminent dans le développement de la réadaptation holistique, a déclaré que les patients ayant une blessure au cerveau ont besoins d'environnements qui les aident à éviter les réactions catastrophiques. Selon lui, les tâches de la réadaptation sont de créer, pour les personnes avec une blessure au cerveau, un environnement qui minimisera les chances d'émergence de réponses catastrophiques. Dans cet environnement, l'individu peut s'engager de manière optimale dans diverses activités thérapeutiques qui culmineront graduellement dans la découverte par l'individu d'un nouveau sens à sa vie après la réadaptation. Yehuda Ben-Yishay a incorporé beaucoup des idées de Goldstein et a développé un milieu ou un programme de réadaptation holistique en 1978 à New York. Le rôle émergent de la psychothérapie pour les patients et les membres de leur famille était une caractéristique du Programme de Réadaptation Neuropsychologique établi en 1980 par Prigatano in Oklahoma. En Europe, Anne-Lise Christensen, influencée elle aussi par les travaux de A.R. Luria, a commencé un programme holistique à l'Université Copenhague en 1985. En se fondant sur ces programmes pionniers, de similaires programmes ont été établis en Europe. Un programme finlandais, INSURE, a été établi en 1993 à Helsinki. Le programme INSURE est un programme de

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réadaptation poste-aigu, interdisciplinaire et d'une durée de 6 semaines destiné à des groupes sélectes de patients LCT. La réadaptation neuropsychologique et la psychothérapie avec des interventions vocationnelles et avec un soutien de suivi sont au cœur de ce programme. Dans les dernières années, un programme de réadaptation holistique a été également établi en Turquie pour les enfants souffrant d'une lésion cérébrale acquise. Le Groupe de Travail Européen holistique a été fondé en 2001. Dans le cadre de ce groupe de travail, les auteurs vont aussi discuter de leurs expériences personnelles et de l'avenir de la réadaptation holistique neuropsychologique en termes de travaux de recherche en cours, du traitement cognitif administré par ordinateur et de l'évaluation de la qualité de vie.

En los traumatismo craneoencefálico (TCE), se presenta una interacción de factores cognoscitivos, conductuales, psicológicos y físicos. Los programas de rehabilitación comprensivos, multidisciplinarios y orientados neuropsicológicamente son los mas efectivos para la rehabilitación neuropsicológica de individuos con daño cerebral posagudo. Kurt Goldstein, un pionero en el desarrollo de rehabilitación holística, estableció que los pacientes con daño cerebral requieren un medio ambiente controlado que les ayuden a evitar las reacciones catastróficas. Es por ello que los programas de rehabilitación incluyen: un ambiente en el que se minimicen las oportunidades de respuestas catastróficas y en donde el individuo pueda participar óptimamente en varias actividades remediales que gradualmente culminen en la creación de un nuevo sentido de vida después de la rehabilitación. Yehuda Ben-Yishay incorporó muchas de las ideas de Goldstein y desarrolló un programa de rehabilitación holístico en 1978 en Nueva York. El papel emergente de la psicoterapia para pacientes y sus familiares fue característico del Programa de Rehabilitación Neuropsicológico que Prigatano estableció en 1980 en Oklahoma. En Europa Anne-Lise Christensen, basándose en el trabajo de A.R. Luria, inició un programa holístico en la Universidad de Copenhague en 1985. El programa Finlandés, INSURE, se estableció en 1993 en Helsinki. INSURE, es un programa de rehabilitación interdisciplinario con duración de 6 semanas. Este programa fue diseñado para grupos seleccionados de pacientes con TCE. Su propósito es la rehabilitación neuropsicológica y la psicoterapia con intervenciones vocacionales, y con apoyo de seguimiento. En años recientes, un programa similar para niños con daño cerebral adquirido se estableció en Turku. El Grupo de Trabajo Holístico Europeo fue fundado en 2001. Los autores discuten sus experiencias personales y el futuro de la rehabilitación neuropsicológica que incorpora tanto la rehabilitación cognoscitiva computarizada como la evaluación de la calidad de vida.

BACKGROUND

Traumatic brain injury (TBI) is a heterogeneous disorder, and different forms of rehabilitation are needed for different subgroups of patients and at different phases over the course of recovery in order to optimize outcomes (Consensus Conference, 1999; Cope, 1995; Eames & Wood, 1989). During the past 25 years, there have been considerable improvements in TBI rehabilitation services.

Given the interaction of cognitive, behavioural, psychological, and physical factors resulting from TBI, a convincing argument has been made that persons with TBI are best served by a comprehensive, multidisciplinary, and neuropsychologically oriented rehabilitation. In the practice of neuropsychological rehabilitation we need to help patients with the following challenges: understanding the nature of their neuropsychological disturbances; remediating cognitive and neuro-behavioural impairments, thus compensating for functional deficits that were caused by the brain injury; and making choices that will enhance the quality of their lives. To adequately address these issues, neuropsychological rehabilitation should be holistic (Prigatano, 2004).

The main elements of holistic programs consist of creating a therapeutic milieu within which individual and group remedial and therapeutic interventions, including family education and guidance, are followed by supported work trials. Then, after discharge from active rehabilitation, rehabilitants are followed up and their adjustment is systematically monitored. The effectiveness of systematic and holistic neuropsychologically oriented TBI rehabilitation programs in enhancing patients' productivity status has been supported by uncontrolled studies and a few studies with control groups (Ben-Yishay, Silver, Piasetsky, & Rattok, 1987; Christensen, Pinner, Moller Pedersen, Teasdale, & Trexler, 1992; Prigatano et al., 1994; Sarajuuri, Kaipio, Koskinen, Niemälä, Servo, & Vilkki, 2005). A comprehensive review article by Cicerone and associates (2000) formed the basis of evidence-based recommendations for neuropsychological rehabilitation. The authors have singled out the holistic approach as being particularly promising and efficacious in the neuropsychological rehabilitation of post-acute brain-injured individuals.

In the history of holistic neuropsychological rehabilitation, Kurt Goldstein can be said to be the eminent pioneer. While working with brain-injured

soldiers during World War I he built up a renowned clinic for them in Germany. He stated that brain-injured patients need environments that help them to avoid catastrophic reactions. A catastrophic response is the behavioural manifestation of the brain-injured person's experience of failure to cope in particular situations. It bears all the hallmarks of severe anxiety. In Goldstein's view, therefore, the tasks of rehabilitation are to create an environment for the brain-injured individual that will minimize the chances for the occurrence of catastrophic responses. Within such an environment, the individual could engage optimally in various remedial activities, which will gradually culminate in the individual's finding new meaning in life after rehabilitation (Goldstein, 1942, 1959).

Yehuda Ben-Yishay incorporated many of Goldstein's ideas and developed a milieu or holistic rehabilitation program—the New York University Head Trauma Program—which has been in existence since 1978. Even before that he had the opportunity to translate the idea of holistic rehabilitation into practice with Israeli soldiers who had sustained head injuries in the early 1970s (Ben-Yishay, 1996). In his holistic day program, patients undergo intensive, systematic, and well-coordinated remedial and therapeutic interventions (modified to the brain-injured patient's needs and abilities) designed to restore their ability to function, as well as to help them deal with intrapersonal and interpersonal difficulties (Ben-Yishay, 2001; Ben-Yishay & Daniels-Zide, 2000; Ben-Yishay et al., 1985).

The emerging role of psychotherapy for patients and their family members was characteristic of the Neuropsychological Rehabilitation Program, which Prigatano established in 1980 in Oklahoma and after that in Phoenix in 1986 (Prigatano, Fordyce, Zeiner, Roueche, Pepping, & Wood, 1986).

In Europe, Anne-Lise Christensen, who was also influenced by the work of A. R. Luria, started a holistic program at Copenhagen University in 1985 (Christensen, 2000).

Based on these pioneering programs a Finnish program was established in 1993 in the Käpylä Rehabilitation Centre in Helsinki. The INSURE program (Individualized Neuropsychological Subgroup Rehabilitation Program) is a post-acute, interdisciplinary, 6-week rehabilitation program for selected groups of TBI patients. The core of the program is neuropsychological rehabilitation and psychotherapy (Kaipio, Sarajuuri, & Koskinen, 2000). In recent years, a holistic rehabilitation program was established in Turku, Finland, for

children with acquired brain injury. In the HOPE program, rehabilitation of children aims at activating the resources needed for building their future. Skills needed in everyday life are rehearsed individually and in small groups. Rehabilitation tries to strengthen self-knowledge, social, and learning skills, and also supports age-appropriate development. Solution-oriented and family therapeutic methods, as well as psychological counselling and neuropsychotherapy, are applied (Mäki & Honkinen, 2004).

Based on the pioneering programs of Ben-Yishay, Prigatano, and Christensen, several similar programs were established in Europe. To exchange ideas, to compare outcome results, and to share novel approaches to treatment, the European Holistic Working Group was founded in 2001 on the occasion of the 10th anniversary of the German-Asklepios program. The second meeting took place in 2003 in the Netherlands, where the Rehabilitation Centre of Amsterdam celebrated the 5th anniversary of its program. Then, in 2004, another meeting was organized by the Käpylä Rehabilitation Centre in Helsinki on the occasion of the 10th anniversary of its INSURE program. In 2005 the meeting of the European Holistic Working Group took place in Copenhagen, when the Danish CRBI program had its 20th anniversary.

THE INSURE PROGRAM

The INSURE has been under development since 1991, and has been used in its present form since 1993. It has been described in detail elsewhere (Kaipio et al., 2000). The INSURE population forms a subgroup of around 220 TBI patients treated annually in the Käpylä Rehabilitation Centre, which is a nationwide rehabilitation centre for neurological patients. For other TBI patients not selected for the INSURE program, various other kinds of rehabilitation services are available and the patients receive information and recommendations regarding appropriate rehabilitation. The INSURE program is recommended for TBI patients who have the potential to resume productive lives and to achieve stable psychological adjustment. Referrals for the program come from hospitals, insurance companies, the public health care system, and private clinics throughout Finland. The INSURE is a post-acute treatment program, which means that in general the patients start the rehabilitation program at least 1 year after their injury.

Four separate INSURE subgroups are formed each year for the 6-week rehabilitation program. The subgroups are small, normally consisting of five to six patients, which ensures intense working conditions. Special care is taken in the selection process of the patients to ensure that the groups are as homogenous as possible in terms of age, education, severity of the injury, and socio-economic status. Homogeneity facilitates peer solidarity and support. Also emphasized in the selection of group members are social appropriateness and motivation to learn healthy ways of communal adaptation. The critical nature of personal commitment is emphasized during the recruitment interview, which is conducted by two senior neuropsychologists from the program. Patients are independent in their daily life activities and their physical disabilities are only slightly incapacitating. Applicants average from 20 to 55 years of age. The time between the selection interview to starting the program ranges from a few months to 1 year, depending on the final formation of the homogenous subgroups. It is noteworthy that the very knowledge of being selected as a participant in the program has salutary effects on the behaviour and attitudes of candidates who are waiting to commence treatments.

Members of the interdisciplinary rehabilitation team consist of two neuropsychologists, two neurologists, a rehabilitation nurse, two social workers, two speech and language pathologists, and a physical therapist. Consistency of treatments and uniformity of adherence to the realization of clinical objectives is ensured when the staff membership is comprised of professionals who realize the need for and are committed to the development of a common way of formulating, assessing, and implementing treatments. Medical consultations are arranged, usually with specialists in neuropsychiatry, neuroradiology, and psychiatry. The staff work closely together to foster consistency among the various rehabilitation activities. The importance of therapeutic alliance, which refers to the patient and therapist working together to achieve certain goals, is also emphasized. The program is directed by a clinical neuropsychologist. Each patient is assigned a primary therapist—a neuropsychologist—whose task is to coordinate and monitor the implementation of the treatment plan.

The program simulates the stress of working days and the challenges of social interaction required in everyday life. It starts at 8.30 am and ends at 4.00 pm on weekdays. Patients are treated in group and individual rehabilitation formats.

Many typical symptoms reveal themselves only in group settings, during interaction with others. Every morning begins with an Orientation group, led by a neuropsychologist, in which the members determine individual goals for the day, for the program, and for the future. It aims also to promote both psychological and physiological arousal, and to foster personal orientation.

The Neuropsychological Psychotherapy group is the heart of the program. It meets 4 days a week. The guided group sessions focus on such themes as understanding the nature of the typical TBI sequelae and their impact on the lives of the patients; understanding how and why these deficits affect their personal emotions and social lives; learning to cope with these deficits and stress; etc. The participants also have individual neuropsychotherapy sessions three or four times per week. The patients are taught to assess their goals for work and education realistically, bearing in mind the post-injury changes in their resources. The psychotherapeutic process is vital for helping patients to achieve a sense of identity, to learn to behave in their own best self-interests, and to reconstruct life after brain injury (Prigatano, 1999).

The Cognitive group-remedial sessions are held twice a week. The aim is to help the patients to: (1) understand the rationale for cognitive remedial training procedures that are capable of ameliorating the interferences of attentional disorders, poor information processing abilities, and memory problems with higher-level reasoning functions; (2) practise compensatory skills capable of enhancing cognitive skills; and (3) translate lessons learned from the rehabilitation setting to life away from the program.

Group activities of various kinds are used to reinforce and enrich the program. Enjoyment of life, motivation, and the pleasures of friendship and society are emphasized in planning activities and in forming relationships. In the Pragmatic group-communication sessions, patients are guided by speech and language therapists to communicate their thoughts more effectively. The "Pictures-of-Self" workshop enables patients to express their emotions and feelings about the changes in their lives that were caused by the brain injury. These sessions help them also in the process of self-examination by means of collages made up of different materials such as photos, fabrics, and mosaics. The patients are able to focus on meaningful childhood memories, express feelings about their families, point to personally meaningful achievements, and examine their progress in their rehabilitation. As they review their presentations

in the group to each other, they may gain better insights into and control over their lives, which may in turn help them to further diminish their confusion and the psychological stress related to the injury and its consequences. The Quality-of-Life group sessions deal with practical issues concerning everyday life and well-being. The Sport, Relaxation, and Jogging groups aim to encourage the members to start or restart sport activities. Particular attention is also paid to possible TBI-associated injuries or symptoms, such as cervical injuries, pain, sleep disturbances, and posttraumatic stress disorders.

Participation of the significant others is a crucial part of the program. A 2-day INSURE seminar is held in the latter part of the program. Patients, their significant others, and employers, as well as professionals from the public health-care system, are called together to share information and to learn about experiences following TBI. During the seminar, individuals' plans for the next step in their rehabilitation are reviewed and operationalized. It is also during these seminars that former participants in the INSURE program are invited to present their experiences post-discharge. Such presentations offer the current participants concrete examples of adjustment after rehabilitation; the most successful previous patients are viewed by the other participants as positive role models.

Supported and individually tailored vocational interventions are also essential elements in the INSURE program. They help the patients to find productive activities that fit their interests and abilities. When it is considered to be an adapted and practical goal, patients are encouraged to have supported work trials in the general market, where they could possibly continue after the program.

These interventions are worked out with the local social and healthcare units and the system liable for the care in each case. Once a suitable work trial placement is finalized, the patient receives tailor-made neuropsychological supports to ensure his or her success and stable emotional adjustment. The follow-up support is arranged through the public or private healthcare services. Most patients continue with individual neuropsychological rehabilitation for different periods following completion of the program. On completion of an INSURE program, patients should have substantial knowledge about TBI, giving them a sound basis for understanding and coping with TBI-related changes, and for participating in productive living according to their own best self-interests. On the whole the INSURE program

is designed to be reasonable in cost and length to make it appealing and possible to patients with different sources of reimbursement.

COMPUTER-ADMINISTERED COGNITIVE REMEDIATION IN A FRAME OF HOLISTIC NEUROPSYCHOLOGICAL REHABILITATION: FORAMENREHAB PROGRAMS

Cognitive rehabilitation is traditionally considered to be an important part of rehabilitation of the brain-injured patient. Cognitive rehabilitation is defined as a systematic, functionally oriented service, which consists of therapeutic activities that are based on assessment and understanding of the patient's brain-behavioural deficits (Cicerone et al., 2000). Specific interventions may have various approaches, including attempting via restitutive training to restore impaired functions; strengthening preserved but weakened functions; teaching ways of bypassing or compensating for impaired functions that do not lend themselves to remediation; utilizing external compensatory devices, e.g., memory aids; helping the patient to become aware and understand his or her assets as well as weaknesses. Regardless of the form of intervention, the aim of cognitive rehabilitation is to improve the person's functioning in their everyday life.

According to the recommendations of evidence-based studies, computer-based interventions that include active therapist involvement to foster insight into cognitive strengths and weaknesses, to develop compensatory strategies, and to facilitate the transfer of skills into real-life situations, may be used as part of a multimodal intervention for cognitive deficits (Cicerone et al., 2000). Cognitive retraining is also seen as one of the elements of the holistic neuropsychological rehabilitation.

Due to the lack of theoretically and clinically based cognitive rehabilitation software in the Finnish language, we started a project aiming at developing tools for computer-administered cognitive remediation. FORAMENRehab cognitive software is a tool for cognitive rehabilitation to be used as part of a holistic neuropsychological rehabilitation approach. In the Cognitive group of the INSURE program this software is systematically used. FORAMENRehab software provides an easy-to-handle and efficient graphical user interface operating in a Windows environment. The menu structure, toolbar, and icons are illustrative, and the help screens provide information, so the program is usable even without the

help of the clinician. Each program has a clear written instruction on the screen as well as a model animation. The parameters of each program can be modified to adjust to a particular user. The results are presented both in written and graphical forms, and they can be printed. They can also be saved to file and compared with the previous results. The first module, which was published in 2000, was designed for disturbances of attention. In 2004 we published the second module for the remediation of memory disturbances. At the moment our team is working on the modules for disturbances of visual perception and problem solving. The clinical experiences of the applicability of FORAMENRehab software in Finnish TBI and stroke patients have been promising (Koskinen & Sarajuuri, 2004).

In addition to developing the cognitive rehabilitation software, our team has developed a computer-based modification of an examination technique to evaluate executive functioning (Sarajuuri, Koskinen, & Vilkki, 2003). Deficits in executive functioning and mental programming manifest themselves in novel situations as perseverative, impulsive, or ineffective performance, or problems in attention. Although routine operative skills may be intact, their application is inappropriate. These deficits appear in anterior cerebral lesions and in traumatic brain injuries. Executive functioning is an essential factor in mastering one's psychosocial life and recovering after brain injury. The Spatial Sequence Learning task (SSLT) is a neuropsychological test for assessing executive functioning. The method is based on the Corsi Block-tapping test and further developed by Professor Juhani Vilkki. The validity of SSLT has been proved in studies predicting psychosocial recovery after head injury (Vilkki, 1992; Vilkki, Ahola, Holst, Öhman, Servo, & Heiskanen, 1994). However, standardized presentation of the manual version of the method is difficult to perform, often leading to invalid results. We hope that the computer-administered version will increase the validity and usability of the method.

EXPERIENCES AND FUTURE REMARKS

Our holistic rehabilitation program has been going since 1993, but it has been open to continuous development according to the advances in neurosciences and also the cumulating experience of the staff. Ongoing scientific research of the team members has made it possible to critically investigate different aspects and methods of the

program. It has also been important to maintain an inspiring rehabilitation effort.

A 2-year follow-up study was designed to evaluate the outcome of the INSURE program. In this study the productivity of patients who underwent the rehabilitation program was compared to that of matched control patients who received conventional clinical care and rehabilitation. The results have been encouraging and quite consistent with those reported in previous studies on the efficacy of holistic rehabilitation programs (Sarajuuri et al., 2005).

Ben-Yishay and Daniels-Zide (2000) have pointed out that the conventional way of viewing outcomes of rehabilitation methods of brain-injured persons in terms of return to competitive work or to the ability of the patient to perform work-related tasks (less than full job descriptions) misses the bigger picture of rehabilitation. For, as they have shown, patients who proved capable of attaining an examined self, i.e., who recaptured their ego-identity, made better functional as well as subjective adjustments to their disabilities compared to patients who have not achieved a self-examined status. Thus, by looking at how the brain-injured patient views his inner world, we may develop meaningful ways of measuring how far a patient may have come towards realizing his or her potential for rehabilitation. Furthermore, these authors have stated that we should begin to think seriously about developing quality of life (QoL) targets in the field of neuropsychological rehabilitation, as well as valid tools capable of measuring progress toward those targets.

We conducted a pilot study in which the goal was to evaluate the QoL of TBI patients and their significant others 2 to 4 years after being discharged from the INSURE program (Koskinen Sarajuuri, & Jokitalo, 2004). The subjects were 19 (16 men, 3 women) TBI patients who had participated in the INSURE program. Their mean age at the time of the injury was 30.5 years, the mean time since injury to the program was 3.5 years, and the mean Glasgow coma scale score at injury was 7.9. The QoL and strain were evaluated by a questionnaire (life satisfaction: global, self-care/ADL, leisure, togetherness/friends, togetherness/family, marriage/courtship, sexuality). Almost 80% of the patients reported being at least *rather satisfied*. Ratings of satisfaction were highest for togetherness/friends and for the self-care/ADL items, and lowest for the marriage/courtship and the sexuality items. All the significant others reported being at least *rather satisfied* in life. About 70% of them reported experiencing mild stress and about 30% moderate stress. No

relation was found between satisfaction in life and the severity of the injury, age at the injury, chronicity, or the severity of neuropsychological symptoms. The high estimate of the QoL is in accordance with an earlier study using the same questionnaire (Koskinen, 1998). However, satisfaction with social relationships was much higher in the INSURE group, referring to the importance of a comprehensive holistic rehabilitation program and peer support. The instrument used in this study takes into consideration many of the important aspects of QoL but neglects the cognitive aspects. In recent years, international group consensus meetings concluded that there is a need for further investigations and development of tools to measure QoL issues following TBI rehabilitation (Bullinger, 2002).

In this context, it is important to note the commencement in 2003 of a multicentre study aimed at developing a new instrument for measuring QoL after TBI. The QOLIBRI study has been undertaken by an international consortium of professional societies (Euroacademia Multidisciplinaria Neurotraumatologica, European Brain Injury Society, National Brain Injury Research Training and Treatment Foundation, and European Brain and Behaviour Society) (Truelle, 2004). Its coordinator is Professor Jean-Luc Truelle from Paris. At the current time, field testing to identify the best performing items is ongoing. The objective is to test a minimum of 200–300 patients for each language of the participating countries. The participating countries are: Argentina, Belgium, Brazil, Denmark, Finland, France, Germany, Greece, Italy, the Netherlands, Spain, Switzerland, Sweden, Taiwan, United Kingdom, and United States.

According to Evans and Ruff (1992), it is no longer sufficient to consider such outcomes of rehabilitation as improvement in range of motion, mobility, memory quotients, and the like as the sole, or even the most important, indices of the efficacy of rehabilitation. Rather, rehabilitation services, and healthcare services in general, must gauge the impact of their efforts upon all involved consumer groups (patient, family, and financial provider). Assessment of long-term psychosocial outcome has focused mainly on the perspective of the family or carers, who usually report that personality changes in the TBI person are their greatest concern (Brooks, Campsie, & Symington, 1987; Koskinen, 1998). Less is known, however, about the outcomes of rehabilitation as viewed subjectively by head-injured individuals, except for data derived from rating scales that evaluate the patient's emotional status or the degree to which

pathognomonic symptoms persist (Van Zomeren & Van Den Burg, 1985). In our study, 38 consecutive INSURE patients served as the study subjects. Two years after completing the rehabilitation program the patients and their significant others were asked to evaluate on an open-ended questionnaire how the rehabilitation program has affected their subsequent lives, particularly in the areas that were singled out for remedial interventions while these patients attended the program. The significant others of these patients were also asked to share their own perspective on their loved one's functioning during the elapsing 2 years. The analysis of the data is presently ongoing and the results will be published later.

CONCLUSION

Neuropsychological rehabilitation should address many aspects of a brain-injured individual, with appropriate therapeutic interventions for cognitive, emotional, and interpersonal skills while increasing the awareness and understanding of the new self. Holistic neuropsychological rehabilitation programs aim to help patients to understand their underlying cognitive deficits and to learn how to cope with them. They also help patients to deal with their suffering and to re-establish meaning in their life.

While a scientific approach is necessary for neuropsychology and brain-injury rehabilitation, it may fail to address certain important aspects of human existence, e.g., the role of the patient's subjective experience in rehabilitation and their related search for meaning in life (Prigatano, 1989). According to Prigatano (1999, p.337) "holistic neuropsychological rehabilitation combines the strength and insight of science with the wisdom of the humanities."

We would like to conclude by presenting a story told in neuropsychological group psychotherapy by a woman, a nurse, who was 50 years of age at the time of her injury. She was hit by a bus while walking on a street and suffered a significant diffuse brain injury. The symbolic story describes her phenomenological experience after TBI from despair to the state where she could make peace with her situation in the phase of her brain injury. She refers to a story written by a famous Finnish writer Tove Jansson in the book *Tales from Moominvalley* (1962).

Tove Jansson has written a story about an invisible child, a little girl, who had transformed herself into someone so insignificant that she could no longer

be perceived at all. Gradually Moominmamma's tender care helped her slowly recuperate her connection with the rest of the world. At first, only the girl's shoes could be seen, then her socks, then her dress, etc. In the INSURE program there was something of this process. After my TBI I disappeared just like that little girl. Unfortunately though, no-one else could understand that. The problems that the new situation had created got new names and were noticed only by myself. Sometimes they went unnoticed even by me. Like in a nightmare, things that were totally unimaginable before my disability started happening in my life. I had entered into a world with new laws. The INSURE has helped me to see and understand who I am now. It has also defined me to others. My nightmare has transformed itself into reality that can be coped with and controlled. It has transformed my life into something significantly easier. Finally, it has given me the chance to live my life as something possible.

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