Revista Española de Neuropsicología **3**, 3:38-57 (2001) Copyright© 2001 de REN
ISSN: 1139-9872

Instruments to evaluate behavioral dynamics of the traumatic brain injury patient's family : Clinical interview, Faces III and DSSVF

Elina Caminiti, Marta Amore, Sabrina Sapienza, Barbara Premoli, Paolo Pietrapiana, Paola Zaina, & Roberto Rago

Ausiliatrice Rehabilitation Hospital, Torino, Italy

Abstract: This experimental research is an attempt to prove the efficacy of the combined use of some investigation instruments for a comprehensive evaluation of T.B.I. patients' families. In our Rehabilitation Center the family unit receives early support, starting in the post-acute phase and continuing until assessment of the final outcome. The family evaluation protocol includes a clinical interview during which the family unit and its behavioral dynamics are studied, as well as the recording of family and patient and anamnestic profiles using a family data form (SRDF). We have used the DSSVF projective test which enables us to represent the family structural configuration and to anticipate possible changes in case of critical events, and Faces III which identifies family organization patterns from a systemic point of view and which, on the basis of three typologies, classifies families as: "balanced", "intermediate", or "extreme". We studied a sample of 10 couples (mother and father) whose son or daughter, with an age ranging form 18 to 25 and living with his/her original family, suffered from impairments due to severe brain injury after a street trauma occurred at least 1 to 4 years before. The research was conducted using a configuration in which the evaluator did not know the behavioral dynamics of the family unit he was testing. Test results were subsequently compared with the information collected by the rehabilitation team which had been following the same family for months. The adoption of this technique assured a thorough evaluation of efficacy and veracity of data resulting from the combined use of the two additional instruments. **Key words:** traumatic brain injury, family, assessment, Faces III, DSSVF.

Instrumentos para evaluar la dinámica de conducta de la familia del paciente con daño cerebral traumático

Resumen: Este trabajo intenta probar la eficacia del uso combinado de algunos instrumentos de investigación para la evaluación comprehensiva de la familia de los pacientes con daño cerebral traumático. En nuestro Centro de Rehabilitación la unidad familiar recibe apoyo desde el principio, comenzando en la fase post-aguda y

continúa hasta el momento de la evaluación de alta. El protocolo de evaluación de la familia incluye tanto una entrevista clínica en la que la unidad familiar y su dinámica de conducta son estudiadas, como la elaboración/recogida de la anámnesis de la familia y el paciente a través de un formulario de recogida de datos familiares (SRDF). Hemos utilizado el test proyectivo DSSVF que es capaz de representar la configuración y estructura de la familia y de anticipar posibles cambios en el caso de eventos críticos, y el test Faces III que identifica los patrones de organización familiar desde un punto de vista sistémico y basándose en tres tipologías, clasifica a las familias como: "equilibradas", "intermedias" y "extremas". Se investigaron una muestra de 10 parejas (padre y madre) con un hijo/a de entre 18-25 años que vive con su familia original, que sufre déficits debido a un daño cerebral severo después de accidente de tráfico ocurrido entre 1 y 4 años antes de la evaluación. La investigación se llevó a cabo de forma que el evaluador no conocía la dinámica de conducta de la unidad familiar que estaba evaluando. Los resultados del test fueron comparados con la información recogida por el equipo de rehabilitación que había realizado el seguimiento de la familia durante los meses de tratamiento. La adopción de esta técnica aseguró una evaluación minuciosa de la eficacia y veracidad de los resultados del uso combinado de dos instrumentos adicionales. **Palabras Clave:** Daño cerebral traumático, evaluación, Faces III, DSSVF.

At the Ausiliatrice Rehabilitation Center in Turin we have adopted a global approach to the patient and have set as one of our primary goals the planning and implementation of a special effort addressed to families. Towards this end, human and organization resources are at the disposal of users in the form of a counseling and support service. The severe upset of families' internal balance and the daily confrontation with motor, cognitive, emotional and behavioral disabilities make the family unit as a whole the second victim of the traumatic event (Cattelani, Patruno, Ferrara, & Mazzucchi, 1997).

In order to give the necessary support to each family member, the first goal of this activity is to identify and take care of maladjustment problems and distress observed within the family.

During these years of work we became aware that changes in the family behavioral dynamics represent a favorable background for the development of new balances, with positive repercussions on the patient as well. This has the added benefit of involving both family and patient in a reciprocative influence.

The outcome of a traumatic brain injury is, among other factors, conditioned by the ability of the family unit to face the new situation, to develop cognitive, emotional and affective remodeling and adjustments,

thus reorganizing at a different level the balances upset by the trauma (Rago, Zettin, & Perino, 1997).

In the recovery of the TBI patient, the family can therefore be considered a central and basic element that needs guidance and support as much as the patient does.

The assumption of the central role of the patient, who was once regarded as the only element to which the rehabilitation needed to be addressed, is therefore superseded by the importance of a parallel therapeutic effort focused on resolving family problems (Boldrini, Rienti, Basaglia, Magnarella, & Zoppellari, 1994).

This engenders the need to systematize evaluation instruments for the study of the internal dynamics prior to the trauma as well, in order to develop adequate support measures.

The aim of our work is to therefore identify concretely modifiable intervention areas through the use of instruments capable of yielding objective results.

The scope of the present research is to verify in experimental conditions the efficacy of the combined use of two investigation instruments (Faces III and DSSVF) for the evaluation of TBI patients' families in a significantly shorter period of time than is usually necessary to complete the "investigation phase".

Method

The standard evaluation protocol includes a clinical interview as well as filling out a family data form (SRDF), experimentally integrated by the DSSVF projective test and the Faces III questionnaire.

In our Rehabilitation Center the *clinical interview* is now used as the basic evaluation instrument of the family unit, offering both a diagnostic and a curative opportunity: acquaintance with the family and its behavioral dynamics as well as with the changes occurred after the traumatic event. This in itself is a process that can simultaneously produce a therapeutic effect, originated by the identification of real problems and needs.

For a sound evaluation of prognostic indexes, the interview with the family members should thoroughly investigate possible pre-existing problems and conflicts and if necessary identify unrealistic expectations, in order to discern priorities and appropriate support techniques (Cigoli,1995).

For a systematic collection of clinical data we worked out a *family data form* (SRDF) where an accurate anamnestic profile of the patient

and of the family structure and dynamics can be outlined and recorded. This data form is different depending on whether it refers to the original or the acquired family (Appendixes A, B).

By way of experiment and complementary to the above-mentioned anamnestic and diagnostic survey we introduced into this study the use of a projective test, the so-called *Symbolic Design of Family Life Space* - DSSVF, (Mostwin, 1980) enabling us to represent the family structural configuration and to anticipate future changes in case of critical events. In this research has been used the italian version (Gilli, Greco, Regalia, & Banzatti, 1990).

Figure 2 presents an example of the Family Life Space Test at the "*present*", Figure 3 gives us an example of the "*past*" (before the accident), and Figure 1 shows the results of the Circumplex Model.

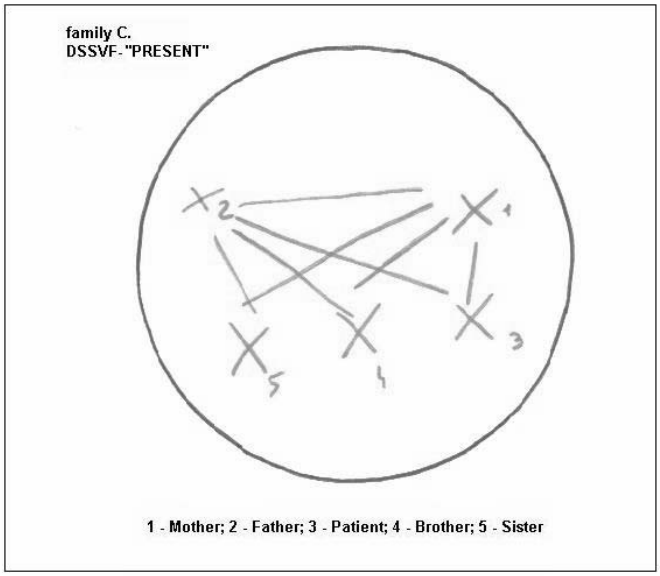


Fig.2 - DSSVF "present"

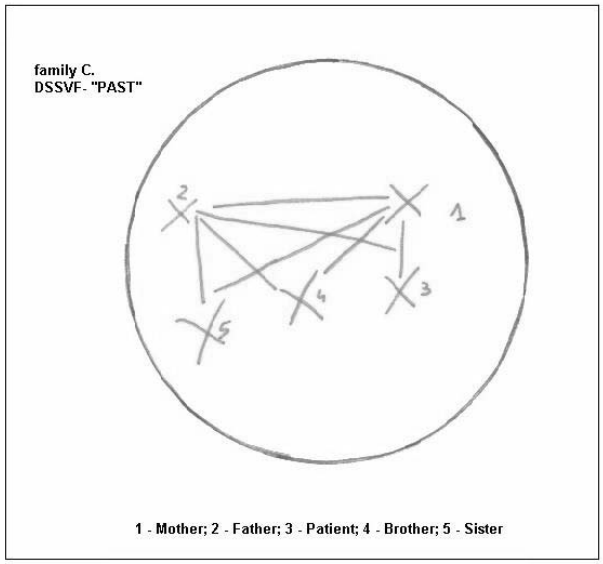
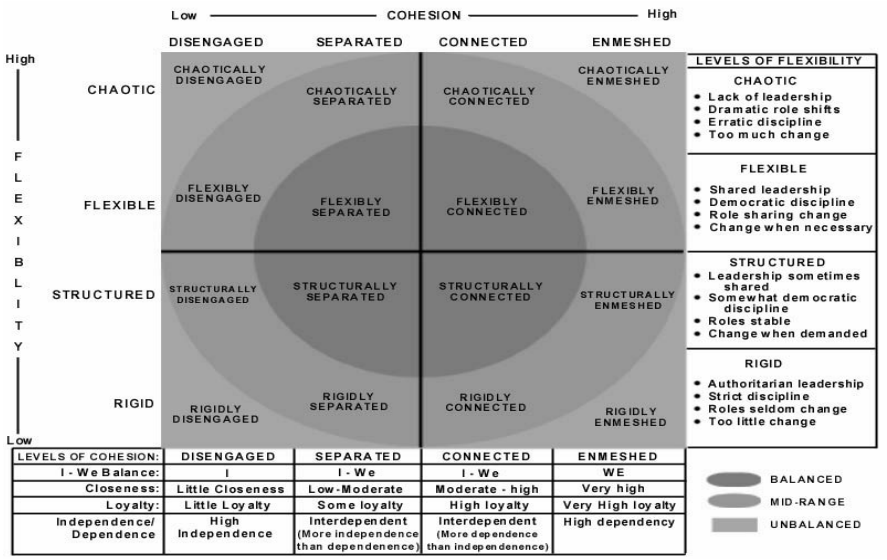


Fig.3 - DSSVF "past"



In order to standardize our study of the patient's family system we adopted Faces III (Galimberti, & Farina, 1990) which is based on cohesion and adaptability parameters to analyze family profiles from a systemic point of view and to classify them, according to three different categories, as *"balanced"*, *"intermediate"* or *"extreme"* (Olson, Sprenkle, &Russel, 1979).

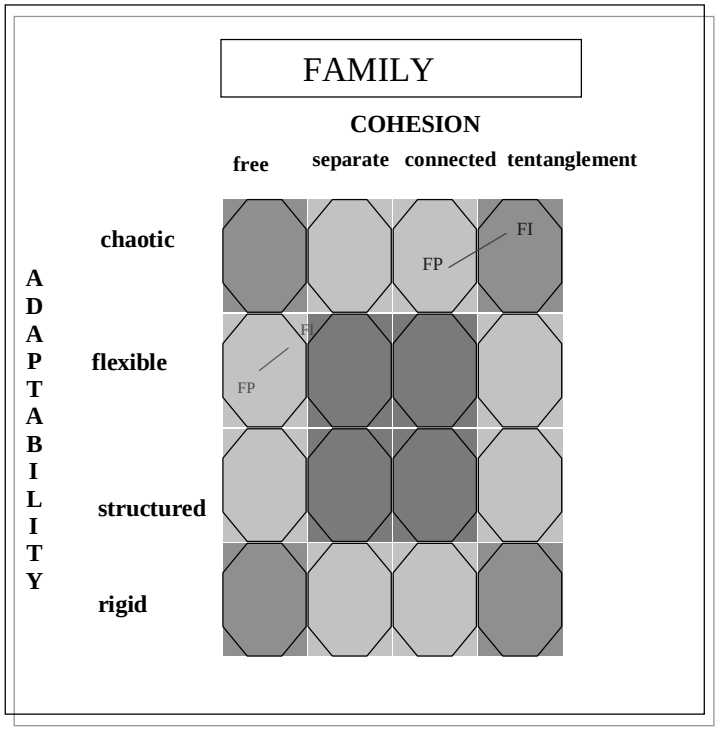


Fig. 4 Family Profile

We studied a sample consisting of 10 couples (mother and father) whose son or daughter, with an age ranging from 18 to 25 years and living with his/her original family, suffered from impairments due to severe brain injury after a road accident occurred at least 1 to 4 years before (Table 1).

The research was conducted using a configuration in which the evaluator did not know the sample.

The results were subsequently compared with the information collected by the rehabilitation team that had been following the same family units for months.

The adoption of this technique assured a thorough evaluation of efficacy and veracity of data resulting from the combined use of these two instruments.

FAMILIES	EDUCATION	JOB	MARRIED IN	BORN IN
1. father	13	EMPLOYEE	1975	1981
mother	6	HOUSEWIFE		
2. father	13	BUILDING SURVEYOR	1975	1976
mother	18	TEACHER		
3. father	8	RETIRED	1964	1974
mother	5	HOUSEWIFE		
4. father	5	DRIVER	1982	1982
mother	5	HOUSEWIFE		
5. father	8	EMPLOYEE	1977	1981
mother	8	WORKER		
6. father	5	MASON	1985	1980
mother	3	HOUSEWIFE		
7. father	13	RETIRED	1967	1974
mother	5	HOUSEWIFE		
8. father	8	EMPLOYEE	1978	1981
mother	8	EMPLOYEE		
9. father	5	RETIRED	1970	1972
mother	8	HOUSEWIFE		
10. father	8	WORKER	1976	1980
mother	8	HOUSEWIFE		

Table 1 : *Description of the sample*

Results

FACES III : Description of the sample results

Family types

Upon analyzing the answers given on the Faces III questionnaire, we observed a clear majority of families (80%) fell within the upper intermediate range of the Circumplex Model and could therefore be defined as "intermediate families". Only 20% were classified as "extreme" and none as "balanced" (see Fig. 5).

Adaptability

All tested families, both those classified as intermediate and those as extreme, showed a chaotic situation with regard to the adaptability dimension, i.e., they were characterized by poor and erratic leadership, ineffective discipline, inconsistent sanctions and a high level of indulgence.

Cohesion

With regard to this dimension, 75% of the intermediate type of families showed a rather high cohesion level that can be defined as connected. They are characterized by an elevated emotional closeness between the family members and by loyalty expectations. Their involvement is emphasized and family members develop a strong mutual dependence.

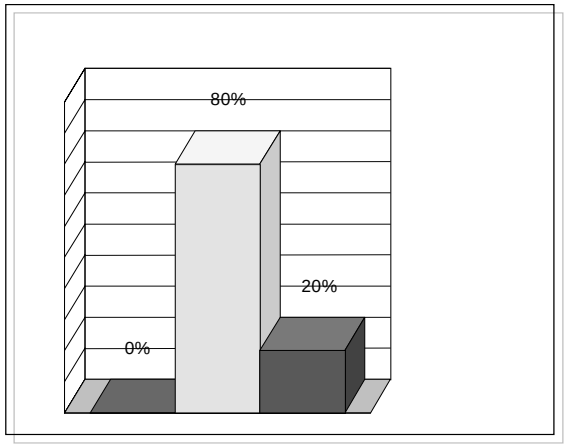
The remaining intermediate 25% showed a cohesion level of separate type, therefore lower than in the previous case. They are characterized by emotional separation between family members and by loyalty ties of an occasional nature.

Families classified as extreme are characterized by a very high cohesion level, usually defined as entangled: family members show an elevated emotional closeness, excessive mutual compliance and dependence.

Level of family satisfaction

With regard to the level of family satisfaction, resulting from the difference between the family as it is perceived and the ideal family, mothers appeared more satisfied (60%) with the present organization than fathers. It was also observed that mothers view and perceive the

family as chaotically entangled (extreme range of the circumplex model) more frequently than fathers.



DSSVF : Description of the sample results

From a close examination of the symbolic drawings of family life space, three variables (*personal, structural* and *social*) emerge that can be useful for a deeper understanding of the family unit.

Personal variable : describes the way the parental couple is organized.

The results point out a majority of cases where that task is regarded as a joint effort (80%) rather than an independent and nonnegotiable undertaking (20%) (Fig. 6). 50% of the sample share the same relational space, 40% develop the representation of two different worlds, 10% are completely separated (Fig. 7).

In 70% of the cases, husband and wife appear equidistant with regard to the other family members, while in only 10% of the cases the diagram shows a very distant position. From a comparison of these data with the situation existing before the traumatic event we can infer an increase of equidistant couples (+20%) and a decrease of emotional distance (-30%).

The husband-wife relationship is graphically represented in 40% of the cases (-10% compared to the past), a percentage corresponding to the unrepresented relations (+10% compared to the past)

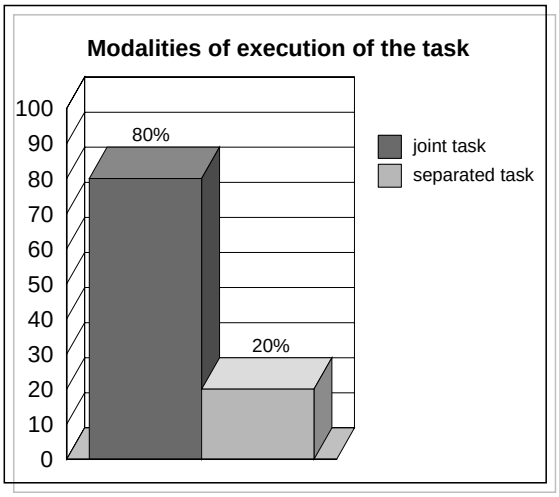


Fig. 6 : Modalities of execution of the task

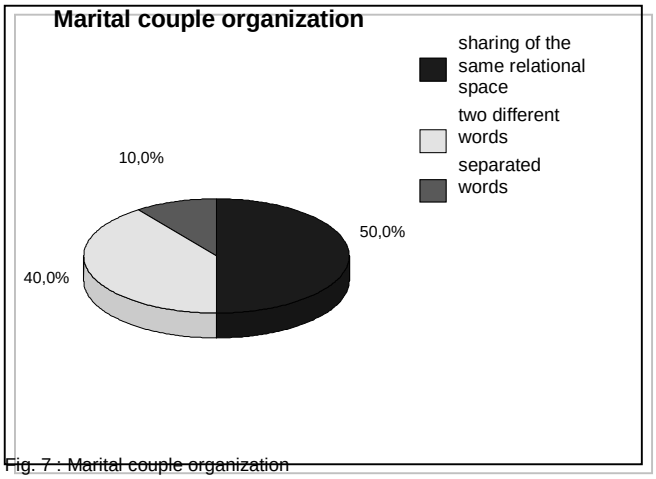


Fig. 7 : Marital couple organization

Structural variable: describes how the family group is structured and organized.

In 60% of the cases the family structure did not undergo any significant changes after the traumatic event.

The psychological center is mostly represented by children both in the present (60%) and in the past (50%) scenarios.

In 60% of the cases we observed an interpretation of the term 'family' as "enlarged family", while in 30% of the cases only as "nuclear family". In the remaining 10% there was no agreement on the way the family was viewed (see Fig. 8).

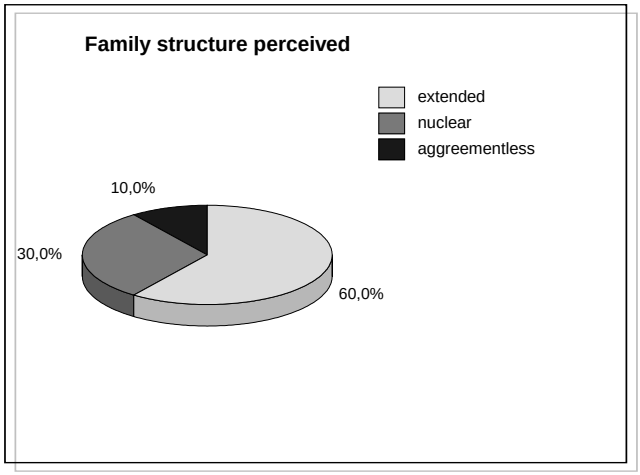


Fig. 8 :Family structure perceived

Social variable: analyzes family life space with respect to external environment.

In the majority of cases (80%) we noticed a centripetal reaction of the family system (Fig. 9). This tendency to a progressive estrangement from the external world can be observed in both versions of the test.

In 20% of the cases the results report a decrease in the number of persons and organizations forming the external environment of the family.

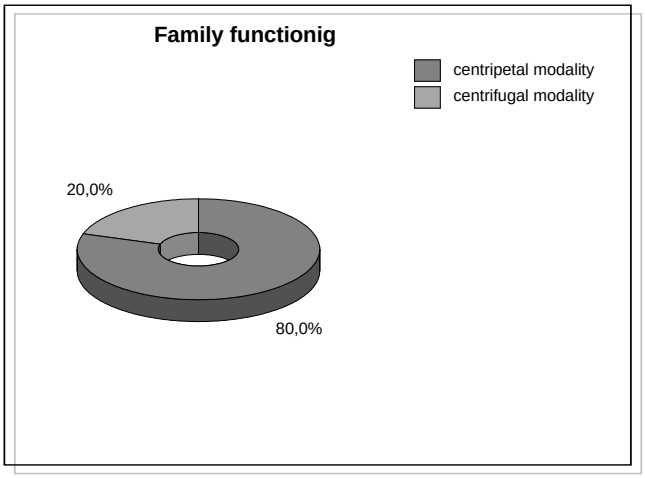


Fig. 9 :Family functioning

Discussion

We observed that the majority of the patients' families fall within the intermediate range of the model, both in cases of more recent injuries (60% not over 3 years) and of less recent traumas (40% not over 5 year). This means that the family experiences a period of transition characterized by precariousness and uncertainty.

In literature, families classified as intermediate are the most infrequent type and are mainly observed during a transformation phase of the family life cycle.

The fact that most of the families we tested correspond to this typology underlines their pursuit of a new balance and stability after the upset caused by the traumatic event, a task requiring a great deal of effort and determination.

The family response to the critical situation seems to lead it to seclusion and isolation from the external world with high mutual dependence of family members. However, increased closeness does not necessarily correspond to stronger mutual interactions.

The most frankly pathological data (extreme ranges in the circumplex model) point out nonadaptive conditions and the risk that all the problems originated by the trauma implode within the family unit.

We observed a rather chaotic family adaptation with shifting and sometimes complete upsetting of roles, lack of leadership and therefore a confused and inefficient transmission of rules.

This observation is further confirmed by data relating to the family structure where in most cases children represent the psychological center of the family unit.

Therefore a weakening of the parental couple and communication difficulties emerge even in the case of a father's involvement greater than in the past.

Although the results on the one hand point out a greater adaptability and tolerance resources of mothers in facing the new challenges (data referred to the degree of satisfaction with the family as it is perceived), on the other hand they also show an evolution of the mother-child relationship characterized by regression and mutual dependence, a situation that can lead to the chaotic and entangled conditions emerging from the results.

Conclusions

Our research confirmed a good correspondence of the results obtained by the combined use of the standard protocol adopted in our Rehabilitation Center (clinical interview and SRDF) and the experimental complement (DSSVF test and Faces III) with the observations and indexes reported by the rehabilitation team in at least two years of steady contacts with patients and their families.

The combined use of both protocols is a means to obtain a comprehensive picture of the family behavioral dynamics and organization system, also based on information regarding the pretraumatic period; it also develops an important evaluating function with therapeutic implications since it is addressed to identify the pathological aspects to be treated.

The adoption of a clear terminology and a precise classification (Faces III) and of graphic-symbolic as well as projective means (DSSVF) may offer instruments that the whole rehabilitation team can share and transmit, thus simplifying communications and the identification of common goals.

The use of the described instruments gives the operators the opportunity to curtail the family acquaintance and evaluation times,

rapidly identifying distress areas and problems on which to work together with families.

As far as therapeutic measures are concerned, the indications supplied by these instruments can be addressed to :

- help the family in the balance restoration process;
- improve distribution of roles and organization of the parental couple utilizing it as the cornerstone in patient care;
- support the family in the transition from the intermediate phase to a more balanced condition, monitoring and, where possible, hindering a possible shifting to chaotic and confused interactions and situations;
- improve relations between family and the rehabilitation team;
- promote the creation of an interfamily and social network.

We suppose that these instruments can also be used to verify the efficacy of the therapeutic approach in attaining the desired goals and as an indicator for the subsequent follow-ups.

In addition to an undoubtedly valuable clinical and statistical function, the inclusion of a wider sample of parents in this screening could supply important information on the way nuclear family is structured nowadays when an ever-changing society has to be faced. We are well aware of the wide variety of educational problems that exist in the parent-child relationship as well as in the marital couple relation meant to be a bridge between individual needs and family necessities.

We believe that the way to a thorough understanding of TBI also leads through the knowledge of this complex reality where medical problems and other items with social and cultural implications are necessarily confronted.

References

Boldrini, P., Rienti, P., Basaglia, M., Magnarella, M.R., & Zoppellari, R. (1994). Problemi dell'équipe riabilitativa multidisciplinare di fronte al trattamento del traumatizzato cranico grave. *Giorn.It.Med.Riab*, *3*, (8).

Cattelani, R., Patruno, M., Ferrara, L., & Mazzucchi, A. (1997). Gli effetti del trauma cranico sul sistema familiare : Indicazioni per un trattamento efficace. *Giorn.It.Med.Riab., 1* (11).

Cigoli, V. (1995*). Il Corpo Familiare. L'anziano, la malattia, l'intreccio familiare.* Milano :Franco Angeli.

Galimberti, C, & Farina, M. (1990). *Faces II, uno strumento per la ricerca e l'osservazione clinica della famiglia.* (Vol. 10). Milano: Vita e Pensiero.

Gilli, G. Greco, O., Regalia, C., & Banzatti, G. (1990*). Il disegno simbolico dello spazio di vita familiare.* Milano: Vita e Pensiero.

Olson, D.H., Sprenkle, D., & Russel, C. (1979). Circumplex model of marital and family system : cohesion and adaptability dimension, family types and clinical application. *Family Process, 18* ,3-28.

Rago, R., Zettin, M., & Perino, C. (1997). L'adattamento dei familiari agli esiti di gravi cerebrolesioni. *Giorn.It.Med.Riab., 1*,(11).

Received May 05, 2001
Accepted June 28, 2001

Appendix A

FAMILY DATA FORM

Date of the interview…… Informative interview with……..

COMPOSITION OF THE FAMILY UNIT (original family)
For all family members :
First name; surname; date and place of birth; residence; civil status; education; degree of relationship with the patient (if married, place and date of marriage); health conditions; job.

COLLECTION OF ANAMNESTIC DATA AND PSYCHOLOGICAL OUTLINE OF PRETRAUMATIC PERSONALITY
Basic events during childhood : pregnancy and delivery; psychomotor development in the first months of life; nourishing; asleep/awake rhythms; suckling difficulties; gradual acquisition of main motor and speech capacities (point out : stammering, retardation, hyperactivity, attention problems); accidents and/or trauma, if any; laterality.
Mother-child relationship in the first months till the age of 3 : attachment – separation modalities; reference persons besides the mother.
School history :

- Nursery school and kindergarten attendance : reasons for attendance; relations with other children and teachers; games and group life; played role; transfers; repercussions of school attendance on the family.
- Primary school attendance : reaction and relation with schoolmates and teachers; seat of primary school; type (public/private school); transfers; progress; preferred subjects; motivation and attitude toward school; behavior; degree of autonomy in doing homework; friends and social relations.
- Secondary school attendance : reaction and relation with schoolmates and teachers; seat of secondary school; type (public/private school); transfers; progress; preferred subjects; motivation and attitude towards school; behavior; degree of autonomy in doing homework; friends and social relations.
- High school attendance : who chose the type of school; reaction and relation with schoolmates and teachers; seat of high school; type (public/private school); transfers; progress; preferred subjects; motivation and attitude towards school; behavior; degree of autonomy in doing homework; friends and social relations; free time and hobbies; time devoted to study:
- University : who chose the type of university; branch and seat; specialization; number of exams; changes of universities, if any.

Service in the army/Civil service : motivations of choice; period; seat; changes of seats, if any; difficulties/changes in character, if any.

Professional life :

- Description of undertaken activities; period; degree of satisfaction; relations with colleagues; feelings of self-efficiency.
- Description of the reasons why the work relation was interrupted; attained social and economic level; job at the time of the event.
- Professional situation after the event; future prospects of employment; patient's and family's expectations; considerations of the rehabilitation team.

Description of the patient's personality : "teenager" attitudes (insecurity, anxiety for the future, need of being reassured, need of freedom); changes occurred during adolescence; interpretation by parents; gradual undertaking of responsibility.

Affective life : communication between parents and children on this subject; experiences and significant events in the sexual sphere.

Information about social life : quantity and quality of friends; belonging to groups; admired models; type of social and affective roles; when did he/she begin to go out alone; did the family know the patient's friends; did the parents know where the patient was going; free-time activities; did the patient smoke or abuse of drugs.

Information about motorcycle and car drive : data concerning driver's license (number; date of release; type); description of driving style; description of motorcycle/car; previous accidents (date, accident dynamics, effects on health, insurance company).

Structure and development of affective relations within the family : anomalies or conflicts; attitude of the different members towards the patient and his/her reactions; attachment to the family; relations with brothers and sisters or other cohabiting relatives; educational and disciplinary measures; reactions to punishments.

Persons outside the family significant for the patient

Description of the acquired family : engagement; date and place of marriage; personal data of husband/wife and children; information about personality features of husband/wife and children; relation with husband/wife and children; relation between original family and acquired family.

Information regarding the event : significant events in the year before the accident; nature of the event; date and dynamics (driver/passenger/run over as pedestrian/on work); type of first aid; hospitalizations; diagnosis; clinical picture.

Family reorganization after the traumatic event : interpretation of the accident by family members; reactions to the accident by family members; how was this perceived by the patient; who attended to the patient during hospitalizations; changes in the family organization during hospitalizations; reference persons outside the family.

Results of 1st return home/patient's reintegration into the family : who took care of the patient within the family (assistance); how did the family reorganize; description of a typical day at present; reference persons outside the family.

Changes in the affective atmosphere after the event : description of relations among the different family members; patient's role within the family; changes in roles and relations (synthesis).
Family's expectations about recovery
DSSV analysis (Drawing test of family life space)
FACES III results
General observations and data analyses regarding the family unit
Goals and techniques of the therapeutic effort

Appendix B

FAMILY DATA FORM

Date of interview..... Informative interview with……..

COMPOSITION OF THE FAMILY UNIT (acquired family)

For all family members :

First name; surname; date and place of birth; residence; civil status; education; degree of relationship with the patient (if married, place and date of marriage); health conditions; job.

COLLECTION OF ANAMNESTIC DATA AND PSYCHOLOGICAL OUTLINE OF PRETRAUMATIC PERSONALITY

ducation and school history :

- Secondary school attendance : reaction and relation with schoolmates and teachers; seat of secondary school; type (public/private school); transfers; progress; preferred subjects; motivation and attitude towards school; behavior; degree of autonomy in doing homework; friends and social relations.
- High school attendance : who chose the type of school; reaction and relation with schoolmates and teachers; seat of high school; type (public/private school); transfers; progress; preferred subjects; motivation and attitude towards school; behavior; degree of autonomy in doing homework; friends and social relations; free time and hobbies; time devoted to study:
- University : who chose the type of university; branch and seat; specialization; number of exams; changes of universities, if any.

Service in the army/Civil service : motivations of choice; period; seat; changes of seats, if any; difficulties/changes in character, if any.

Professional life :

- Description of undertaken activities; period; degree of satisfaction; relations with colleagues; feelings of self-efficiency.
- Description of the reasons why the work relation was interrupted; attained social and economic level; job at the time of the event:
- Professional situation after the event; future prospects of employment; patient's and family's expectations; considerations of the rehabilitation team.

Description of the patient's personality : personality features; evolution during married life; interpretations by husband/wife; role inside the couple.

Affective life : type of relationship between husband and wife; experiences and significant events in the sexual sphere; communication between husband and wife on this subject.

Information about social life : quantity and quality of friends; belonging to groups; admired models; type of social and affective roles; free-time activities..

Information about motorcycle and car drive : data concerning driver's license (number; date of release; type); description of driving style; description of

motorcycle/car; previous accidents (date, accident dynamics, effects on health, insurance company).

Affective atmosphere in the acquired family before the traumatic event : structure and development of affective relations within the family, anomalies or conflicts; attitudes of the different family members towards the patient and his/her reactions; attachment to the family; relation with husband/wife or other cohabiting relatives; educational method adopted with children; persons outside the family significant for the patient

Description of the original family : personal data regarding parents/brothers/sisters; personality of parents/brothers/sisters; relations with parents/brothers/sisters; relations between original family and acquired family.

Information regarding the event : significant events in the year before the accident; nature of the event; date and dynamics (driver/passenger/run over as pedestrian/on work); type of first aid; hospitalizations; diagnosis; clinical picture.

Family reorganization after the traumatic event : interpretation of the accident by family members; reactions to the accident by family members; how was this perceived by the patient; reference person during hospitalizations; changes in the family organization during hospitalizations; reference persons outside the family.

Results of 1st return home/patient reintegration into the family : who took care of the patient within the family (assistance); how did the family reorganize; description of a typical day at present; reference persons outside the family.

Changes in the affective atmosphere after the event : description of relations among family members; patient's role within the family; changes in roles and relations (synthesis).

Family's expectations about recovery

DSSV analysis (Drawing test of family life space)

FACES III results

General observations and data analyses regarding the family unit

Goals and techniques of the therapeutic effort