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NEUROPSYCHOPATHOLOGY AND ROLE OF FAMILY SUPPORT IN IMPROVEMENT OF THE STROKE PATIENT

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By

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A Dissertation Submitted to the

Dr. Muhammad Ajmal
NATIONAL INSTITUTE OF PSYCHOLOGY
Center of Excellence
Quaid-i-Azam University
Islamabad

In the partial fulfillment of the requirement for the degree of

DOCTOR OF PHILOSOPHY
IN
PSYCHOLOGY

March, 2000

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Dedicated to my chicks

Palwashah, Shahzeb, Shahroz and Rehab

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ACKNOWLEDGMENTS

Praise is for Almighty ALLAH, who bestowed the mankind with the curiosity of mind. Praise is for the Prophet (PBUH) whose saying "To acquire knowledge from first to last breath" is the source of guidance for the entire Ummah.

The honour to excel and perform is attributed to Dr Ashiq Ali Shah, My Co-Supervisor and Professor in Psychology, without who's help and able guidance I could have done nothing.

★ I am indebted to my supervisor Dr. Ghazala Rehman associate professor in psychology, for completion of my work, who took over the task of helping me to complete my thesis at a very crucial stage and did all which was possible in human endurance. I am equally grateful to Dr. Naeem Pervaiz Tariq, Head of Dr. Muhammad Ajmal National Institute of Psychology for his sympathetic attitude and great mannerism. My senior colleagues Col. Aftab Ahmed, Chief Psychologist, Pakistan Army, Col Saeed Ahmed, Lt Col Ashfaq Hussain Gardezi and Maj Rizwana Alam had been a constant support. I am thankful to my father Sayed Ahrarul Haque and brothers Maj Naweed and Maj Waheed for their perseverance in urging me to complete this thesis. All the credit to achieve this target goes to Brigadier Nayyer Afzal, who provided me all the moral support and encouragement from beginning till the end.

★ Inspiration to dedicate myself to my profession and to acquire my Ph.D. degree is attributed to only one person, Lt. Col. Nasir Saud Ahmed, my husband, who inspite of being a busy doctor himself, looked after our four kids and spared me and always encouraged me to keep going.

★ My children Palwashah, Shahzeb, Shahroz and Rehab require a special mention who inspite of their very young ages were neglected by a mother, but understood enough to lend me time to accomplish this task.

★ In the end, my special thanks are offered to Mr Sabir, Mr Usman, Subadar Ashraf and Hav Muhammad Yasin, Hav Muhammad Bashir, Hav Muhammad Nawaz Computer assistants, who offered me all the help and assistance in completion of this work. I wanted to thank Ms Shafi-Unissa, Mr Hanif, Mr Qayyum, Mr Jabbar, Mr Yousaf, Mr Nazir and all the other staff members of NIP.

ABSTRACT

The present study was carried out to examine the impact of family support and family attitude on improvement of neuropsychological impairment of stroke patients. The study also investigated the extent of relative improvement in the neuropsychological impairment of stroke patients of different sex, age, educational qualifications and socio-economic levels. The study was carried out in two phases, phase 1 including two sub studies (i.e., survey & pilot study) and phase 2(i.e., main study). In phase 1, a survey was conducted on a sample of 30 stroke inpatients or visiting the hospital as out door patients, and their 30 care givers to identify the area of problems related to stroke patients, type of support and attitude extended by their family members. Interviews with neuro-physicians, physiotherapists and related literature review also helped in establishing the dimensions of the scales. In the pilot study three indigenous scales including Neuropsychological Impairment Scale (NSI), Family Support Scale (FS), and Family Attitude Scale (FA) were developed to assess physical, cognitive and psychological problems faced by the stroke patients and attitude and support extended by the family members. Psychometric properties of these scales were tested on a random sample of 40 stroke inpatients and their caregivers (both male & female stroke patients were taken from civil & military hospitals of Rawalpindi, Lahore & Peshawar).

Phase 2 sample consisted of 50 patients randomly drawn from the population of admitted (male & female) stroke patients in civil and military hospitals of Rawalpindi. A sample of 50 family members of the stroke patients were included to assess their attitude towards the patient.

In the main study the neuropsychological impairment of stroke patients and family support and attitude were assessed with the help of these scales. The results indicated neuropsychological impairment of stroke patients on the first administration in the hospital and an observable improvement after one month stay at home on the second administration of Neuropsychological Impairment Scale. The results indicated that family support was a crucial factor in the improvement of the patient, whereas, the family *attitude showed no effect, whereas, family support and family attitude were positively related. The results also indicated that higher socio-economic status and educational level of the patients were of considerable significance in the overall improvement of the patient, but they had no relationship to family support and family attitude. The results showed no gender differences in family support and family attitude. However, older age was negatively related with improvement as well as with family support and family attitude as compared to younger age.*

Chapter I

INTRODUCTION

"We can not live for our selves alone, our lives are connected by a thousand invisible threads"

(Herbert Mellvile)

We as human beings are social creatures by birth, we live in a society and our survival is based on it. Students of social psychology are always impressed by the fact that human character develops only in a society and the prime fact of any society are the institution of marriage, kinship, property, religion and social organizations (Asch, 1987).

For all his culture, man before the Neolithic revolution was a terrestrial, diurnal, hunting and foraging primate who's social organization was largely based on four biologically rooted principles: age, gender, mating and kin relatedness. Based on centuries of historical data it has become evident that all human societies are organized in kin related groups (Christenson, 1971). Human kinship is self conscious and most of its rules, regulations, customs and taboos are cultured in nature. Another established factor is that all human societies have family systems which are explicitly organized and developed on cognitive models of social structure around kin categories and rules of marriage (Heider, 1958). Kin organizations have long been recognized as axiomatic (Christenson & Johnson, 1971).

In all human beings kinship is the greatest adhering of a society. The family as a system of interrelations is strikingly hierarchical where adults dominate children and men dominate women (Elias, 1954).

The elementary component of any society is home, and it is the only place where we feel protected, esteemed and fostered from outer agonies. In a home, family exerts like an assemblage which has separate constituencies with diversified functions, but all work together for a desired outcome. The consummated relationships amongst family members are radically powerful and account for considerable degree of human behaviour, emotions, values and attitudes (Russel, 1957). Each member contributes in one way or the other and is influenced, in turn by behaviour of other members. Any problem to one person of the family can affect all the members adversely. Particularly those situations are more grave where any one member of the family undergoes an abrupt and life alarming outbreak of a disease.

It is imperative to understand working of a family as a system because the problems faced by a family in different situations, like life threatening ailments, it's perception and taking appropriate measures to cope with the situation varies from culture to culture according to different backgrounds (Hoffman, 1981).

Family System

In any structure whether it is antecedent or contemporary, since Adam and Eve, when a child is born, he is looked after by his mother, father, siblings and other members of the family. A family is like a household in which the behaviour of one person is at all times, a representation of behaviour of all other members. It means that change in the behaviour of any one person affects all the other people in a meaningful way. Here meaningful stands for tangible changes in the behaviour (Wincott, 1985).

Through out life one stays in varying degrees of contingence with the family. His over all personality reflects his nurturing process and the values instilled in him by the parents. He is shaped by others and influences family around him. He is affected by their attitude and in turn transforms other's by his attitude (Allport, 1935). His attitudinal dimensions toward others and objects is determined by the characteristic and peculiarity of his family. In times of crises family is the first expedient he turns to.

A family is a system, which is based on certain principles of a System Theory:

(a) *Wholeness, Organization and Circularity,* which represents an open system. Similarly a family is a complex but integrated and an organized patterns of interaction among its members.

(b) The *Interdependence of System Elements* maintains that elements (people in this case) in a system are necessarily interdependent, contributing to the formation of patterns of an organization by their participation in those patterns.

(c) *Homeostasis and Change* in the family systems maintain the stability of their

patterns, but they are recurrently perturbed by developmental or other less predictable events, which trigger a period of exploration, a necessary reorganization of patterns. These patterns stay stable till they contain its adaptive value, which is revised only in the case of new challenges.

(d) *Subsystems, Boundaries and Interactions*; these are relativity complex systems, which are composed of subsystems. These subsystems have their own integrity, defined metaphorically by the boundaries between them. The interaction between subsystems are governed by implicit rules and patterns (Mark & Enic, 1983).

According to Andrews and Kandel (1979) a system is defined as "entities standing in interaction". This means that any group of entities makes a system of change in behaviour which is the sum of the behaviour of all other members of a group. Furthermore families have constructive characteristics, rather than summative ones.

There are two fundamental processes of a family system which include:

(a) *Progressive Segregation* is the process through which a generation is built up out of a uniform whole, by differentiation of parts increasingly independent of one another. It is known as progressive modernization and is manifested in processes such as aging and fragmentation. When a couple starts a household and housekeeping, more specific and independent functions come into being. Addition of kids brings the differential roles of the parents and like any other system, aging occurs by fragmentation, as the children grow, they become more autonomous and split off to form new families. As they specialize, they become less regular and more interactive with other system (such a peer group, work groups). In case of a crisis suffered by the family such as an ailing child or senile oldster, the family can not regulate itself or re-establish it's balance.

(b) Centralization: Like segregation it is a time dependent process. Here leading parts are formed in such a way, that small changes in the leading or dominant parts produce large changes in other parts. These are the principles of initiative causality, (i.e. small energy changes can produce large results). This whole process leads from individualization to centralization, which means that the subordinate parts are no more autonomous and can not be distinguished functionally from the dominant part. Under any type of pressure the families respond with all strength available to the current need.

According to Norman (1984) progressive centralization and progressive segregation are complementary processes. They occur simultaneously and are both aspects of growth in a society.

Another important factor in understanding families and its relations depends upon the type of culture the family belongs to. Cross-cultural psychology has contributed in identifying the limitations of main stream social psychology and suggesting alternative methods for its solution. According to Triandis (1989), "cultures differ in the kinds of information they sample from the environment. He differentiated between two types of differences found in different cultures. One type of culture is identified as individualist (e.g., Western, cultures mostly sampled on personal and internal attributes). The second type is collectivist (e.g., Eastern cultures who sample mostly relationships, roles, duties & obligations). Any culture can be constituted of both the types completely or partially.

Triandis proposed four defining attributes as universal dimensions of individualism and collectivism: (1) collectivists view the self as interdependent with others, and like family system the resources are shared among each other, whereas, self is viewed as an autonomous and independent from groups by the individualist (Triandis, 1989). Moreover individualists are mostly concerned with their own success, contrary to collectivists who regard the success of the group. (2) Collectivists keep the individual goals compatible with in-group goals (Schwartz, 1990, 1992, 1994; Wagner & Moch, 1986). (3) Social behaviour is determined by (a) norms, duties and obligations and (b) attitudes, and personal needs by the collectivists, whereas, individualists determine social behavoiur by attitudes, personal needs, perceived rights, and contracts (Davidson, Jaccard, Triandis, Morales, & Diaz-Guerrero 1976; Miller 1994). (4) unconditional relatedness is emphasized by collectivists in contrast to individualists who exercise "rationality".

Relatedness means giving priority to relationships, and taking into account the needs of others, even when such relationships are not advantageous to the individual. Eastern societies are known to be much more tolerant of inconsistency than are Western samples (Bharati, 1985).

Events that give rise to emotions are more interpersonal in Eastern society which reflects that significant others have an impact that shape these events to a great extent (Mesquita, Frijda, & Sherer 1997).

Family System in Pakistan

Pakistan being an Eastern country is a collectivist by description. The family system is a close intertwined one, where all the members living under one roof are exclusively or partially dependent upon each other. A family in Pakistan is unlike American or European families in innumerable countenances, such as culture, ways of living, regard for elders, combined family system and a remoter and stronger contact with each other, are the trade marks of this society (Mohsin, 1990)

The roots of joint family lie deep in the soil of Indo Pak Subcontinent. Usually a joint family means that brothers as they grow to manhood, instead of living separately in separate houses, combine together and occupy the different rooms of a single house and pool their resources together along with their children and children's children. The daughters of the family leave their parents home after their marriage and become members of the joint family to which their husbands belong. In a joint family a close link is maintained between brothers, uncles, cousins, nephews etc, who often live together and who own the immovable property of the line in common. The father is head of the house and administrator of the joint property. Such a family includes parents, children, grandchildren, uncles and their descendents and various collaterals on the male side (Hafiz, 1992)

In such system, the family rather than the individual is looked upon as a unity of the social system. The bonds of the family are strong enough to blur the relationships within a group. For instance the distinction between brother and parental cousin is not made clearly, or a son holds as strong a value as nephew. The head of the family is not usually an arbitrary tyrant and his powers are some what limited by law and custom. It means that though the head of the family maintains discipline, he does not maintain a common purse. Both the father and the married sons may live under the same roof and at the same time have different kitchens.

An unavoidable separation takes place if the mother-in-law and daughters in law do not share good relations. However even after separation, the son undertakes the responsibility of providing support to his parents. The father has the right to distribute his property among legal heirs during his life according to religion or to his own wishes but not against Quranic injunctions. According to Islamic law the boys inherit 2/3 of the amount or size of property as that of the girl which is 1/3. Sons are looked on as great blessings. Daughters are considered incapable of helping their parents for financial needs in later age. Parent's house is assumed to be a transitory station for girls, till they get married. The necessity of providing them with doweries (material goods given by the parent of the girl at the time of her marriage) also lessens their desirability (Hafiz, 1992).

In a joint family due to gender discrimination usually the girls are unwanted and the family stays heavily weighted in favour of the male. Selection of life partner for the boys and girls is made by parents and accepted by the youth as a desirable custom of the society. A typical Muslim woman in Pakistan plays the daughter and "wife-and-mother" role and not the companion role. This role gives her the right to be supported financially with certain amount of domestic authority and provided with alimony in case if she is divorced. Her obligations include the performance of household work and bearing and rearing of children. It is also expected that a wife will accept a dependant social and economic status usually with a limited range of interests and activities. Lower class women do manual jobs in great numbers, working as semi-skilled or unskilled laborers in fields and factories or jobs such as street vendors or nursery maids. Aside from a few who enter clerical or professional occupations, middle and upper class families (even in large cities where urbanization has begun to channel the activities of women into occupational roles) generally follow traditional family roles, even if not by personal choice. The desire to have children plays a major role in establishing marital adjustment in a typical Pakistani family.

A family in Pakistan is formed through marriage and has the support of the society. The family is given its due weightage and respect. The roles are assigned and acted upon with modesty and adherence. The men are usually the procuring hands and responsible for outdoor jobs. They are generally the decision makers and do not really need to consult others for their actions. They are given the privilege in every sphere of life. Females are supposed to do the house holds, including raising the kids, cooking, sweeping, washing etc. Although they are the main decision makers theoretically, but it is the man who acts them out. Because from going to the market and purchase of trivial items to the decision about the bride selected for the son is done by the house wife even in the remotest rural village of this country. The kids are supposed to be more of a puppet dancing to the orders of the parents with no choice of their own. But now the principle is changing, educated parents are more susceptible and adaptive to their children, though the most crucial and important decisions are still taken by parents and expected to be obeyed.

In a joint family system the persons who break away from the parent family and start their own separate residence and kitchen for a number of varied reasons do not necessarily sever their link with the parent family, the members of different constituent families meet on various occasions, such as marriages, feasts, Eids, celebration of holy days, festivals, birthday of a child etc. The participation involves not only sharing the joy of the occasion, but also monetary obligations. On the occasion of a death in the family, there is not only common sharing of grief but there are common obligations, both economic and religio-social. Members are also brought together on the occasion of serious illness. This functional relationship strengthens the sentiments of a joint family.

In Pakistani society family by law (Islamic Jurisprudence, 1942) is the joint family system. Where the mother-in-law, father, brothers and sister-in-law are considered the family. The grandparents take the role of original parents and from naming of the new born to the decision of what should be cooked is taken by the mother in law. The maternal in laws play their roles as well. Some times in such circumstances instead of harmony and kinship, frustration and anxiety takes place and the whole system in sabotaged rather than facilitated (Norman, 1984).

A further distinction of joint family system is made in terms of socioeconomic status of the family (Sears & David, 1988). In Pakistan one finds a sharp contrast in families on the one hand belonging to very high and on the other belonging to very low socioeconomic status, whereas, middle classes are comparatively similar to each other. Accordingly educational qualifications, nature of service adopted by the head of the family, cast and sect play vital role in establishing the system of the family and its standard, which affects the quality of life and relation amongst its members (Rober & Joan, 1988).

A family with high income live in comfort mandatory for a healthy living, whereas, low income families are denied the access even to basic necessities of life. Instead of educating their children they resort to child labour anticipating an increase in income to feed hungry mouths, thus depriving the child of education. It keeps the poverty mill going on into a vicious circle. The middle income group are mostly educated with some decent government or private job and moderate way of living. Joint family system is more prevalent in the first two groups as compared to middle one. The reason could be that in higher income group the family can afford to live together and it becomes a necessity if the property or business is common amongst the brothers and cousins. In lower income groups a joint family system could be a compulsion due to economic constraints. Over the time it is observed that middle-level families have dispersed into a single unit family of parents and their own children, and in some cases paternal grand parents are included as well.

Further categorization of family systems in Pakistan is dependent on its rural and urban location. In rural areas the economic status of a family is less sharp. Most of the families belong to agricultural background with similar ways of living, eating etc. On the other hand families in urban areas have more pronounced contrasting features. Accordingly variations in socio-economic status bring changes in value system of the families, e.g., a joint family living in rural area, even if poor, usually gets a chance to live in a big mud house, where as in an urban area scarcity of space leads to frustration and an unhealthy environment within the family. Moreover life in city is far more expensive and complicated as compared to a village, where the living is cheaper and simple.

Over the last two to three decades many changes have been brought in. Some of these changes are positive and some are negative. Particularly excessive urbanization and overseas money has changed the scenario. It has affected the value system of the joint family system. The bonding of close knitted family has weakened over time. Values once considered important to run a family system have out lived their life. Single unit family with emphasis on materialistic approach towards life is considered appropriate for a successful life.

Earlier a misfortune occurred to any member of a family was given a collective effort which is now becoming an individual's problem. Relatives judge each other according to their economic status. This has led to selfishness and decreased contact of the family members among each other. But the dilemma does not stop here. A series of psychosocial problems are manifested in daily living of this society. Although modernization, urbanization, socioeconomic pressures, cybernetic information influx etc has made these changes unavoidable, but breaking away from centuries old system of families and its benefits has created guilt among the members resulting in frustration and unease among the new generation (Hafiz,1992).

Where earlier a disaster to any member of the family would be shared by all the near and distant relatives, it has now become a source of stress to the affected and immediate family only. It gives way to anxiety and tension and due to lack of proper resources, the family may adopt unorthodox means and ways to solve the problem at hand. The positive aspect of this change is awareness regarding education and open-mindedness of the middle generation towards the younger ones.

Although the blood relations are the oldest and most permanent form of family where the parents, children and grand parents form the family, lately due to different types of relations and inter-relation of each member there is always a subliminal self change in the family system. Usually family originates and lives in a milieu of its own. The type or essence of that particular environment results in a certain effect on its members, but the most affected are the children. The family environment if pleasant and positive will inculcate the positive attitude in its members (Choudry, 1984).

Motivation, perception, sense of achievement, confidence and concept of a dignified self for future role of its members depends on these factors. These are considered the main milestones in one's life, which forms the basis for an affective member of the society. If the family environment is not conducive, one's capabilities and personnel characteristics will not develop. Instead of being a beneficial member of a family, he will in turn produce another problematic family (Sajjad, 1993).

Affect of an Ailment on Family Relations

There are a number of physical and psychological stress factors, which not only affect individuals but also have negative impact on his/her family, specially in term of attitudes, perception and interpersonal relations (Cohen, 1988). Particularly an ailment which has a disabling effect on the patient gives rise to threats and challenges (Bandura, 1986). These stresses can have a positive or negative affect on the patient and the family depending on the whole process by which one is trained to appraise and respond to events. A positive effect can be described in terms of arousing and motivating the involved persons to overcome problems through practical measures, whereas, a negative effect can cause mental and physical harm, development of negative attitude towards the victim or denial of the situation (Myers, 1990).

An unpleasant or distressing event becomes less stressful if one enjoys the support of sustained close relationships of kin or close-knitted family organizations (Cohen, & House, 1988). Family relations if positive will provide aid in evaluating and overcoming the consequences of the stressful event especially the ailment. It also provides an opportunity to the affected individual to confide painful feelings, sense of rejection, fear of future etc (Aserinsky, 1988). At the same time negative impacts of the ailment can be buffered by a relaxed, healthy, positive attitude and by the comfort and aid provided by supportive friends and family members.

One of the common life stresses is any life threatening disease, which causes diversified physical and psychological problems for the sufferer and the family alike, such as cerebro-vascular diseases. Among these S*troke* is the most common one. It is a sudden onset of a brain disease, which affects the neurological and psychological aspects of the patient. The psychological deficits can be the result of an organic brain disorder as well as a reaction to physical disability. In both cases the physical and psychological impairment after stroke are an established fact, and the level of disability is dependent upon the degree of stroke suffered by the patient (Black, !990). As compared to developed countries in Pakistan lack of care taking establishments in such cases is a paramount factor towards the ensuing problems of a family, which has suffered from such an exigency.

Since human beings are physical entities and they respond and display emotions according to the demand of the situation, a healthy physique and an active mind are the pre-requisite for normal functioning. A normal human behaviour results from a complicated intervening of the forces within man's own body and others relating to his environmental and social setting. The mind and body are in a state of continuous interaction. (Springer & Deutsch, 1987). Any disharmony in any area can engender an abnormal behaviour, but almost all the brain disorders, give rise to a change in human conduct making both the patient and the family members suffer in aggregate.

To relate the biological and psychological processes Watkins (1984) determined that "interactions between persons and environment are both contemporary and developmental perspectives, and they are related by interactions between systems within the individual". According to this description, neuropsychopathology is the result of a multitude of mutually interacting causal factors. Some of them are inherently predisposed in the individual. The authors summarized that neuropsychopathology is the consummation of interactions between "genetic diatheses and formative environmental events". Episodes of neuropsychological disorder follow a behavioural encounter of the vulnerable personality with triggering environmental causes.

Human behaviour is multifaceted; however there are four distinct, yet interrelated, general categories or levels of behaviour. These categories are:

a. Drives and survival instincts

b. Consciousness and basic arousal (perception, information processing, cognitive functions etc).

c. Intellectual behaviour.

d. Social behaviour and personality.

The first is basic drives and survival instincts. Largely unlearnt, this basic force leads one to eat when hungry, sleep when tired, fight when attacked, flee when frightened, and procreate to preserve the species. These functions are largely the domain of the hypothalamus and other related structures in the limbic system. Emotion, an internal state in which the person responds with conscious feelings to events within the environment or within the person's own mind or body, is closely associated with instinctual behaviour. Emotional experiences are also primarily limbic functions. A final and critical function under limbic control is the ability to facilitate the storage and retrieval of experiences, a function known as new learning, recent memory, or simply " memorization" (Coletta, & Murphy, 1994).

The second level of behaviour consists of consciousness and basic arousal. Simply defined, consciousness is one's state of awareness of both the environment and internal thought processes. Humans must be capable of maintaining a wakeful and alert condition to receive environmental stimulation and to initiate any meaningful mental or physical activity. Without such capacity, disorientation or sleep will occur. This rudimentary function is governed by the ascending reticular activating system, which consists of the brain stem reticular formation and its widespread projections to the thalamus, limbic system, and cortex. A corollary of consciousness is selective attention, a function relying not only on the ascending activating system but also on the modulating effect of reciprocal descending input from cortex, limbic system, and thalamus, which focuses and controls attention (Myers, 1994).

The third major category of human behaviour is intellectual behaviour, a complex and highly human quality that includes the high-level processes of verbal reasoning, calculating, abstract thought, language and perception. The cerebral cortex is the principal structure responsible for these high-level functions.

The fourth category of behaviour is social behaviour and personality which is an extremely complex level of behaviour involving the interaction of all levels of behaviour and integration of all systems of the brain. Development of an individual's life style, planning of a career, selecting a mate, vocation, aptitude towards a specific job, social work, attitude toward others and establishing a family are all examples of this level of behaviour (Sears & Davis 1988).

Neuropsychopathology of Brain (Stroke)

Unfortunately professionals in Pakistan associated with neurology and resultant neuropsychopathology have not maintained a statistical data base available to researchers as compared to other developed countries. However incidence of cerebrovascular diseases outnumbers other neurological disorders. Stroke is the third commonest cause of death in the developed countries. The incidence is 1-2 per 1000 population per year in USA and Europe but even higher in Afro-Caribbean population. It is relatively uncommon below 40 years of age, but it is commoner in males as compared to females (Walsh, 1978). Incidence of stroke multiplies rapidly each decade after age 60.

Stroke is a focal neurological deficit resulting from any of a number of vascular abnormalities. It is usually of rapid onset and by the definition, lasts longer than 24 hours if the patient survives. Categorically stroke is classified into four major categories, which includes: (a) *A Completed Stroke* transpires when the neurological deficit has reached its maximum, usually within 6 hours of onset, (b) a *Stroke In-Evolution* happens when symptoms and signs are getting worse, usually within 24 hours of onset, (c) *Minor Stroke* is a form of stroke in which patients recover without a significant deficit usually within one week and (d) *Transient Ischaemic Attack* is a focal deficit lasting less than 24 hours. There is a complete clinical recovery and the attack is usually of sudden onset (Hamid, & Rafiq, 1994).

There are a number of factors that may predispose a person to stroke. These are called risk factors. These include: (a) Hypertension, (b) Diabetes Mellitus, (c) Obesity, (d) Family History, (e) Cigarette Smoking, (f) Hyperlipidemia (g) Oral contraceptives, (h) Alcohol and (i) Aging. The other miscellaneous factors are Hyperviscosity of the blood, Trauma and Bleeding Disorders. There are a number of other associated psychological factors e.g., (stress, anxiety, depression etc) along with physical factors which may cause an onset of stroke (Black, 1990). Studies have shown that depressed hypertensives experience 3 x the rate of strokes compared to non-depressed hypertensives (Medline, 1994, 1998). A stroke caused by any of these factors may result in the long term or permanent physical, neurological or psychological disability of the individual.

While it is transparent that stroke damages the brain, the resulting alteration in mental function varies from mild to severe. In general cerebro-vascular diseases and, in specific, stroke should be given due consideration for the multiplicity and variety of complexities encountered by the stroke patient. All aspects of life such as, physical, psychological, emotional, social, marital and vocational may be affected due to stroke. Grave abnormalities are related to physical and psychological aspects after onset of stroke and due to neuropsychopathology (Hoffman, 1981).

Apart from the physical disability (difficulty in walking, talking, eating, cognitive impairment, attention, problems in constructional ability, reproduction of memory, geographic orientation, reading spelling, arithmetic solutions, motor strength and coordination), the psychological factors (behaviour, mood, personality, social functioning, marital relationship etc), warrant equal significance in consideration of a stroke patient (Bishop,Briede, Cavazos, grotzinger & Mc-Mahon,1987). The acute change in life patterns and potentials, inevitably yields psychic trauma and disturbance in adaptation. A mixture of psychological, organic and mental difficulties are customary following a stroke, producing numerous psycho-social problems (Ruckdeschel-Hibbard, Gordon & Diller 1986,)

A stroke whether transient or complete, left sided or right sided is likely to give rise to a variety of physical disabilities. Though some stroke condition causes small focal hemorrhage, it may not have an immediate symptom. This disability can be temporary or permanent. It can result in inability to walk or talk or both. It can incapacitate normal functioning of any part of the body (Korchin, 1986). In physical problems it can lead to weakness in limbs, inconsistency in toilet control, loss of visual, auditory, sensory, olfactory or touch sensation, headache, body aches and loss of balance (Reitan, 1959).

Stroke may lead to psychological problems such as depression, anxiety, mood disorders, sense of loss, sense of worthlessness, frustration, worries, irritability, anger, fear, suicidal tendencies and denial. Cognitive deficits can give rise to loss of memory, lack of concentration, inability to read and write, absent mindedness, inability to solve mathematical problems and forgetfulness (Viglione, Donald, Perry & William 1991).

Organic and mental factors are interdependent. Organic disturbances in mental function involve paucity or aberration in (a) memory, (b) judgment, (c) perception, (d) thinking, (e) motivation and (d) emotions. They are manifested by psychological symptoms such as insecurity, anxiety, depression, mood swings and difficulty in synthesizing daily routine (William, 1994). These psychological factors have an interplay in prognosis of the disease, treatment, management and rehabilitation.

Anxiety is a common reaction to stroke, characterized by increased emotional tension and feelings of impending distress or disaster. The patient remains tense and thinks about the worst and gives in to anticipatory anxiety. He gets convinced that some thing bad has happened to him and worst is in the offing (Bower, 1981).

Feelings of insecurity and helplessness due to the permanent damage gives rise to anger. The question "Why Me" keeps his mind diffused and agitated, so that he is unable to interpret clues including interpersonal relations, warmth etc. Anger or resulted aggression is difficult to manage, because they tend to provoke retaliatory behaviour (Berkowitz, 1989; Bower, 1987). Frequently aggravated by frustrations of dependency or disability, anger is often directed towards the family members.

Anger leads to frustration manifested in frequent temper tantrums in latent or manifest or acting out tendencies, such as, grumbling, yelling, screaming or crying due to helplessness, self pity and low self esteem (Dawes, 1980). Anger directed towards self, resulting in depression is usual too. Following a stroke crying spells are a common response in many patients. In such organic disorders crying has an explosive character. The patient may deny being depressed, however, will admit that he can not control his behaviour (Starkstein, Cohen, Fedroff, Parikh, Price & Robinson, 1990). In case of lack of family support or negative attitude of care givers, the patients may develop regression, apathy, weak will-power and distorted or disfiguring body image. Suicidal tendencies can be detected if the patient manifests with repeated dreams of death, mutilation and funerals, hopelessness, agitation, poor appetite and insomnia (Grimm & Bleiberg, 1986).

Percolate disturbances are the difficulties faced by a stroke patient in organizing environmental stimuli of both psychological and physical origin. Thinking disturbances, such as inability to account for thought and actions, tendency to shift from one aspect of a situation to another, failure to keep in mind all aspects of a task or to grasp the essentials of a problem as a whole, failure to consider the future, focusing attention, withdrawal from reality, inability to grasp conceptual symbols or to identify common properties in diverse settings become evident after stroke (Anderson, 1990). The stroke patients may even have distorted concepts of them-selves and their bodies, which can cause serious emotional reactions (Black, 1990).

Patients with right sided stroke may show denial either of the illness itself or even fail to acknowledge the resultant disability including refusal to think of it's consequences in future. Most individuals with stroke develop some degree of regression, which is an immature form of adaptation (Agrell & Dehlin, 1994).

Family support is a crucial factor in the improvement of the neuropsychological problems of the stroke patients that deserves a lot more attention by the psychologists than what it receives. In the developed countries this dominion and its dimensions are given due consideration, but unfortunately in Pakistan it is still considered as a medical problem and is left to the care of the medical doctors. Neuropsychological ailments which are causing psychopathology have more serious problems such as diagnosis, treatment, and rehabilitation. General manifestations of neuropsychological problems and their support system is different in different countries (Parsons, 1970).

Since stroke patients are impaired by their physical and emotional problems, their families have to play a consequential and supportive role to improve their condition and to bring them back to near normalcy (Fendrich & Michael, 1990). The support should be adequate and well focussed towards problem areas. Such a help can be physical, for example feeding, clothing, bathing, walking etc, or emotional support, such as giving hope, caring for needs, making the patient feel as a useful member of the family, providing recreation, maintaining personal hygiene or taking him for regular exercises and medical check-up etc (Dohrenwend, Levav, Shrout Link, Skodol & Martin, 1987).

Studies have proven that socially isolated patient may be at particular risk for poor outcome, and that social support could be an important prognostic factor in recovery from stroke (Evans, Griffith, Haselkorn, Hendricks, Baldwin & Bishop, 1992; Friedland & Mc Coll, 1992: House, Dennis, Mogridge, Hawton, & Warlow, 1990).

A stroke patient needs special handling by the nursing staff or the care giving members of the family to help him/her restore their near to normal routine life. To overcome these problems the caregiver has to cater for the patient's medication, hygiene, recognition, physiotherapy, recreation, financial and moral support (Wellwood & Dennis, 1994). Pakistan, being an underdeveloped country lacks the privilege of having peculiar rehabilitation centers or nursing homes particularly designed for handling such serious situations. In the dearth of these facilities the family of the patient is left with no choice but to take the patient home and bear the burden of having a handicapped person till he/she is largely cured or dies.

Analogously the improvement of the stroke patient is conditional upon the degree of stroke suffered by the patient and other variables such as quality and timing of medicine, presence of other illnesses or disabilities, family support, type of attitude, age of the patient, socio-economic status, gender, educational level and methods of support extended to them. According to cultural values of our society if a member of a family falls ill, he/she is looked after by rest of the family as a moral and cultural obligation (Khokhar, 1997). There is no concept of leaving the patient in the hospital for a longer period, and since there are no community-based nursing homes or government rehabilitation centers, the question of another option does not arise anyway.

This scenario does not mean that this is a happy situation. Lack of facilities in such crises where knowledge about the situation at hand is circumscribed and the family is responsible for a disabled person, can give rise to frustration, anxiety and negative attitudes towards the patient. This in turn adversely affects the patient's health care and prognosis. The dilemma ranges from preoccupation with the acute condition to concern for long-range management and prognosis.

Sudden onset of a disease causes different response in different cultures. In Asian societies, mostly due to lack of adequate knowledge, superstitious causes are considered to be underlying reasons for an ailment. However in developed countries stroke and its resultant deficits have been studied from different angles mostly by medical personnel, sometimes by psychologists and occasionally by social workers (Gazzaniga, 1983).

An in-depth review of literature spanning over a period of last ten years indicates a gain of momentum in research on stroke, its after affects on the physical, cognitive, neurological and psychological aspects of the patient and a relation between them. Many demographic variables such as, age at the onset of the disease, sex, socio-economic status, race and educational level of patients and their relation with stroke have been given due consideration. We would report the studies conducted on different aftermath of stroke.

Researches on Post Stroke Neurological and Cognitive Deficits:

Stroke is a neurological disorder involving patient's mental and physical aspects in various incapacitating forms, depending upon the type of stroke, area involved in the brain and age at the onset of the illness. (Oder, Hufgard, Binder, Zeiler, & Deceke, 1991), conducted a study to establish the relationship between persistent expressive aphasia (inability to talk) and the extent of overall disability in the long term outcome following left hemispherical ischaemic stroke. Regarding motor and sensory functions, a correlation between the presence of aphasia and the severity of other associated deficits could be established. With respect to activities of daily living, a significantly larger number of aphasic stroke victims had to rely on help by others. Furthermore, the persistence of aphasia also negatively influenced the subsequent occupational capacity. With regard to social participation and leisure activities, a significant reduction was found in aphasic long-term stroke survivors as compared to non-aphasics. Concerning quality of life, both groups reported a marked decline at the end of the observation periods. The presence of aphasia had an additional negative affect on the patient. On the basis of their results it was concluded that the presence of aphasia in left-hemispheric ischaemic stroke survivors indicated a more severe stroke, resulting in greater physical disability and social handicap in the long-term outcome.

A year later Lebedey, & Gapeeva, (1992), studied social and adaptation potentialities of 56 patients with a history of ischaemic stroke, who were examined for attention and associative memory (AM). Neuropsychological techniques were used to assess the deficits. The patients manifested deceleration and instability of all the time parameters of the process of attention and a decrease in level of active attention. This evidence restricted potentialities of post stroke recovery in patients.

Adaptation potential of an individual is dependent on his functional cognitive ability. To study cognitive functioning after stroke David, Desmond. Thomas, Tatemichi, Stern and Marsano (1992), did a control case study in which the researchers administered a Neuropsychological Test Battery (Halstead-Reitan Battery, 1981) to 148 acute stroke patients who had no prior history of stroke and 241 stroke-free non demented control subjects. The results were analyzed in three domains. Cognitive deficits were noted in one domain in 19.7%, in two domains in 17.0% and in three or more domains in 15.7%, with 47.6% exhibiting no deficits. In contrast; 81.6% of the control group exhibited no deficits. It was concluded that cognitive dysfunction is common feature of acute onset of stroke and frequently multiple cognitive domains are affected. Memory, orientation and attention may be especially sensitive to the effects of stroke and may be useful in the diagnosis of stroke related dementia.

Unfortunately patients suffering from brain damage show a slow recovery of their problems (Strub & Black, 1985). During post stroke phase; when a patient is suffering from neurological and cognitive deficits, he is bound to undergo certain incapacitating physical handicaps, which markedly influences his daily routine in every manner, such as looking after his hygiene, going to work for earning his livelihood, marital relations etc.

Segal and Schall (1994) investigated functional/health status and its relation to disability in stroke survivors. They tried to determine the functional health status of stroke survivors who posed special difficulties post stroke because of cognitive impairments. A possible means of assessing the status of survivors who are cognitively impaired is getting proxy responses from family members or other caregivers. Proxy agreement was evaluated for two measures of functional/health status, the Frenchay Activities Index (FAI, 1993) and the Health Status Questionnaires (Randt, 1993 a measure of disability). The measures were administered to thirty eight stroke survivors at follow-up (median time since the stroke 6 months). Caregivers were instructed to answer as proxies for the stroke survivors in their care. Demographic variables such as age, sex, race, marital status, educational level, side of lesion, and relation of stroke survivor to caregiver were collected. The results showed that proxy agreement was excellent for the FAI (.85), however it was poor for the HSQ (.17). Although correlation between the measures were fairly high for both stroke survivors and proxy respondents, the correlation of scores was substantially weaker when the group had less severely impaired survivors (this may be due to a statistical artifact: limitation of range).

Stroke can be right sided or left sided. Post stroke proficiency in personal care in relation to the affected side of brain was studied by Stone, Wilson, Wroot, Halligan, Lange, Marshall, and Greenwood (1991). They studied forty-four patients with acute unilateral hemispheric stroke and forty seven elderly controls who had no past history of a neurological disease. The sample was assessed for self neglect variable. Neglect was found to be equally common in frequency but not severity, in patients, with right hemisphere and left hemisphere stroke three days after the stroke. The results at a 6 months follow-up showed that neglect was more severe in those with a right hemisphere stroke and resolved more frequently in those with a left hemisphere stroke.

Researching on similar lines Elwan, Hashem, Helmy, Tamawy, Abdel-Naseer, Elwan, Madkour, Abdel Kader, and Tatawy (1994), studied global and specific cognitive functions in 57 patients with ischaemic strokes. The patients were subjected to clinical neuropsychiatric, psychometric, electrophysiological and cranial topographic evaluation. The results showed that out of the specific cognitive functions, attention and psychomotor performance were most significantly impaired in acute stroke patients when compared to normal controls. The impairment in global cognitive functions, attention and psychomotor performance was more evident in chronic than acute cases. Increasing age correlated positively to the deterioration in psychomotor performance and perception. Cranial topographic size of infarction was significantly related to global cognitive as well as memory impairment.

Researches on Post Stroke Psychological Impairment:

It is a common observation that any illness which confines an individual to hospital bed or home, particularly if he is dependent upon others is likely to result in psychological problems (Kelly, 1976). The most common are anxiety, depression, anger, self pity and frustration (Dohrenwend at. al., 1987). A*nxiety* is displayed in the form of a patient being continually tense and jittery, apprehensive and worrying about bad things that might happen and experiencing all the symptoms of autonomic nervous system arousal (racing heart, clammy hands, "butterflies" in the stomach) or apparent symptoms such as twitching eyelids, fidgeting or restlessness (Sweeney, Anderson & Bailey, 1986). An obvious characteristic of anxiety is lack of identification of the causes of anxiety. For no apparent reason the anxiety is free-floating which may at times result into a terrifying panic attacks sometimes accompanied by chest pain, choking, trembling or even fainting (Myers, 1990). Usually anxiety is considered to be a response to helplessness. *Mood disorders* are characterized by emotional extremes which come in two principal forms: (a) Depression, in which the person experiences sadness, hopelessness, and lethargy for a prolonged period; and (b) Bipolar Disorder, in which the person alternates between depression and mania, an over excited and hyperactive state (Beck, 1982). Depression is manifested in symptoms like feeling deeply discouraged about the future, sorrowful about life, isolation from social gatherings, lacking energy, inability to concentrate, eat or sleep normally or even thinking of death as the last solution. Mostly known as "Common Cold" of psychological disorders, depression is one of the most common factors suffered by a stroke patient (Seligman, 1975;1988).

Review of literature indicates that quite a number of studies have been conducted to see the psychological impact of stroke. One of the classical studies in this regard was conducted by Anderson, Vestergaard, Riis, and Lauritzen (1994). They investigated the incidence of post-stroke depression during the first year on a randomly selected large sample of stroke patients (n = 285). A matched group of 285 non stroke persons with no history of cerebral pathology was included for comparison. Psychiatric assessment with the Hamilton Depression Rating Scale (HAM-D Hamilton 1960) was used for the evaluation of post stroke depression in the clinical group. Cut off criteria for depression symptoms was calculated as a score of 13 or more on HAM-D. Post-stroke depression among the 209 survivors able to communicate after one month was 41%. Even more cases developed depression within the first four months following stroke raising the incidence to 79%. Most of these depressive episodes remitted, leaving the prevalence of post- stroke depression at one year at only 5%, a level comparable to that in the control group.

An extended research study on depression was conducted by Downhill and Robinson (1994) who carried out a longitudinal assessment of depression and cognitive impairment in stroke patients. The study evaluated to see the longitudinal course of cognitive impairment related to depression in stroke patients. A group of 309 patients was evaluated following an acute stroke, using a structured psychiatric interview and the Mini-Mental State Examination (MMSE, Folstien, 1975). Longitudinal evaluations were obtained at the intervals of 3, 6, 12 and 24 months follow-up in a subset of patients. The results showed that during the initial hospital evaluation, the frequency and severity of cognitive impairment was significantly greater in patients with major depression compared with non depressed patients. The findings showed that cognitive impairment occurred predominantly in patients with major depression following left hemispheric stroke. The correlation between depression and cognitive impairment was highest during the initial evaluation and was present for up to one year. The year long effect of depression with left hemispheric stroke patients is very high as compared to right hemispheric stroke patients. The findings also revealed that patients with both depression and cognitive impairment had greater duration of depression as compared to patients who did not show any cognitive impairment. Significant clinical features of one type of stroke patient seem to be a phenomenon produced by left hemisphere lesion. This suggests that left hemisphere stroke may produce depression through a different mechanism than lesion in other locations in the brain. In addition, the fact that the strongest influence of depression on cognitive functions was seen during the initial evaluation suggests that this phenomenon may be mediated by an acute or sub-acute physiological effect of lesion. Here the researchers differentiated the types of depression at the onset of stroke as compared to the longer post stroke period.

Hence the study conducted by Downhill and Robinson (1994) focused to see the relationship between psychological and pathological aspects of depression, Tiller's (1992), research is in another dimension which measures association between physical disability and loss of function in 30 stroke patients. His findings revealed that the severity of depression correlates significantly with proximity of the lesion to the left anterior frontal pole, while right hemisphere lesions show the reverse trend. He found out that post stroke depression may last more than 7-8 months without treatment and which is highly correlated with a failure to resume pre-morbid social and physical activities in stroke patients.

Another similar study in the same direction is conducted by Beckson and Cummings (1991). They found out that quite a number of neuro-psychiatric disorders are common after the incidence of stroke. They reported that pathological involvement of specific regions in brain or functional system result mainly in the form of certain behavioral syndromes which in many respects are similar to idiopathic psychiatric syndromes. These findings revealed that depression occurs in up-to 50% of all stroke patients and is most frequently associated with left anterior cortical and sub-cortical infarctions.

In another study which focused to find a relationship between intellectual impairment and mood disorder in stroke patients by House, Dennis, Warlow, Hawton, and Molynex (1990) revealed that low scores on the screening test were associated with greater age, physical disability before the stroke and larger stroke lesion volume as measured on C.T Scan. But there was a negative correlation between scores on the Mini-Mental State Examination (MMSE Folstien, 1975) and symptom levels on two measures of mood disorder. However there was no evidence of a specific relationship between major depression and low scores on the Mini-Mental State Examination. The results revealed that aging, physical disability before stroke and the volume of stroke are mainly instrumental for the intellectual impairment and mood disorders in stroke patients. For the assessment of intellectual impairment MMSE was used along with the other measures of mood disorders.

Researching in a related field Ebrahim, Barer and Nouri (1987), studied affective illness after stroke. The findings revealed that age, sex, marital status, living alone and the history of previous stroke showed no association with affective illness. However a strong relationship between the degree of physical disability and the likelihood of a high affective illness was found. The results showed that patients with greater physical disability had positive correlation with high degree of mood impairment. It suggests that stroke severity and mood disturbance are strongly related.

Another study in this dimension carried out by Eastwood, Rifat, Nobbs and Ruderman's (1989) aimed to find out mood disorders following stroke. A sample of patients with depression and without depression were compared on demographic, psychiatric including cognition and depression, radiological and functional measures. Three measures were used for the assessment which included Mini Mental State Examination (MMSE, Folstein, 1975), the Schedule for Affective Disorders and Schizophrenia (SADS, Spitzer, 1975) and the Hamilton Rating Scale for Depression (HRSD, Hamilton, 1960). Site and size of lesion were determined from medical records. Results revealed that a total of 47 subjects were identified as having affective disorder on these measures, whereas, 32 subjects were found low on the rating for affective disorder. The results also revealed that amongst these 47 subjects having affective disorder the most common disorder was depression which was almost 50% of the whole sample. In these depressive patients high and low depression were found to be associated with the side of lesion that is the affect of specific site of lesion is more prominent in patients with the left hemisphere stroke than the right sided stroke. For patients with right hemisphere lesion, the effect of time since stroke and initial functional disability appear to be more important.

A similar study to see the relationship of mood disorders in stroke patients was conducted by House, Dennis, Mogridge, Warlow, Hawton and Jones (1991). The aim of their study was to determine the range of psychiatric problems experienced by the patient after the first stroke, their frequency, severity and their course over the first year. The results showed that agoraphobia and pathological emotionalism, or non-specific symptoms such as lack of energy and tension were commonly found in all the patients who had suffered stroke.

Shima, Kitagawa, Kitamur, Jinawa and Watanaba (1994) investigated the mood state in sixty eight patients with stroke. They found out that nearly 50 % of patients were having depression according to Diagnostic and Statistic Manual of Mental Disorders(DSM-III; American Psychiatric association,1987) criteria. A significant relationship was found between mood state on the one hand and daily living activities and type-A behavior pattern on the other hand.

In an attempt to find out the relationship between anxiety disorders and depressive disorders in patients with stroke, Starkstein, Cohen, Fedoroff, Parikh, Price and Robinson (1990) carried an in-depth classical study of 24 patients who met the criteria for major depression only. They were compared with 6 patients, who met the criteria for both major depression and generalized anxiety disorder and 45 patients who did not meet the criteria for either major depression or generalized anxiety disorder. Among patients with positive CT scans, the anxious depressed group showed a significantly higher frequency of cortical lesion. While patients with major depression only, had a significantly higher frequency of sub-cortical strokes. No significant between group difference was found in demographic variables, familial and personal history of psychiatric disorders and neurological deficits. These findings suggest that low socio-economic-status of the patients and cortical versus sub-cortical lesion location, may play an important role in determining whether severe anxiety occurs or not, in patients with post-stroke major depression.

In a comparable investigation to study generalized anxiety disorder, Castillo, Starkstein, Fedoroff, Price and Robinson (1993) examined 809 stroke inpatients for the presence of anxiety symptoms. Patients were diagnosed with DSM-III-R criteria for Generalized Anxiety Symptoms. They were divided into group of no anxiety (59.2 %), worried but not fulfilling GAD criteria (13.9 %) whereas, (26.9 %) were fulfilling GAD. These groups were matched on their background characteristics, family, personal and psychiatric history, social support and the severity of physical impairment. The results showed that anxiety along with depression was associated with left cortical lesions, whereas, anxiety alone was associated with right hemisphere lesions. Patients who remained worried had anterior and patients with GAD had posterior right hemisphere lesions. These findings suggest that anxiety disorder independent of depression is not related to background characteristics or to severity of impairment but is, in part, influenced by the brain structures that are injured. The researchers also concluded that apathy is a frequent finding among patients with acute stroke lesion and may coexist with emotional and cognitive post-stroke disturbances.

A three years longitudinal prospective study designed to examine the contributions of neurobiological, functional and psychosocial factors to major depression after stroke was carried out by Astrom, Adolfsson and Asplund, (1993). Major depression, functional ability and social network were assessed repeatedly for a period of three years in a population- based chart of 80 patients with acute stroke (mean age, 73 years). The results showed that the prevalence of major depression was 25% at the acute stage and approximately the same at three months (31%). Post stroke depression decreased to 16% at 12 months, was 19% at two years, however it increased to 29% after three years of stroke. Among the psychological factors of stroke patients the most important predictors of immediate major depression were left anterior brain lesion, dysphasia, and living alone. Dependence in routine activities was the most important predictor at three months. From 12 months onwards, the patients having few social contacts outside the immediate family had high depression along with cerebral atrophy. The findings also revealed that 60% of the patients with early depression had recovered. It was also found out that those patients who had not recovered at the end of the follow-up had a high risk of developing chronic depression. The study provided evidence of a difference of factors likely to be implicated in the development of depression after stroke based on the period of time since the stroke event.

In another study Morris, Robinson, Andrzejewski, Samules and Price (1993) studied association of depression with ten years post stroke mortality. It was assumed that depression has been linked higher with mortality due to stroke as compared to expected mortality from natural causes, particularly amongst elderly patients with physical illness. The authors examined the effect of depression on mortality among a group of stroke patients followed up for ten years. A sample of 103 patients was assessed for major and minor depression approximately two week after stroke with the use of a Structured Mental Status Examination and DSM-III diagnostic criteria (DSM III 1987). Patients with diagnoses of either major or minor depression were 3.4 times more likely to have died during the follow-up period than were non depressed patients, and this relationship was independent of other measured risk factors such as age, sex, social class, type of stroke, lesion location, and level of social functioning. The mortality rate among depressed patients with few social contacts was especially high and over 90 % of the sample had died during these ten years. These results indicate that depressed mood following stroke is associated with an increased risk of subsequent mortality. The study suggested that those stroke patients who are depressed and socially isolated seem to be particularly vulnerable to risks.

Morris, et.al, (1993) investigated 66 diagnosed inpatients for the effects of stroke on emotional liability. Other associated variables such as demographic, clinical, psychiatric and stroke lesion characteristics of these patients were also analyzed. It was found that emotional liability was present in 12 out of 66 patients. Emotional liability occurred independent of post-stroke depression. Single lesions located in anterior regions of the cerebral hemispheres had four times the odds of emotional liability than lesions located anywhere else. It was inferred that emotional liability is a common emotional behavioral syndrome following stroke and is probably a separate condition from post-stroke depression. The etiology of this condition is possibly related to the consequences of injury to anterior regions of the cerebral hemisphere.

To study the relationship between depression and long term stroke survival Sharpe, Hawton, Seaagroatt, Bamford, House, Molyneux, Sandercock and Warlow (1994) conducted a longitudinal study of 60 stroke patients. They also studied the effect of demographic and social factors on depression after stroke. Criteria for selection of patients was a C.T Scan, performed shortly after the initial stroke which showed a single lesion. Each patient was interviewed after a median of 44 months post stroke period, along with an informant usually a close relative. All the cases were assessed for affective disorders (DSM-III-R, 1987) on Cognitive Function Impairment (MMSE Folstien, 1975) and patients ability to perform basic activities (Barthel Mahoney & Barthel Index, 1965). The sample comprised of patients mostly married and living with spouse. The study revealed that 25% of the patients were severely impaired and functionally dependent and they had a direct causal link between stroke and later depression.

Post stroke depression in Americans is studied by Rancisco (1993) who presented an overview of post-stroke depression. He found out that depression occurs in 22% to 60% of the Americans affected each year by stroke, and the prevalence and severity of depression for these patients is highest between six months to two years post-stroke. His findings revealed that mortality rate after an acute onset of stroke is more important than the consequences faced by the patient. After the stroke the patient is more worried about his survival rather than rehabilitation. But once the fear of death has lessened the patient gets involved in the neuropsychological problems faced by him/her. Their inability to cope with life as they could before the onset of stroke results in anxiety and depression as time passes by.

Sufficient amount of research is available to demonstrate that any amount of deficit in neurological or cognitive function of a stroke patient will depend upon the type of injury in the brain and the area involved. Agrell, and Dehlin (1994) investigated depression in stroke patients with left and right hemisphere lesion. The aim of this study was to analyze possible differences in depression rate and symptomatology in stroke patients with left and right hemisphere lesion. A sample comprising of 93 stroke patients in psychiatric rehabilitation wards with a mean age of 76 years was selected. A clinical psychiatric examination was used together with two depression rating scales. Findings showed that prevalence of manifestation of depression was 46 % and there was no difference between the patients with left and right hemispheric lesion. Besides mean depression scores in two rating scales showed no significant difference regarding location of lesion.

Confirming earlier researches, Gatapano and Galderisi (1990) found out that severe and long lasting depression is a common and unrecognized component usually associated with stroke survivors. The researchers examined various aspects of post-stroke depression. Their findings were in line with previous researches that depression is an important clinical feature of stroke.

In a study conducted by Khokhar (1994) on post stroke psychiatric morbidity in Pakistan, it was concluded that a definite psychiatric morbidity exists in the recovery phase of acute cerebral stroke and significant number of patients suffer from a psychiatric disorder in post-stroke period. The commonest forms of psychiatric disorders following stroke were found to be depression and anxiety. The study assumed that maximum cases develop anxiety and depression in early post-stroke period and physically disabled post-stroke patients developed more psychiatric morbidity, as well as vulnerable personality traits, recent stressful life events and lack of leisure activity are associated with it. Regarding the left sided strokes, particularly those involving sub-cortical brain tissues, they are associated with more depression, where as individuals better trained to bear stress such as military people, develop relatively less psychiatric morbidity. The author also revealed that joint family system of our society may be a protective factor against the development of psychiatric morbidity.

Behavioural psychologists suggest that anxiety is a response to learned helplessness. A stroke patient can be an ideal victim of such a situation. To confirm this hypothesis, anxiety disorders in stroke patients were investigated by Burvill, Johnson, Jamrozik, Nderson, Stewart and Chakera (1995). The objective of the study was two fold. (1) To describe the pattern of anxiety disorders in patients surviving four months after stroke. (2) To report the outcome at 12 months after stroke, in all those patients who were diagnosed as having anxiety four months post-stroke. In total 294 patients including 164 males and 130 females were studied. The diagnosis was based on DSM-III (American Psychiatric association,1987) diagnostic criteria. Results showed that 5 % of men and 19 % of women showed symptoms of anxiety after four months from stroke. The great majority of these were cases of agoraphobia with prevalence of 4 % in men and 17 % in women. There were only five cases of Generalized Anxiety Disorder and Non Specific

Panic Disorder. The prevalence of anxiety disorder was greater among patients with first-ever stroke, but the difference was not significant. The high prevalence of agoraphobia among female patients applied to all age groups except for women 80 years and above. In five cases, generalized anxiety disorder occurred in patients aged 70 years or more. The prevalence of anxiety disorder (5 %) in male survivors of stroke was the same as in the community controls (5 %). In women the prevalence of agoraphobia (17 %) was twice that in the community controls (8 %). Agoraphobia with and without depression, can be very disturbing in restricting patients life outside the home and thus decreasing quality of life.

In a similar study Burvill, et. al., (1995) investigated the prevalence of post-stroke depression in 294 subjects and difference in prevalence of depression between patients with first ever and recurrent stroke. By using DSM-III (APA, 1987) criteria, the prevalence of depression 4 months after stroke was found out to be 23%. There was no significant gender difference in the prevalence of depression and between patients with first ever and recurrent stroke. The study showed that 58% of men and 30% of women who had depression at 4 months post-stroke, were showing depression at 12 months.

In another research Herrmann, Bertel, Schumacher, and Willesch (1995) investigated post stroke depression with the aim to clarify any pathanatomic correlate for depression in the acute post-stroke period. The sample comprised of 104 stroke patients. A subgroup of 47 patients with single demarcated unilateral lesion was selected. In addition to a detailed clinical examination neuro-radiological (CT Scan) examination and psychiatric assessment were performed within a two month period after the acute stroke. The patients were examined on CT scan for lesion location, lesion volume, and ventricle-to-brain ratio. It was observed that lesions in the vicinity of the left hemisphere basal ganglia tend to play a crucial role in the development of major depression after the acute stage of stroke.

Depression may not be confined only to the stroke patients but may also be experienced by the care takers of the stroke patients. Including the family members in a research on stroke patients and depression Kotila, Numminen, Waktimo and Kaste (1998) compared the incidence and severity of depression at three and twelve months after stroke in patients and their chief caregivers (spouses, 63%; children, 37%) in four districts of Finland, two with and two without after-hospital-discharge interventional programs. A total of 594 strokes patients were selected. They were assessed on Beck's Depression Inventory (BDI, Beck, 1982). A score of 10 was used as the cutoff criteria for assessment of depression. The results showed that at three months, fewer patients in the districts with active programs (41%) were depressed than in the control districts (54%) and the difference was maintained at twelve months (42% versus 55%). Univariate risk factors for depression at three months were female sex and severe prognostic score at the onset of stroke. The result showed that only stroke and age emerged as significant independent contributors to depression on both linear and logistic multivariate analyses. There was no significant difference in the depression rate of caregivers between districts with active programs (42%) and those without such programs (41%) at three months. The results were the same at twelve months (39% in districts with active programs versus

42% in those without such programs). However, at twelve months there were significantly more severely depressed caregivers in districts without active programs than in districts with such programs. It was concluded that depression was common among stroke survivors and among their caregivers at three months and its rate did not decrease at one year follow-up. These findings suggest that outdoor patient's rehabilitation and support programs for the stroke patients and care givers is affective in decreasing the rate of depression for both patients and caregivers.

Stroke is a slow healing process, and a patient is likely to sustain a longer time in gaining normalcy, but most of the clinical and research attention in stroke care has been on managing acute stage of recovery and on evaluating the effectiveness of relatively short term measures. In an altered attempt Astrom, Asplund and Astrom (1992) carried out a study designed to see the role of psychological problems and associated social factors after stroke. A major aim of this study was to identify those mental, functional, and social factors which are associated with dissatisfaction in stroke patients. These factors included social network, functional disability leisure-time activities, experience of ill health, major depression, and life satisfaction which were assessed repeatedly over three years on a sample of 50 long- term stroke survivors (mean age 71.4 years). These stroke patients were compared with a general elderly population. The results showed that psychiatric symptoms were more pronounced in patients with three years post stroke history than the normal elderly group. The stroke patients had lower functional ability, and reduced life satisfaction. Contacts with children were maintained over the three years follow-up period, whereas, social contacts and warmth with friends and neighbors declined early after stroke and remained lower as compared to general elderly population. When time dependency was analyzed, after three months from stroke, there was little change in daily living activities and somatic/neurological symptoms whereas, later on there were changes in psychiatric symptoms. Between three and twelve months post stroke, the prevalence of major depression decreased, leisure time activities and social contacts were partly resumed, and life satisfaction improved. Once good life satisfaction was restored, it was maintained but poor life satisfaction at one year remained poor for the entire three years. It is concluded that after stroke, some long term survivors develop major depression, functional disability and an impaired social network, which combined reduces their life satisfaction.

Apathy is another associated feature of stroke resulting in feelings of indifference and passiveness with lack of interest in daily life routine matters (Bigler, 1984). Research conducted in this field has examined apathy and depression in stroke patients. Starkstein, Fedoroff, Price and Robinson (1993) examined the frequency and correlates of apathy in a sample of 80 stroke patients. Their criteria for selection of stroke patients was ten days history of a stroke lesion. Patients were examined with a Comprehensive Neuropsychiatric Battery (CNB, Swiercinsky, 1982) that also included apathy scale. Results showed that 38 patients were classified as having apathy and depression. On the other hand 42 patients showed symptoms of only depression. The findings suggest that depression and apathy may exist independent of each other, however major depression was associated with an increased frequency of apathy. Findings also suggested that apathy was also significantly associated with older age, cognitive impairment and deficits in activities of daily living. Apathy was found to be recurrent feature of stroke patients which coexist with important emotional and cognitive post-stroke disturbances.

The same group of researchers Starkstein, Fedoroff, Price and Robinson (1993) investigated catastrophic reaction and depression in stroke patients. They examined the frequency and correlation of the catastrophic reaction in 52 patients with an acute stroke lesion . The catastrophic reaction was significantly associated with depression, a personal and family history of psychiatric disorder and sub-cortical lesion, which were mostly located in the basal ganglia. Patients, with and without a negative reaction, were matched for the presence and type of depression. They differed only in that catastrophic patients had significantly more anterior lesion and a significantly higher frequency of sub-cortical damage. Results showed that catastrophic reaction is significantly associated with post stroke depression and may be a specific manifestation of certain types of post stroke depression.

Researches on Demographic Variables Related to Stroke:

A number of personal attributes such as age, socioeconomic status, educational level and gender have been found to be related to the stroke and management later on. (Findley & cooper, 1983; Fozard & Popkin, 1978; Gerrard, 1987). Stroke at different age levels has different impact on patient's psyche. In the case of young age variables that can affect stroke other than age are the gender, educational level, socioeconomic status, side of the brain involved etc (Black, 1990). Human beings are energetic and youthful at the young age. They are agile, spurty and emotionally well equipped to take hardships of life. Mostly finished with educational burdens, they are in the process of selecting a job or had already acquired one. Settling in matrimonial matters they are at the peak of enjoying life. At such a stage if an illness like stroke attacks the individual, his whole world would crumble down for a while at least. Somewhere flying high he/she suddenly finds their wings chopped off, leaving them incapacitated and almost totally dependent upon others. The phase may turn out to be a temporary one but the initial shock accompanied with fear of unknown and a picture of a bleak future triggers various unpleasant emotions and reactions. Older age has its own positive and negative side effects. Due to restricted mobility in older age stroke may not hamper much of an individual's physical movement, but he/she will be taken as an added burden on the family, thus giving rise to negative feelings on both the sides, the one who has suffered stroke, and the family members who are compelled to look after them (Craik, 1977).

Educational level of the patient as well as the family may play a vital role in reaction towards the illness and subsequently improvement of the patient. A better educated patient will understand the true reality of the disease and react towards it in a mature manner (Findley & Cooper, 1983), whereas, an educated family of the patient will be capable of understanding the instructions and adopt corrective measure to improve the situation in a better manner.

Stroke treatment is expensive. For improvement the patient needs good hygiene and rehabilitation equipment, which is a financial burden on the patient and the family. Socioeconomic status of the patient as well as the family, is likely to be directly related to educational level, i.e., higher the education of an individual, better the chances of them earning a decent living, and more capability of tackling a situation with better financial resources, this will have a positive affect on the patient.

Another factor related to stroke is gender of the patient. Even if stroke as a factor is not directly related biologically to the gender of the patient, the reaction by the patient as well as their family members towards the disease may affect the process of improvement, particularly in Pakistan where males are given more importance. This is because males are usually the earning hands, and in case of stroke to a male member not only the earning terminates but a mouth is added for feeding as well. The burden of looking after him is increased. In the case of a female falling victim to stroke, her duty as a mother, wife or helping hand becomes restrained giving way to negative feelings from rest of the family members.

Rehabilitation is an important aspect in bringing stroke patients back to life and normalcy. Researches conducted in this field have shown some linkage between demographic variables and rehabilitation outcomes. Psychologists such as Milgram (1974) suggested that a mature and well adjusted personality is likely to be more accepting of disabled persons, while the person who has negative feelings towards one type of disability is likely to reject most of the disadvantaged groups in a society. However, there was little evidence of correlation between age, intelligence or attitude and feelings of acceptance. Correlation between education, socioeconomic status and gender difference was mixed. Regarding attitude towards disability, females had less negative attitude as compared to men. Where the likelihood of a disabled person living or working nearby was increased, it gave way to prejudice. This study concluded that handicap in children aroused less negative reaction than in adults.

Thomas (1975) indicated an improvement in attitude towards disabled as socio-economic conditions improved. The Pakistan scenario presents a disregard, fear, avoidance or ridicule by the general public with shame, embarrassment and concealment on the part of the family. Mainly religious and superstitious reasons shroud the thinking and attitude of people. A disability is seen as an invasion of evil spirit, curse or a punishment from God for some sin committed by the family or the individual in the past. According to Miles (1980a, 1982) and Shah (1982) disabled persons have not yet achieved much publicity within Pakistan nor have their opinions been given due consideration.

Anderson (1990) found that although rehabilitation measures indicate better prognosis, they relate to behavioral outcomes rather than cure of neurologic difficulties. Survival studies have shown that stroke patients who live through the acute phase of stroke survive long enough to warrant rehabilitation. The most important conclusion from these studies (Astrom, Asplund & Astrom, 1992; Boles, 1995; Farzan, 1991; Hom & Reitan, 1990; Lyden &Lau, 1991; Morris et. al., 1991 etc) of predictors of stroke rehabilitation outcome is that the identified predictors were not accurate enough to predict gains in the rehabilitation process or the disposition of the individuals after discharge from the hospital. Instead, these predictors can only be used in a statistical sample to describe the general criteria of those patients who would tend to do better versus those who would tend to do worse in rehabilitation. These general indicators include some that seem to have great effect on rehabilitation outcomes e.g., age, sex, amount of paralysis, side of brain involved and area of residence at the time of the stroke.

To determine if social support intervention would improve the support experience by stroke survivors and if improvement would result in better psychosocial outcome Friedland and McColl (1992) reported the findings of strategies for special support intervention. Subjects were drawn from a community based sample that had received rehabilitation services in the hospital and at home. The sample included 48 subjects in experimental group and 40 in control group. The subjects were assessed twice, the measures were taken at entry into the study, immediately after intervention (or at a comparable time for the control group) , and secondly three months later. No significant differences were found between groups either on social support measures or psychosocial outcomes. The findings of the results also showed that there were positive relationships between support and subject's gender, living situation, marital and employment status.

In a study to assess the high need for control as a psychological risk in women suffering from ischaemic stroke, Goetz, Alder, and Weber (1992) measured dimensions of a coping pattern which underlies several components of type A behavior. It was hypothesized that women scoring high are at increased risk of ischaemic cerebrovascular diseases. Out of 38 admitted patients to medical wards, 19 with ischaemic cerebrovascular disease, were compared with 19 patients with no arteriovascular disease and 19 healthy females doing volunteer hospital work. These groups were assessed on Type A personality measure. The findings showed that the dimensions "works commitment", "hard driving", "perfectionism", "need for making plans" and "inability to withdraw from work obligations" differentiated the three groups in the expected direction. Variables such as, effects of age, current smoking and coronary artery disease (CAD) were controlled in the study. The results suggested that high "type A personality" is a psychological condition in women suffering from ischaemic stroke. However, one criticism on this research could be that these personality characteristics do not always precede the stroke, but may develop only afterwards. Therefore one needs to have a post stroke data to show a "causal" relation.

In an investigation to explore the influence of depression, social activity and family stress on functional outcome after stroke Angeleri, Angeleri, Foschi, Giaquinto, and Nolfe (1993) conducted a two fold study. It was designed (1) to assess the quality of life after an active post stroke period of rehabilitation and (2) to investigate the possibility of a return to [the] work [environment] for those still of working age. The researchers found out that depression negatively affected social activity and functional outcome of the stroke patients. It was revealed that depression and amount of disability had an adverse affect on patient's return to work again. The study also found a significant difference between men and women for depression and social activities, with the women scoring worse as compared to men.

Rosa, Crum, Thony and Folstein (1994) investigated the effect of age and education on stroke patients using Mini-Mental State Examination (Folstien, 1994). The results showed that the decline in the scores of MMSE was an effect of age and gender. It was also found that MMSE score also varied with educational level. With increasing levels of educational achievement, the MMSE score increased. Individuals with no formal schooling had lowest scores. These general patterns of distribution in the MMSE score persisted when the age and education distributions were combined .

Researches on Family Support in Rehabilitation of Stroke Patients:

Family is the basic unit where an individual lives with his/her relatives or next of kin in a functional relationship. Family, whether in form of single unit or extended in nature, is based on a hierarchical system, where every member of the family is assigned a role according to his/her age, gender and capability. A congenial atmosphere will always facilitate healthy relations providing a physical and moral support among the segments of the whole family unit (Cohen, 1988), A health crisis like stroke can disrupt this regularity and balance of the family. In such crises, a member becomes dependent upon significant others in almost every respect and needs constant assistance and support from his family. The support can range from taking the patient to the hospital to looking after his basic needs and care. Assistance in this task can prove to be intensely cumbersome and demanding for the family members, who are bound to help, irrespective of their willingness and availability at that time.

It is a well established fact that support extended by the family is of crucial importance to improve the situation of the stroke patient (Unsworth, 1996); Whitelaw, Meyer, Bawa & Jennings 1994; Williams, 1994). It means that the patient's better prognosis is dependent upon the amount of care and social support given by the family. In the developed countries such patients are extended community and social support, which lessens the impediment ordeal from family shoulders. But in Pakistan the circumstances are different. Lack of helping institutions leaves the family with the burden of all the ordeal to be carried out independently. In-depth studies conducted to explore the importance of support variable have demonstrated that absence of social support induces a number of psychological problems like depression, learned helplessness and low quality of life etc.

Morris, Robinson, Raphael and Bishop (1991) studied the relationship between the perception of social support and post stroke depression in 76 hospitalized patients in Australia. Social support or the perception of its lack, particularly from a spouse care-giver, was associated significantly with both the presence and severity of depressive disorder. Furthermore, depressed patients who perceived their support to be inadequate had a longer duration of depressive illness than depressed patients who perceived their support in a more favorable light. They concluded that in stroke patients, perception of social support from key relationship may mediate the emotional response to this life crisis.

A record of three years of admitted patients to a rehabilitation unit in a somatic nursing home was studied by Nygaard and Birkedal (1992) The patients were interviewed approximately 19 months after discharge. They were assessed on their overall functioning at home along with their quality of life. Information regarding demographic variables, differential diagnosis and patient's level of functioning at the time of admission and discharge were collected from the hospital records. The sample comprised of 134 stroke inpatients. Among these a sample of 99 patients was selected, who were discharged from the hospital and were living at their homes. Whereas, another sample of 20 included those stroke patients who were transferred to long term care units. The findings showed that the level of functioning improved for those patients who were living at home during period of treatment, but in case of stroke patients, living at care units, it had deteriorated with the passage of time. The results revealed that unmarried, widowed and demented patients were more liable to be placed in an institution as compared to those who had family support and care. They concluded that family contact and patient's capability to eat without help were significant factors for being able to live at home.

In another study Young and Forster (1992) compared two samples of stroke inpatients and patients receiving physiotherapy at home. Their purpose was to determine which type of care helped functional and social improvement for the patient, i.e., reduction of emotional stress for the care giver and lessening the need for community support. Both treatment groups had significantly improved in functional abilities after discharge from the hospital and treatment at home. The findings revealed that different treatment environment of stroke patients produces different results, specially emotional stress of the care giver and community support is more important for the patient treated at home as compared to the patient at the hospital.

Another study focused on exploring the role of family support and its importance in improvement of stroke patient was conducted by Soderback and Ekholm (1992). They studied 188 stroke patients three years after their stroke. The patients were assessed on eleven areas of behavior related to family support variables and patient's prognosis . Information regarding diagnosis and locations of lesions was ascertained from hospital records. The findings revealed that impairment and disability increases in elderly stroke patients as compared to young stroke patients. The results showed that decreased life satisfaction along with changed intellectual functions, personal care and domestic, housework and gardening activities was associated with inability to organize their time. The stroke patients who had resumed work, though on different tasks/jobs and had family support showed changes in emotional and sensory-motor function.

Jongbloed (1994) quite differently explored the psychological phenomenon of stroke. His findings are based on an in-depth study of a stroke experience of one couple. He reported that general treatment of stroke primarily focuses on the patient's physical problems/disability which are perceived of greater importance whereas, the psychological impact of stroke along with family and environmental influences and of course behavioural adaptations are relatively ignored. His findings are based upon the content of five in-depth clinical interviews conducted over the period of two years with a female stroke patient and her husband and analyzed with the help of ethnographic research methods. The analysis revealed that a stroke cannot be understood as an individual phenomenon as the life pattern of both the woman and her husband were profoundly affected by it. The man's roles as family member, caregiver, home maintainer, and hobbyist required change after his wife's stroke. The woman's experience of her changed body, dependence and altered homemaking role were influenced not only by her husband's attitudes but also by societal values. The findings suggest that clinicians and researchers must pay greater attention to those living with the person who experienced a stroke and to the ways in which the person's social, cultural and economic environments influence adaptation to disability.

Apart from the support which is given by to close family members, friends, neighbors and co-workers, other patients of the same category can help a stroke patient to improve various dominions of life. To test this hypothesis Lewinter and Mikkelsen (1995) studied patients experiences and feelings of rehabilitation after stroke. A group of patients were interviewed concerning their experiences of rehabilitation in an experimental stroke unit. In the interview patients considered the healing impact of living with other stroke patients as they were sharing common problems and they showed positive prognostic signs. The patients felt that they have benefited from more rehabilitation, even though they were hospitalized for a longer time. Although the patients felt that living in such group did not necessarily resolve all the psychological problems related to stroke, nevertheless they found it useful for their improvement in physical rehabilitation. Patients felt that there were important psychological problems in connection with their rehabilitation, and sufficient attention was not given to these. Patients underlined the positive effects of rehabilitation process which helped them to organize and plan for readjustment of their future.

King (1996) studied long-term stroke survivors in order to identify variables which could predict the pattern of life quality after stroke. He used a cross-sectional, descriptive correlational design. Subjects were 86 stroke survivors who were interviewed for a period of 1-3 years after stroke. The variable quality of life was measured with an instrument which assesses life satisfaction and importance in four domains including health and functioning, socioeconomic factors, role of family and psychological versus spiritual help, respectively. Other associated variables were age, social class, aphasia, functional status, motor impairment, depression, co-morbidity and perceived social support. The results showed that thirty percent of subjects were psychologically depressed. The mean overall quality of life score was relatively high. Quality of life was highest for those stroke patients who had the family domain and it was the lowest for those who were dealing with health and functioning problems independently. The findings revealed that depression, perceived social support, and functional status were found to be strong correlates of patient's quality of life. These findings showed that identifying these variables and their significance in the patient's quality of life would certainly help in assisting stroke survivors in coping, maintaining and strengthening their support systems.

Unsworth (1996) studied the perception of older stroke patients concerning their decisions regarding discharge from the hospital. For this purpose a sample of older stroke patients was taken during their rehabilitation stage. The study explored the relationship of patient's locus of control with (1) their perception of role of rehabilitation team, (2) role of family for decision regarding discharge from the hospital and (3) Perception of their daily living activities and skills. The study revealed interesting results. Majority of the patients showed their desire to go home irrespective of the opinion of rehabilitation team or the family that they stay for rehabilitation program. It was recommended that discussions with patient's consultants/clinicians concerning accommodation options may lead to a smoother transition from the hospital to long term housing for patients after stroke.

The need to educate stroke patients and their families is stressed by Van Veenendaal, Grinspun and Adruaabse (1996) who found it useful for management as well as better prognosis of the stroke patient. In their study they identified psychological needs of stroke survivors and their family members. The sample of the study comprised of 35 stroke survivors, 39 family members and 43 health professionals. The results showed that stroke survivors and family members indicated a desire for learning maximum information regarding relapse from a new stroke. Gaps of information regarding reducing the chance of a new stroke and coping with stress were rated high by the stroke survivors, whereas, major gaps of information, possible sources of help, strategies to perform activities of daily living and reducing the chance of a new stroke were rated high by the family members. Stroke survivors and their family members considered the doctors/health professionals as the most desired source of information regarding the patient's condition. The findings also revealed that the health professionals expressed a high level of concern about the amount of information the stroke survivors and family members were receiving. They also expressed substantial amount of need for giving information on all health related issues to both patients and family members. Findings also disclosed that out of a number of psychological needs which are recognized by health professionals, patients and their family members, very few are met in a real sense. Family members of those stroke survivors who suffered from a relapse seemed to appear more knowledgeable and well informed regarding stroke and its management. The study also indicated that educated stroke patients showed a higher desire for information regarding stroke as compared to the less educated stroke survivors.

Angeleri, Angeleri, Foschi, Giaquinto and Nolfe (1993) carried out a longitudinal study ranging from 12-196 months to assess the quality of life as an effect of post stroke rehabilitation program. Family stress, social activity and depression were studied as influencing the functional output of the patients. They also focussed on exploring the possibility of patients returning to work. Criteria for the selection of these patients were that only those patients who had a one-year history of discharge from the hospital and were diagnosed as handicapped were included in the study. The sample of 180 stroke patients consisted of 65 % men and 35 % women patients with a mean age of 65.29 years. The information on interview questionnaire included general and personal information regarding the individuals, their socioeconomic position and scales for daily activity, depression, social activity and stress produced in the family. The control group consisted of 167 age-matched subjects who had no history of stroke. Results indicated that there was not much of a difference in perception of stroke patients on the variables of depression, social activity and stress experienced by the family members as an effect of length of discharge from the hospital. The scores of all the patients on all the tests were significantly poorer than those for control subjects. This implied that depression was high in the sample with weaker social activity and whose families experienced more stress as compared to the control group. With reference to post stroke daily life routine 70% of pre-stroke activities were resumed on average after rehabilitation.

The results showed that the daily activity score at the time of the interview was also strongly influenced by the discharge score. A majority of stroke patients were retired. Only 20.64 % of the total sample (N = 180) returned to their work but not always to the same job and they often had to make re-adaptation to new conditions. The study also demonstrated that the main disturbing element for job readjustment was the ability to speak a comprehendible language. The patients were often criticized by their colleagues. The criticisms most often raised concerned mainly the patient's apathy, irritability, and self-centeredness. The findings also disclosed that sexual activity was also decreased remarkably in almost all cases. On these variables the findings indicated gender differences between male and female patients depression and social activities, with the women stroke patients emerging worse on the scoring.

Researches on Attitude of Care Givers Towards Stroke Patients

Although the neuropsychological problems preceded by stroke are painful, agonizing and unmanageable for the stroke patient, the encumbrance and hardships of the patients are shared by the whole family. Out of all the three stages i.e., prognosis, immediate care, management and rehabilitation, the process of improvement in a stroke patient is always gradual and painstaking. The lingering process of improvement can induce pessimistic or negative sentiments in caregivers, i.e., the patient's immediate family. Display of these emotions will have a direct effect on the patient and his/her condition. It is a well researched fact that positive attitude of the family expedites improvement in patient's condition (Anderson, Vestergaard, Riis & Lauritzen 1994; Angeleri, Angeleri, Foschi, Giaquinto & Nolfe 1993; Bronstein 1991; Evans, et. al., 1990), whereas negative attitude is found to be detrimental for the patient's prognosis.

One such study is conducted by Tompkins and Connie (1990) In this study forty caregivers of stroke patients (usually a spouse) were interviewed after an average of nine months post-stroke. Purpose of this study was to determine the level of improvement in stroke patients and its association with positive attitude of the family toward patient's adjustment. The researcher identified four classes of variables which were expected to be related to depression in the family of the stroke patient which included: (1) level of functioning of the patient, (2) perceptions of the family regarding increased work and burden due to the stroke, (3) the quality of the patient-family relationship and (4) family's interpretations of this situation. Results showed a high correlation of these variables with depression. Study also demonstrated that depression of the family was positively associated with the amount of physical impairment in the patient. In these cases family of the patient reported more disharmony in their family which was associated with low hope for patient's prognosis. The findings showed that such family members of stroke patients themselves were not functioning well. Besides poor psychological functioning was positively correlated with poor physical functioning in the family of stroke patients. These family members perceived their support to the patient to be more of a burden when family relationships were poorer. They had more negative interpretations of their situation and patient's condition.

In another study which investigated the attitude of family members going through the experience of looking after a stroke patient, Kim (1994) reported feelings of emotional crisis in the family as a result of sudden onset of stroke, such as, physical discomforts during hospitalization and the period when patients needed an assistance for toilet, bathing and eating etc. Stroke patient is gradually isolated from the society, this social isolation usually begins immediately after the discharge from the hospital, and is generally followed by depression and hopelessness. Besides the family members of stroke survivors reported excessive anxiety regarding the relapse of stroke and patient's prognosis which intensified with the patient's discharge to home. Negative feelings of well-being of the stroke patient were positively related to the family member's perceived feelings of inadequacy. The results of the study showed that the family which perceived that the patient's recovery was poor, felt more anxiety. Besides daughters-in-law feel the care giving experiences to be more negative, than do spouses or adult- children, unmarried adult-children. Daughters in law also feel socially isolated. More cases of depression and hopelessness were found among family members when the period of care giving lasted longer. Those stroke patients who were self-supporting, received more positive family support and perceived the care giving experiences more positively.

Assessment of Psychopathology and Psycho-Social Variables

Assessment of psychological disorders, neuropathological handicap, and psychosocial variables requires measurement instruments. During the last couple of decades a large variety of scales and tests have been developed for these purposes.

However, majority of these scales are based upon the life styles and circumstances characteristics of the Western countries. They may pose various problems if used with the people from the developing countries without adaptation or modification. In some cases the specific nature of the problem demands either adaptation of the available instrument or the development of a new one.

Neuropsychological Impairment Assessment scales

Traditionally speaking the very first problem which leads to the development of a psychological test is the identification of mental retardation. Detection of intellectual deficit is however, these days, just one application of psychological test among a variety of its uses. As with the advancement in the field of psychometry, need and use of measurement has enormously widely spread. It is to be noted that an increasing use of psychological tests in clinical psychology for the detection of psychological problems and above all, the neuropsychological assessment has given psychometry an edge over other fellow disciplines. Information about mental functioning, mental processes and behavioural manifestations are considered as integral part of treatment and prognosis of a number of neuropsychological disorders including stroke.

In recent years there is a growing stress on development of such screening instruments which disseminate reliable and valid information not only to the psychologist, but the psychiatrists, neurophysicians and neurosurgeons. A number of cases tend to rely on this information only on their inter-disciplinary approach. These tests are currently being employed in a wide range of problems (Anastasi, 1988).

A large number of tests have been specially designed as clinical instruments for assessment of neuropsychological impairment. For example Schedule for Affective Disorders and Schitzophrenia (SADS, Spitzer, 1975), HAM-D (Hamilton, 1960), Frenchay Activities Index (FAI, 1984), Health Status Questionnaire (Randt, 1993), Mini Mental State Examination (MMSE, Folstien,1975), Diagnostic and Statistical Manual for Mental Disorders (DSM III, American Psychological Association, 1986), Halstead-Reitan Battery (Halstead, 1947; Reitan, 1959-85), Luria Nebraska Neuropsychologic Battery (Luria, 1980), Peabody Picture Vocabulary Test (Dunn & Dunn, 1981), Boston Naming Test (Kaplan Goodglass & Weintraub, 1983), Verbal Fluency Test (Benton & Hamsher, 1978), The Boston Diagnostic Aphasia Examination (Goodglass & Kaplan, 1972), Randt Memory Test (Randt, Brown & Osborn, 1993), Denman Neuropsychology Memory Scale (Denman, 1984), Benton Visual Retention Test (Benton, 1978), Raven's Progressive Matrices (Raven, 1977), Wisconsin Card Sorting Test (Berg, 1948), Minnesota Multiphasic Personality Inventory (MMPI, Dickmen & Reitan, 1977).

These tests are often designated as indicators of organic brain damage. However there is a need for adequate understanding of these tests, their underlying theory and above all the psychometric properties including the indexes of reliability and validity for special groups. Because of the complexity and diversity of organic brain dysfunctions and their associated behaviour deficits, it is generally recommended that single test of organicity is not reliable and adequate for screening brain damage. Clinicians frequently make use of combination of these psychological tests or batteries for diagnostic and assessment purposes. As discussed earlier, stroke as a neuropsychological impairment causes a major damage in brain, resulting in physical disability associated with a number of psychological problems. Besides, the perception of patients regarding the family support and care, is also needed to be addressed in evaluation. Thus, the issue of neuropsychological assessment seems quite sensitive and delicate, which requires lot of care in selection and use of these instruments.

An interesting study which attempts to focus this issue is conducted by De-Haan, Horn, Limburg, Ven Def, Meulen and Bossuyt (1993). Researchers explained the appropriateness of assessing tools used for stroke impairment. The sample included 87 stroke patients. Those stroke patients were selected for the study who had six months history of stroke. Impairments was assessed through: (1) National Institutes of Health Scale (Adams, Davis, Torner, Grimsmen and Berg !994), (2) Mathew Scale (Mathew, 1982) and (3) Barthel Index (Barthel, Mahoney & Barthel, 1965). The findings showed that all the stroke scales were highly correlated with each other.

Two tests commonly used for neuropsychological assessment include Mini-Mental State Examination (MMSE; Folstein, 1975) and Hamilton Rating Depression Scale (HAM-D; Hamilton 1960). A study using these tests was conducted by Santus, Ranzenigo, Caregnato and Inzoli (1990). They interviewed 120 elderly stroke patients after one year of their acute stroke. The sample comprised of 76 patients, these tests detected that 12% had significant cognitive impairment, whereas, 35.5% showed depressive symptoms. The researchers concluded that MMSE is a reliable test for detection of neuropsychological problems of stroke patients.

Certain major screening instruments focus on the physical problems resulting from stroke which usually involve specific areas of motor and cognitive deficits. However, problems such as inability to talk, time consumed in recovery, relationship between subjective and objective memory, self neglect and loss of function have been taken as topics for analysis by most of the researchers assessing neuropsychological impairment of the stroke patients (Abodun, 1994; Baggerly, 1991; Black, 1990; Coletta, 1991; De-Hann, Horn-Ven-Def, Meulen & Bossuyt, 1993; Lyden & Lau, 1991; Robinson, Parikh, Lipsey, Starksein & price, 1993; Stone.et al., 1991; Towle, Deborah, Lincoln & Nadina, 1991; Wyller, Sveen & Bautz, 1996).

As regards psychological problems associated with stroke, interestingly it was found that maximum number of rescarches were revolving around the assessment of anxiety and depression which is caused due to stroke. Efforts were made to establish a relationship between depression and intellectual impairment, side of the brain involved and volume of the lesion through neurosychological assessment both in short or long term survivors of stroke. Results of most of these studies are indicative of a link between left hemispheric stroke showing depression as a major symptom. The results of these assessments have also shown that apart from the side of brain involvement, depression is associated with: (1) recurrence of the stroke, (2) duration of disabilty, (3) age of onset and (4) likelihood of dying (Goetz, et. al., (1992; Angeleri, et. al., 1993; & Burvill, et. al., 1995).

Not surprisingly most of the researches on stroke survivors have been conducted on older patients having a mean age of 69 and above. This is because stroke is rare under age 60 and increases by nearly tenfold each decade thereafter. In these studies patients socio-economic status and educational level as associated variables have not been given adequate attention.

Neuropsychological assessment of stroke survivors shows that apart from the significance of social support which is extended by a number of government agencies and community, family support is the most important factor in improvement of neuropsychological problems of stroke patients. Researches conducted in developed countries into rehabilitation after stroke and recovery of patient have an altogether different scenario as compared to underdeveloped countries, where social support seems to be totally absent (Anderson 1995; Bergman, et.al., 1991; Castillo, et. al., 1997; Evans, et. al., etc). Rehabilitation institutes like nursing homes and community centers are not available in less developed countries. In developed countries both government backed institutions and private nursing homes are specially trained to handle stroke rehabilitation and patients after discharge from the hospital can join group self-help groups receive physiotherapy, or even have trained nursing staff for home visits. This could be a reason for less research on family support as compared to the social support, as fewer studies relating to the role of family in the recovery of stroke patient have been conducted in industrialized countries.

In the developing countries like Pakistan lack of services providing social support results in overburdening the family, causing physical, emotional as well as psychosocial burden. When outside social support is available for the ailing person, the family is less burdened with problems generated by the presence of a stroke patient. Accordingly the attitude of the family members would be more positive towards the patient's care. Here in our society the health care choices in rehabilitation seem few. Here family is compelled to look after the patient. Chances are there that in these cases attitude of family members would be adversely affected by perception gravity of patient's condition and problems apart from the imposed burden. Thus there is a need to explore into the role of family support /attitude towards the neuropsychological problems, specifically the problems of stroke survivors.

The techniques used to assess neuropsychological impairment are growing in a mushroom pattern. Scales such as Mini-Mental Examination Scale (MMSE, Folstein, 1975), Hamilton Anxiety Depression Scale (Hamilton,1960), French Activities Index (FAI, 1993) and Health Status Questionnaire (HSQ, Randt, 1993) are commonly used to assess and quantify neurological and psychological impairment of stroke patients in other countries. For any foreign developed test, problem of culture specificity always comes into question. A number of constructs used in the test are alien for other cultures, so it is not safe to use these tests without making necessary modifications. It is also to be noted that contextual meanings of a number of objective type questionnaires were found to be different in different cultures. Besides patterns of behaviour for psychological problems are assumed to vary across cultures. Critical review of these frequently used tests, for example, Luria Nebraska etc, suggest a possible handicap in using these tests in our culture for neuropsychological assessment. These apprehensions generated the idea of indigenous scales with the objective to meet the required criteria laid down for the present research. Emotional measures (depression, anxiety, fatigue) are more tied to culture than the more neurological tests, such as Reitan, Trailmaking, Short-term Memory, Copying Simple Figures. (Bender Gestalt, 1968).

The discussion so far has clearly shown that cultural variation does exist in such behaviours, as care, nurturance and support attributed to the type of family system and its bonds, which obviously are different in societies of West and East. Growing industrialization and moving toward cybernetic explosion has no doubt changed the scenario from subjective to mechanical feelings. It's common that with the breaking of family system, growing incidence of single family units has increased. In this scenario any serious ailment causes dependency mostly to the government sponsored institutions and nursing homes, which is called the social support system in the West. Whereas, in the Eastern society this situation is almost reverse. Here patients get most of the support from the family-care givers, whose role in the recovery of patient is very important. We see the active participation of the family in the management, treatment and rehabilitation stages of the patient.

Like other health related problems stroke causes a lot of problems to the family and care givers. In order to have better understanding of the family support variable for stroke patients we need to study specifically attitudes. As extending help and support to some one who is directly or indirectly related, is in fact manifested in the form of attitudes and can only be measured through some attitude scale.

Attitudes

In the history of social psychology, the single most important concept has been that of attitudes,..."Attitudes are beliefs and feelings that predispose our reactions to objects, people and events". In one of the earliest uses of the word, attitude meant a physical posture or body positions. In early experiments on reaction time, attitude was referred as a subject's readiness to respond" to the onset of the stimulus (Himelfarb & Eagly, 1974). With the passage of time the term shifted to mental state of an individual, thus limiting attitudes as abstract constructs which can not be observed directly, but which can represent internal structures and processes (Deaux, Dane, Wrightsman & Sigelman, 1993). Later many other definitions were proposed by psychologists since its first use of the term "attitude" by Herbert Spencer in 1862 (Allport, 1935). The basic concept of attitude advanced by Thurstone (1931) regards attitude as a latent construct that is expressed as an evaluation of any object. This is the most practicable and operational definition of attitude. It reflects a particular theoretical positions that are accepted by majority of the earlier and contemporary psychologists but rejected by some (Pratkins & Greenwald 1989).

The denotation and philosophy of attitude has gone through numerous alterations during the past five to six decades. Every traditional definition of attitude gives us a slightly different conception of what an attitude is or emphasizes a somewhat different aspect of it. These explications conceptualized attitudes as a dynamic internal state that is inferred from the behaviour and actions of the individual.

In latest research cognitive aspects of attitude have been included, whereas, earlier Allport (1935) defined attitude as "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence, upon the individual's response to all object and subjects with which it is related". According to this definition he explained that experiences of an individual contribute to formation of one's attitude towards other individuals that are linked with their behaviour. Bogardus (1931) regarded an "attitude as a tendency to act towards or against something in the environment, which becomes thereby a positive or negative value".

Crutchfield (1948)... viewed "attitude as an enduring organization of emotional and perceptual experiences playing an important role in forming attitude". He gave due weight to behavioural implications. Oskamp (1977) illustrated the term attitude as a "person's bodily position or posture", which is related to one's state of mind. Fundamentally it was Osgood's Semantic Differential (1957) which established the general aspect of attitudes i.e., an attitude was generally seen as a disposition to respond in a favorable or unfavorable manner. Whereas, Bem (1970) limited himself by defining attitude simply as "likes and dislikes". In contrast Doob (1947) talked about intrinsic aspect of attitudes, which he called as instinctual drive responsible for producing a particular response and these responses could be seen on a continuum just like we see the motivational variables. He also emphasized the variations of these instinctual drives in terms of their strength. This seems to be in line with the dimensions of favourability and unfavouability of attitudes.

Most persuasive definitions imply that changes in attitude relate to changes in behaviour. However a respectable number of studies carried out in 1960s and 1970s challenged this idea. (Meyer, 1990). Moreover studies regarding the relationships of people's attitude and behaviours for different religion and racial minorities (Sears & Davis, 1988) showed the dominance of attitudinal components in forming a number of behaviours including prejudices, stereotypes etc. Later social psychologists started a series of follow up studies during 1970s and 1980s. These studies revealed that most of our actions would be guided specially by social pressures which in turn would alter our attitudes under certain circumstances. It was concluded that these out side influences/pressures would change or affect our attitudes. Outside influences upon what one says and does are minimized, and these social pressures certainly influence both how we express our attitude and how we act, thus illustrating underlying connection between an attitude and action. Besides, attitude is not necessarily related to one's behaviour. People easily advocate general attitudes, which are inconsistent with their behaviour. Attitudes which are focused towards some direction are closely linked with action depending on social environmental conditions. A self-conscious and self-aware person has better understanding of his/her attitude (Festinger, 1990; LaPiere, 1936; Wicker, 1969; Myers, 1990; Zimbardo, 1972).

Attitudes of people towards different objects and persons are considered as indicators of their likes and dislikes in daily life. Attitudes are regarded as expressions of one's inner feelings which are converted into attitudinal observable behaviours. Attitudes are characterized by the evaluative content as well as intensity. Upmeyer, Roth and Shah (1987) called such a behaviour (possessing any of these both aspects) a response modality. Named as *expressive function of attitude,* the theory explains that expression of attitudes is not restricted to a particular behavioural form only. Rather an attitude can be expressed in more than one physically defined response modality. The theory is based on the fact that individuals are motivated to express and communicate their likes and dislikes in everyday situations. Researches have proven that attitudes are expressed not only on attitude scales but also in other socially accepted modalities, such as mimic responses, playing behaviour and freely performed speech. A strong correspondence of evaluative contents was found across different modalities of expression (Upmeyer, 1985).

The above mentioned attitudinal definitions reveal that different social psychologists have understood attitudes differently. Some emphasized the process of attitude formation (e.g., Fishbein & Ajzen, 1975) whereas, others talk about attitude in terms of behavioural tendencies (e.g., Eagly & Chohan, 1993). For some, attitudes are behavioural dispositions (e.g., Campbell, 1963).

The dominant characteristics of attitude is that these are generally favourable or unfavourable, which could always be assessed on a multi-point rating scale in term of highly favourable to highly unfavourable attitude. Interestingly very few people would rate themselves as indecisive on these attitudinal dimensions (Ajzen, 1984; Chein, 1948; Davis & Ostrom, 1984; Campbell, (1963).

Since its first use as a concept, attitude has been considered as a hypothetical construct or latent variable which can not be observed directly. Earlier it was stated that the formation of an attitude requires the cognitive activity of assigning evaluative meaning (Zanna & Rempel 1984; 1988). This would result in development of an attitude by the individual, which is an internal state that endures for at least a short period of time to energize and direct a behaviour. Later researchers advocate a growing evidence of existence of attitudes at the level of cognitive and physiological processes, suggesting more weightage to be given to Allport's claim that an attitude is a "mental and neural state of readiness".

Eagly and Chaiken (1984) described the term attitude from three schools of thought's point of view. One defined attitude as a combination of affective, behavioural and cognitive reaction to an object (Breckler, 1984; Rajecki, 1989). According to this approach an attitude is (1) a positive or negative, or mixed, affective reaction consisting of our feelings about an object; (2) a behavioural predisposition, or tendency to act in a certain manner toward an object; and (3) a cognitive reaction, as our evaluation of an object is based on relevant believes, images and memories (Judd, Drake, Downing & Kronnik, 1991).

Within each of the three categories (cognition, affect and behaviour) Rosenberg and Howland (1960) separated verbal from non verbal reactions. According to their analysis the "cognitive category contains perceptions of and information about the attitude object. Cognitive indicators of attitude thus involve verbal expressions of beliefs on non-conceivable reactions. Affective responses include verbal expressions of feelings towards the attitude object, as well as physiological reactions, facial expressions as well as non verbal indicators of positive or negative feelings. Finally, responses of a cognitive nature are behavioural inclinations, plans, intentions and commitments, as well as various overt motor acts involving the attitude object". However, recent theorists have questioned the utility of the three component view of attitudes (Fazio, 1990; Pratkins & Greenwald (1989); Tesser & Shaffer, 1990; Zanna & Rempel, 1988). These theorists consider behaviour to be separate from attitude and include the proposition that behaviour itself may be an attitudinal object. Affect, too, has been considered separately, primarily because the role it plays in behaviour depends on the situational context (Miller & Tesser, 1986) and on the particular object of the attitude (Breckler & Wiggins, 1989; Burke & Edell, 1989).

Attitudes, being pre-dispositions to respond to social objects, events and people, possess some general characteristics. Shaw and Wright (1967) have summed up the common characteristics of attitudes in the following lines. These include evaluative and affective reactions and have varied quality and intensity (Anderson and Fishbein 1965; Doob 1947; Osgood' et al., 1957; Krech, 1962; Newcomb, Turner and converse, 1965), these are learned (Sherif and Sherif 1956) and have specific social reference (Sherif and

Sherif,1956; Newcomb et al., 1965). Besides, attitudes possess varying degrees of inter-relatedness to one another (Krech et al, 1962) and these are relatively stable and enduring. (Newecomb et al., 1965; Sherif and Sherif 1956).

It is a common observation that much of the research in attitude reflects Euro-American concerns of limited generality. Most of the efforts were devoted to attitude theories related to consistency, cognitive dissonance and balance. (Abelson, Aronson, Mc Guire, Newcomb, Rosenberg, & Tannenbaum, 1968). According to Triandis, (1975) the emphasis on consistency is not universal (Fiske, Kitayama, Markus, & Nisbett, 1998). He further emphasized that "many of the key findings of social psychology are culture bound".

Measurement of Attitude

Like other psychological components attitudes are measured with the help of attitude scales. It was Thurstone (1931) who claimed for the first time that "attitudes can be measured". Attitudes are expressed in different ways in our interaction with others, mostly in the form of verbal expressions that vary in force or strength. Measurement is defined as assigning numbers to objects and events according to set standards or objectives (Campbell, 1940 & Stevens, 1951).

There is a general agreement among researchers about attitude measurement techniques, i.e., Attitude Rating Scales, which "aim at measuring the subjective evaluation of persons, objects or events". As attitude is regarded as a hypothetical construct and not observable directly, it can either be inferred from a person's gestures postures and behaviour or detected through his/her verbal response (Feldman, 1998). The measurement of attitude requires a judgmental dimension, with the help of which it is possible to measure or estimate the magnitude of attitude. Attitude rating scales are well structured and theoretically and methodologically articulated measurement techniques that provide a sound judgmental dimension for the measurement of attitude.

An attitude measurement is done by assigning a number of statements (positive or negative) to persons. These direct measurements involve translating an abstract attitude into some sort of numerical scale (O'Neal & Chissom, 1994). In common practice these statements consist of an individual's response to a set of situations about the attitudinal object, responded by the individual through a set of specified response categories which have assigned values of different intensities. The values assigned to each response to a given item are scored and the sum of these scores from an individual represents his position on the latent attitudinal variable. The intensity of displayed attitude creates an isomorphism between the assigned numeral and the person's attitude towards the object.

In the field of measurement, attitude assessment has been broadly influenced by two traditions known as 'psychophysical scaling' and 'psychometric scaling'. Developed in the nineteenth century psychophysical scaling examines the relationships between the attributes of physical stimuli and the psychological sensation they produce. Whereas psychometric scaling originated from mental and psychological testing methods, in which the individual responds to a series of items, each of which is designed to assess the common underlying attribute that the test is created to measure. An average or sum of the scores of items gives a fair indication of where the person stands on the attribute. Psychometric techniques locate individuals directly on the attribute based upon their total score on a set of items.

There are different attitudinal measurement techniques used in past and present with different methods dependent on the need and approach of the researcher, but their broad categories can be identified, which includes: (1) self report measures and scales, (2) indirect verbal measures and (3) non verbal measures which include physiological and behavioural measures. The two main assumptions underlying all self report measures are that: (a) the person knows about his attitudes and (b) he is prepared to report them openly and without bias. Based on these two assumptions a number of attitude scaling methods were developed in 1920s and 1930s. (Sears & Davis, 1988).

Some of these scales are Louis Leon Thurstone's Method of Equal- Appearing Intervals (1928), Guttman's Scalogram Analysis (1944), Osgood's Semantic Differential (1957) and Likert's Method of Summated Ratings (1932). In our study Likert's Method of Summated ratings was used to construct Family Attitude Scale. In the following Likert's method of attitude scale construction will be discussed.

Likert's Method of Summated Ratings

Probably the most direct and simplest way to measure attitudes is through Likert scale (Feldman, 1998). Rensis Likert (1932) proposed this method of attitude scale construction which did not require the use of judges to rate the item's favourability as was done by Thurstone (1931). Likert's goal was to develop a simpler method of scaling that would match Thurstone's method of equal appearing interval scale in reliability and validity. Although the first step is common for Thurstone's and Likert's scales, the latter's method is a general scaling technique that may be applied to any of the three classes of attitudinal responding. It involves collection of a large number of statements which are either favourable or unfavourable towards the object or issue of concern. The degree of favourability or unfavourabilty is ignored. Likert's scale does not require any judges, rather the investigator depends primarily on his own judgement for the appropriateness of the statements. This method was called as 'method of summated ratings'. This means that all the responses of the subjects are summed to obtain a mean score that defines his/her attitude.

Likert's scaling technique requires a large number of statements, i.e., items having the characteristics that the more favourable the individual's attitude towards the attitude object, the higher his expected score for the item. These items are given to a sample of the target population and the respondents indicate their reaction to the items by means of a five-category rating system i.e. 'Strongly approve', 'Approve', 'Undecided', 'Disapprove' or 'Strongly disapprove', or parallel series to assess "like me-Not like me", "Pleasure-Pain", "Good-Bad", or other dimensions. Respondents choose the alternative that best represents their degree of agreement with the item. Each of the item on the scale receives a score from 1 to 5 depending on the respondents degree of disagreement or agreement with it. This method uses only those items that are clearly positive or negative towards the attitude object. The scoring is reversed for negatively worded items.

In order to constitute a Likert scale, the initial pool of items must be tested on a group of respondents to eliminate ambiguous and undiscriminating items. Items scores are then correlated with the total score (item total correlation) the items that correlate highly with the total score are selected for the final scale. A good item will have a positive item-total score correlation. Items with low or no correlation are discarded. The inter-correlations of the items are attributed to a single underlying common factor to which all the items are mutually related (Greenwald, 1954; Shaw & Write, 1962). The item score is assumed to be the weighted sum of this common factor. The common factor will be the general attitude variable that a researcher tries to measure, whereas, the item independent of the measurement is considered as an error. The items in a Likert scale have to satisfy Likert's criterion of internal consistency. The scoring procedure is justified through the argument that the linear correlation of total score with the general attitude factor approaches unity with the increment of number of items. The five point rating scale is used by the respondent to respond to the items in the final scale and his score is computed as the sum of his individual item scores.

Another way of evaluating the items for the scale is to compare the groups of respondents scoring highest on the total pool of items with the group scoring lowest, thus eliminating the middle group whose attitudes may be less clear, less consistent, less strong or less well informed. If a particular item does not discriminate significantly between these groups i.e., it does not have significantly different mean scores for the top and bottom groups it is clear that it is measuring some other dimension rather than the general attitude involved in the scale.

Likert's method of attitude measurement was developed due to excessive time consumption by other scales but still a careful pre-testing of items, item analysis and psychometric property of items is necessary. The help of computers has made the task much easier and quicker. The procedure of Likert type scale construction gives us reliable scales, but the validity of these scales is tested by other methods. Usually lesser attempts are made to ensure equality of units of the scale. Whereas, uni-dimensionality is sometimes inferred from high item correlation with the total score.

OBJECTIVES OF THE STUDY

The aim of this research is to investigate neuropsychological impairment in stroke patients and its improvement as a function of family support and attitude toward the stroke patient. The study also intends to examine the nature and the extent of neuropsychological impairment and its improvement related to the demographic variables such as age, socioeconomic status, education and gender of the stroke patients.

In order to achieve the above mentioned objectives the study undertakes to develop instruments with the help of which neuropsychological impairment, family attitude and support could be assessed.

Hypotheses

Following hypotheses have been formulated for the study:

1 The stroke patients supported by their families will show more improvement than those getting less support from their families.

2. The stroke patients, whose family's attitude is positive toward them will improve more as compared to ones whose family's attitude is not positive towards them.

3. The stroke patients of higher socio-economic status will show better improvement as compared to lower socio-economic status.

4. The higher the educational level of the stroke patients, the more will be improvement in their neuropsychological impairment.

5. The male stroke patients will receive more support from their families than the female

stroke patients.

6. The family attitude will be more favourable towards the male stroke patients.
7. The male stroke patients will show more improvement as compared to female stroke patients.
8. The greater the age of the stroke patient, the less will be the improvement in their condition.

METHOD

This study was done in two stages, a pilot study and a main study. In the pilot study three instruments were developed that were used in the main study.

Phase I (Pilot Study)

In this study following three scales were developed for the measurement of neuropsychological problems, family support and family attitude.

(i) Neuropsychological Impairment Scale

(ii) Family Support Scale

(iii) Family Attitude Scale

Samples

The pilot study was conducted on two samples.

Sample 1

This sample was primarily used to generate the items for the development of above mentioned scales. The sample consisted of 30 patients (20 males &10 females) with a mean age of 36.7 (range from 36 to 52 years) who had suffered one or the other form of handicap due to cerebro vasculardiseases. These patients were selected from different civil and military Rawalpindi and Islamabad hospitals, who were either admitted in that hospital or were visiting it as out-patients. They were asked to report all the problems faced by them related to the disabilities due to stroke. Another sub sample of 30 family members (17 males & 13 females) accompanying these patients either during their stay at the hospital or on an out-patients visit, was interviewed about the type of care they were extending to these patients and the problems they faced with such situations.

Responses of these two samples (first & second) was used to generate items for the scales used in our study. A number of dimensions for neuropsychological impairment were determined. Interviews with the concerned medical members, psychiatrists, physiotherapists and neurophysicians were sought to identify the related areas and associated problems of stroke patients. Literature review related to neuropsychological problems also helped in item generation of the scales used in this study. The initial interviews with the stroke patients and their caregivers focused on questions on a priori dimensions of post stroke neuropsychological impairment, such as problems related to emotions, learning, sensory and motor problems physical, cognitive, memory, behaviour, moods, language, learning, sensory/motor, concentration, and mental and physical coordination.

As a result 86 (Annexure I) items related to neurological and physical problems of stroke patients were generated.

Sample 2

The second sample in the pilot study included two sub samples: a sample of stroke patients and a sample of their relatives. The stroke patients sample consisted of 17 females and 23 males. Age of the sample of stroke patients was in the range of 20-50 years with the mean age of 37.15, SD= 7.64. The income of these stroke patients was from no income at all to Rs. 4500/ and above (median = 2800 Rs). The stroke patients included ranged from illiterate to university graduates.

The sample of relatives were 40 caregivers of stroke patients staying with them most of the time. This sample included 20 males and 30 females in the age range of 28 to 60 years. Income of the care givers ranged from no income at all to Rs. 7000/ and above, whereas the educational level was between illiterate to post graduation. These patients and their relatives volunteered themselves for the study.

Procedure

The Neuropsychological Impairment Scale and Family Support Scale was developed using the first sample of stroke patients whereas the Family Attitude Scale was developed on the second sample of caregivers of the patient.

Development of Neuropsychological Impairment Scale (NIS)

Non-availability of an indigenous scale to assess physical and psychological problems of a stroke patient (in Urdu) highlighted the need for the development of a Neuropsychological Impairment Scale.

The items generated earlier were written in form of statements pertaining to five dimensions determined earlier. All these items were compiled into a questionnaire containing instructions and were administered to a new sample of 40 stroke inpatients admitted in different military and civil hospitals of Islamabad, Rawalpindi and Peshawar.

These items were arranged on a 4-point Likert type scale, using the response categories and corresponding values of "never"(1), "sometimes"(2), "most of the times" (3) and "all the time"(4).

Instructions (in Urdu) for administration of neuropsychological impairment items were prepared and printed on the top of the questionnaire. Some general instructions were also prepared for the subjects, where they were given assurance of confidentiality regarding their identity. A bio-data form was also attached to collect information regarding respondent's name, sex, age, educational level, marital status, and gross monthly income.

The stroke patients were first told about the utility of the study as development of a scale to understand the neuropsychological problems faced by a stroke patient. Then they were given the following instructions.

"National Institute of Psychology, Quaid-i-Azam University conducts various researches for academic purposes. Present study is also a part of these researches. Purpose of this study is to understand the problems faced by patients after stroke and to prepare some guidelines for these patients to manage their problems efficiently. We will give you a questionnaire, in which problems faced by the stroke patients have been listed. Instructions and examples about the questionnaire are given also. The problems are stated in the form of statements. You are requested to read each statement carefully and tell us to which extent these statements are applicable to you. For example, if you have headache: if the headache is all the time, then mark (/) in the box of "all the time", if you have never had headache, then mark (/) in the box "never", if you have headache some times or all the time, then mark the appropriate boxes. You are requested to read all the statements one by one without skipping any item and fill in the entire questionnaire" (Annexure III).

Those stroke patients who were illiterate or had difficulty in reading, were helped by the researcher by reading the statements and marking the appropriate response for them.

Scoring of the responses of Neuropsychological Impairment Scale was done by giving 1 to response category of "never", score 2 to "some times", score 3 to "most of the time" and score 4 to "all the time". Sum of these scores was considered to be the amount of neuropsychological impairment suffered by the stroke patient. The range of the scores was from 86 to 344.

Results

The data were analyzed for item-total correlation to determine the suitability and relevance of the items to the scale. Table 1 indicates the item-total correlation of 86 items of NIS Scale ranging from .08 to .92 based on the responses of 40 respondents of sample 2.

Table 1

Item Total Correlation for Neuropsychological Impairment Scale based on patients responses (items = 86) (N=40)

Item No	Correlation	Item No	Correlation
N1	.50	N44	.89
N2	.58	N45	.80
N3	.64	N46	.90
N4	.33	N47	.91

Item No	Correlation	Item No	Correlation
N5	.40	N48	.59
N6	.46	N49	.88
N7	.69	N50	.80
N8	.81	N51	.79
N9	.81	N52	.80
N10	.50	N53	.92
N11	.40	N54	.90
N12	.75	N55	.87
N13	.50	N56	.74
N14	.62	N57	.56
N15	.45	N58	.86
N16	.53	N59	.53
N17	.58	N60	.87
N18	.48	N61	.77
N19	.68	N62	.78
N20	.47	N63	.80
N21	.65	N64	.83
N22	.81	N65	.78
N23	.71	N66	.82
N24	.58	N67	.73
N25	.72	N68	.75
N26	.78	N69	.17
N27	.78	N70	.21
N28	.52	N71	.17
N29	.69	N72	.16
N30	.58	N73	.74
N31	.80	N74	.67
N32	.56	N75	.73
N33	.54	N76	.66
N34	.80	N77	.15
N35	.89	N78	.47

Item No	Correlation	Item No	Correlation
N36	.90	N79	.64
N37	.82	N80	.58
N38	.86	N81	.55
N39	.29	N82	.37
N40	.36	N83	.31
N41	.22	N84	.55
N42	.49	N85	.67
N43	.32	N86	.08

p<.001

Table 1 reports correlation of each item (86) with total scale. It shows that 11 items, i.e., item numbers 4, 39, 41, 43, 69, 70, 71, 72, 77, 83 and 86 were not significantly related with the total scale at p<.001. High p value of the items should also be seen in relation with sample size in this case. High item total correlation on a number of items may be attributed to heterogeneity of the items included in the scale.

After excessive deliberation it was decided to keep 34 items and drop the rest of them. The items were grouped and named according to the represented factors. A group of five dimensions was named as emotional problems, problems with learning ability, problems related to sensory and motor impairment mental and physical in-coordination. In addition to these five factors another factor was added by including 12 items derived from Siddiqui and Shah Depression Scale (SSDI 1997). Items selected from SSDI pertained to four dimensions. However, these items were randomly included in our Neuropsychological

Impairment Scale with our own numbers. Finally a total of 46 items with 6 dimensions constituted the Neuropsychological Impairment Scale (NIS).

Reliability of Neuropsychological Impairment Scale

To test the reliability of 46 items of Neuropsychological Impairment Scale coefficient alpha was computed. A coefficient alpha of 0.95 indicated a significant high reliability of the scale.

Development of Family Support Scale (FS)

In order to measure the support given by the family to the stroke patients, items were constructed in the form of statements regarding family support. These items were derived from literature review, and researches available in this field and the interviews conducted with caregivers of the stroke patients of sample 1.

A total of 50 (mostly positive and some negative) items (Annexure IV) pertaining to different dimensions of family support to the stroke patient, such as help in physical activities, hygiene, cognition (mental state), recreation and moral support were constructed and were arranged on a 4-point Likert type scale. The categories of this scale were "never"(1), "some times"(2), "most of the time"(3), and "all the time"(4).

The following instructions were prepared for the items of family support. The stroke patients were first told about the utility of the study as pertaining to the development of a scale to understand the neuropsychological problems faced by a stroke patient and the role of family support in the improvement of their problems. Then they were instructed to read the given instructions.

"Purpose of this study is to understand the problems of stroke patients and prepare guidelines for the family to help the stroke patient and improve their condition while they are staying at home. In this regard we have prepared a questionnaire, which aims at knowing the type of support and assistance you got during your one-month stay at home.

The questionnaire contains a number of statements. You are requested to read each statement carefully and tell us to which extent these statements are applicable to you. For example, if your family members help you in getting up or lying down all the time: mark (/) in the box "all the time", If they never help you in getting up or lying down, mark (/) in the box "never". If they help you some times or most of the time, mark the appropriate boxes. You are requested to read each statement carefully one by one without skipping any item, and tell us to which extent these statements are applicable to you. Please fill the entire questionnaire". These instructions were in Urdu and were printed on the title page of the questionnaire (Annexure VI).

Those stroke patients or their family members who were illiterate or had difficulty in reading, were helped by the researcher by reading the statements and marking the appropriate response for them.

The score of 1 was assigned to "never", 2 to "some times", 3 to "most of the time" and 4 to "all the time". The scoring for negative items was reversed. The range for the scores was from 50 to 200.

Results

The data for family support items were analyzed for item total correlation to find out the appropriateness of the items for the scale.

Table 2

Item Total Correlation for items of Family Support items based on patinets responses, (N = 40)(items=50)

Item No	Correlation	P
F1	.18	.257
F2	.26	.098
F3	.42	.005
F4	.33	.032
F5	.29	.059
F6	.31	.049
F7	.34	.029
F8	.29	.068
F9	.47	.002
F10	.28	.072
F11	.19	.232
F12	.05	.742
F13	.29	.060
F14	.49	.001

Item No	Correlation	P
F15	.69	.000
F16	.65	.000
F17	.59	.000
F18	.74	.000
F19	.82	.000
F20	.54	.000
F21	.76	.000
F22	.50	.001
F23	.78	.000
F24	.74	.000
F25	.81	.000
F26	.87	.000
F27	.74	.000
F28	.76	.000
F29	.75	.000
F30	.88	.000
F31	.85	.000
F32	.80	.000
F33	.82	.000
F34	.68	.000
F35	.86	.000
F36	.85	.000
F37	.90	.000
F38	.91	.000
F39	.81	.000
F40	.89	.000
F41	.45	.003
F42	.91	.000
F43	.74	.000
F44	.88	.000

Item No	Correlation	P
F45	.84	.000
F46	.83	.000
F47	.91	.000
F48	.78	.000
F49	.85	.000
F50	.71	.000

$p < .05$

Table 2 shows item total correlation of items of family support.

Based on information gathered from the interviews with the professionals in neurological and medical field along with the data collected from stroke patients during the initial survey, 29 highly significant items pertaining to support in physical help, psychological and moral support and assistance in daily routine were included in the final Family Support Scale.

Reliability of Family Support Scale

To test the reliability of 29 items of family support scale coefficient alpha was computed. A coefficient alpha of 0.97 indicate a high reliability of the scale.

Development of Family Attitude Scale

Family attitude scale was developed to assess the attitude of the family towards the patient while he/she was staying at home. The items generated during the initial survey of the study from the family members of the stroke patients and taken from the literature and researches were used.

A set of 56 negative and positive items (Annexure VII) (each item was in form of a statement) was developed. These statements reflected the attitude of family members towards the stroke patient during their stay at home after family such as importance of the patient's life for the family, difficulty in managing his/her personal hygiene, difficulties in taking the patient to the doctor regularly, financial burden due to expensive treatment, helping the patient to regain mental and physical strength, attitude towards physical disability, induced stress due to the situation, sense of shame attached to the disability, emotional problems, problems in providing physiotherapy, preparing special diet, medication, and financial and moral support. These items were arranged on 5-point Likert type scale using the response categories and corresponding value of "absolutely wrong" (1), "wrong"(2),"neither wrong nor right"(3), "right"(4) and "absolutely right"(5).

Instructions were prepared for the family members of the patients. The criteria for the selection of the relatives were based on (1) who had the maximum contact with him/her during their ailment at the hospital or (2) during their stay at home. The family members were appraised about the study and its utility in helping stroke patients and their families and having better understanding of the problems associated with stroke. The set of items was given to the relatives of the patients and was asked to read the instructions carefully. The instructions were as follows:

"National Institute of Psychology, Quaid-i-Azam University conducts various researches for academic purposes. Present study is also a part of these researches. Purpose of this study is to understand the problems of stroke and prepare guidelines for the family to help the stroke patient improve while they are staying at home. Moreover we also want to know about the problems of the relatives of the stroke patients and how they cope with them. We have prepared a questionnaire, which aims at knowing the problems faced by family members of stroke patients and ways and means adopted by them to tackle these problems.

The questionnaire contains a number of statements. You are requested to read each statement carefully and tell us to which extent these statements are applicable to you. For example, if you always pray for the patient: mark (/) in the box of "absolutely right", If you never pray, mark (/) in the box "absolutely wrong", if you pray some times or most of the time, then mark the appropriate boxes. If you feel indecisive, mark (/) the box "neither wrong nor right". You are requested to read all the statements one by one without skipping any item, and fill the entire scale". These general instructions were (in Urdu) and were printed on the title page of the questionnaire (Annexure VIII).

For the scoring of responses 1 was assigned to "absolutely wrong", 2 to "wrong", 3 to "neither wrong, nor right", 4 to "right", and 5 to "absolutely right". In case of negative items the scoring was reversed. Sum of the scores was taken as the attitude shown by the family towards stroke patient. The range of the score was between 56 and 280.

The data were analyzed for the item-total correlation to find out the appropriateness of the items for the family attitude scale.

Table 3

Item Total Correlation total items of Family Attitude Scale (items = 56)(N =40)

Item No	Correlation	P
A1	.47	.002
A2	.09	.557
A3	.39	.012
A4	.69	.000
A5	.83	.000
A6	.57	.000
A7	.51	.001
A8	.15	.352
A9	.65	.000
A10	.63	.000
A11	.50	.001
A12	.72	.000
A13	.08	.611
A14	.83	.000
A15	.66	.000
A16	.53	.000
A17	.64	.000
A18	.75	.000
A19	.49	.001
A20	.45	.004
A21	.41	.008
A22	.67	.000
A23	.42	.006
A24	.72	.000
A25	.74	.000
A26	.41	.009
A27	.45	.004

Item No	Correlation	P
A28	.50	.001
A29	.20	.219
A30	.56	.000
A31	.11	.489
A32	.66	.000
A33	.81	.000
A34	.67	.000
A35	.49	.001
A36	.59	.000
A37	.80	.000
A38	.79	.000
A39	.68	.000
A40	.48	.002
A41	.12	.436
A42	.41	.009
A43	.57	.000
A44	.40	.011
A45	.54	.000
A46	.66	.001
A47	.44	.005
A48	.62	.000
A49	.58	.000
A50	.69	.000
A51	.50	.001
A52	.45	.003
A53	.64	.000
A54	.69	.000
A55	.46	.003
A56	.28	.077

$p < .05$.

Table 3 shows item total correlation of total items of family attitude. It indicates that out of 56 items seven items did not show a significant item total correlation. A set of 24 significant items (12 negative &12 positive) was selected for the final Family Attitude Scale used in the main study. The criteria for the selection of these 24 items of Family Support Scale was: (1) Those 24 items will be selected which are more related to the family attitude (having high face validity) and (2) The items who had the p value of more than .35. These 24 items pertained to the type of attitude the family members had regarding the patient's utility as a family member, the shame and guilt associated with having/carrying a disabled person with them and the disruption or management of their routine life due to the situation at hand. The items selected were numbers 5, 9, 10,12, 14, 16, 17, 18, 21, 22, 24, 27, 30, 33, 36, 38, 39, 40, 45, 46, 50, 53, 54, and 55.

Reliability of Family Attitude Scale

Coefficient alpha was performed on the 24 selected items of family attitude scale to determine the reliability of the scale. An alpha of 0.94 showed a high reliability of the scale.

Table 4

Coefficient Alpha Reliability for Neuropsychological Impairment Scale, Family Support Scale and Family Attitude scale

Scales	*Alpha*
NIS	.95
FS	.97
FA	.94

Main Study

The main study was conducted to investigate the role of family support and family attitude in the improvement of neuropsychological problems of stroke patients. Moreover, the main study examined the differences in the improvement of stroke patients of different gender, age, socio-economic level, and educational qualification.

Sample

The subjects were 50 stroke patients admitted in the Combined Military Hospital, Military Hospital of Rawalpindi and Pakistan institute of Medical Sciences Islamabad. The sample included only the stroke patients who could understand and respond. They included 21 female and 29 male patients in the age range of 20-50 years. These subjects were selected after they and their relatives agreed to participate in the study after being approached and requested by the researcher. The education of the subjects ranged from illiterate to post graduation. The income of the subjects ranged between nil to Rs. 4500/- and above per month.

The patients were assessed twice. The first assessment was done during their stay in the hospitals and the second was one month after the discharge from the hospitals.

Another sample of 50 subjects including 32 males and 28 females was included in this study who comprised of one member of the family belonging to each of the 50 patients who had been looking after the patients in the hospital and at home and also accompanied the patient during their out-patient visit at the hospital.

Instruments

The Following three instruments developed in the pilot study were used.

(1) Neuropsychological Impairment Scale

(2) Family Support Scale

(3) Family Attitude Scale.

A Bio-data form was also used to get information regarding age, sex, educational level and monthly income.

Neuropsychological Impairment Scale (NIS)

The Neuropsychological Impairment Scale used in the main study comprised of 46 items which were grouped in five dimensions and a sixth dimension of items pertaining to depression derived from Siddiqui and Shah Depression Scale, SSDS (1997). The dimensions and the items are as follow:

(1) Emotional problems (10 items) item numbers 19, 20, 21, 26, 27, 30, 31, 32, 33 and 34

(2) Learning problems (6 items): item numbers 4, 5, 7, 13, 15 and 16

(3) Sensory and motor problems (6 items): item numbers 14, 38, 40, 44, 45 and 46

(4) Concentration problems (8 items): item numbers 2, 3, 6, 8, 9, 10, 11 and 12

(5) Mental and physical in-coordination (4 items): item numbers 1, 17, 18 and 39

Items from Siddiqui-Shah (1977) Depression Scale, SSD (12 items): item numbers 22, 23, 24, 25, 28, 29, 35, 36, 37, 41, 42 and 43 (Annexure X).

Family Support Scale

The Family Support Scale used in the main study comprised of 29 items, 27 positive and two negative items (numbers 12 and 13) pertaining to physical, mental, and financial support of the patient. Items focused on dimensions related to help in learning, maintaining positive relations, hygiene and cleanliness of the patient, as well as providing them with assistance in physiotherapy and regular visits to the doctor were included in this scale (Annexure XIII).

Family Attitude Scale

Family Attitude Scale used in the main study consisted of 24 items. Out of these 24 items 12 items: item numbers 1, 3, 4, 5, 7, 8, 10, 14, 15, 20, 21 and 23 were negative and item numbers 2, 6, 9, 11, 12, 13, 16, 17, 18, 19, 22 and 24 were positive. The scale included dimensions which were related to the stroke patient's presence in the family and their effect on the home environment, sense of shame attached to having a disabled person at home, mental and financial burden due to the patient, keeping the hopes alive of the patient, including him/her in daily routine, and looking after the patient's hygiene and well being.

Procedure

The stroke patients admitted in the three above mentioned hospitals and their relatives were approached and were informed about the research. They were invited to participate in the research. The patients and relatives who agreed to participate in the research were included. The patients and the relatives were assured of the anonymity of the data. First the patient was briefed about the purpose of the study and then the questionnaire along with bio-data sheet was handed over to him/her. They were instructed to read the general instructions of the test battery and then fill their bio-data form. The instructions are as follows:

"National Institute of Psychology, Quaid-i-Azam University conducts various researches for academic purposes. Present study is also a part of these researches. Purpose of this study is to understand the problems faced by people after stroke and to prepare some guidelines for the families to manage these problems efficiently. We will give you a questionnaire in which problems faced by the stroke patients have been listed. Instructions and examples about the questionnaire are given also. You are requested to read each statement carefully and tell us to which extent these statements are applicable to you. For example, If you have headache, and the headache is all the time, then mark (/) in the box of "all the time", If you have never had headache, then mark (/) in the box "never", if you have headache some times or all the time, then mark the appropriate boxes. You are requested to read all the statements one by one without skipping any item and fill in the entire questionnaire".

The instructions were in Urdu and were printed on the title page of the questionnaire. In the case of the patients who could not read due to illiteracy or neurological deficit, the researcher stayed with the subject and read out each statement to the patient and checked in the appropriate box according to the appropriate answer. The time to fill in the scale was 20-30 minutes. This was the first administration of Neuropsychological Impairment Scale called as NIS1. After the completion of the bio-data form and the Neuropsychological Impairment Scale the researcher thanked the patients for their cooperation. The patients then were told about their participation in the study one month after their discharge from the hospital. They were told that the researcher will remain in contact with the doctor and the administration of the hospital and will note down the date of their discharge from the hospital. For the follow up of these patients their date of discharge from the hospital was secured. Their addresses were maintained by the researcher for future references and the treating neuro-physician was requested to call every patient as an out-patient for re-check-up exactly one month after his/her discharge from the hospital along with the family member. Once they reported to the hospital after the specified period they were again given the Neuropsychological Impairment Scale.

The second administration of Neuropsychological Impairment Scale was labeled as NIS2. The purpose of the second administration was to assess the improvement in neuropsychological problems of the patient's after one month stay at home with the family.

After completing the NIS2, the patients, were requested to respond to another questionnaire, named as Family Support Scale. They were told that the purpose of this questionnaire was to know what type of assistance they had received from the family members during one month stay at home. The instruction to complete this scale is as follows:

"Purpose of this study is to understand the problems of stroke patients and to prepare guidelines for the family how to help the stroke patient while they are staying at home. In this regard we have prepared a questionnaire, which aims at knowing the type of support and assistance you got during your one month stay at home.

The questionnaire contains a number of statements. You are requested to read each statement carefully and tell us to which extent these statements are applicable to you. For example, if your family members help you in getting up or lying down all the time: mark (/) in the box "all the time", If they never help you in getting up or lying down, mark (/) in the box "never". If they help you some times or most of the time, mark the appropriate boxes. You are requested to read each statement one by one carefully without skipping any item and to tell us to which extent these statements are applicable to you. Please fill the entire questionnaire". These instructions were in Urdu and were printed on the title page of the questionnaire.

After this the family member of the patient attending them was requested to fill in a questionnaire containing the following instructions.

"National Institute of Psychology, Quaid-i-Azam University conducts various researches for academic purposes. Present study is also a part of these researches. Purpose of this study is to understand the problems of stroke and prepare guidelines for the family to help the stroke patient improve while they are staying at home. Moreover we also want to know about the problems of the relatives of the stroke patients and how they cope with them. We have prepared a questionnaire, which aims at knowing the problems faced by the family members of the stroke patients and ways and means adopted by them to tackle these problems. The questionnaire contains a number of statements. You are requested to read each statement carefully and tell us to which extent these statements are applicable to you. For example, if you always pray for the patient: mark (/) in the box of "right", If you never pray, mark (/) in the box "wrong", if you pray some times or most of the time, then mark the appropriate boxes. If you feel indecisive, mark (/) the box "neither wrong nor right". You are requested to read all the statements one by one without skipping any item and fill the entire scale". These general instructions were in Urdu and were printed on the title page of the questionnaire.

Scoring of the scales

(1) Neuropsychological Impairment scale 1(NIS1) and 2 (NIS2)

Neuropsychological Impairment Scale (NIS) was scored on 4-point Likert Type Scale, giving the score of 1 to "never", 2 to "some times", 3 to "most of the time" and 4 to "all the time". Sum of the scores was obtained as overall neuropsychological impairment suffered by the stroke patient. Potential range of scores of NIS was between 46-184.

(2) Family Support Scale

Family Support Scale was also scored on 4-point Likert Type scale, with allocation of scores of 1 to "never", 2 to "some times", 3 to "most of the time" and 4 to "all the time". For two items which were negative the scoring was reversed from 4-1. Sum of the scores was obtained as an overall support shown by the family to its patient during his/her stay at home. Potential range of scores of Family Support Scale was between 29-116.

(3) Family Attitude Scale

Family Attitude Scale was scored on a 5-point Likert Type scale, with the allocation of I = "absolutely wrong", 2 = "wrong", 3 = "neither wrong nor right", 4 = "right" and 5 = "absolutely right". For negative items the scoring was reversed. Sum of the scores was obtained as overall support shown by the family to their stroke patient during his/her stay at home. Potential range of scores of Family Support Scale was between 24-120.

Results

The purpose of the analyses performed was to see the neuropsychological improvement in stroke patients because of family support and attitude. The analyses performed included the difference between first and second administration of NIS1 and NIS2. The difference was obtained by subtracting NIS2 from NIS1. Low and high groups were constituted on the basis of scores on NIS and were examined for improvement in neuropsychological impairment. Further low and high groups were formed on family support and family attitude and compared for their neuropsychological impairment scores. Moreover, correlational and regressional analyses were also performed.

The subjects were classified into different groups on the demographic variables of Age, education and income.

Table 1

Frequencies and percentage of Age, Education and Income for all the stroke subjects

Variable	*N*	*Percentage*
Age:		
20-29 Years	9	18%
30-39 "	21	42%
40-50 "	20	40%
Education:		
Nil	4	8%
Up-to 8th grade	18	36%
Up-to Matric	11	21%
College and above	17	34%
Income:		
Nil income	5	10%
Up to Rs.1500/-	13	26%
Rs.1501/-4500/-	15	30%
Rs.4501/- & above	17	34%

Table 1 shows the frequencies and percentage of demographic variables of the stroke patients. The age of the subjects was between 20-50 years. Age was categorized in three groups. Nine subjects (18%) had an age ranging between 20-29 years, twenty one subjects (42 %) were in the age group between 30-39 and 20 (40 %) were in the age group between 40-50 years.

Education of the patients was categorized in four groups. Out of 50, four subjects (8%) were either illiterate. Eighteen patients (36 %) had an education up to middle level. Eleven patients (21 %) were matriculates and seventeen patients (38 %) had education from college or had a qualification above college.

Income of the subjects ranged from those who had no income to income up to Rs 14000/- per month. The patients were divided into four income groups. Five subjects (10%) had no income at all. Thirteen subjects (26 %) had an income up to Rs 1500/- per month. Fifteen subjects (30 %) had an income ranging between Rs 1500-4500/- per month. Seventeen subjects (34 %) had an income of more than Rs 4500/- per month.

Frequencies and percentages were computed for the low and high groups on neuropsychological impairment score on first time and second time separately. The patients were divided on the basis of their total scores on NIS1 and NIS2. The potential range of the scores on Neuropsychological Impairment Scale is 46-184. The median score of the highest obtained score (130) and the lowest obtained score (46) is 89.5. Hence the score of 90 and below was categorized as the low group indicating less neuropsychological problems, whereas, the high group (91 & above) indicated more neuropsychological problems.

Table 2

Individual protocols of all the subjects for Gender, Age, Education, Income, Neuropsychological Impairment Scale's 1st and 2nd application, Difference between the two, Family Attitude and Family Support.

S.No	*Gender*	*Age*	*Educ*	*Income*	*NIS-1*	*NIS-2*	*NISD*	*Family Attitude*	*Family Support*
1	2	2	3	3	108	83	25	100	84
2	2	1	1	3	120	96	24	103	61
3	1	3	1	1	60	53	7	102	90
4	1	3	1	2	74	89	-15	88	49
5	1	3	1	2	62	48	14	100	86
6	1	2	0	1	106	91	15	102	83
7	1	1	2	3	121	57	64	96	83
8	1	2	2	3	102	59	43	93	84
9	1	1	1	2	90	53	37	108	93
10	1	1	2	2	120	70	50	110	83
11	1	2	3	3	121	59	62	98	86
12	1	3	3	2	82	48	34	100	84
13	1	3	1	1	63	46	17	98	92
14	2	2	1	1	73	52	21	117	85
15	2	2	1	1	75	54	21	116	94
16	2	3	1	1	117	109	8	94	86
17	2	2	0	0	71	56	15	112	95
18	2	2	1	1	106	92	14	103	89
19	2	3	1	1	49	46	3	108	89
20	2	3	1	0	101	129	-28	65	50
21	2	3	1	1	94	88	6	92	79
22	2	3	1	0	83	60	23	95	86
23	2	3	0	0	101	113	-12	74	54
24	2	3	1	1	117	127	-10	59	51
25	2	2	3	3	87	56	31	102	83
26	2	3	3	2	141	51	90	91	79
27	2	1	3	2	104	47	57	85	82
28	1	3	3	3	85	61	24	107	84
29	1	3	1	1	62	114	-52	70	49
30	1	2	3	3	120	54	66	94	85
31	1	2	2	2	130	46	84	98	75
32	1	2	3	3	81	117	-36	74	50
33	1	1	3	3	83	53	30	94	87
34	1	2	1	2	106	86	20	81	83
35	1	3	1	2	80	57	23	95	84
36	1	1	2	2	85	52	33	85	75

S.No	*Gender*	*Age*	*Educ*	*Income*	*NIS-1*	*NIS-2*	*NISD*	*Family Attitude*	*Family Support*
37	1	2	3	3	87	55	32	98	85
38	1	2	2	2	111	51	60	116	88
39	2	2	3	3	125	53	72	101	82
40	2	1	2	3	106	51	55	95	82
41	2	2	3	3	124	83	41	101	79
42	2	2	2	3	121	53	68	89	80
43	1	1	3	2	90	58	32	101	85
44	1	2	3	3	116	60	56	96	82
45	1	2	3	2	109	56	53	86	83
46	1	3	1	1	117	97	20	102	88
47	1	2	2	2	110	57	53	95	83
48	2	3	0	0	108	121	-13	82	56
49	1	3	2	2	95	55	40	97	83
50	1	3	3	3	89	77	12	104	87

Codes: Gender: male (1), female (2); Age in years: 20-29 (1), 30-39 (2); 40-50 (3); Education: nil (0), up-to 8th grade (1), up-to matric (2), college and above (3); Income: Nil income (1), up-to Rs. 1500/- (2), Rs. 1501/-4500/- (3), Rs. 4500/- & above (4).

The above table shows a positive difference between the scores of Neuropsychological Impairment Scale 1st application and Neuropsychological Impairment 2nd application for 43 subjects. Seven patients i.e., 4, 20, 23, 24, 29, 32 and 48 had a negative difference indicating deterioration in their neuropsychological make up. The highest positive difference was 90.00 and the lowest was 3.00. The highest negative difference obtained was -52 and the lowest was -10.

Table 3

Frequencies, Percentages, means and SD of low and high scorers obtained by the patients on Neuropsychological Impairment Scale during hospitalization (first administration)

Neuropsychological Impairment Scale first Administration	*N*	*(%)*	*Score range*	*M*	*SD*
Low Group (Fewer problems)	21	(42%)	90 & below	74.33	13.90
High Group (More problems)	29	(58%)	91 & above	112.69	10.89
Total	50	(100%)	46-184		

Table 3 shows that 21 patients (42%) were in the low group showing fewer neuropsychological problems whereas, 29 patients (58%) were in the high group showing more problems during their stay in the hospital at first administration of the Neuropsychological scale.

Table 4

Frequencies, Percentages, means and SD of low and high scorers obtained by the patients on Neuropsychological Impairment Scale after staying home for one month after discharge from the hospital (second administration NIS-2)

Neuropsychological Impairment Scale second administration(NIS2)	*N*	*(%)*	*Score range*	*M*	*SD*
Low Group (Fewer problems)	39	(78%)	90 & below	58.79	11.94
High Group (More problems)	11	(22%)	91 & above	109.64	13.12
Total	50	(100%)	46-129		

Table 4 shows 39 patients (78%) in the healthier group of NIS2, whereas 11 patients (22%) were in the more impaired group after their one month stay at home after discharge from the hospital.

Table 5

High and low scores and changes of NIS groups during home care

	NIS 1		
NIS 2	*Score < 90* *(fewer problems)*	*Score > 90* *(more problems)*	*Total*
fewer problems	19	20	39
more problems	2	9	11
Total	21	29	50

A comparison of frequencies and percentages of low and high groups in table 5 indicate an improvement in neuropsychological impairment of the patients after one month of discharge from the hospital. Out of 21 healthier patients 19 patients stayed healthy after one month stay at home after discharge from the hospital, whereas, 2 patients were more impaired during this period. Out of 29 patients who were impaired during hospitalization, 20 had improved during their stay at home and 9 showed lesser improvement during this period.

Family Support

Patients were divided in low and high groups on the basis of their scores on Family Support Scale. Median score of 83 and below was taken as low group and a score of 84 and above was taken as high group. Frequencies and percentages were computed for the low and high groups to see the extent of support given by the family members of the patient.

Table 6

Frequencies, percentages, means and SD of low and high groups of patients on Family Support

Family Support	*N*	*(%)*	*Score range*	*M*	*SD*
Low Group	26	(52%)	83 & below	72.26	13.80
High Group	24	(48%)	84 & above	87.3	3.33
Total	50	(100%)	29-116		

Results in table 6 shows that in family support sub groups 26 subjects had low score and 24 had high. The maximum score in low group was 83 and the maximum score in high group was 94.

Family Attitude

Caregivers of the stroke patients were divided in low and high groups on the basis of their scores on Family Attitude Scale. Median of the highest and lowest obtained score was taken as the cut off score. The caregivers scoring a total score of 97 and below were grouped as low group and those scoring 98 and above were categorized as high group. Frequencies and percentages were computed for the low and high groups to see the type of attitude shown by the family members of the patient.

Table 7

Frequencies, percentages, means and SD of low and high groups of family members on Family Attitude

Family Attitude	*N*	*(%)*	*Score range*	*M*	*SD*
Low Group	25	(50%)	97 & below	88.28	12.21
High Group	25	(50%)	98 & above	102.2	7.11
Total	50	(10%)	24-120		

Table 7 shows 25 caregivers (50%) had low score on Family Attitude Scale whereas 25 subjects (50%) had high score. The range of scores in two groups shows a scatter of scores which is 73 for the low group, whereas it is 18 for the high group indicating that the persons who have negative attitude towards the patients (low group) not only show their extreme dissatisfaction for their role as caregivers, and this wide scatter of their score can also be taken as an indicator of emotional instability and the amount of stress on the family members. Whereas for the high scoring group the low scatter of score shows not only the positive attitude towards the patient care, but also indicates their positive role identification as a care giver.

In order to find out improvement in the patients a difference score (NISD) was calculated by subtracting the scores of the patients on the second administration of the Neuropsychological Impairment Scale (after one month of discharge from the hospital) from the scores on the first administration of the scale during hospitalization. The difference was called as NIS-D that indicated the extent of improvement. If the difference was big, then it indicated a lot of improvement in the patient. If the difference was small, it indicated low improvement and a negative difference indicated deterioration in the condition of the patient. Based on these differences three groups of patients were built called as negative, low and high groups.

Table 8

Frequencies and percentages of high, low and negative groups on the difference between Neuropsychological Impairment Scale's first and second administration

Difference scores of NIS1 and NIS2 (NISD)	*N*	*(%)*	*Score range*
High Group	20	(40%)	33 & above
Low Group	23	(46%)	32 & below
Negative Group	7	(14%)	-1 & below
Total	50	(100 %)	

Table 8 shows that high group had 20 patients (40%), which implies that 40% of the patients showed considerable improvement one month after they were discharged from the hospital, whereas 23 patients (46%) had a low score indicating less improvement in their case one month after discharge from the hospital. Negative group (negative score) had 7 patients (14%) whose condition had deteriorated after one month after discharge from the hospital.

Table 9

One way ANOVA for three groups of difference score of Neuropsychological Impairment Scale.

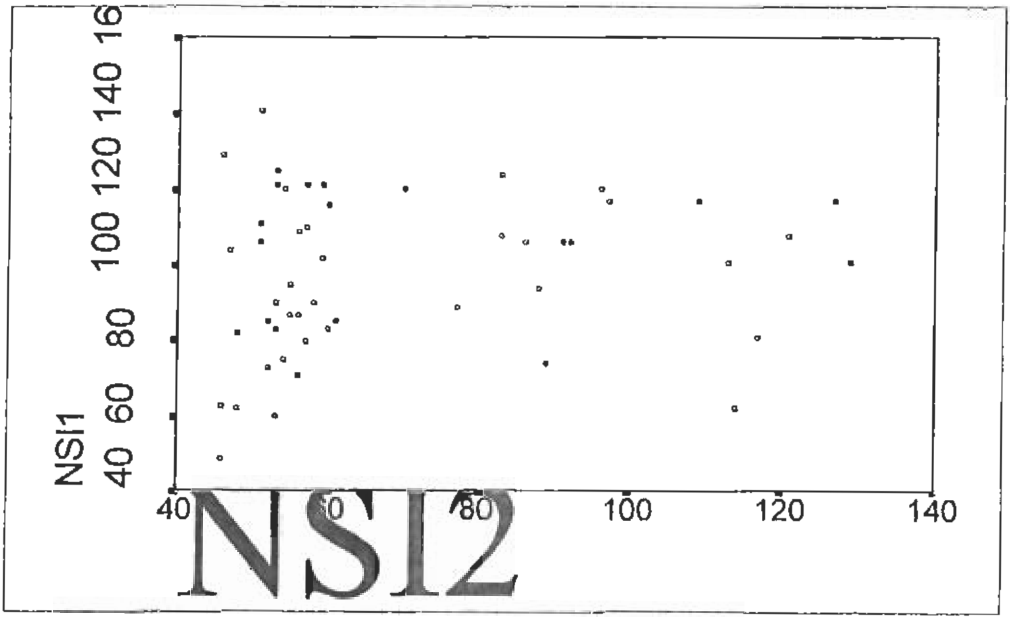
Source	df	Sum of squares	Mean of S	F
Between	2	24944.08	12472.04	96.96
Within	47	6045.60	128.63	

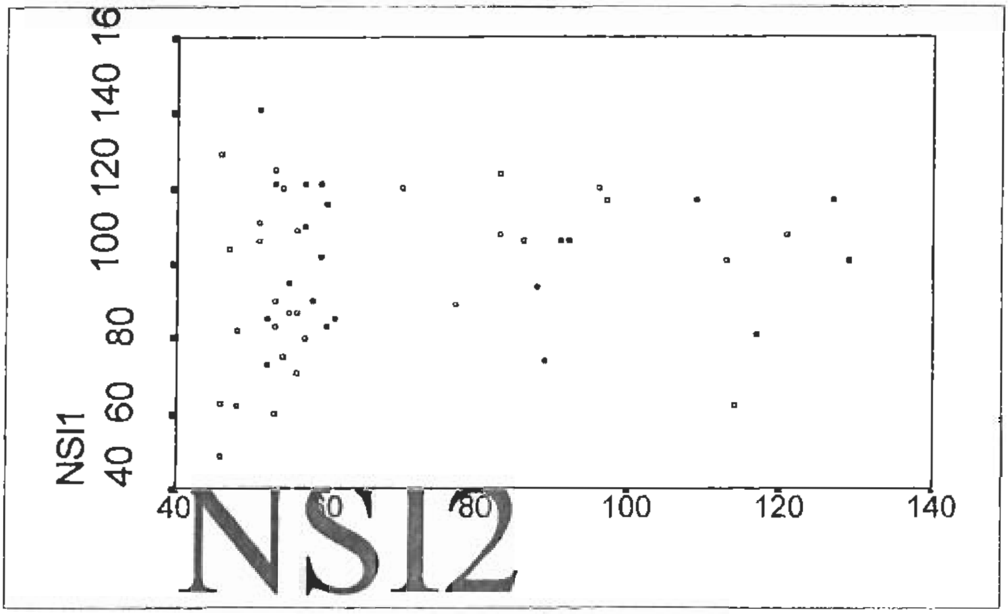
P<.0001

The result in table 9 shows a very significant F(96.96, *df* 2,47 *p*<.0001) indicating a significant difference between the three groups of scores on NISD.

Figure 1

Scatter Diagram of NIS1 and NIS2 scores for each patient





This Scatter Diagram shows the level of improvement and impairment of each patient on first and second administration of Neuropsychological Impairment Scale. It shows two cluster of patients. A cluster of 32 patients show high scores on NIS1, whereas, a group of 18 patients show a high score on NIS1 and NIS2 both. A high score on NIS1 and NIS2 indicate persistence on neuropsychological problems after one month stay at home after discharge from the hospital. Whereas, patients scoring high on first administration but scoring lower on second administration, shows an improvement during their stay at home. The diagram shows that out of the 18 patients in the second cluster 7 patients had deteriorated during their stay at home.

The mean difference scores on different dimensions of Neuropsychological Impairment Scale (NISD) were also taken to see the difference in the improvement of neuropsychological impairment of stroke patients on the six dimensions. Due to difference in number of items in each dimension, they were converted into percentages for comparison with the total score of NISD. The results indicated that maximum improvement (68%) was shown in mental and physical in-coordination, followed by improvement in emotional problems and depression (60%). Problems related to learning improved 57%, concentration problems 56%, whereas, sensory and motor problems improved 55%.

To find out the differences between the neuropsychological impairment of the patients during their stay at the hospital and one month after discharge from the hospital *t*-test for dependent groups was computed on the scores of patients on Neuropsychological Impairment Scales administered during hospitalization and one month after the discharge from the hospital.

Table 10

Mean, standard deviations and t-values of first and second administration of Neuropsychological Impairment Scale

Neuropsychological Impairment Scale (NIS)	*N*	*M*	*SD*	*t*
First administration (NIS-1)	50	97.74	21.12	6.57
Second administration(NIS-2)	50	69.98	24.59	

df = 49, *P* < .0001.

The results in table 10 indicate a highly significant difference between the neuropsychological impairment scale of the patients on two occasions (t (49) = 6.57, *p<.0001*). The *mean* neuropsychological impairment score of the patients on first administration was 97.74, (*SD* = 21.12), where as it was 69.98 (*SD* = 24.59) on the second administration. This indicates that the mean score of the patients on the Neuropsychological

Impairment Scale one month after discharge from the hospital indicated an overall improvement of the patients.

In order to find out whether there was a difference in the improvement of neuropsychological impairment of stroke patients because of support of their family members a *t*-test for independent samples was performed between the low family support and high family support groups of stroke patients on their scores of second administration of neuropsychological impairment scale (NIS2).

Table 11

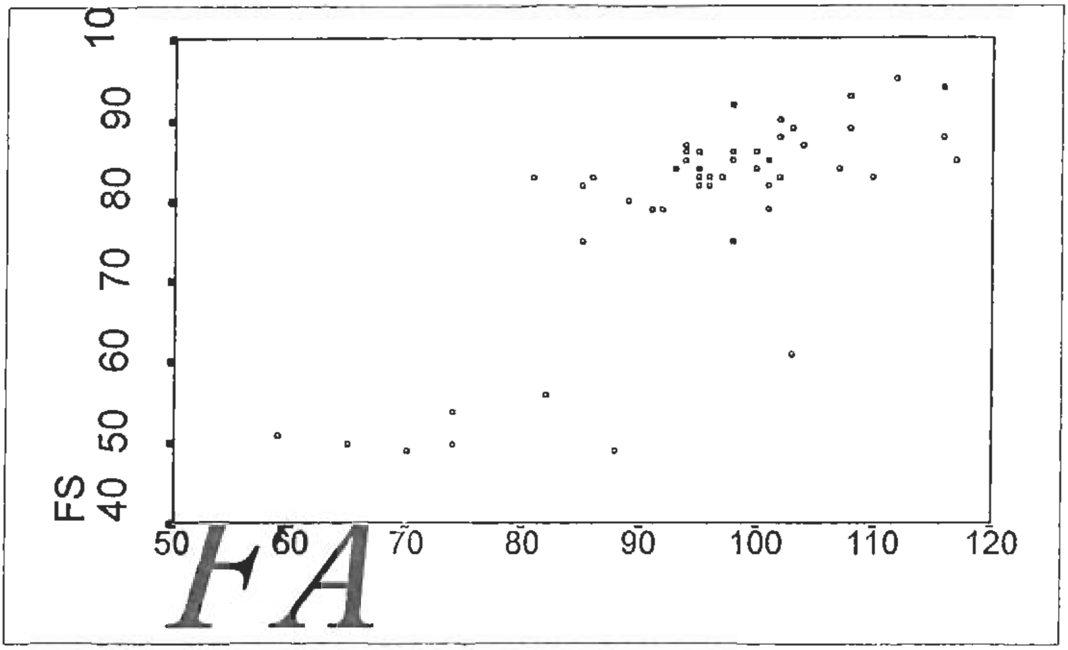
Means, standard deviations and t-valve of low and high Family Support groups on the scores of second administration of Neuropsychological Impairment Scale (NIS2) one month after discharge from the hospital

	Neuropsychological Impairment Scale (NIS-2)			
Family Support	*N*	*M*	*SD*	*t*
Low group	26	77.61	28.16	2.40
High group	24	61.70	16.99	

df = 48, p<.02

The results in table 11 indicate a significant difference between the low family support and high family support groups (*t* (48) = *2.40, p<.02*). The mean of NIS-2 on high family support group was 61.70, (*SD* = 16.99), whereas the mean impairment score of low group was 77.61 and (*SD* = 28.16). The lower NIS-2 mean score of high family support group indicates family support to the stroke patients after one month discharge from the hospital.

To see the effect of family support and family attitude on improvement of stroke



patients a Scatter Diagram for individual patients was made.

Figure 2

Scatter Diagram for individual scores of Family Support Scale and family Attitude scale.

The Diagram shows that higher the family support more positive is the family attitude. It shows a cluster of 7 patients who were low on family higher is the family attitude.

For further analysis three groups of NISD scores group 1 (showing over all improvement) and group 2; negative group, (who had low improvement during their stay at home) and group 3; (who deteriorated during stay at home) were found. In order to see and compare the impact of family support on the negative and positive groups, the total mean score of the Family Support Scale was taken as the reference point and was compared with the mean score of family support scores of the negative and positive groups. The results showed that the mean score of Family Support was 74.38. The negative group (N=7) had a mean score of 50.42, which is much lower than the mean score of the total scale. Positive group (N=20) which had shown improvement had a mean score of 78.27 which is higher than the mean score of the total Family Support Scale showing a positive role of family support in improvement of neuropsychological impairment of the stroke patients. The results also indicate that the deterioration in the negative group can be attributed to low family support of the stroke patients, whereas improvement in the neuropsychological impairment can be the result of higher support extended by the family during the patient's stay at home.

Table 12

Mean and standard deviation of negative, low and high groups of the difference between 1st and 2nd application of Neuropsychological Impairment Scale (NISD) on the scores of Family Support.

NISD	Negative (n=7)		low (n=23)		High (n= 20)	
	M	*SD*	*M*	*SD*	*M*	*SD*
Family Support	51.28	2.69	85.43	6.50	82.55	4.03

Negative group of the NISD on scores of Family Support had a mean score of M = 51.28, *SD* = 2.69. Low group had M = 85.43, *SD* = 6.50. The high group had M = 82.55, *SD* = 4.03.

T-test for independent groups was computed between the less positive family attitude (low group) and high positive family attitude (high group) groups of stroke patients on their scores of second administration of Neuropsychological Impairment Scale (NIS2). The aim of this analysis was to determine the effect of family member's attitude towards the patients in their improvement of neuropsychological problems. It should be noted that family attitude scale was administered to the relatives of the patients mostly attending them.

Table 13

Mean, standard deviations and t-value of low and high family attitude groups on the scores of second administration of Neuropsychological Impairment Scale (NIS2) one month after discharge from the hospital

	Neuropsychological Impairment Scale (NIS-2)			
Family Attitude	*N*	*M*	*SD*	*t*
Low group (Negative)	25	75.50	29.08	1.68
High group (Positive)	25	64.01	17.24	

df = 48, *p* = .n.s.

The results in table 13 indicates no significant difference between the neuropsychological impairment scores of low family attitude and high family attitude groups (*t* (48) = 1.68, *p* = .n.s). The *mean* Neuropsychological Impairment Score of low family attitude group was 75.50, (*SD* = 29.08), whereas the mean impairment score of high group was 64.01, (*SD* = 17.24) respectively. Although, the mean impairment score of high family attitude group is lower than the low family attitude group indicating improvement, but it is not statistically significant. These findings indicate that the family's positive attitude towards patient's prognosis (improving neuropsychological functioning) is not significantly related to improvement in their neuropsychological functioning.

Table 14

Means and standard deviations for four groups of income on the difference scores of first and second administration of Neuropsychological Impairment Scale (NISD).

	Income							
Variable	*Nil* *(N= 5)*		*Upto 1500* *(N=13)*		*1500-4500* *(N=15)*		*4500 and above* *(N=17)*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
NISD	-3.00	21.24	6.46	19.59	43.33	25.60	39.35	26.89

In table 14 NISD scores of the first group (stroke patients with no income) indicated a *Mean* score = 3.00.Group 2 (patients with income of Rs. nill to 1500/-) had a *mean* score = 6.46 , group 3 (patients with income ranging between 1500/-4500/-) had a *mean* score = 43.33 , whereas group 4 (patients with income of 4500/- and above) had a *mean* score = 39.35. The results indicate that group 3 had the highest mean score indicating an improvement followed by group 4. The mean score of group 1 shows that patients with no income improved the least.

The above mentioned results are supported by comparison of mean scores of the income of the patients who had deteriorated with those who had shown improvement in the neuropsychological impairment during their post stroke one month stay at home. The mean income of the two groups was 3602.00, the group of patients who had deteriorated had a mean score of 1857.14, whereas the group who had shown improvement had a mean score of 3886.05. The results indicate a positive role played by income of the patient in improvement of the stroke patient, whereas the low income may be involved in deterioration of stroke patient.

One Way Analysis of Variance (ANOVA) was performed for four categories of income on the difference scores i.e., NISD to see the difference in the improvement of patients belonging to different socioeconomic groups.

Table 15

One Way Analysis of Variance (ANOVA) for four groups of income on the difference scores between the first and the second administration of Neuropsychological Impairment Scale (NISD)

Sources of Variance	*Sum of squares*	*df*	*Mean square*	*F*
Main Effect	16550.67	3	5516.89	9.34
Residual	27164	46	590.53	
Total	43715.12	49	92.14	

df=49, p<.01

The results of ANOVA in table 15 indicate a highly significant effect *F* (3,46) = 9.34, *p*<.01, for different income groups on the difference score of first and second administration of Neuropsychological Impairment Scale (NISD). This indicates a significant relation between the four income groups of stroke patients and their improvement after one month of stay at home since their discharge from the hospital.

Table 16

Means and standard deviations for four groups of income on the difference Family Support.

	Income in Rs							
Variable	*Nil* (n=5)		*Upto 1500* (n=13)		*1500-4500* (n=15)		*4500 and above* (n=17)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Family Support	68.20	20.71	81.61	14.55	80.6	9.8	80.23	9.75

One Way Analysis of Variance (ANOVA) was performed for four groups of income of the stroke patients on the scores of family attitude. Purpose of this analysis was to find out the difference in the attitude of the family members of the patients belonging to different income groups.

Table 19

One Way Analysis of Variance (ANOVA) of four groups of income of the stroke patient and the family attitude shown by the family to the patient

Sources of Variation	*Sum of squares*	*df*	*Mean square*	*F*
Main Effect	553.43	3	184.47	1.23
Residual	6894.88	46	149.88	
Total	7448.32	49	152.00	

df = 49, p = n.s

The results in table 18 and 19 indicate least difference in mean scores and *SD* for the four income groups and family attitude and a non-significant F(3,46) = 1.23, p = n.s. These findings suggest that the attitude of the family members of stroke patients is not influenced by the income of the patient.

Table 20

Mean and standard deviations for four groups of education on the scores of difference of first and second administration of Neuropsychological Impairment Scale

	Education							
Variable	Nil (N=4)		Up-to 8grade (N=18)		Up-to Matric (N=11)		College & above (N=17)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
NIS-D	1.25	15.88	6.44	20.6	53.27	14.94	40.08	28.26

The NISD scores indicates the highest improvement score of *M* = 53.27, (*SD* = 14.94) for the group of matriculate patients. (category 2), followed by the mean scores of 40.08, (*SD* = 28.26) for the college and above educated group (category 3). The least improvement is indicated in the case of patients nil education (category 0) with mean = 1.25, (*SD* = 15.88) and patients with education up to 8th grade (category 1), i.e., mean = 6.44, (*SD* = 20.6).

One Way Analysis of Variance (ANOVA) was performed for four categories of education on the scores of NISD. The aim of this analysis was to assess the difference in the improvement of neuropsychological impairment of stroke patients with different educational qualifications.

Table 21

One Way Analysis of Variance (ANOVA) for education on the difference scores of first and second administration of Neuropsychological Impairment Scale (NISD) on four categories of education

Sources of Variance	*Sum of squares*	*df*	*Mean square*	*F*
Main Effect	20873.12	3	69575.70	14.01
Residual	22841.99	46	496.56	
Total	73715.12	49	892.14	

df=49, p<0.001

The results in table 21 show a highly significant main effect *F* (3,46) = 14.01, *p*<0.001, for education on NISD.

Table 22 and 23 shows the results of ANOVA on the scores of family support for patients belonging to four educational categories. Results show a non- significant effect *F* (3,46) = .55, *P* = n.s. Patients education is not associated with how their families support them. However the means scares of third and fourth group are higher than first and second group showing more effect of higher education on family support.

Table 24

Mean and standard deviations for four groups of education on the scores of Family Attitude

	Education							
Variable	*Nil* (*n=4*)		*Up-to 8th grade* (*n=18*)		*Up-to matric* (*n=11*)		*College & above* (*n=17*)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Family Attitude	92.50	17.54	93.77	16.09	98.36	9.29	96.0	8.19

The educational category 1 i.e., families of matriculate patients had the highest mean = 98.36, (*SD* = 9.29). Patients with college and above qualification (category3) had the mean attitudinal score = 96 (*SD* = 8.19), followed by educational category 2 with a mean score of 93.77, (*SD* = 16.09). The mean score of category 0 was 92.50, (*SD* = 17.54). This shows that family attitude was least favourable toward patients who had nil education.

One Way Analysis of Variance was performed for four educational categories on the scores of family attitude. This analysis was done to find out the difference in the attitude of family members toward the patients with different educational qualifications.

Table 22

Mean and standard deviations for four groups of education on the scores of Family Support.

	Education							
Variable	*Nil* *(n=4)*		*Up-to 8th grade* *(n=18)*		*Up-to matric* *(n=11)*		*College & above* *(n=17)*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Family Support	72.00	20.24	77.27	16.65	82.63	5.12	81.58	8.46

The results in table 22 shows that matriculate patients had the highest mean =82.63, (*SD* = 5.12) indicating that maximum support was given to them by their family members. The least support was received by illiterate patients, i.e., mean = 72, (*SD* = 20.24).

One Way Analysis of Variance (ANOVA) was performed for four categories of education on the scores of family support. The purpose of this analysis was to determine whether the patients with different educational qualifications receive different family support.

Table 23

One Way Analysis of Variance (ANOVA) for four categories of education of the stroke patient on the scores of Family Support Scale

Sources of Variance	*Sum of squares*	*df*	*Mean Square*	*F*
Main Effect	217.86	3	72.62	.55
Residual	6021.91	46	130.91	
Total	6239.78	49	127.34	

df=49, p = n.s

Table 25

One Way Analysis of Variance (ANOVA) for four categories of education of the stroke patient on the scores of Family Attitude.

Sources of Variance	*Sum of squares*	*df*	*Mean Square*	*F*
Main Effect	293.31	3	97.62	4.21
Residual	1068.36	46	23.22	
Total	1361.68	49	27.78	

df=49, p<.01

The results in table 24 and 25 show a highly significant difference in the attitude of the family members towards the patients of varying educational qualifications, *F* (3,46) = 4.21, *p*<.01 which implies that the attitude of the family members of the patients was different toward the patients with different educational qualifications. The comparison of mean attitudinal scores toward the patients of different educational qualifications are, however, against our expectations.

Table 26

Mean and standard deviations of 3 categories of age of patients on the difference score of first and second administration of Neuropsychological Impairment Scale.

	Age in Years					
Variable	*20-29 Year (n=9)*		*30-39 Year (n=21)*		*40-50 Year (n=20)*	
	M	*SD*	*M*	*SD*	*M*	*SD*
NIS-D	42.44	14.20	38.8	27.37	9.55	29.00

Subject with age group ranging between 20-29 years had a mean score = 42.44, *SD* = 14.20 for NISD. Subjects with age group ranging between 30-39 years had a mean score = 38.8 , *SD* = 27.37, whereas, Subjects with age group ranging between 39-40 years had a mean score = 9.55 and *SD* = 29.

One Way Analysis of Variance (ANOVA) was performed for three categories of age on the scores of NI*SD*. The purpose of this analysis was to find out the extent of improvement in the neuropsychological impairment of patients of different age groups.

Table 27

One Way Analysis of Variance (ANOVA) for three categories of age of the stroke patient on the difference scores of first and second administration of Neuropsychological Impairment Scale (NISD)

Sources of Variance	*Sum of squares*	*df*	*Mean score*	*F*
Main Effect	11136.71	2	5568.35	8.03
Residual	32578.41	47	693.15	
Total	43715.12	49	892.14	

df=49, p<0.001.

The results in table 27 shows a highly significant difference in the NISD scores of patients of different age groups *F* (2,47) = 8.03, *p*<.001.

Table 28

Mean and standard deviations of 3 categories of age of patients on the scores of Family Support Scale.

	Age in Years					
Variable	*20-29 Year (n=9)*		*30-39 Year (n=21)*		*40-50 Year (n=20)*	
	M	*SD*	*M*	*SD*	*M*	*SD*
Family Support	81.22	8.95	82.76	8.74	75.30	16.34

Results in table 28 show patients with age group ranging between 20-29 years had a mean score = 81.22, *SD* =8.95 for family support. Subjects with age group ranging between 30-39 years had a mean score = 82.76 , *SD* = 8.74, whereas, Subjects with age group ranging between 39-40 years had a mean score = 75.30 and *SD* = 16.34 indicating the highest mean for age group of 30-39 years.

One Way Analysis of Variance (ANOVA) was performed for three categories of age on the scores of Family Support Scale to find out if the support of family members of stroke patients is different towards the patients belonging to different age groups.

Table 29

One Way Analysis of Variance (ANOVA) for three categories of age of the stroke patient on the scores of Family Support

Sources of Variation	*Sum of squares*	*df*	*Mean Square*	*F*
Main Effect	602.93	2	301.46	1.95
Residual	72427.56	47	154.20	
Total	7850.50	49	160.21	

df=49, p = n.s

Results in table 29 show a non significant difference between the three categories of age group on the family support scores, F (2,49) = 1.95, *p* = n.s.

Table 30

Mean and standard deviations of 3 categories of age of patients on the scores of Family Attitude Scale.

	Age in Years					
Variable	*20-29 Year (n=9)*		*30-39 Year (n=21)*		*40-50 Year (n=20)*	
	M	*SD*	*M*	*SD*	*M*	*SD*
Family Attitude	97.44	8.95	98.66	10.99	91.55	14.07

Table 30 shows patients with age group ranging between 20-29 years had a mean score = 97.44, *SD* =8.95 for family attitude support. Subjects with age group ranging between 30-39 years had the highest mean score = 98.66 , *SD* = 10.99, whereas, Subjects with age group ranging between 39-40 years had a mean score = 91.55 and *SD* = 14.07.

In order to find out the difference in the attitude of family members toward stroke patients in different age categories One Way Analysis of Variance (ANOVA) was performed for three categories of age on the scores of family attitude.

Table 31

One Way Analysis of Variance (ANOVA) for three categories of age of the stroke patient on the scores of Family Attitude.

Sources of Variance	*Sum of squares*	*df*	*Mean Square*	*F*
Main Effect	622.88	2	311.44	2.14
Residual	6825.43	47	145.22	
Total	7448.32	49	152.00	

df=49, p = n.s

The results in table 31 show a non significant effect *F* (2,47) = 2.14, *p* = n.s This means that the attitude of the family members was not different toward the patient of different age.

A *t*-test for independent groups on NISD scores of the patients was performed to find out if male and female patients differed in the improvement of neuropsychological problems.

Table 32

Means, standard deviations and t-value of male and female stroke patients on difference scores of first and second administration of Neuropsychological Impairment Scale (NISD)

Difference scores between first & second administration of Neuropsychological Impairment Scale *(NISD)*	*N*	*M*	*SD*	*t*
Men	29	31.10	24.04	.82
Women	21	29.40	30.99	

df 48, p = n.s

The results in table 32 indicate that there was no significant difference in the NISD scores of men and women stroke patients *t (48)* = .82, *p* = n.s. This means that male and female patients did not differ in the improvement of neuropsychological problems after stroke. However, the improvement mean score of male patients was higher (M = 31.10) than the female patients (M = 24.4).

Results regarding difference in improvement of neuropsychological problems in gender was also supported also by comparison of the percentage of male and female stroke patients who had improved with those patients who had shown deterioration during their stay at home. The results showed that 43% of male stroke patients had shown deterioration as compared to 57 % of females, whereas 60.5% of males had improved compared to 39.5 % of females stroke patients.

T-test for independent samples was performed between the men and women stroke patients on the scores of Family Support Scale to see whether the family support was gender specific.

Table 33

Means, standard deviations and t-value of male and female stroke patients on the scores of Family Support Scale (one month after discharge from the hospital)

	Family Support Scale			
	N	*M*	*SD*	*t*
Men	29	81.00	11.58	.98
Women	21	77.43	4.03	

df 48, p = n.s

The results in table 33 indicate that there was no significant difference between the Family Support Scores of men and women stroke patients $t = (48) = .98$, p = n.s). It implies that family members of the stroke patients extend support to their patients irrespective of their gender. The fact of non-significance means that the true difference between male and female may likely be zero.

In order to determine whether there is any difference in the attitudes of family members toward the male and female stroke patients, *t*-test for independent samples was performed on the scores of Family Attitude Scale of male and female stroke patients.

Table 34

Means, standard deviations and t-value of male and female stroke patients on the scores of family attitude reported by the caregivers of the stroke patients (one month after discharge from the hospital

	Family Attitude Scale			
	N	*M*	*SD*	*t*
Men	29	96.13	9.99	.47
Women	21	94.47	15.19	

df 48, p = n.s

The results in table 34 indicate a non significant difference in the attitude of family members toward men and women stroke patients. (t = (48) = .47, p = n.s.). The mean score for male patients on family attitude was 96.13, whereas mean score for female patients on family attitude was 94.47.

Multiple Regression Analysis

Multiple Regressional Analysis was performed to determine the importance of different variables in the improvement of stroke patients. The variables of the study i.e., age, income, education, family attitude, family support and gender were regressed on the difference score of first and second administration of Neuropsychological Impairment Scale (NISD) as dependent criterion.

Table 35

Multiple Regression for Age, Income, Gender, Education, Family Support and Family Attitude on the difference scores of first and second administration of Neuropsychological Impairment Scale (NISD)

Multiple R = .80288
R square = .64461
Adjusted R square = .58538
Standard error = 19.30978

Analysis of variance	*df*	*Sum of squares*	*Mean square*
Regression	7	28405.57385	4057.93912
Residual	42	15660.44615	372.86777

F = 10.88 Significance of *F* = .0001

Variables	*B*	*SE B*	*Standardized Beta*	*T*	*sig T*
Income	13.75	6.69	.40	2.04	.04
Gender	6.88	7.46	.11	.92	.36
Age	-.63	.48	-.15	-1.31	.19
Education	2.10	4.48	.08	.47	.64
FS	1.22	.35	.51	3.45	.001
FA	-.09	.35	-.03	-.25	.79

The analysis in table 35 shows a highly significant *F* value for the multiple regression *F*(7,42) = 10.88, $p<.0001$. The analysis shows that beta weights for income (*beta* = 0.40, $p<.04$) and family support (*beta*=0.51, $p<.001$) were significantly related to the dependent variable i.e., the difference score of first and second administration of Neuropsychological Impairment Scale (NISD). The beta weights of all other variables were non significant. This indicates that family support and socio-economic status of patients was the most contributing factors in the improvement of neuropsychological problems of stroke patients. While income and education reflect pre-stroke status, family support was measured simultaneously with NIS2 and hence we don't know its true sequence.

Inter correlations were computed between the difference scores of first and second administration of neuropsychological impairment scale (NISD) and family support, family attitude, age of the patients, education of patients and income of the patients. The aim of these correlational analyses was to find out the extent of relationship among the variables, especially between the improvement (NISD) and other variables.

Table 36

Correlation between difference scores of first and second administration of Neuropsychological Impairment Scale (NISD), Family Support and Family Attitude, age, education and income of the stroke

Variables	FS	FA	Age	Education	Income
NISD	.55****	.10	-.56****	.46**	.46**
FS	-	.77****	-.32*	.11	.10
FA	-	-	-.26*	.08	.10
Age	-	-	-	-.29*	-.35**

*$p<.05$, **$p<.01$, ***$p<.001$, ****$p<.0001$

Results in table 34 show a highly significant positive relationship between the difference scores of first and second administration of Neuropsychological Impairment Scale (NISD) and family support, r = 0.55, *p*<.0001. These findings show that family support variable is directly related to the patient's improvement. The more the support was extended by the family to the patient the more was the improvement in the condition of the patient.

There was a positive and a highly significant correlation between NISD and education of the patients, *r* = .46, *p*<.01. These findings suggest that educated patients show greater improvement.

There was a highly significant correlation r = .46, *p*<.01, between NISD and income of the patients. These findings suggest that more the income of the patients the greater was the improvement in the neuropsychological impairment.

Findings also suggest a highly significant positive correlation between family attitude and family support, *r* (48) = 0.77, *p* = .0001. This shows that if the attitude of the family members is positive towards the patients, then they give every possible support to the patient.

There were also some negative correlations between different variables. A non significant correlation was found between NISD and the attitude of the family, r = .10, p = n.s. This suggests that attitude of the family members towards a patient and neuropsychological improvement of the patient are not related.

The results indicate a highly significant negative correlation between the difference scores of NISD and the age of the patients, *r* (48) = -0.56, *p* = .0001. This implies that the older patients had lesser improvement in their neuropsychological impairment especially after the age of 40 years. There was also a significant negative correlation between the age of the patients and the family support, *r* (48) = -.32, *p* = .02. This suggests that more the age of the stroke patients, the lesser was the support extended to them by their family members. All other correlations were not significant.

In order to determine whether there is any difference in the attitudes of family members toward the male and female stroke patients, *t*-test for independent samples was performed on the scores of Family Attitude Scale of male and female stroke patients.

Table 34

Means, standard deviations and t-value of male and female stroke patients on the scores of family attitude reported by the caregivers of the stroke patients (one month after discharge from the hospital

	Family Attitude Scale			
	N	*M*	*SD*	*t*
Men	29	96.13	9.99	.47
Women	21	94.47	15.19	

df 48, p = n.s

The results in table 34 indicate a non significant difference in the attitude of family members toward men and women stroke patients. (t = (48) = .47, p = n.s.). The mean score for male patients on family attitude was 96.13, whereas mean score for female patients on family attitude was 94.47.

Multiple Regression Analysis

Multiple Regressional Analysis was performed to determine the importance of different variables in the improvement of stroke patients. The variables of the study i.e., age, income, education, family attitude, family support and gender were regressed on the difference score of first and second administration of Neuropsychological Impairment Scale (NISD) as dependent criterion.

Table 35

Multiple Regression for Age, Income, Gender, Education, Family Support and Family Attitude on the difference scores of first and second administration of Neuropsychological Impairment Scale (NISD)

Multiple R = .80288
R square = .64461
Adjusted R square = .58538
Standard error = 19.30978

Analysis of variance	*df*	*Sum of squares*	*Mean square*
Regression	7	28405.57385	4057.93912
Residual	42	15660.44615	372.86777

F = 10.88 Significance of *F* = .0001

Variables	*B*	*SE B*	*Standardized Beta*	*T*	*sig T*
Income	13.75	6.69	.40	2.04	.04
Gender	6.88	7.46	.11	.92	.36
Age	-.63	.48	-.15	-1.31	.19
Education	2.10	4.48	.08	.47	.64
FS	1.22	.35	.51	3.45	.001
FA	-.09	.35	-.03	-.25	.79

The analysis in table 35 shows a highly significant *F* value for the multiple regression $F(7,42) = 10.88$, $p<.0001$. The analysis shows that beta weights for income (*beta* = 0.40, $p<.04$) and family support (*beta*=0.51, $p<.001$) were significantly related to the dependent variable i.e., the difference score of first and second administration of Neuropsychological

Impairment Scale (NISD). The beta weights of all other variables were non significant. This indicates that family support and socio-economic status of patients was the most contributing factors in the improvement of neuropsychological problems of stroke patients. While income and education reflect pre-stroke status, family support was measured simultaneously with NIS2 and hence we don't know its true sequence.

Inter correlations were computed between the difference scores of first and second administration of neuropsychological impairment scale (NISD) and family support, family attitude, age of the patients, education of patients and income of the patients. The aim of these correlational analyses was to find out the extent of relationship among the variables, especially between the improvement (NISD) and other variables.

Table 36

Correlation between difference scores of first and second administration of Neuropsychological Impairment Scale (NISD), Family Support and Family Attitude, age, education and income of the stroke

Variables	FS	FA	Age	Education	Income
NISD	.55****	.10	-.56****	.46**	.46**
FS	-	.77****	-.32*	.11	.10
FA	-	-	-.26*	.08	.10
Age	-	-	-	-.29*	-.35**

*$p<.05$, **$p<.01$, ***$p<.001$, ****$p<.0001$

Results in table 34 show a highly significant positive relationship between the difference scores of first and second administration of Neuropsychological Impairment Scale (NISD) and family support, r = 0.55, $p<.0001$. These findings show that family support variable is directly related to the patient's improvement. The more the support was extended by the family to the patient the more was the improvement in the condition of the patient.

There was a positive and a highly significant correlation between NISD and education of the patients, $r = .46$, $p<.01$. These findings suggest that educated patients show greater improvement.

There was a highly significant correlation r = .46, $p<.01$, between NISD and income of the patients. These findings suggest that more the income of the patients the greater was the improvement in the neuropsychological impairment.

Findings also suggest a highly significant positive correlation between family attitude and family support, r (48) = 0.77, p = .0001. This shows that if the attitude of the family members is positive towards the patients, then they give every possible support to the patient.

There were also some negative correlations between different variables. A non significant correlation was found between NISD and the attitude of the family, r = .10, p = n.s. This suggests that attitude of the family members towards a patient and neuropsychological improvement of the patient are not related.

The results indicate a highly significant negative correlation between the difference scores of NISD and the age of the patients, r (48) = -0.56, p = .0001. This implies that the older patients had lesser improvement in their neuropsychological impairment especially after the age of 40 years. There was also a significant negative correlation between the age of the patients and the family support, r (48) = -.32, p = .02. This suggests that more the age of the stroke patients, the lesser was the support extended to them by their family members. All other correlations were not significant.

Chapter III

DISCUSSION

The major aim of the study was to find out the role of family support and attitude of the family members in the improvement of neuropsychological problems of the stroke patients. Moreover the study investigated the differences and the extent of improvement in male and female stroke patients with different educational qualifications and belonging to different socio- economic statuses and age groups.

It was hypothesized that stroke patients supported by the families in the management of their problems will show more improvement than those supported by their families to a lesser extent. It was also hypothesized that more the favourable attitude of family members toward the patient the more will be the improvement. It was further assumed that educated patients and/or with higher income will manage their problems better and will show more improvement. It was expected that male patients will show more improvement than female patients.

The results indicated an overall improvement in our sample of stroke patients. Out of the total sample, 86 % improved i.e., showed improvement in the neuropsychological problems, Whereas, 14% deteriorated. However, majority of the stroke patients showed improvement with healthy prognostic signs.

The main hypothesis of our study regarding the improvement of patients associated with support of the family members was confirmed. The results indicated considerable improvement in the neuropsychological problems of the patients who received more support from their family members as compared to the patients receiving less support from them. The support included medical, physical and personal hygiene care of the patients as well as moral and psychological support. The data indicates that the salient dimensions of the support included support in problems related to "emotions", "learning", "sensory and motor area", "concentration", "mental and physical in-coordination" and "depression".

The maximum improvement in the stroke patients was indicated when they were supported in problems related to mental and physical in-coordination, endorsing statements like "my family consults me in financial matters", "my family helps me in recognizing others", " my family read the newspaper for me". My family takes me out for recreation regularly". The second maximum support shown by the family members of the stroke patients was helping the patient in overcoming their emotional problems and depression. These two dimensions were equal in response to improvement. Statements such as, "my family's attitude has not changed towards me", "my family gives importance to my view point", "my family is not ashamed of introducing me to the guests", "my family is worried about me", "my family gives me special attention", "my family keeps my hopes alive", and "my family tries to keep me happy" were related to problems of mental-physical in-coordination and emotional dimensions.

Improvement in learning, followed by concentration and sensory and motor problems respectively, were the next dimensions which showed improvement. Statements such as, "my family helps me in recognizing others", "my family helps me in eating food, my family prepares special food for me", "my family provides me medication on time", "my family takes me out for a walk" etc reflected these factors.

These findings highlight the fact that the above mentioned aspects are highly important in the improvement of stroke patients. The importance of the role of family is manifested in that maximum improvement is associated with their support towards the mental and physical help along with providing assistance in mobilizing the patient in order to attain normal functioning. As one can understand, these factors are important for a speedy recovery of the patient. It also highlights the significance of due and proper care to the stroke patients by their family members. Since a stroke patient is likely to suffer depression and lack of interest in daily life because of his physical and psychological problems, support by the family will raise his morale and develop his interest in the life that may help him to improve and to adjusted to the environment. Moreover, the family's care and support in timely medication, visits to the treating doctor and physiotherapy can help the patient to regain normalcy and to fight against the ailment effectively.

Salience of these findings seem highly important from our cultural perspective. Pakistan, as a developing nation, is deprived of most of the government and community post stroke help and care in the form of rehabilitation centers or community setups. We should also keep in mind that in case of organic and psychiatric ailments of a family member, we as a nation have the tendency to extend family and friend support to the patient's condition or improvement. This could be attributed to numerous cultural factors. There is a strong need to emphasize the role of caregivers/family in the improvement of patients. It starts from the stage of sudden onset of stroke, its management, and, of course prolonged process of hope and despair. Family needs to understand/realize how their care and support brings major changes in patient's general health conditions. Even mere gestures of verbal empathy and acceptance of presence of a stroke patient in the family helps bring positive changes in the patient's physical and psychological condition.

The regression analysis performed to determine the importance of the variables contributing towards improvement of stroke patients show a predominant role of family support, followed by the income of the patient, in the improvement of neuropsychological impairment of the patients. The highest beta weight for Family Support Scale is indicative of family support in the improvement of the patient. This finding is supportive of our hypotheses and prior research.

The proposed rationale for this result is that support was expected to involve practical measures taken by the family in helping the patient in areas such as recognition, physiotherapy, physical and personal hygiene, moral support, financial help, recreation, medication, special diet and moral support. Studies have indicated that these were the best interventions which can help improve a stroke patient and enable him/her to recover speedily.

Hypothesis concerning role of positive family support in the improvement of stroke patients is supported by other researches as well. Eastwood, et. al., (1989) studied the duration of hospitalization and the role of family support in the improvement of stroke. They found that patients staying at the hospital for a longer time had greater functional disability as compared to patients who stayed at home. Morris, et. al., (1991) found a positive relation between the perception of stroke and post stroke depression in hospitalized patients. They concluded that perception of social support can mediate the emotional response to stroke. Nygaared and Birkedal (1992) interviewed patients with stroke who were admitted to a rehabilitation unit in a somatic nursing home with respect to how they function in the unit and their quality of life. It was concluded that family contact and the ability to eat without help were significant for the quality of life.

Stroke is sometimes fatal and those who survive may be handicapped for a long duration. Because of their condition they suffer many psychological and psychiatric problems, and hence they need maximum support from the family to help in their improvement of psychological impairment. That the family system of Pakistani society is a protective factor against psychiatric morbidity after stroke was pointed out by Khokhar (1994) on a sample of stroke patients at a Combined Military Hospital Rawalpindi. Young and Forster (1992) made a comparison of role of family support for the day hospital attendance and for the patients seeking home physiotherapy. The purpose of this research was to determine which service procedure had a high functional utility and improvement for the patient. After six months assessment it was found that home physiotherapy seems to be slightly more effective and more resource efficient than day hospital attendance. The improvement could be attributed to family support. Other studies (Soderback & Ekholm, 1992) also reported similar results.

The above results are in line with our hypothesis that family support is a practical approach to help the stroke victim recover from his/her disability. The correlational results too indicate a very highly significant relationship between improvement in Neuropsychological Impairment Scale (NISD) scores of the patient and family support.

In lieu of lack of other helping institutions, all the encumbrance related to a handicapped patient lies on the shoulders of the family, and an intrinsic consequence of such an event could be a negative change in attitude towards the patient. This can play a vital role in providing the patient the required assistance leading to improvement in his/her symptoms (Argyl 1983). However there was no evidence of such attitudinal affect in our study. The results concerning the hypothesis regarding attitude of the family members towards the patients and their improvement, indicated a lack of significant difference between the patients enjoying favourable and those facing unfavourable attitudes of their family members, However there is a strong relation between the attitude and the support of the family members for the stroke patients. This means that the family members who have a positive attitude toward the stroke patient also extend their support to them. Nevertheless a non significant effect of family attitude on improvement of the stroke patients suggests that family attitude may not influence a direct affect on improvement of stroke symptoms as compared to the family support. However, family attitude might effect the type of support extended by the family to the stroke patient.

One can understand this inconsistency between attitude and behaviour in the context of Eastern societies. These findings are supported by Trifimow & Finlay (1996) who found that the beta weights (regarding helping their ailing family members) of Eastern societies (such as Japan, India, China etc) (collectivists) were equal for norms and attitudes, While the beta weights of European Societies (Individualists) are much higher for attitudes than for norms.

The attitude of the family towards the patient could be either positive or negative. The attitude can be shown in many ways such as irritability of the family, seriousness of the situation, sense of helplessness, difficulty in managing patient's hygiene, toilet, exercises, medication and recreation. Attitude towards financial problems, guests, sense of shame and guilt due to an obnoxious situation and most importantly utility of the patient for the family are vital areas of concern. A family with a positive attitude towards the patient is likely to extend a better support to the patient at home as compared to the family members of the stroke patient who have developed a negative attitude towards the patient. Attitudes alone do not include practical measures adopted by the family of the patient to improve his/her condition. So it can be concluded that although a positive attitude of the family member of the stroke patient can give rise to positive support extended to the patient by the family members, attitude in itself does not play an independent role in the improvement of the stroke patient.

The results pertaining to the hypothesis about the improvement of stroke patients belonging to different socioeconomic statuses show a significantly greater improvement of neuropsychological problems of patients belonging to higher income levels (see table 14) . The least improvement was shown by patients in the lowest socioeconomic category.

These findings are consistent with our hypothesis that more the income of the patients the more will be the improvement. The results of the regressional analysis performed to determine the importance of the variables contributing towards improvement of stroke patients are also supportive of our hypothesis. Income of the patient had the second highest dominant role in the improvement of the neuropsychological impairment of the patients after the family support and age. The correlation between income and improvement in Neuropsychological Impairment Scale scores also indicate a positive relation between income of the stroke patient and his/her improvement.

The socioeconomic status of the patient is quite helpful to improve the condition of the patients in many ways. The patients having sufficient money can afford expensive drugs as well as other necessary aids that may contribute towards the recovery of the patients. Treatment of stroke is an expensive affair and it needs better financial situation, patients with better income resources are able to afford the expenses needed for better medical facilities, food and physiotherapy. Such privileged patients are likely to improve more as compared to those patients who lack these facilities due to lesser income. An extra advantage is that rich patients may be able to hire the services of professionals for themselves which would help improve their condition and, moreover, teach them how to cope with their problems.

The findings related to difference in family support and family attitude toward the patient of different income level do not show any evidence of differential treatment. This indicates that, the attitude and the support of the family members of the stroke patient was not contingent upon the income of the patient. The differential improvement in the case of patients with different income, however, suggests that the availability of money may help in getting the required facilities meant to the management of neuropsychological problems. In addition, the population at higher income levels has lower mortality rates and lower prevalence of disabilities. This suggests that most of such people are generally healthier and better nourished before health crises like stroke occur. Therefore, their recoveries are usually faster, even without unusual post-stroke technology.

These findings underscore the dominant characteristics and group dynamics of East Asian cultures, in which families are tied in close knitted systems striving for a common goal. Rehabilitation of a stroke patient is considered as an important task for the family which is supposed to rely on their own meager resources and facilities. If the patient is wealthy and resourceful, he/she is likely to benefit out of the resources at hand, but the family, whether poor or rich is expected to exercise all possible methods to help the patient. It should be noted that the most responded items of family support and family attitude pertained to the practical involvement of family members with the patients rather than the expensive technical, medical or rehabilitational support. However, a component of family support may include financial elements such as, providing nutritious food, better hygiene, and appropriate medication. Nevertheless, it was overall physical, moral and psychological help that played the crucial role in the improvement of the patients. They also typically have higher income and resources.

It was further hypothesized that educated stroke patients will show greater improvement in the neuropsychological problems. The results of the study confirmed our assumption that higher educational level of the patient is positively related with the improvement. The analysis of the results indicated that educated patients are learned enough to understand the details of the disease, and accordingly understand the instructions by their doctors and take medicine regularly.

The inferences drawn from these results that an educated patient is more likely to have an educated family which can understand instructions better, take medicine on time, look after the patient so as to affect his situation positively. Some researchers such as Rosa et. al., (1994) have found that the scores of Mini Mental State Examination Test for stroke patients (MMSE, Folstien, 1947) increased with the levels of educational achievements. They concluded that patients with no formal schooling had lowest scores on MMSE. The median MMSE score was high for those with at least nine years of schooling, it was average for those with five to eight years of schooling and the least score was obtained by those with nil to four years of schooling. This shows that higher level of education was a major factor in improvement of neuropsychological problems of stroke patients.

Aging is one of those processess which affects every one differently. Response to aging is usually slow and pains taking (Fozard & Popkin, 1978). Physical decline begins at early adulthood, but it is late in life when people become aware of it. Many sensory abilities such as visual acuity, auditory accuracy, muscle strength, reaction time and stamina diminish gradually. In the old age the onset of a threatening ailment, like stroke, may have an adverse impact on the sufferer as well as the family. The old age may be detrimental to the improvement of stroke patients, and they may take a longer time to recover either partially or completely.

It was hypothesized that older age will be negatively related to the improvement in neuropsychological impairment after stroke. Even though our study no one overage 50, the results confirmed our hypothesis. Least improvement ocured in the neuropsychological problems of the stroke patients in age group of 40 to 50 years. The most improvement was in the age group of 20 to 29 years. The results also indicated that neuropsychological improvement was higher in younger patients as compared to older patients.

An inferential analysis of reasons regarding old age and slow improvement in neuropsychological impairment of stroke patients suggests that aging itself is associated with many maladjustments after onset of stroke (Berk, 1998). Old age is associated with physical decline, but the onset of this decline may be anywhere from age 50 to age 80, depending on personal health habits. Compared to younger age the automatic nervous system, involved in many life support functions, often perform less in middle and old age. Aggravated by a stroke the neuropsychological system is likely to suffer badly. Another important factor associated with stroke and greater age is the higher mortality rate due to stroke in older age (Larson, 1996). This knowledge can cause fear and associated depression in older age stroke patients, thus lessening the chances of their improvement. However, the degree of depression is more powerful than the number of calendar years.

In the majority of the world societies males are given preference over females (Gerrard, 1987). In the ancient times and even nowadays men are usually the bread winner of the family. This gives them an edge over women. A boy is always welcomed by the family, whereas birth of a girl is mostly disliked. In Asian societies these traditions are even more pronounced. Pakistan is no exception, where men play a pivotal role in earning the livelihood for the entire family and carry the family heritage to the next generation. Although education and modernization has somewhat changed the scenario, still the gender biases are very much prevalent in our social setup.

In the context of Pakistani society where males are preferred over females, it was assumed that male stroke patients will show greater improvement compared to female stroke patients in their neuropsychological impairment after the stroke. It was also hypothesized that male stroke patients will be extended more support by their family members as compared to females. Also the attitude of the family members was expected to be more positive toward male than the female patients. The results of the study did not support our hypotheses. We found a non-significant difference in improvement of neuropsychological impairment of the male and female stroke patients. Although the mean score of male stroke patients was slightly greater than females the difference was not significant, whereas, other studies showed greater differences. Goetz et. al., (1992) concluded that compared to men emotional problems are high in women suffering from stroke. Moreover, the results showed that women scored worse emotional pattern than men in a study conducted by Angeleri et. al., (1993) to investigate the influence of depression, social activity and family stress on functional outcome after stroke..

Our findings also revealed that gender of the patient was not an important factor in either attaining the support of the family or positive attitude of the family members. Both male and female patients were treated in the same manner by the family members. This could be a reason for the lack of difference in neuropsychological improvement of male and female stroke patients.

Lack of significant difference in the family support and attitude between male and female stroke patients may be due to the reason that in our society a sick person is not considered a burden, and everybody in the house tries to help the patient by showing a positive attitude towards him/her, irrespective of his/her gender.

Surprisingly, contrary to our findings, certain studies conducted in the Western countries indicate gender bias in family support. Friedland and McColl, (1992) reported significant differences in family support experienced by the men as compared to women stroke patients. The results revealed that men and women were given discriminatory support by the family due to the difference in their gender, and men were treated better.

The correlational analysis performed also supported our findings related to our hypotheses and provided some additional information regarding the variables of our study. In majority of the cultures one finds that education and socioeconomic status are closely related to each other. In our culture this factor is even more pronounced r = .46. The same is applicable in the case of our stroke sample. It was interesting to note that education was positively associated with neuropsychological improvement and socio-economic status, but had no significant relation with the family support and family attitude. It was indicated that improvement was more prominent among highly educated as compared to lesser educated patients. This improvement could not be attributed to factors such as family support and family attitude as indicated by the correlational analysis. Our argument is supported by a positive relation between income and education r = .46. Educated patients are more likely to have good jobs, which will again directly or indirectly affect the quality of improvement. Income had greater impact on improvement.

Regressional analysis as well as correlational analysis regarding age indicated a significantly negative correlation between the age of the patient and the improvement of the neuropsychological impairment of the stroke patients.

It also revealed a negative relationship between age and family support. It showed that patients who suffered stroke at a young age were given a higher family support as compared to patients who suffered stroke at an older age. It could be due to the reason that people become more demanding, less mobile and less accommodative to other people as they grow in age. Their perspective about themselves, the physical decline and the loss of neural processes due to age factor becomes a compounded problem if they suffer stroke. Their condition is likely to make them behave in a demanding manner, which may put the family members under stress or may irritate them, resulting in lesser support. Because of lesser family support the improvement of the older stroke patients may be slow and less.

The results showed a negative relation between age and family attitude also. Patients who suffered stroke at an older age were exposed to a more negative attitude of their family members during their stay at home as compared to patients who suffered stroke at a younger age. A number of the studies in this field conducted abroad that relate to old age and illness have similar results.

There may be some reasons for lesser family support and less favourable attitude of the family member toward the older stroke patients. The young patients may have alive parents or a young spouse to attend to him/her. On the contrary older patients may not have parents to look after them, and due to an old spouse and children's settlement in their own life, no one can look after them at home. In our Eastern society the family system is mostly joint in nature. The parents live with the sons, while the daughters form new households after their marriage and live with the parents of their husbands. Costomarily in most of the cases the relations between the parents and daughter in law are not very healthy, which is likely to worsen in case of stroke to an elder. Due to an increase in the responsibilities the sons and daughter in laws may develop negative attitude, which is displayed in form of lesser support, causing lesser improvement of neuropsychological impairment of the old age patients. The situation can worsen in case of lower socio-economic status, where due to lack of other resources all the responsibility of looking after the old patients lies on the shoulders of their children, thus effecting the quality of the required support and attitude for the improvement of stroke patients.

The correlational analyses revealed that the most significant highest relationship was found between family support and family attitude (r = .77). This supports our contention that if the attitude of the family members of the stroke patient is positive they will extend more support to the patient.

As discussed earlier our hypothesis regarding the role of family support in the improvement of stroke patients was confirmed, where as family attitude was found not be relevant. This may be because of a number of reasons. Firstly, the family support was responded by the patient him/herself as they perceived it, while the family attitude was reported by the relatives of the patients. Secondly, family support comprised of dimensions which were fundamental to practical help in improving or caring for the neurological, physical and psychological problems faced by the patient, such as hygiene, physiotherapy, medication, cleanliness, comprehension, cognition, rehabilitation, recreation etc. Family support also included dimensions such as taking the patients to the doctor, helping them operate in daily routine, such as walking, eating, changing their clothes, looking after their personal and physical hygiene, providing them with physiotherapy, appropriate and timely food and medication, help in concentration exercises, such as recognizing objects and people, or moral support, such as keeping their hope alive and giving their view point due importance.

It is quite obvious that stroke results in physical and psychological impairment and its improvement depends greatly upon the physical, psychological and medical care of the patients, any such measures taken by the family member would have positive impact upon the patient. However, in Eastern societies the attitude of the family members toward their ailing relatives and family members is mostly positive and favourable, it does not mean that they would extend the patient practical help under every circumstances. The Eastern value system demands that one should be positive in expressing one's feeling toward others. According to Kashmina, Siegel, Tanaka and Kashmina (1992) Eastern societies see less of a link between attitudes and behaviour compared to Western societies who are more individualistic in nature. Suh, Diener, Oishi, & Triandis (1998) reported that well being for Eastern cultures depends on having good relationships with the close ones and paying close attention to the norms of the society. This theory supports our findings that irrespective of the family member's positive or a negative attitude toward the stroke patient, the family is likely to show a supportive behaviour to the patient. Clark, Ouellette, Powell, and Milberg (1987) reported that Easterns sample the needs of others and the loyalty associated with the relationship. Our data seem to agree with Triandis (1999), who reported unconditional relatedness by Eastern people, which means giving priority to relationships and taking into account the needs of others, even when such relationships are not advantagious to the individual.

Another rational for lack of attitude effectiveness in stroke aptient's improvment was given by Yamaguchi (1998). He reasoned that Eastern cultúre accepts "dependence" as a positive concept. The concept also includes the idea that even if a member of the group or family cannot contribute much to the family's well-being, the others will accept the dependent person.

General Discussion

The study we have conducted was related to identify areas of neuropsychological impairment faced by stroke patients and role of family support and attitude in improvement of their problems. The findings revealed that the patients suffered a certain amount of neuropsychological impairment after stroke and they showed improvement during their stay at home after discharge from the hospital. The findings also showed that the role of family support was the major correlate of their improvement. Attitude was not a contributing factor in improvement of stroke problems was not supported in our study.

Problems related to emotions, depression and physical and mental in-coordination were the subset of stroke symptoms that showed the most improvement during the patient's first month at home. Problems related to learning and sensory and motor impairment were the slowest to improve.

The results also showed significant relation between greater income of the stroke patient and improvement of neuropsychological problems. However, income was not an effective factor in influencing the type of support and attitude extended by the family of the patient. Higher educational level of the stroke patient also had a significant relation with improvement of the patient, whereas, it did not influence the support extended by the family. Interestingly attitude of the care givers had correlated with recovery in young patients but not older ones. Another important finding in our research was that older patients showed less neuropsychological improvement. Caregivers also showed slightly more favourable attitude towards their young patients as compared to older patients. However, age of the patient did not affect the family support.

Contrary to our hypothesis, preferential support and attitude of the family for males and its resulting neuropsychological improvement, was not observed. Despite the above empirical findings and our discussion of these in our socio-cultural context, there are numerous factors and considerations in this research that need to be mentioned. One must be cautious when doing research in a society with limited literacy and technically less developed as compared to developed countries and societies. Since most of the attitude scales are verbal in nature, according to Shah and Van der Flier (1999), the main problem with this kind of instrument is the inability of people to read and to understand the instructions. Firstly, even the semi-literate or literate people in the developing countries may not be able to respond properly to the verbal items of the scales because of their unfamiliarity with this type of response mode and high readability levels of such measures (Kreb, 1993; Shah, 1997).

One way of solving the literacy problem is to read out the instructions, as we did in the case of our illiterate subjects, but Shah (1997) indicated that reading out the statements to the respondents and asking them to indicate the degree of agreement/disagreement with the statements may be too artificial and unreliable (Shah, 1997). He attributed unreliability of the data to the active involvement of the investigator, the investigator's presence and the reactive nature of the testing situation in data with social desirability variance. In addition to these problems he indicated memory problems, where reading out of the statements may lead to distortions in responses. Moreover, one should consider the problems of use of Western scales in the Eastern countries if they are not properly translated and adapted (Shah, 1997). As cultural adaptation of Western scales require excessive efforts, we preferred to develop our own indigenous scales for the study, however, the usual validity studies of items and scales could not be done.

However, some researchers are of different opinion. They contend that because of many common factors, scales developed in the West tend to obtain the same kind of responses when given in Eastern societies (Trafimow, Triandis & Goto 1991; Triandis & Gelfand, 1998). These researchers suggest that care and caution is to be exercised while analyzing the results and making generalizations, as some elements of culture specificity may exist in the response pattern of a culture where the test was not developed. Therefore a researcher categorically should see the cultural relevance of a foreign developed test before using it for his/her purpose. As different things are perceived differently by the people belonging to diverse cultural and sub-cultural backgrounds, the responses of the subjects on a particular scale or a questionnaire and variations in response pattern need to be interpreted with reference to the specific cultural background for psychological needs and background of the subjects (Triandis, Shanmugam & Tanaka, 1999).

The problems of research in the eastern societies also pertain to the selection of a topic for research, and the instrument development. The first step in this regard is the item generation which is the most crucial part in scale construction because of the profound differences in the rural and urban areas of Eastern societies. What is accepted as normal in an urban area may be taken as an indicator of deviation in the far-fetched village of the same province. Therefore, selecting a set of items for the measurement of one's attitude is a hard task.

Though the effect of sex and age in every culture have an effect, however in the Eastern societies which are male dominated one, the sex of the subjects in a research may give quite different findings. If we relate this fact to the outcomes of our study, it appears that the variables of family support and family attitude are different, as well as their correaltions with NIS improvement. In addition there was no gender discrimination in the family support and attitude of our sample.

As in the West, patients and the family may be supported by a number of government and community aid centers in the form of rehabilitation institutes, special nursing homes and community centers etc. In addition, various organizations offer health facilities for those patients who are in rehabilitation stage. Moreover, the facilities of trained physiotherapists and availability of nursing staff is available in some locations, but not others (e.g., rural USA). Unfortunately in the Eastern non-developed societies the tradition of social support by the government or community is not common. The family has to bear the burden of patient's physical, psychological and economical needs as well as assisting him in mobilizing and providing self-assisted physiotherapy. This of course, is not a substitute for trained nursing assistance. Apart from non availability of aiding institutions for stroke patients, our society being Eastern is collectivist in nature (Triandis, 1999), people almost always give preference to their family member's comfort over their own. Another important factor is that Eastern societies are much more tolerant of inconsistency than are Western societies (Bharati, 1985). This could be an important factor to explain the lack of any positive relation between family attitude and improvement of stroke patients in our sample of the study. However, the findings may mean that attitudes in family members minds do not affect anything. Only behaviours such as support or help, have any impact. In this perspective role of family care in the patient's management becomes all the more important and crucial. One could still explore a number of factors instrumental in the positive and negative family support of seriously ill patients, like the group of stroke survivors.

Due to lack of availability of indigenous testing material there could be problems regarding the availability of relevant literature and scales for assessment of the neuropsychological problems. Lack of empirical studies and public funded researches pose many problems for any new research undertaking. Even in the West family support and family attitude is less investigated as a contributing factor in the improvement of neuropsychological problems of stroke patients. This lack of emphasis in the Western societies may be because of their own cultural and societal circumstances despite the availability of an institutionalized infrastructure for the care of stroke and other disabilities.

This study may help in giving an insight into identifying problems related to a difficult situation, such as stroke, and may help in the development of physical management strategies of stroke patients. It may also provide insight to establish techniques and specific remedial methods and measures for the rehabilitation of the brain damaged patients so that they can become useful members of the society again.

Conclusion and Suggestions

The present study has identified several dimensions related to neuropsychological impairment suffered by stroke patients. Among them the prominent ones were psychological and physical or combination of both. The psychological impairment was related to problems in emotions, mood and depression, whereas, physical problems were related to learning new skills, concentration and sensory and motor impairment, and mental and physical in-coordination.

In line with the main hypothesis of our study, role of family support was the most contributing factor in improvement of stroke patients, whereas, contrary to our assumption, scores for attitude of the family had no relation with the improvement of the stroke patient, although family support and family attitude were highly correlated. Apart from family role some other variables such as, higher socio-economic status of the patient and educational neuropsychological problems of stroke patients. This lack of emphasis in the Western societies may be because of their own cultural and societal circumstances despite the availability of an institutionalized infrastructure for the care of stroke and other disabilities.

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Contrary to our assumptions most of the variables, such as, educational level, socioeconomic status and gender of the patient did not effect the family support and family attitude, whereas, older patients received less support than younger ones and had lesser improvement compared to young stroke patients.

An accidental finding of our research is the confirmation of Eastern societal tradition and their relevance in family crises situation. It reinforces upon the need of the time to have stronger familial relations and an insight into understanding the problems of such ill-fated families. These problems should be treated at a higher level in the government and organizational level. A need for informational programs on electronic media, regarding stroke and its management is felt strongly. Most important is the implementation of stroke prevention program for general public.

Apart from the above findings, the present study also has a number of other implications in areas related to stroke. It is suggested that more researches should be carried out on other variables such as rural/urban population and different provinces of Pakistan with reference to stroke and its improvement. A larger sample belonging to different areas of Pakistan may give a better insight into stroke and its related problems. A broad based awareness of stroke and its resultant neurological and psychological problems should be given a higher priority for maximum benefit to the stroke patients.

The present findings suggest the need for more researches to be carried out on larger samples to analyze the difference between actual and perceived attitude of the family of the patient. Another important factor is to view and identify the stroke patient's social perspective in order to highlight the salience of positive attitudinal factors for the management and prognosis of disability caused by stroke.

The research showed that attitudinal variables gave no significant positive findings at all. This indicates a need for research on role of family support and income as effecting variables in improvement of stroke patients. Another area which needs research is the relation of age and education with stroke improvement. It may be worth trying to control age statistically for education and see which of these two variables has a stronger correlation with improvement.

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Neuropychological Impairment Scale for Pilot Study

1. I collide with things.
2. my mind works slowly.
3. My words get jumbled up.
4. I repeatedly judge my every action.
5. I have serious mental problems.
6. I face difficulty in getting organized.
7. I forget while talking.
8. My thoughts get blocked.
9. I have forgotten many events of my childhood.
10. I face difficulty in learning new skills.
11. I have forgotten many things I learned at school.
12. I face difficulty in making decisions.
13. I face difficulty in spelling.
14. I face difficulty in remembering the names of others.
15. My writing has worsened now.
16. I face difficulty in remembering important events.
17. I find it difficult to concentrate.
18. I face difficulty in recognizing people.
19. I forget where I keep things.
20. I find it difficult to solve financial matters.
21. My mind does not stick to one thing.
22. I forget what I read.
23. Simple calculation is also difficult for me.
24. I forget names of daily items.
25. I cannot understand what I have read.
26. I face difficulty in giving directions.
27. I get tired easily.
28. I am always worried.

29. I am very untidy.
30. I am usually absent-minded.
31. I am usually unwell.
32. My thoughts become scattered.
33. I stay perturbed.
34. For me every task is a struggle.
35. I stay under pressure.
36. I remain scared and frightened.
37. I cannot stand mental pressure.
38. I flare up easily.
39. I get irked easily.
40. I remain happy.
41. I cannot tolerate people around me.
42. I am always right.
43. I have become ill tempered.
44. I get irritated easily.
45. I get into debate easily.
46. I desire for destroying and breaking the things.
47. I get disappointed to see healthy people.
48. I am not happy with the doctors.
49. I feel disgusted.
50. I stay depressed.
51. I stay unhappy.
52. I stay happy.
53. I see the dark side of the picture.
54. I feel disappointment.
55. My life is on the wrong track.
56. I feel like crying on patty things.
57. I like my all acquaintances.
58. I want to be left alone.
59. I am happy in company.
60. I think about myself.
61. I think about my family.

62. I think about my job.

63. I think about my spouse and children.

64. I am worried about my friends.

65. I am worried about reassuming the job.

66. I am worried about my financial matters.

67. I am worried about my children's future.

68. I am worried about other's behavior.

69. I can not walk without support.

70. I can not do my work independently.

71. The problem is with my left/right part of the body.

72. A part of my body can not move.

73. some times I tend to fall down.

74. My muscles twitch.

75. My hands tremble.

76. A part of my body remains numb.

77. My muscles are weak.

78. My reflexes are slow.

79. I face difficulty in speaking.

80. I get severe headache.

81. I have awe full pains.

82. I lose consciousness.

83. My auditory capabilities are weakening.

84. Things drop from my hands.

85. My vision is deteriorating.

86. I work very slowly.

Annexture II

	کبھی نہیں	کبھی کبھی	اکثر اوقات	ہروق
ں چیزوں سے ٹکرا جاتی/جاتا ہوں۔	✓			
میرا دماغ آہستہ کام کرتا ہے۔		✓		
یرے الفاظ گڈمڈ ہو جاتے ہیں۔		✓		
یں اپنے ہر کام کو بار بار جانچتا/جانچتی ہوں۔			✓	
مجھے سنجیدہ ذہنی مسائل ہیں۔			✓	
مجھے منظم ہونے میں دقت پیش آتی ہے۔		✓		
یں بات کرتے کرتے بھول جاتا/جاتی ہوں۔		✓		
میرے سوچنے میں رکاوٹ آجاتی ہے۔		✓		
یں اپنے بچپن کے بہت سے واقعات بھول گیا/گئی ہوں۔	✓			
مجھے نئے کام سیکھنے میں مشکل پیش آتی ہے۔	✓			
یں سکول سے سیکھی ہوئی اکثر چیزیں بھول چکا/چکی ہوں۔	✓			
مجھے فیصلہ کرنے میں مشکل پیش آتی ہے۔		✓		
مجھے ہجے کرنے میں مشکل پیش آتی ہے۔		✓		
مجھے دوسروں کا نام یاد کرنے میں دقت ہوتی ہے۔	✓			
میری لکھائی اب کافی خراب ہو گئی ہے۔				✓
مجھے اہم باتیں یاد کرنے میں دقت پیش آتی ہے۔		✓		
مجھے توجہ دینے میں مشکل پیش آتی ہے۔		✓		
مجھے لوگوں کے چہرے پہچاننے میں مشکل ہوتی ہے۔	✓			
میں چیزیں رکھ کر جگہ بھول جاتا/جاتی ہوں۔			✓	
مجھے مالی معاملات کو سمجھنے میں مشکل ہوتی ہے۔	✓			
میرا دماغ ایک بات پر نہیں ٹھہرتا۔		✓		
میں پڑھا ہوا بھول جاتا/جاتی ہوں۔		✓		

	کبھی نہیں	کبھی کبھی	اکثر اوقات	ہر وقت
آسان جمع خرچ بھی میرے لئے مشکل ہیں ۔	✓			
میں روزمرہ چیزوں کے نام بھی بھول جاتا / جاتی ہوں ۔		✓		
مجھے پڑھی ہوئی چیز کو سمجھنے میں دِقّت پیش آتی ہے ۔	✓			
میں راستے کی ہدایات دینے میں دِقّت محسوس کرتا / کرتی ہوں		✓		
میں جلد تھک جاتا / جاتی ہوں ۔			✓	
میں ہر وقت فکرمند رہتا / رہتی ہوں ۔			✓	
میں بہت بے سلیقہ ہوں ۔			✓	
میں اکثر غائب دماغ ہو جاتا / جاتی ہوں ۔		✓		
میری صحت اکثر خراب رہتی ہے ۔			✓	
میری سوچ اکثر بکھر جاتی ہے ۔			✓	
میں بے چین رہتا / رہتی ہوں ۔			✓	
میرے لئے ہر کام ایک کوشش ہے ۔		✓		
میں بہت دباؤ میں رہتا / رہتی ہوں ۔			✓	
میں سہما ہوا / سہمی ہوئی اور ڈرا ہوا / ڈری ہوئی رہتی / رہتا ہوں ۔		✓		
میں ذہنی دباؤ کے تحت بکھر جاتا / جاتی ہوں ۔		✓		
مجھے جلدی غُصّہ آتا ہے ۔		✓		
میں جلدی جھلا جاتا / جاتی ہوں ۔		✓		
میں ہر وقت خُوش رہتا / رہتی ہوں ۔	✓			
مجھے اپنے اِردگرد لوگ برداشت نہیں ہوتے ۔		✓		
میں ہمیشہ صحیح ہوتا / ہوتی ہوں ۔	✓			
میں بدمزاج ہو گیا / ہو گئی ہوں		✓		
میں آسانی سے چڑچڑا ہو جاتا / جاتی ہوں ۔		✓		

	کبھی نہیں	کبھی کبھی	اکثر اوقات	ہر وقت
۴۵۔ میں بہت جلد بحث میں پڑ جاتا/جاتی ہوں۔		✓		
۴۶۔ مجھ میں چیزیں توڑنے اور خراب کرنے کی خواہش ہوتی ہے۔	✓			
۴۷۔ میں دوسروں کو صحت مند دیکھ کر مایوس ہوتا/ہوتی ہوں۔		✓		
۴۸۔ میں ڈاکٹروں سے خوش نہیں ہوں۔		✓		
۴۹۔ میں تنگ ہو جاتا/جاتی ہوں۔			✓	
۵۰۔ میں اکثر اداس رہتا/رہتی ہوں۔			✓	
۵۱۔ میں اکثر خفا اور غمگین رہتا/رہتی ہوں۔			✓	
۵۲۔ میں ہمیشہ خوش رہتا/رہتی ہوں۔	✓			
۵۳۔ میں ہمیشہ تصویر کا صرف الٹا رخ دیکھتا/دیکھتی ہوں۔		✓		
۵۴۔ میں مایوسی محسوس کرتا/کرتی ہوں۔		✓		
۵۵۔ میری زندگی غلط ڈگر پر چل رہی ہے۔			✓	
۵۶۔ مجھے چھوٹی چھوٹی باتوں پر رونا آتا ہے۔		✓		
۵۷۔ میں اپنے ہر جاننے والے کو پسند کرتا/کرتی ہوں۔		✓		
۵۸۔ میں چاہتا/چاہتی ہوں کہ مجھے اکیلے چھوڑ دیا جائے۔	✓			
۵۹۔ میں لوگوں کے درمیان خوش رہتا/رہتی ہوں۔	~~✓~~	✓		
۶۰۔ میں ہمیشہ اپنے بارے میں سوچتا رہتا/سوچتی رہتی ہوں۔			✓	
۶۱۔ میں ہمیشہ اپنے خاندان کے بارے میں سوچتا رہتا/سوچتی رہتی ہوں			✓	
۶۲۔ میں ہمیشہ اپنی نوکری کے بارے میں سوچتا ہوں/سوچتی ہوں۔			✓	
۶۳۔ میں ہمیشہ اپنی بیوی/شوہر بچوں کے بارے میں سوچتا/سوچتی ہوں۔			✓	
۶۴۔ میں اپنے دوستوں/اپنی سہیلیوں کے بارے میں پریشان ہوں۔			✓	
۶۵۔ میں دوبارہ کام کرنے کے بارے میں پریشان ہوں۔		—	—	
۶۶۔ میں اپنے معاشی معاملات کے بارے میں پریشان ہوں۔			✓	

	کبھی نہیں	کبھی کبھی	اکثر اوقات	ہر وقت
۶۷۔ میں بچوں کے مستقبل کے بارے میں پریشان ہوں ۔				
۶۸۔ میں دوسروں کے رویّے کے بارے میں پریشان ہوں ۔		✓		
۶۹۔ میں بغیر سہارے کے چل سکتا/سکتی ہوں ۔			✓	
۷۰۔ میں اپنا کام خود کر سکتا/سکتی ہوں ۔			✓	
۷۱۔ میرے جسم کے دائیں/بائیں حصّہ کا مسئلہ ہے ۔				✓
۷۲۔ میرے جسم کا کچھ حصّہ کام نہیں کر سکتا ۔				✓
۷۳۔ میں کبھی کبھی گر جاتا/جاتی ہوں ۔			✓	
۷۴۔ میرے پٹھے جھٹکے کھاتے ہیں ۔		✓		
۷۵۔ میرے ہاتھ کانپتے ہیں ۔		✓		
۷۶۔ میرے جسم کا کچھ حصّہ سُن رہتا ہے ۔				✓
۷۷۔ میرے پٹھے کمزور ہیں ۔		✓		
۷۸۔ میرا ردِ عمل سُست ہے ۔		✓		
۷۹۔ مجھے بولنے میں مشکل پیش آتی ہے ۔			✓	
۸۰۔ میرے سر میں سخت درد ہوتا ہے ۔			✓	
۸۱۔ مجھے بہت درد ہوتا ہے ۔	✓			
۸۲۔ میں کبھی کبھی بے ہوش ہو جاتا/جاتی ہوں ۔		✓		
۸۳۔ میری سماعت کمزور ہوتی جا رہی ہے ۔	✓			
۸۴۔ میرے ہاتھوں سے چیزیں اکثر گر جاتی ہیں ۔			✓	
۸۵۔ میری نظر کمزور ہوتی جا رہی ہے ۔	✓			
۸۶۔ میں ہر کام بہت آہستہ کرتا/کرتی ہوں ۔			✓	

Annexture III

IMPAIRMENT SCALE

قومی ادارہ نفسیات ایک تعلیمی و تحقیقی ادارہ ہے، جو زندگی کے مختلف پہلوؤں پر نفسیاتی نقطہ نظر سے تحقیقات کرتا ہے- یہ موجودہ تحقیق بھی اسی سلسلے کی ایک کڑی ہے- اس تحقیق کا مقصد فالج کے مریضوں کے مسائل کو سمجھنا اور ان کے حل کے لئے لائحہ عمل تیار کرنا ہے-

ہم آپ کو ایک سوال نامہ دے رہے ہیں، جس میں فالج کے مریضوں کو درپیش مسائل انہی کی مدد سے یکجا کئے گئے ہیں- یہ مسائل ہم نے بیانات کی صورت میں لکھے ہیں- آپ ہر بیان کو غور سے پڑھیں اور ہمیں یہ بتائیں کہ یہ بیان کس حد تک آپ پر پورا اترتا ہے یا نہیں؟ مثلاً:

اگر آپ کے سر میں درد ہوتا ہے- اگر ہر وقت درد ہوتا ہے تو "ہر وقت" کے خانے میں (/) کا نشان لگا دیں- اگر آپ کے سر میں درد کبھی نہیں ہوتا تو "کبھی نہیں" کے خانے میں (/) کا نشان لگا دیں- اگر درد "کبھی کبھی" یا "اکثر اوقات" ہوتا ہے تو ان میں سے کسی ایک خانے میں (/) کا نشان لگا دیں-

آپ سے درخواست ہے کہ آپ یہ بیان باری باری پڑھیں اور کسی بیان کو خالی نہ چھوڑیں-

آپ کا تعاون اس سلسلے میں فالج کے مریضوں کے مسائل کو سمجھنے اور ان کے حل کی کوششوں میں کافی مددگار ثابت ہوگا-

شکریہ!

Family Support Scale for Pilot Study

1. My family makes fun of me.
2. Now less noise is produced because of me.
3. My family shares with me past events and experiences.
4. My family is helpful to me.
5. My family helps me in getting in and out of bed.
6. My family takes care of my moods.
7. My family seeks my help in managing financial matters.
8. My family gives attention to cleanliness of my room.
9. My family puts extra effort to keep me happy.
10. My family is worried about me.
11. My family helps me in changing the clothes.
12. My wife spends most of her time with me.
13. My family gives me meal on time.
14. My family provides me with regular physiotherapy.
15. My family takes me out for a walk.
16. I have been given special care.
17. My family gives me medicines on time.
18. My family helps me in moving around.
19. My family takes care of the cleanliness of my things.
20. My family gives me pocket money regularly.
21. My family encourages me.
22. T.V has been placed in my room.
23. My family feels ashamed while introducing me to guests.
24. Now my family gets irritated easily.
25. My family helps me in taking a bath.
26. My sleeping and awaking hours are fixed.
27. My parents spend most of the time with me.
28. My family spends a lot on my treatment.

29. My family introduces me with guests.
30. My family helps me in recognizing the things.
31. My family takes care of my physical hygiene.
32. My family prepares special food for me.
33. My family provides me clean clothes.
34. Children spend most of the time with me.
35. My family helps me in eating.
36. My brothers and sisters spend a lot of time with me.
37. My family inquires me about date and time.
38. My family buys special fruit for me.
39. My family helps me in recognizing others.
40. My family takes my advice on daily matters.
41. I find my children an asset in my illness.
42. My family keeps me hopeful.
43. My family helps me to sit in the car.
44. My family gives importance to my opinion.
45. My relatives give me enough time.
46. I have been provided with special equipment for exercises.
47. My family members read newspaper to me.
48. I find no difference in my family's attitude due to my illness.
49. My family inquires about my health every day.
50. My family helps me to climb the stairs.

Annexture V

	کبھی نہیں	کبھی کبھی	اکثر اوقات	ہروق
۱- میرے گھر والے میرا مذاق اڑاتے ہیں	✓			
۲- میری وجہ سے گھر میں اب شور کم کیا جاتا ہے ۔	✓			
۳- میرے گھر والے میرے ساتھ پرانی باتیں اور قصے کرتے ہیں ۔	✓			
۴- میرے لئے گھر والے مددگار ثابت ہوتے ہیں ۔		✓		
۵- میرے گھر والے بستر سے اٹھنے اور لیٹنے میں مدد کرواتے ہیں ۔		✓		
۶- میرے گھر والے میرے مزاج کا خاص خیال رکھتے ہیں ۔	✓			
۷- مجھ سے گھر والے پیسوں کا حساب کتاب کرواتے ہیں ۔	✓			
۸- میرے گھر والے میرے کمرے کی صفائی کا خیال رکھتے ہیں ۔		✓		
۹- میرے گھر والے مجھے خوش رکھنے کی خصوصی کوشش کرتے ہیں ۔		✓		
۱۰- میرے گھر والے میرے لئے فکرمند رہتے ہیں ۔			✓	
۱۱- مجھے گھر والے کپڑے بدلنے میں مدد کرواتے ہیں ۔		✓		
۱۲- میرے ساتھ بیوی زیادہ وقت گذارتی ہے ۔		✓		
۱۳- مجھے گھر والے وقت پر کھانا دیتے ہیں ۔		✓		
۱۴- مجھے گھر والے باقاعدہ ورزش کرواتے ہیں ۔	✓			
۱۵- مجھے گھر والے باہر سیر کیلئے لے جاتے ہیں ۔	✓			
۱۶- میرے گھر والے مجھے وقت پر دوائی دیتے ہیں ۔		✓		
۱۷- مجھے گھر والے چلنے پھرنے میں مدد کرواتے ہیں۔		✓		
۱۸- مجھے گھر میں خصوصی توجہ دی جاتی ہے ۔	✓			
۱۹- میرے گھر والے میری چیزوں کی صفائی کا خیال رکھتے ہیں ۔		✓		
۲۰- میرے گھر والے مجھے باقاعدگی سے جیب خرچ دیتے ہیں ۔	✓			
۲۱- میرے گھر والے مجھے حوصلہ دیتے ہیں ۔		✓		
۲۲- T-V میرے کمرے میں رکھا گیا ہے ۔	✓			

	کبھی نہیں	کبھی کبھی	اکثر اوقات	ہر وقت
۲۳۔ مجھے گھر والے مہمانوں سے ملواتے ہوئے عار محسوس کرتے ہیں۔		✓		
۲۴۔ گھر والے اب جلدی غصہ ہو جاتے ہیں۔		✓		
۲۵۔ مجھے نہلانے میں گھر والے مدد کرواتے ہیں۔		✓		
۲۶۔ میرے سونے اور جاگنے کا وقت مخصوص ہے۔	✓			
۲۷۔ میرے ساتھ ماں باپ زیادہ وقت گذارتے ہیں۔		✓		
۲۸۔ میرے گھر والے میرے علاج پر زیادہ خرچتے ہیں۔		✓		
۲۹۔ مجھے گھر والے مہمانوں سے ملواتے ہیں۔		✓		
۳۰۔ مجھے گھر والے چیزیں پہچاننے میں مدد کراتے ہیں۔	✓			
۳۱۔ میرے گھر والے میری جسمانی صفائی کا خیال رکھتے ہیں۔		✓		
۳۲۔ میرے گھر والے میرے لئے خاص کھانا پکاتے ہیں۔		✓		
۳۳۔ میرے گھر والے روز صاف کپڑے دیتے ہیں۔		✓		
۳۴۔ میرے ساتھ بچے زیادہ وقت گذارتے ہیں۔		✓		
۳۵۔ میرے گھر والے کھانا کھلانے میں مدد کرتے ہیں۔		✓		
۳۶۔ میرے ساتھ بہن بھائی زیادہ وقت گذارتے ہیں۔		✓		
۳۷۔ مجھ سے گھر والے روز تاریخ اور وقت پوچھتے ہیں۔	✓			
۳۸۔ میرے گھر والے میرے لئے خاص پھل لاتے ہیں۔	✓			
۳۹۔ مجھے گھر والے دوسروں کو پہچاننے میں مدد کرواتے ہیں۔		✓		
۴۰۔ میرے گھر والے روزمرہ کے کاموں میں مجھ سے مشورہ لیتے ہیں۔	✓			
۴۱۔ میری اولاد بیماری میں میرے لئے سرمایہ ثابت ہوتی ہے۔		✓		
۴۲۔ میرے گھر والے مجھے اُمید دلاتے رہتے ہیں۔			✓	
۴۳۔ مجھے گھر والے گاڑی میں بیٹھنے میں مدد کرتے ہیں!		✓		
۴۴۔ میرے گھر والے میری رائے کو اہمیت دیتے ہیں۔	✓			

	کبھی نہیں	کبھی کبھی	اکثر اوقات	ہر وقت
میرے ساتھ رشتہ دار زیادہ وقت گذارتے ہیں۔		✓		
میری ورزش کے لیے گھر میں خاص سامان رکھا گیا ہے۔	✓			
مجھے گھر والے اخبار پڑھ کر سناتے ہیں۔		✓		
میری بیماری کے بعد گھر والوں کے رویے میں کوئی فرق نہیں آیا۔		✓		
مجھ سے گھر والے روز میری طبیعت کا پوچھتے ہیں۔			✓	
مجھے گھر والے سیڑھیاں چڑھنے میں مدد دیتے ہیں۔		✓		

Family Attitude Scale for Pilot Study

1. We love the patient as before.
2. It is difficult to observe silence due to the patient.
3. We give full attention to patient.
4. The patient smells bad.
5. We can not bear the irritation of the patient.
6. To look after the patient is a tiresome job.
7. We make sure that the patient participates in our gatherings.
8. We keep the patient busy.
9. The patient has the same importance for us as before.
10. We are vexed due to the patient.
11. It is a big problem to take the patient to any function.
12. We can't keep the patient sanctified.
13. We laugh at some of the patient's actions.
14. The patient irritates us.
15. The patient's latest condition is painful for all.
16. We take serious notice of patients' needs.
17. It is difficult to take the patient to the doctor regularly.
18. Our daily routine gets disturbed because of the patient.
19. We give importance to patient's opinion.
20. We keep the patient happy.
21. We stay in close contact with the patient.
22. The patient is never satisfied by any service.
23. We get worried if the patient feels sick.
24. We try to maintain keep silence in home because of the patient.
25. It is difficult to prepare special food for the patient.
26. We regularly take the patient to doctor.
27. We join the patient in daily routine works.
28. The patient's illness is a mental fatigue.

Annexture VI

FAMILY SUPPORT

قومی ادارہ نفسیات ایک تعلیمی اور تحقیقی ادارہ ہے، جو زندگی کے مختلف پہلوؤں پر نفسیاتی نقطہ نظر سے تحقیقات کرتا ہے۔ موجودہ تحقیق بھی اسی سلسلے کی ایک کڑی ہے۔ اس تحقیق کا مقصد فالج کے مریضوں کے مسائل کو سمجھنا اور ان کے حل کے لئے لائحہ عمل تیار کرنا ہے۔

اسی سلسلے میں ایک سوال نامہ تیار کیا گیا ہے، جس کا مقصد یہ معلوم کرنا ہے کہ فالج کے مریضوں کے گھر والے ان کی دیکھ بھال کس طرح کرتے ہیں اور اس کا مریض کی صحت یابی پر کتنا اثر ہوتا ہے۔

مندرجہ ذیل میں آپ کو اس سے متعلق ایک سوال نامہ دیا جا رہا ہے جو کہ مختلف بیانات پر مشتمل ہے۔ آپ ہر بیان کو غور سے پڑھیں اور ہمیں یہ بتائیں کہ آپ کے گھر والوں پر یہ کس حد تک لاگو ہوتے ہیں یا نہیں؟ مثلاً:

اگر آپ کے گھر والے آپ کو ہر وقت پیار کرتے ہیں تو "ہر وقت" کے خانے میں (/) نشان لگائیں۔ اگر کبھی کبھی کرتے ہیں تو "کبھی کبھی" کے خانے میں (/) نشان لگائیں اور وہ "کبھی نہیں" یا "اکثر اوقات" کرتے ہیں تو ان میں سے کسی ایک خانے میں (/) کا نشان لگائیں۔

آپ سے درخواست ہے کہ آپ ہر بیان باری باری پڑھیں اور کسی بیان کو خالی نہ چھوڑیں۔

شکریہ!

29. We try to alleviate the patient's anxiety.

30. We regularly take the patient for physiotherapy.

31. We encourage the patient.

32. We have accommodated ourselves according to the patient's requirements.

33. The patient is a financial burden on us.

34. It is difficult to carry the patient to toilet.

35. We play games with the patient.

36. We feel hesitation to take out the patient to function/Marriage.

37. The patient has made us impatient.

38. We introduce the patient with guests.

39. We keep ray of hope alive in the patient.

40. We try to keep the patient happy.

41. We are worried for the patient.

42. We avoid to go to the patient.

43. We look after the patient's needs.

44. We behave very well with the patient.

45. The patient's life is a blessing for us.

46. The patient has become intolerable.

47. We consider the patient as an important member of the family.

48. We have given up our hope regarding the patient.

49. We put ourselves to inconvenience to comfort the patient.

50. We are sick of looking after the patient.

51. We are irritant because of the patient.

52. The visitors of the patient are a problem for us.

53. We take out the patient for a walk.

54. It is difficult to comply with obstinacy of the patient.

55. We give moral support to the patient.

56. We want to get rid of the patient.

Annexture VIII

	بالکل غلط	غلط	نہ غلط نہ صحیح	صحیح	بالکل صح
۱۔ ہم مریض کو پہلے کی طرح پیار کرتے ہیں ۔				✓	
۲۔ مریض کی وجہ سے گھر میں خاموشی رکھنا مشکل کام ہے ۔			✓		
۳۔ ہم مریض کو پوری توجہ دیتے ہیں ۔				✓	
۴۔ ہمیں مریض کے پاس سے بدبو آتی ہے			✓		
۵۔ ہم سے مریض کا چڑچڑاپن برداشت نہیں ہوتا ۔				✓	
۶۔ مریض کی خدمت ایک تھکا دینے والا کام ہے ۔				✓	
۷۔ ہم مریض کو اپنی محفل میں شامل رکھتے ہیں ۔			✓		
۸۔ ہم مریض کو زیادہ تر مصروف رکھتے ہیں ۔			✓		
۹۔ مریض کی اہمیت ہمارے لئے پہلے ہی کی طرح ہے ۔				✓	
۱۰۔ ہم مریض کی وجہ سے جھلا گئے ہیں ۔			✓		
۱۱۔ مریض کو محفلوں میں لے جانا بہت بڑا مسئلہ ہے ۔				✓	
۱۲۔ ہمارے لئے مریض کی طہارت قائم رکھنا مشکل کام ہے ۔				✓	
۱۳۔ ہمیں مریض کی بعض حرکتوں پہ ہنسی آتی ہے ۔		✓			
۱۴۔ مریض ہمیں تنگ کرتا ہے ۔			✓		
۱۵۔ مریض کی موجودہ حالت سب کے لئے باعثِ تکلیف ہے ۔				✓	
۱۶۔ ہم مریض کی باتوں کو سنجیدگی سے لیتے ہیں ۔				✓	
۱۷۔ مریض کو ڈاکٹر کے پاس باقاعدہ لے جانا ایک مشکل کام ہے ۔				✓	
۱۸۔ مریض کی وجہ سے ہمارے روزمرہ کے کام متاثر ہوتے ہیں ۔				✓	
۱۹۔ ہم مریض کی رائے کو اہمیت دیتے ہیں ۔				✓	
۲۰۔ ہم مریض کی دلجوئی کرتے ہیں ۔				✓	
۲۱۔ ہمارا مریض سے قریبی رابطہ رہتا ہے ۔				✓	
۲۲۔ مریض ہماری کسی بھی خدمت سے خوش نہیں ہوتا ۔		✓			

	بالکل غلط	غلط	نہ غلط نہ صحیح	صحیح	بالکل صحی
۲۳۔ ہم مریض کی طبیعت خراب ہونے پر فکرمند ہو جاتے ہیں۔				✓	
۲۴۔ ہم مریض کی وجہ سے گھر میں شور کم کرتے ہیں۔			✓		
۲۵۔ مریض کے لئے خاص کھانا پکانا مُشکل کام ہے۔				✓	
۲۶۔ ہم مریض کو ڈاکٹر کے پاس باقاعدگی سے لے جاتے ہیں۔				✓	
۲۷۔ ہم مریض کو روزمرّہ کے کاموں میں شامل کرتے ہیں۔		✓			
۲۸۔ مریض کی بیماری ہمارے ذہن پر ایک بوجھ ہے۔				✓	
۲۹۔ ہم مریض کی پریشانی دُور کرنے کی کوشش کرتے ہیں۔				✓	
۳۰۔ ہم مریض کو باقاعدہ ورزش کے لئے لے جاتے ہیں۔		✓			
۳۱۔ ہم مریض کی ہمّت بڑھاتے رہتے ہیں۔				✓	
۳۲۔ ہم نے اپنی عادتوں کو مریض کی ضروریات کے مطابق کرلیا ہے۔				✓	
۳۳۔ مریض ہم پر مالی بوجھ ہے۔			✓		
۳۴۔ مریض کو اُٹھا کر رفع حاجت کے لئے لیجانا ایک مُشکل کام ہے۔			✓		
۳۵۔ ہم مریض کو گیمز کرواتے ہیں۔		✓			
۳۶۔ ہمیں مریض کو کسی محفل/شادی میں لیجاتے ہوئے شرم محسوس ہوتی ہے۔		✓			
۳۷۔ ہمارا مریض کی وجہ سے صبر ختم ہو گیا ہے۔				✓	
۳۸۔ ہم مریض کو مہمانوں سے ملواتے ہیں۔				✓	
۳۹۔ ہم مریض میں جینے کی اُمنگ زندہ رکھتے ہیں۔				✓	
۴۰۔ ہم مریض کو خوش رکھنے کی کوشش کرتے ہیں				✓	
۴۱۔ ہم مریض کے لئے فکرمند رہتے ہیں۔				✓	
۴۲۔ ہم مریض کے پاس جانے سے احتراز کرتے ہیں۔		✓			
۴۳۔ ہم مریض کی تمام ضروریات کا خیال رکھتے ہیں۔				✓	
۴۴۔ ہم مریض سے خندہ پیشانی سے پیش آتے ہیں۔				✓	

	بالکل غلط	غلط	نہ غلط نہ صحیح	صحیح	بالکل صحیح
مریض کا اِس دُنیا میں موجود ہونا ہمارے لئے باعثِ رحمت ہے ۔				✓	
مریض ناقابلِ برداشت ہوتا جا رہا ہے ۔		✓			
ہم مریض کو خاندان کا ایک اہم جُزو سمجھتے ہیں۔				✓	
ہم مریض کی طرف سے مایوس ہو چکے ہیں ۔		✓			
ہم مریض کے آرام کے لیے خود کو تکلیف میں ۔				✓	
ہم مریض کی تیمارداری سے تنگ آ گئے ہیں ۔		✓			
ہم مریض کی وجہ سے چڑچڑے ہو گئے ہیں ۔		✓			
مریض کو ملنے کیلئے آنے والے مہمان ہمارے لئے باعثِ پریشانی ہوتے ہیں ۔				✓	
ہم مریض کو گھر سے باہر سیر کے لئے لے جاتے ہیں ۔				✓	
مریض کی ہر ضد ہمارے لئے پُوری کرنا ایک مشکل کام ہے ۔				✓	
ہم مریض کو حوصلہ دیتے رہتے ہیں ۔				✓	
ہم لوگ مریض سے چھٹکارا حاصل کرنا چاہتے ہیں ۔		✓			
				✓	

Annexture IX

FAMILY ATTITUDE

قومی ادارہ نفسیات ایک تعلیمی اور تحقیقی ادارہ ہے، جو زندگی کے مختلف پہلوؤں پر نفسیاتی نقطہ نظر سے تحقیقات کر رہا ہے۔ موجودہ تحقیق بھی اسی سلسلے کی ایک کڑی ہے۔ اس تحقیق کا مقصد فالج کے مریضوں کے مسائل کو سمجھنا اور ان کے حل کے لئے لائحہ عمل تیار کرنا ہے۔

اسی سلسلے میں ہم نے ایک سوالنامہ تیار کیا ہے۔ اس سوال نامے کا مقصد یہ معلوم کرنا ہے کہ فالج کے مریض کے اہل خاندان کو کن مسائل اور مشکلات کا سامنا کرنا پڑتا ہے اور خاندان والے ان مسائل کا کس طرح سامنا کرتے ہیں؟

ان مسائل کو ہم نے بیانات کی شکل میں مرتب کیا ہے۔ آپ ہر بیان کو باری باری پڑھیں اور ہمیں یہ بتائیں کہ یہ کس حد تک صحیح یا غلط ہے؟ مثلاً:

اگر آپ مریض کے لئے ہر وقت دعا کرتے ہیں تو "بالکل صحیح" کے خانے میں (/) نشان لگائیں۔ اگر آپ اس کے لئے کبھی بھی دعا نہیں کرتے تو "کبھی نہیں" کے خانے میں (/) کا نشان لگائیں۔ اسی طرح آپ ہر بیان کے سامنے دئیے گئے خانے میں (/) کا نشان لگائیں۔

آپ سے درخواست ہے کہ آپ ہر بیان کو غور سے پڑھیں اور جواب دیں، لیکن کسی بیان کو خالی نہ چھوڑیں۔

شکریہ!

Annexure - X

Neuropsychological Impairment Scale (Main Study)

1. I collide with things.
2. My mind works slowly.
3. My words get jumbled up.
4. I forget while talking.
5. My thoughts get blocked.
6. I have forgotten many events of my childhood.
7. I face difficulty in learning new skills.
8. I face difficulty in remembering the names of others.
9. I face difficulty in remembering important events.
10. I face difficulty in concentration.
11. I forget where I keep things.
12. My mind cannot concentrate on one thing.
13. Simple calculation is also difficult for me.
14. I forget names of daily items.
15. I cannot understand what the written material.
16. I am always worried.
17. I am usually absent-minded.
18. I mind wanders.
19. I stay disturbed.
20. I stay under pressure.
21. I get irked easily.
22. I am very unlucky.
23. My prayers are never answered.
24. My appetite has finished.
25. People always criticize me.
26. I get irked easily.
27. I get into a debate easily.
28. My heart beat increases suddenly.
29. My life is about to end.
30. I stay depressed.
31. I stay sad and unhappy.
32. I feel disappointed.
33. I feel like crying on petty matters.
34. I want to be left alone.
35. I feel worthless.
36. Other people over impose them selves on me.
37. I hate my life.

38. My hands tremble.
39. A part of my body stay numb.
40. Mostly things drop from my hands.
41. I have lost all the interest in life.
42. I am a detestable person.
43. I wish for death earnestly.
44. My eye sight has weakened.
45. I feel difficulty in talking.
46. I have severe headache.

Instructions for Neuropsychological Impairment Scale (Main Study)

"National Institute of Psychology, Quaid-i-Azam University conducts various researches for academic purposes. Present study is also a part of these researches. Purpose of this study is to understand the problems faced by people after stroke and to prepare some guidelines for the families to manage these problems efficiently. We will give you a questionnaire, in which problems faced by the stroke patients have been listed. Instructions and examples about the questionnaire are given also. The problems are stated in the form of statements. You are requested to read each statement carefully and tell us to which extent these statements are applicable to you. For example, If you have headache, and the headache is all the time, then mark (/) in the box of "all the time", If you have never had headache, then mark (/) in the box "never", if you have headache some times or all the time, then mark the appropriate boxes. You are requested to read all the statements one by one without skipping any item and fill in the entire questionnaire".

		کبھی نہیں	کبھی کبھی	اکثر اوقات	ہر وقت
1	میں چیزوں سے ٹکرا جاتی / رہتا ہوں۔			✓	
2	میرا دماغ آہستہ کام کرتا ہے۔			✓	
3	میرے الفاظ گڈمڈ ہو جاتے ہیں۔			✓	
4	میں بات کرتے کرتے بھول جاتا / جاتی ہوں۔		✓		
5	میرے سوچنے میں رکاوٹ آجاتی ہے۔		✓		
6	میں اپنے بچپن کے بہت سے واقعات بھول گیا / گئی ہوں۔	✓			
7	مجھے نئے کام سیکھنے میں مشکل پیش آتی ہے۔		✓		
8	مجھے دوسروں کا نام یاد کرنے میں دقت ہوتی ہے۔		✓		
9	مجھے اہم باتیں یاد کرنے میں دقت پیش آتی ہے۔			✓	
10	مجھے توجہ دینے میں مشکل پیش آتی ہے۔			✓	
11	میں چیزیں رکھ کر جگہ بھول جاتا / جاتی ہوں۔		✓		
12	میرا دماغ ایک بات پر نہیں ٹھہرتا۔			✓	
13	آسان جمع تفریق بھی میرے لئے مشکل ہیں۔	✓			
14	میں روزمرہ چیزوں کے نام بھی بھول جاتا / جاتی ہوں۔		✓		
15	مجھے پڑھی ہوئی چیز کو سمجھنے میں دقت پیش آتی ہے۔			✓	
16	میں ہر وقت فکرمند رہتا / رہتی ہوں۔			✓	
17	میں اکثر غائب دماغ ہو جاتا / جاتی ہوں۔			✓	
18	میری سوچ اکثر بکھر جاتی ہے۔			✓	
19	میں بے چین رہتا / رہتی ہوں۔		✓		
20	میں بہت دباؤ میں رہتا / رہتی ہوں۔		✓		
21	مجھے جلدی غصہ آتا ہے۔		✓		
22	میں بہت بدنصیب ہوں۔			✓	
23	میری دنیا بھی تھوڑی بہت بے ترتیب ہے۔			✓	
24	میری بھوک تقریباً ختم ہو چکی ہے۔		✓		
25	لوگ مجھ پر ہمیشہ تنقید کرتے ہیں۔		✓		
26	میں آسانی سے چڑچڑا ہو جاتا / جاتی ہوں۔			✓	
27	میں بہت جلد بحث میں پڑ جاتا / جاتی ہوں۔			✓	
28	میرے دل کی دھڑکن ایک دم تیز ہو جاتی ہے۔		~~✓~~	✓	
29	میری زندگی ختم ہونے والی ہے۔		✓	~~✓~~	
30	میں اکثر اداس رہتا / رہتی ہوں۔			✓	
31	میں اکثر خفا اور غمگین رہتا / رہتی ہوں۔			✓	
32	میں مایوسی محسوس کرتا / کرتی ہوں۔			✓	

	کبھی نہیں	کبھی کبھی	اکثر اوقات	ہر وقت
33- مجھے چھوٹی چھوٹی باتوں پر رونا آتا ہے۔			✓	
34- میں چاہتا/چاہتی ہوں کہ مجھے اکیلے چھوڑ دیا جائے۔		✓		
35- میں اپنے آپکو بہت بے قیمت محسوس کرتا ہوں۔			✓	
36- دوسرے لوگ ہمیشہ مجھ پر حاوی رہتے ہیں۔		✓		
37- مجھے اپنی زندگی سے نفرت ہے۔		✓		
38- میرے ہاتھ کانپتے ہیں۔			✓	
39- میرے جسم کا کچھ حصہ سن رہتا ہے۔			✓	
40- میرے ہاتھوں سے چیزیں اکثر گر جاتی ہیں۔			✓	
41- میرا دل اب بالکل اچاٹ ہو گیا ہے۔			✓	
42- میں ایک قابل نفرت انسان ہوں۔		✓		
43- میں شدت سے موت کی خواہش کرتا ہوں۔		✓		
44- میری نظر کمزور ہوتی جا رہی ہے۔	✓			
45- مجھے بولنے میں مشکل پیش آتی ہے۔		✓		
46- میرے سر میں سخت درد ہوتا ہے۔				✓

Family Support Scale (Main Study)

1. My family shares with me past events and experiences.
2. My family helps in and out of bed.
3. My family seeks my help in managing the financial matters.
4. My family gives attention to cleanliness of my room.
5. My family puts extra effort to keep me happy.
6. My family provides me with regular physiotherapy.
7. My family takes me out for walking regularly.
8. My family gives me medicines on time.
9. I have been given special care.
10. My family gives me pocket money regularly.
11. My family encourages me.
12. My family is ashamed while introducing me to guests.
13. Now my family gets irritated easily.
14. My family helps me in taking a bath.
15. My sleeping and awaking hours are fixed.
16. My parents spend most of the time with me.
17. My family introduces me to guests.
18. My family helps me in recognizing things.
19. My family takes care of my physical hygiene.
20. My family prepares special diet for me.
21. My family provides me with clean clothes.
22. My family helps me in eating.
23. My family buys special fruit for me.
24. My family helps me in recognizing others.
25. My family gives me hope.
26. My family helps me to sit in the car.
27. My family gives importance to my opinion.
28. My family members read newspaper for me.
29. The behavior of my family is unchanged even after my illness.

Instructions for Family Support Scale (Main Study)

"Purpose of this study is to understand the problems of stroke patients and to prepare guidelines for the family how to help the stroke patient while they are staying at home. In this regard we have prepared a questionnaire, which aims at knowing the type of support and assistance you got during your one month stay at home.

The questionnaire contains a number of statements. You are requested to read each statement carefully and tell us to which extent these statements are applicable to you. For example, if your family members help you in getting up or lying down all the time; mark (/) in the box "all the time", If they never help you in getting up or lying down, mark (/) in the box "never". If they help you some times or most of the time, mark the appropriate boxes. You are requested to read each statement one by one carefully without skipping any item and to tell us to which extent these statements are applicable to you. Please fill the entire questionnaire".

ANNEXURE G

		کبھی نہیں	کبھی کبھی	اکثر اوقات	ہر وقت
1-	میرے گھر والے میرے ساتھ پرانی باتیں اور قصے کرتے ہیں ۔				
2-	میرے گھر والے بستر سے اٹھنے اور لیٹنے میں مدد کرواتے ہیں ۔				
3-	مجھ سے گھر والے پیسوں کا حساب کتاب کرواتے ہیں ۔				
4-	میرے گھر والے میرے کمرے کی صفائی کا خیال رکھتے ہیں ۔				
5-	میرے گھر والے مجھے خوش رکھنے کی خصوصی کوشش کرتے ہیں ۔				
6-	مجھے گھر والے باقاعدہ ورزش کرواتے ہیں ۔				
7-	مجھے گھر والے باہر سیر کیلئے لے جاتے ہیں ۔				
8-	میرے گھر والے مجھے وقت پر دوائی دیتے ہیں ۔				
9-	مجھے گھر والے چلنے پھرنے میں مدد کرواتے ہیں ۔				
10-	میرے گھر والے مجھے باقاعدگی سے جیب خرچ دیتے ہیں ۔				
11-	میرے گھر والے مجھے حوصلہ دیتے ہیں ۔				
12-	مجھے گھر والے مہمانوں سے ملواتے ہوئے عار محسوس کرتے ہیں ۔				
13-	گھر والے اب جلدی غصہ ہو جاتے ہیں ۔				
14-	مجھے نہلانے میں گھر والے مدد کرواتے ہیں ۔				
15-	میرے سونے اور جاگنے کا وقت مخصوص ہے ۔				
16-	میرے ساتھ ماں باپ زیادہ وقت گزارتے ہیں ۔				
17-	مجھے گھر والے مہمانوں سے ملواتے ہیں ۔				
18-	مجھے گھر والے چیزیں پہچاننے میں مدد کرواتے ہیں ۔				
19-	میرے گھر والے میری جسمانی صفائی کا خیال رکھتے ہیں ۔				
20-	میرے گھر والے میرے لئے خاص کھانا پکاتے ہیں ۔				
21-	میرے گھر والے روز صاف کپڑے دیتے ہیں ۔				
22-	میرے گھر والے کھانا کھلانے میں مدد کرتے ہیں ۔				
23-	میرے گھر والے میرے لئے خاص پھل لاتے ہیں ۔				
24-	مجھے گھر والے دوسروں کو پہچاننے میں مدد کرواتے ہیں ۔				
25-	میرے گھر والے مجھے امید دلاتے رہتے ہیں ۔				
26-	مجھے گھر والے گاڑی میں بیٹھنے میں مدد کرتے ہیں ۔				
27-	میرے گھر والے میری رائے کو اہمیت دیتے ہیں ۔				
28-	مجھے گھر والے اخبار پڑھ کر سناتے ہیں ۔				
29-	میری بیماری کے بعد گھر والوں کے رویے میں کوئی فرق نہیں آیا ۔				

Anexture - XVI

Family Attitude Scale (Main Study)

1. We can't bear the irritation due to the patient.
2. The patient has the same importance for us as earlier.
3. We are vexed due to the patient.
4. We can't keep the patient sanctified.
5. The patient troubles us.
6. We take serious notice of patient's needs.
7. It is difficult to take the patient to the doctor regularly.
8. Our daily routine gets disturbed because of the patient.
9. We keep a close contact with the patient.
10. The patient never gets satisfied by any service.
11. We try to keep silence at home because of the patient.
12. We join the patient in our daily routine works.
13. We regularly take the patient for physiotherapy.
14. The patient is a financial burden on us.
15. We hesitate to take the out patient out to function/Marriage.
16. We introduce the patient to guests.
17. We keep the patient's hopes alive.
18. We try to keep the patient happy.
19. The patient's life is a blessing for us.
20. The patient has become intolerable.
21. We are sick of looking after the patient.
22. We take out the patient for a walk.
23. It is difficult to provide every thing to the patient.
24. We keep on encouraging the patient.

Instructions for Family Attitude Scale (Main Study)

"National Institute of Psychology, Quaid-i-Azam University conducts various researches for academic purposes. Present study is also a part of these researches. Purpose of this study is to understand the problems of stroke and prepare guidelines for the family to help the stroke patient improve while they are staying at home. Moreover we also want to know about the problems of the relatives of the stroke patients and how they cope with them. We have prepared a questionnaire, which aims at knowing the problems faced by the family members of the stroke patients and ways and means adopted by them to tackle these problems. The questionnaire contains a number of statements. You are requested to read each statement carefully and tell us to which extent these statements are applicable to you. For example, if you always pray for the patient: mark (/) in the box of "absolutely right", If you never pray, mark (/) in the box "absolutely wrong", if you pray some times or most of the time, then mark the appropriate boxes. If you feel indecisive, mark (/) the box "neither wrong nor right". You are requested to read all the statements one by one without skipping any item and fill the entire scale".

Annexture - XIX

Salma Shah Depression Scale (SSDS)

1. I am very unlucky.
2. My prayers are never answered.
3. I have almost lost my appetite.
4. People always object to me.
5. My heart rate suddenly increases.
6. My life is about to end.
7. I feel worthless.
8. I have lost hope in live.
9. I feel like crying on petty matters.
10. I am a hate-able person.
11. I wish for death earnestly.
12. I stay depressed.