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Institute of Postgraduate
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(Medical Department)

Psychological Sequalae Of Wearing Lower Limb Orthoses In Children

A Thesis
Submitted for Partial fulfilment of
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(Medical Department)

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Introduction

Most studies suggest that up to 10% of all children have, for a period of their childhood, a moderately to severe handicapping long-term illhess or disability (Pless & Roghmann, 1977 and Perrin & Gerrity, 1984).

Large-scale epidemiologic studies, such as those summerized by Pless & Roghmann (1977), document an increased incidence of psychological problems among children with chronic conditions and suggest that increased severity of functional limitation is associated with greater risk of psychological maladjustment.

In Egypt, Poliomyelitis is a common viral disease, which causes sudden paralysis in a previously healthy infant or young child and leaves the victim seriously handicapped.

It is caused by a neurotropic virus, which has a special affinity for the gray matter of the spinal cord and brain stem and therefore leads to destruction of their anterior horn cells. This results in a motor neurone flaccid paralysis with normal sensations.

The disease passes through 3 stages:

Acute, convalescent and chronic stages. The acute stage lasts 6-8 weekes. In this stage complete bed rest is vital, as there is close correlation between the amount of physical

activity early in the disease and severity of the subsequent paralysis (Horstmann, 1950). During the acute stage treatment is directed towards relief of muscle pain, spasm and prevention of deformities.

The techniques used are those of positioning hot packs and passive movements (Reynolds, 1956). Night splints are used to maintain the joints of the paralysed limb in the optimal position in attempt to prevent deformities (Salter, 1970).

- In the convalescent stage pain, tenderness and spasm subside and recovery of muscle power takes place gradually. It lasts up to 2 years. Management during this stage is based upon the principle of rest with gradual introduction of excercises on a graded basis, initiated and sustained through muscle reeducation and guided by the degree of response (Rusk, 1964).
  Braces are used to support the limbs so that the patient can assume the erect posture. They are also used to prevent fatigue of the recovering muscles and deformity (El Zorkani & Gado,1970)
- In the chronic stage residual paralysis persists for the rest of the patients' life and no further recovery can be expected. Operative intervention for correction of deformities, stabilization of joints , restoration of motor function and leg length equalizatien as the case demands, is an integral part of this stage.

Many of supportive devices introduced during the convalescent stage may have been discarded as the patient has improved, some may continue to be necessary to the patient's full activity and these may now become permanent equipments. So orthoses play an important role in the management of poliomyelitis of lower limbs. Orthotic management differs as regards to methods and goals during the acute, convalescent and chronic stages.

As most of polio patients are children, those having residual paralysis may need orthoses and supports for the rest of their life.

Aim of the work

Therfore we found it of great importance to study the psychological problems these patients face. We tried also to find out whether these problems are more in disabled children wearing orthoses or in those having the same disability, but are unaided by any orthoses? Another question was: is there any correlation between severity of the disability and psychological problems?

REVIEW OF LITERATURE

Review of literature

It has been suggested that physical illness in childhood is associated with a significant risk of psychological sequelae (Mattson and Battle, 1 972).

Large-scale epidemiologic studies, such as those summarized by Pless and Roghmann (1977), documented an increased of psychological problems among children with chronic conditions and suggest that increased severity of functional limitation is associated with greater risk of psychological maladjustment . Other reports demonstrate that psychological problems may be most significant for those with less severe illnesses or those without apparent disability (Barker et al, 1953; Bruhn et al, 1977; Mc Anarney at al, 1974 and Pless et al, 1975) .

Finally, still others propose that illness and disability may even have positive effects on some aspects of adjustment and personality development (Writht, 1960; Gliedman and Roth, 1980 and Drotar et al, 1981) .

Nowadays, there is an increasing awareness amongst pediatricians, child psychiatrists and their colleagues of the necessity for a better appreciation of the psychological aspects of chronic medical illness in childhood . This is allied to the recent advances in the medical management of many diseases which, previously, were often fatal . Such advances, while leading to reductions in both morbidity and mortality, may also lead to prolonged duration of care and management and a subsequent increase in the number of children in the

population with chronic illness (Sein et al, 1988). Clinicians who care for children with long term physical health problems are urged by experts to give careful attention to the emotional well-being, behavior and social adjustment of their patients . In part, this is due to the belief that this group of children is at risk for decreased quality of life in these areas (Pless, 1975; Satterwhite, 1978 and Pless, 1984).

Definition:

Chronic illness has been defined as a health condition that lasts for more than three months in a year or that leads to continuous hospitalization for at last one month in a year (Hobbs et al,1985)

Epidemiology:

Most studies suggest that up to 10% of all children have, for a period of their childhood, a moderately to severe handicapping long-term illness or disability (Pless & Roghmann, 1971, Perrin & G errity, 1984).

Data from the National Health Interview Survey (NHIS) suggest that the proportion of children with some limitation of activity has doubled over the last two decades, (Starfield, 1977; Kovar 1981 & 1982 and Starfield, 1982). The degree of limitations of activity varies from those who are unable to attend schools, to those who attend regular schools but are

limited in their ability to participate in sports and other recreational activities (National Center for Health Statistics, 1981) .

The NHIS classifies persons into four categories of activity limitation :-

1) Persons unable to carry on their major activity
2) Persons limited in the amount or kind of major activity performed
3) Persons not limited in major activity but otherwise limited .
4) Persons not limited in activities .

For preschool children (under age 6), major activity refers to ordinary play with other children; for school age children (age 6 - 16) major activity refers to school .

Data from the NHIS for 1981 show that over two million children suffer some degree of limitation of their activities because of their health or disability (National Center for Health Statistics of USA, 1981) .

Between 1960 and 1980, the proportion of children with any level of limitation of activity increased 111 percent, while the proportion with severe limitations increased 122 percent (Wilson, 1981) .

Psychological factors and chronic illness :-

The relationships between chronic physical illness and psychological factors are complex, varied and often controversial . Clinical experience suggests that there is an interaction between illness factors and child personality on one hand, and environmental and family factors on the other (Perrin & Gerrity, 1984) . In addition, there is evidence that there is a closer relationship between psychological disturbance and the maturational factors than with the severity of the illness itself (Rutter 1970, Pless & Roghmann, 1971 and Rae - Grant 1985) .

Illness has a different meaning to young children as compared with adolescents (Orr et al, 1984) . A child with onset of illness in infancy or early childhood may feel abandoned on admission to hospital which may be combined with fears of intrusive treatment; these may be reflected in separation anxiety with long lasting consequences of attachment and bonding . In adolescence there will be concerns about prognosis, peer relationships, family life, education and the future; all of these are represented by associated psychological disturbance .

As there are a multitude of chronic illnesses, each with their own aetiology, management and prognosis, it is unlikely that their psychological effects could be the same . Furthermore, different families may react in different ways to

the same condition; on the other hand it is helpful to seek those factors which are common to most .

The Ontario Child Health Study "OCHS" has reported that children with chronic illness associated with limitations of physical function have a threefold increase in psychiatric disorders and a significant excess of social adjustment problems . Among those children neurosis and attention deficit disorder - hyperactivity were the most prevalent types of disorder . However those with chronic illness alone have only a twofold increase in psychiatnic disorders and little in the way of excess social adjustment problems in contrast to peers free of such health problems (Cadman et al, 1987) .

With development, the child becomes increasingly aware that he /she is different, which could give rise to preoccupations with body image . Thus socialization may become a major focus of concern or even a serious problem in adolescence . How the youth copes is dependant on an interaction between the type of the illness, the reactions of the caretakers and peers, and their own perceptions of themselves . In all these circumstances the care-taker is an important figure,having to consider ways of helping children to cope with their handicaps and their distress and having to understand each individual child's sense of frustration, distress, resentment and anger . Pain deserves special consideration . Infants who have good and firm attachments to parents have probably learned to tolerate discomfort with the expectation of its attenuation by the parents . But when this

does not occur, the child may become distressed, bewildered and fearfully anticipate further discomfort (Nover, 1973) . The possibility of surgery may compound such distress and fearful reactions (Gluk, 1977) .

Modifying factors :-

- Age

- A child born with a deformity or serious illness may be placed in a special care unit with all the attendant medical staff . These may constitute a hinderance to attachment and bonding processes and, further, the mother may be hindered from attempting to form any deep attachment to the child because of the possibility of the child dying.
- At the pre-school age, hospitalization may give rise to fears of abandonment by the child . The child may think that the illness is a consequence of misbehaviour .
- At school age, the child may have to cope with the sense of being "different" and this can be aggravated by hurtful remarks and teasing by peers .
- Adolescence is the time of individuation and identity formation, and these may be affected by a chronic illness - Peer acceptance may also become a problem at this stage .

2 - Hospitalization and its effects :

Up to the 1950 it was in common practice in paediatric wards to pay greater attention to sterile conditions than to the needs of the child .

With the more humane modern approaches, a single brief hospital admission is know to have little impact on most children . However, multiple or prolonged hospitalization, such as occur in chronic illness, are another matter . Douglas (1975), reported that one admission to hospital of more than a week's duration or repeated admissions before the age of five years were associated with both behavioural and reading problems in adolescents .

One important study, using post - hospitalization questionnaires, identified six dimensions of children's responses (Vernon et al, 1966);

1) General anxiety and regression
2) Separation anxiety
3) anxiety about sleep
4) eating disturbance
5) aggression to authority
6) apathy - withdrawal

Although these do not necessarily reflect disturbance, they suggest that children between the ages of 6 months and 4 years are most likely to be vulnerable to the effects of hospitalization with the pattern of response having a basis in separation anxiety . These responses were more evident in

younger children with longer lengths of stay. This is dated research and it is doubtful that this still holds true for those paediatric wards/ units where there have been substantial changes in the philosophy of care. For decades, mothers have been admitted with young children. Nowadays rules about visiting are almost nonexistent with open and frequent visiting being encouraged, and children are allowed to bring their own clothes and toys. While some have imaginatively pioneered ward programmes wherein children are cared for by parents (Goldbloom, 1987), Some retain rather rigid traditional philosophies which may give rise to a stressful experience for the child with chronic illness. It is now widely accepted that hospital admissions should be kept to a minimum, both duration and frequency . Preparations for admissions can reduce anticipatory anxiety and other stressful responses (Wolfer & Visintainer, 1979) .

3 - Treatment effects

Some treatments may be both burdensome to the family and restrict the child's life - style . Children may view these as symbolic of their lack of independence and they also may become a focus of resentment, if not rebellion (De Nour 1979, Burton 1984) .

4 - Family factors

Chronic illness involves the whole family. Common problems and reactions include a reorganization of the way the family functions, economic hardships, parental adjustment reactions and even psychological disturbance and marital stress (Rae - Gronk, 1985) . Thus family systems may become dysfunctional, often with mother accepting the main responsibility for the ill child or with the parents becoming overinvolved or overprotective (Ounsted, 1955), to the detriment of other family members (Minuchin et al, 1978) . In case of parents of children born with congenital malformations Drotar et al, (1975) describe a specific pattern of five stages of reactions,consisting of shock, denial, sadness and anger, adaptation and reorganization .

There are a number of reports of fathers tending to "withdraw" from the child's illness (Binger et al, 1969; Heffron et al, 1973) and this probably represents their way of coping with stress . It is understandable that their wives may resent this attitude and feel they have been left to cope with the burden .

Some studies deny an increase in marital breakdowns (Droner 1975, Martin 1975); others have reported that in specific illness, such as Down's syndrome (Gath, 1977), higher rates of

marital disruption are demonstrable; others may even assert that chronic illness may draw couples closer together (Koocher & O'Malley 1981, Marky 1982).

On theoretical grounds it is to be expected that the siblings will be adversely affected . Their parents will be devoting an inordinate amount of time, care and affection to the ill child, and thus there will be less time and attention for the brothers and sisters, which they may resent and this resentment will express itself in a variety of ways . Although family dynamics may prevent the emergence of any overt hostility or jealousy, repressed hostility may reveal itself in a number of different ways, including deterioration in school work (Vance et al, 1980), and the emergence of behavioural and social problems . Some siblings may develop concern and fears regarding their own health . Others may have fantasies of the affected child disappearing, and if there is deterioration or death, the attendant guilt feelings could be severe (Cain et al, 1964). On the other hand there are reports of families and especially siblings drawing more closely together (Koocher & O'Malley 1981, Marky 1982) .

5 - The school and the community

The adjustment of a child with chronic medical illness to his/her school has been poorly studied . There has been little public awareness and debate about the educational needs of these children . They are being placed in "mainstream" education with the expectation that the staff would understand their problems and cope with their needs . However these high hopes and expectations are, in practice, unlikely to be achieved (Hill et al, 1987)

Fortunately society is becoming more aware of chronic illness and the stresses imposed thereby upon children and families and there has been an increase in the number and scope of voluntary and self - help organizations .

Psychological aspect of children wearing orthoses:

As we mentioned before , many disabled children have to wear an assitive orthosis for the rest of their life, which imposes an additional burden on them and can lead to more emotional distress.

The psychosocial implication of wearing the Milwaukee brace for scoliosis have been commented upon by orthopedic surgeons. Riseborough (1967) summarizes: "Patients adapt to the brace rapidly, but the initial experience may provoke an emotinal storm. He points out that a major alteration in daily living is involved and that patient-parent cooperation is critical for succesful treatment.

Beverly et al., (1970) interviewed 25 girls and their mothers to obtain information regarding their daughter's experience in adjusting to the brace.

At the time the brace was recommended by the orthopedic surgeon, 15 of the 25 girls were noted to express overt distress, as manifested by tears and an expression of feeling unable to wear th brace. The setting for this " breakdown" was variable in that it sometimes occurred in the physician's office, later at home, at the brace shop to get mold for the brace, or upon getting the brace itself. A few expressed no overt negative response to having to a brace, but cried at some

intial frustration, such as having difficulty entering a car for the first time wearing the brace. The first night in the brace was spontaneously mentioned by the mothers as a frightening event for their daughters, their fears being related to falling out of bed or choking. Despite their inital distress, all but five of the girls regularly wore the brace within two to four weeks and, for the most part, were able to resume their daily routine.

The task of facing friends, school, and public in a brace was difficult, but not insurmountable. The brace, in drawing attention to a deformity not previously conspicuous, altered the girls' relationships to the outside world and commonly resulted in a tendency to withdraw. Five of the 25 girls persisted in their refusal for several weeks or longer, but eventually three of these five agreed to wear the brace. Facing the public alone with the brace outside of the school was more difficult. For example, the girls preferred to go shopping with their mothers, rather than alone, and preferred not to wear their braces for church. Thus, although they were able to resume their usual school and extracurricular activities, the majority exhibited some avoidance of being seen in public in the brace.

It was their impression that those girls who displayed crying and what appeared to be a period of withdrawal and depression followed by a conscious decision to wear the brace

and do the exercises showed a better ability to tolerate the brace than those girls who did not show this type of initial response.

Families' continued support and praise for their daughters was crucial in keeping the girls wearing their braces and contionuing their usual activities. This support was noted to be impaired by serious personality problems in the parents or marital conflicts. such parental problems were noted in six of nine having difficulties in wearing the brace, but were not identified in any who wore the brace without difficulty.

The support of the staff involved (orthopedic surgeon,physical therapist, bracemaker. secretaries, school nurses) wasalso important to the continued wearing of the brace. The physical therapist played a key role in encouraging the girls, as well as in detecting those who were having difficulties.

Likewise, regular orthopedic visits facilitated coordination and communication between staff and families, as problems related to the brace could be raised and handled jointly by the orthopedic surgeon, bracemaker, and physical therapist.

Families with previous experience with the brace were able to support others who were just starting out . A visit to meet a girl currently wearing brace was sometimes suggested and was of considreable help to a family in making a decision about their own commitment to this corrective procedure (Beverly, et al., 1970).

BASICS OF L.L. ORTHOTICS

Basics of lower limb orthotics:

1) Definition and principles of orthotic support .
2) Orthotic nomenclature and terminology .
3) Various field of knowledge pertinent to orthotic prescription.
   - Normal human locomotion .
   - Definition of pathological gait.
   - Physicological cost of pathological gait.
4) Functions of lower limb orthoses.
5) Components of lower limb orthoses .
6) Application of pressure .
7) Alignment.
8) Relative motion.
9) Energy consumption.
10) Weight.
11) Cosmosis.
12) Materials.
13) Hazards and Errors in the bracing process.

Basics of lower limb orthotics

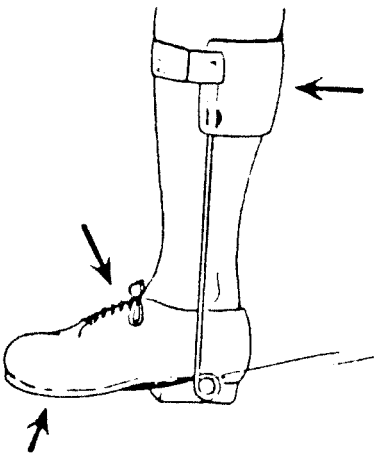
1- Definition:

Ortho is derived from the greek orthos denoting straight, normal or true. The ending (tics) denotes a systematic purs uit of what the root of the ward stand for. Orthotics then is the systematic purs uit of straightening or correcting.

More specifically, orthotics deal with the application of exoskeletal devices to limit or assist motion of any given segment of human body. Exoskeletal devices applied for this purpose to patient suffering from neuromuscular or skeletal disordes are called orthoses (Rusk, 1977).

- Principle of orthotic support : Biomechanics:

Three points of fixation or pressure are the basic requirements to position any region. All orthoses use at least one three point system. A single set of three points will control motion only in one plane and only in one direction in that plane. Therfore most orthoses have more than one three point system.



d) Three-point-system needed to produce passive dorsi-flexion.

Fig. 1

Gait cycle: A gait cycle consists of the activity which occurs between heel strike of one extremity and the subsequent heel strike on the same side. During one gait cycle each extremity passes through one stance phase and one swing phase. (Fig. 2)

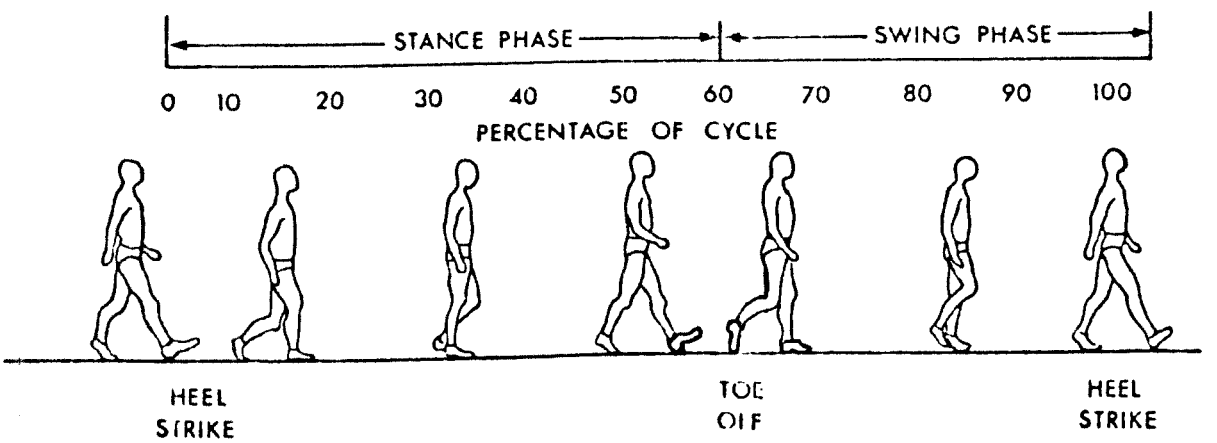


Figure 2

The three point system is united by two lever arms and implies the need to press at a distance above and below the site where control is desired Fig. (1). The significant charactenistic is the arrangement of pressure sites rather than the material or path of the material interconnecting those sites (Bunch and Keagy, 1978).

2- Orthotic nomenclature and terminology:

The need for a standard namenclanture and terminology in the field of orthotics was recognized for many years . A series of workshops resulted in the development of a nomenclature and its attendant terminology which has been well accepted in many parts of the world.

The system is quite simple, with the orthosis being named after the joints that it encompasses. Orthoses for the lower limb are described as:

- Foot orthosis or FO
- Ankle foot orthosis or AFO
- Knee- ankle- foot orthosis or KAFO
- Hip - knee- ankle- footorthosis or HKAFO

An orthosis that covers only the knee is simply a knee-orthosis or KO (Harris, 1973).

3-Various fields of knowledge pertinent to orthotic prescription:

The primary disciplines involved in the orthotic treatment process include normal and pathological anatomy and physiology.

Anatamy as applied to neuro - musculo - skeletal disease is concerned with the composition and alignment of normal limbs and their deviations in disease, the study of axses of motion of joints and the distortion of these axes in various disorders, and the form and function of specific muscles, including neural and vascular elements.

Physiology relates to the functions of the separate tissues, organs and the total organism.

Locomotion is pertinent to the use of lower- limb orthotic devices . When distortions of motor activity appear, treatment failure may result from lack of appreciation of the degree of departure from normal.

- Normal human locomotion:

Normal human locomation has been prescribed as a series of rhythmical,alternating movements of the limbs and trunk which result in forward progression of the center of gravity (New York University Prosthetics & Orthotics staff, 1981)

- The gait Cycle:

The complete gait cycle, that is the period of heel strike on one leg to the next heel strike on the same leg is divided into two phases: the stance phase and the swing phase (Fig. 2)

Stance phase:

It begins when the heel of the leading extremity touches the floor. It ends when the toe of the same foot leaves the ground.

Stance phase is characterized by the following gait events:

1- Heel strike:

Refers to the instant the heel of the leading extremity touches the ground .

2- Foot flat:

Refers to the instant when the sole of this foot touches the ground .

3- Midstance:

The instant when both heels are in apposition.

4- Heel off:

The instant the heel of the supporting extremity leaves the ground .

5- Toe off:

The instant when the toe loses cantact with the ground

The swing phase subdivsions:

1) Acceleration:

Swing phase begins at the instant the toe leaves the floor when the leg must be accelerated to overtake the body in preparation for the next strike.

2) Mid swing:

When both heels are in apposition the knee must be sufficiently flexed to allow the foot to clear the ground.

3) Deceleration:

Occurs after midswing when the forward motion of the leg is restrained to control the position of the foot immediately before heel strike.

Double support:

During normal gait there is a period of double support when the two extremities are in contact with the ground simultaneously.

Time distribution in the gait cycle:

At normal walking speeds the stance phase accunts for 60% of the gait cycle , the swing phase for 40% of the cycle and there is double support for 10 % of the cycle.

The center of gravity of the body:

Man's center of grvity is located just anterior to the second sacral vertebra, midway between both hip joints.

The displacement of the center of gravity :

(1) Vertical displacement:

In normal walking the center of gravity goes through a rhythmic upward and downward motion in the plane of progression. The highest point occurs when the supporting limb is at midstance, and the lowest occurs at the time of double support. The total amount of this vertical displacement is about 5 cm. (Fig. 3).

2) Lateral displacement:

The center of gravity is also displaced laterally in the horizontal plane . The total amount of the horizontal displacement is 5 cm. Its lateral limits are reached as each supporting limb is at its midstance (Fig 4)

Factors which determine the pathway of the center of gravity:

(1) Pelvic rotation:

In normal walking , the pelvis rotates alternatively to the right and to the left .

This rotation is a bout 4 degrees on each side . This allows a longer step without further lowering of the center of gravity .

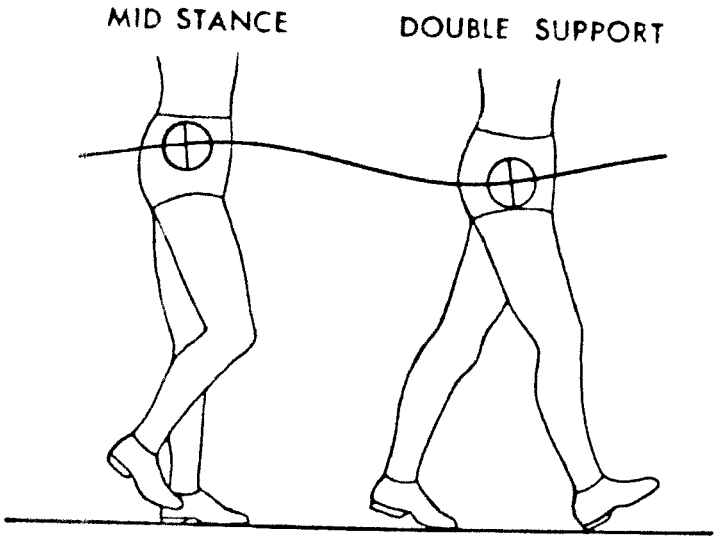


Figure 3

Vertical displacement

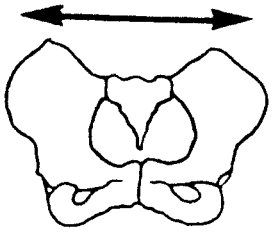


Figure 4

Lateral displacement

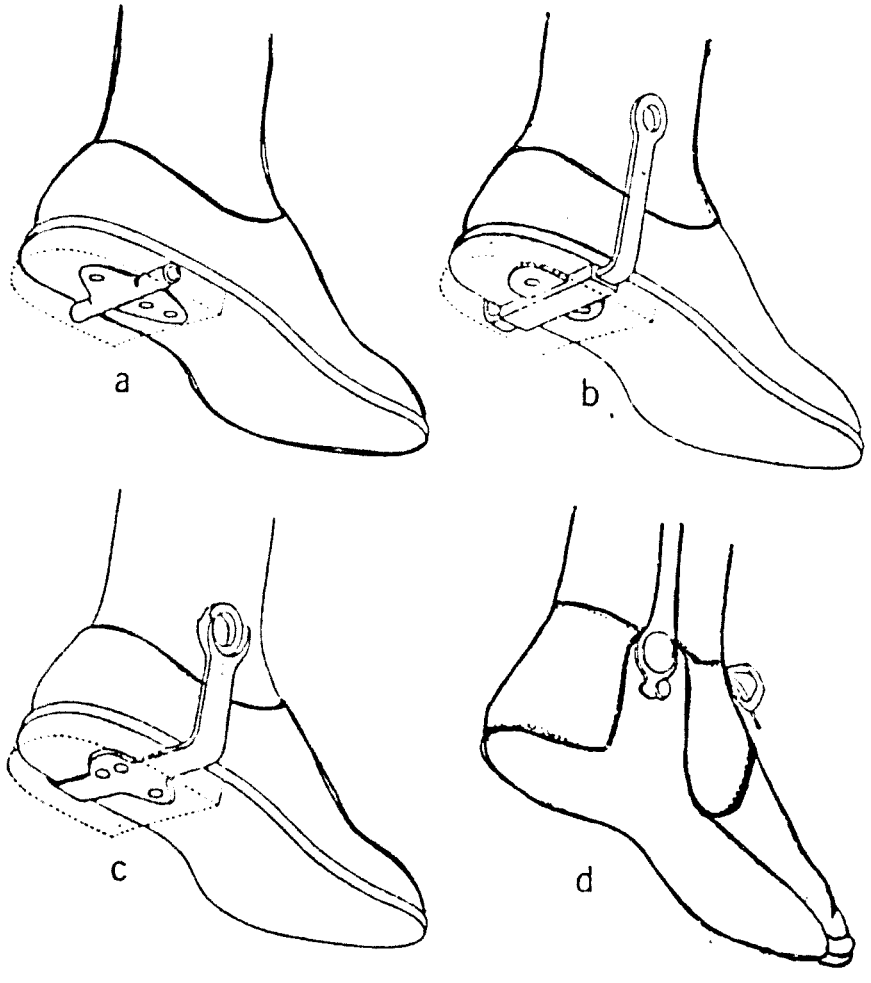


Fig. (5)
Shoe attachments a) Round Caliper b) Rectangular Caliper.
c) Stirrup d) Shoe insert.

2) Pelvic tilt:

In addition to pelvic rotation , the pelvis is tilted downwards relative to the horizontal plane on the side opposite to that of the weight bearing limb. This displacement is about 5 degrees and serves to decrease the rise of the center of gravity .

3) Knee flexion in stance phase:

At heel strike the knee is fully extended. As the body passes over with the center of gravity, the knee flexes and thus decreasing the upward displacement of the center of gravity.

4&5) Foot and knee mechanisms :

The ankle motion in comb ination with the knee motion, produces a smooth sinusoidal pathway of the center of gravity.

6) Lateral displacement of the pelvis:

The pelvis shifts laterally to maintain body balance as one leg is lifted from the ground. As the pelvis shifts , the weight bearing limb adducts . This sway from side to side narrows the base of support and smoothes the pelvic movement.

Thus the center of gravity pathway is modified by the six determinants of gait to minimize the energy expenditure during locomotion.

Pathological gait may be viewed as an attempt to preserve as low a level of energy consumption as possible by exaggerations of the motion at unaffected levels. Compensation is reasonably effective with loss of one determinant.

Loss of two determinants makes effective compensation impossible (Saunders et al., 1953) and (Inman et al., 1981)

Physiological cost of pathological gait:

Ralston (1959) reports that assistive devices such as bracing and walking sticks reduce the energy consumption to the patient but in most cases the cost of ambulation when using these devices was well above the normal.

A more recent report by Lehneis et al., (1974) shows that there is significant reduction of physiologyical cost when using modern plastic orthoses rather than conventional ones.

Conclusion :

For walking nature's goal appears to be to get a person from point A to point B most efficiently with the least expenditure of energy.

This is accomplished by producing a small sinusoidal displacement vertically and laterally relative to the line of progression . In this way potential energy is converted to kinetic energy with a resultant saving of a bout half the energy that would be required if this did not occur. Anything that upsets this mechanism or disturbs this smooth diplacement pattern causes an increase in expenditure . Thus immobilization of any segment or joint of the lower extremity by braces, casts or arthrodesis will require about a 10% increase in energy expenditure.

4- Functions of lower limb orthoses:

An orthosis may be prescribed for one or more of the following functions:

a) Prevent unwanted movement.

b) resist deformity.

c) Correct deformity.

d) redistribute forces to alleviate high pressure.

e) relieve weight

f) assist movement (Wilson et al., 1978)

5) Components of lower limb orthoses :

A- Below knee components and orthoses :

The below knee orthosis has the primary function of controlling the ankle joint .

The most important reason for prescribing them is that they provide :

1) Mediolateral stability at the ankle during the stance phase to prevent inadvertent twisting of the ankle .
2) Toe pickup during the swing phase to prevent dragging of the toe, stumbling and falling .
3) Pushoff stimulation during the latter part of the stance phase thus approximating more normal gait (Lehmann, 1982)

It usually consists of two uprights which are connected proximally to a calf band and distally to a mechanical ankle joint . Most lower limb orthoses must be appropriately attached to shoes (Fig 5).

Shoe Attachments :

The orthosis is attached to the shoe by means of a stirrup, caliper or a shoe insert .

Stirrup :

The most commorly used method of attachment is a stirrup attached directly to the sole of the shoe under the anterior

section of the heel . This solid stirrup encompasses the shoe like a "U" and becomes a permanant attachment between the uprights and the shoe proper (Fig 5c).

The stirrup may be split at the bottom to permit shoe changes . It also permits the most accurate alignment of the mechanical with the anatomical joint, but it is heavier, thicker, and less durable that the solid stirrup (Stoner, 1962). The split stirrup sometimes slips out of the channels or because of dirt and corrosion in the channels, is difficult to remove (Lehmamn, 1982) .

Caliper :

The caliper is inserted into a tube placed in the heel of the shoe (Fig 5a,b) . It provides for ease of interchangebility, minimal weight, economy of construction and facilities fitting and adjustment . The main drawback of the caliper is that the mechanical ankle joint is at the level of the shoe heel, considerably distal to the anatomical joint, which cause motion between the orthosis and the patient's limb

Shoe insert :

Instead of attaching the orthosis directly to the shoe by means of a stirrup or caliper, the stirrup may be incorporated in a shoe insert which in turn fits into the shoe (Dolan et al., 1969) (Fig 5d) . This insert may be made of plastic, metal,

or metal with leather, but more recently, plastic has gained in popularity because of the accuracy of fit that it provides . The insert gives better control of the foot . The joints are well matched and interchange of shoes is simple . On the other hand, it requires more skill and time to fabricate and to achieve an accurate fit . The shoe insert is therefore, some what more expensive than the other shoe attachments . The additional bulk of the insert may also cause a problem with fitting (Fishman et a l., 1985) .

Ankle joints and Controls

Most mechanical ankles are single axis joints which control motion in the sagittal plane (dorsiflexion and planter flexion) . The ankle control may be in the form of stops, assists or a solid ankle .

Ankle joint stops :

---

a) A planter - flexion (posterior) stop, which is often used in the case of a drop foot, allows unlimited dorsiflexion, but restricts planter flexion .

b) A dorsiflexion (anterior) stop provides the reverse function, allowing planter flexion and restricting dorsiflexion .

c) Limited - motion stop allows restricted motion in both directions which is often indicated when there is

involvement of a number of muscles around the ankle (Fig. 6) (N.Y.U. Prosthet. and Orthot. Staff, 1971)

d) A free ankle joint may be used when no assistance to ankle motion is required . It permits full planter and dorsiflexion while giving some control of lateral motion (Fig. 7) .

Adjustable ankle joint

If the condition at the ankle is expected to change, then an adjustable ankle joint, which allows the ankle to be readily set at different angles to accommodate the altered pattern, may be employed . It is generally used as a positioning device to be worn during night rather than for dynamic ambulation (N.Y.U. Prosthet. and Orthot. Staff, 1971) .

Solid ankle

If rigid control of the ankle is desired, a solid ankle may be necessary (Fig. 8) . It is quite strong, but not adjustable, should the situation at the ankle change .

Ankle joint assists :

In contrast to stops, which prevent motion, ankle joint assists may be utilized as an aid to weakened muscles . Motion at the ankle may be provided by the action of a spring, elastic

strap or the "springiness" of the material (plastic or wire) of which the orthosis is fabricated .

a) Dorsiflexion assist :

In which the spring is compressed following heel strike helping to control plantar flexion, after which the recoil of the spring aids dorsiflexion in swing phase

b) Dorsiflexion - plantar flexion assist :

In which a second spring is utilized . The anterior spring is compressed during the midstance phase and its recoil helps to plantar flex the ankle during push off phase (Fig.) .

Corrective Straps and Pads :

If there is tendency for the foot to deviate medially or laterally within the orthosis, it may be necessary to employ additional control at the ankle . This may be provided by the use of valgus or varus correction straps which attach to the shoe and buckle around the opposite bar (Fig.9) .

A T- strap may be attached to eithier the inside or the outside of the shoe, to provide mediolateral stability and to substitute for paralysed or partially paralysed inverter or evertor muscles (Stewart and Hallet, 1983) .

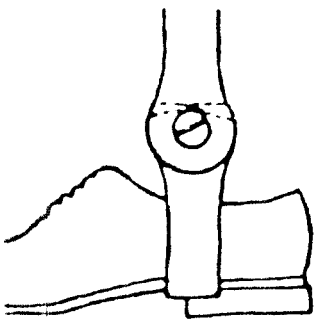


Fig. (6)
Limited motion ankle joints

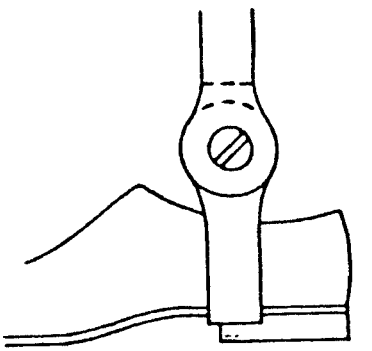


Fig. (7)
Free motion ankle joint

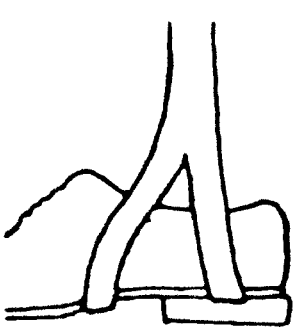


Fig. (8)
Solid ankle joint

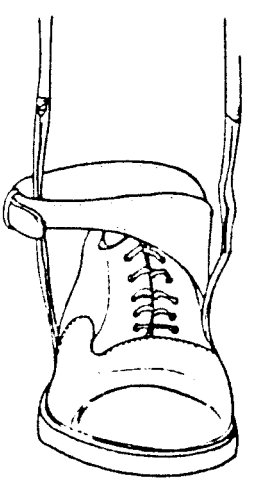


Fig.(9)
Valgus-varus correction
(T) Strap.

Uprights and Calf Band

Many factors dictate the choice and design of the uprights utilized in lower limb orthoses . Single - bar orthoses (Fig.10) are somewhat more cosmetic (particularly if placed medially or posteriorly) and are more easily adjusted to accomodate deformities than bilateral uprights . Single bars, however do not provide as much stability as bilateral uprights .

Fiberglass uprights were used by (Hill and Stube, 1969) in a brace designed for drop foot .

The metal calf band with its leather cuff adds rigidity to the orthosis, maintains proper alignment of the upringhts, secures the orthosis to the limb and provides a reaction point for the N.Y.U. Prosthet . and Orthot . Staff, 1981).

Plastic designs :

Increased understanding of the biomechanics of normal lower limb function and the pathomechanics of the disabled limb has led to functionally and cosmetically improved orthotic devices. The technical raclization of advanced lower limb orthoses based on biomechanical rationale was made possible through the availability of various modern plastic and new fabrication technics (Rusk, 1977) . Plastics are readily formed over a modified plaster model of a body part . Thus permitting a closer fit and a more precise control of pressure distribution. The extent to which motions are controlled depends primarily on

the relative rigidity of the plastic, which inturn depends upon

1) its chemical composition

2) thickness

3) shape, including trim lines, reinforcement, corrugations and rolled edges .

Although plastic AFOs are formed primarily from a single piece of thermoplastic material, three sections may be identified :

a) calf strap

b) calf shell

c) shoe insert

(N.Y.U. Prosthet. and Orthot. Staff, 1981) .

B) Above - knee Components and Orthoses :

The above - knee orthosis may be used to support the body weight or to prevent and correct abnormal motion at the knee . From the knee down, the components are the same as these discussed in the section on the below - knee orthosis, except that the uprights extend upwards to the knee joint . Some type of knee pad is usually employed to further assist in knee control . The thigh uprights are shaped to the contour of the thigh, and are held together by one or two thigh bands (Fig.11).

If control is needed at the hip, a pelvic and hip joint may be added to the uprights. (N.Y.U. Prosthet. and Orthot. Staff, 1971) .

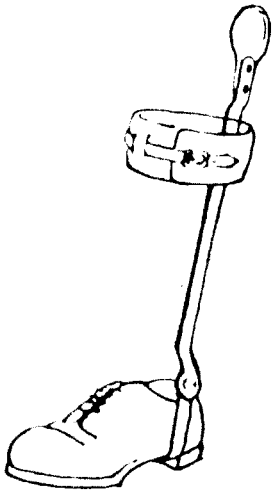


Fig. (10)

Single-bar orthoses

Fig. (11)

above-knee orthosis

Fig. (12)
Single axis
free motion
knee joint

Fig. (13)

drop ring lock

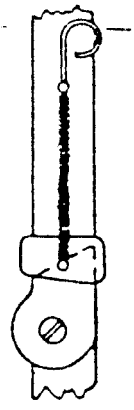


Fig. (14)
Rod spring ring lock

Knee joints :

1) Free knee joint :

If the individual can control his knee against flexion but has a tendency towards mediolateral instability or recurvatum, a free knee joint may be used (Fig.12).

2) Knee locks :

The most commonly used knee lock to control flexion is the drop-ring lock (Fig.13) . When the mechanical knee joint is in full extension, the ring drops over the joint manually or by gravity . A spring - loaded pull rod located at thigh level may be added to the ring (Fig.14) . The spring drives the drop lock down automatically, so that the individual need not bend to lock or unlock the joint .

3) Adjustable knee joint :

An adjustable knee joint is useful when change in the condition of the patient is expected or desired, such as in the gradual stretching of a knee - flexion contracture .

4) Offset knee joint :

If the mechanical knee joint is placed posterior to the uprights, as in the case of offset knee joint (Fig. 15), the knee will tend to extend when weight is transmitted through the bars . In this way the knee is stable without a lock during

stance phase, and is free to bend during swing phase, allowing a more natural gait. However this type of knee joint cannot be used where there is knee-flexion spasticity .

Knee orthosis :

In selected cases where only mediolateral control of the knee is required, a knee orthosis may be prescribed . It usually consists of two lateral bars with thigh and calf cuffs (Fig. 16) . There are designs such as the Swedish Knee Cage which prevent recurvatum but permit flexion (Fig.17) .

Hip joints and pelvic band :

The movement of the anatomical hip joint may be controlled by attaching a hip joint and a pelvic hand to the lateral uprights of the above knee orthosis .

Unilateral pelvic band :

The metal pelvic band encompasses the pelvis on the involved side below the iliac crest and above the greater trochanter, and continues around the opposite side in the form of a flexible belt (Fig.18) .

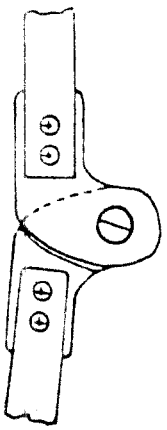


Fig. (15)
Offset knee joint

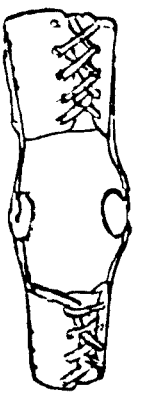


Fig. (16)
Traditional knee orthosis

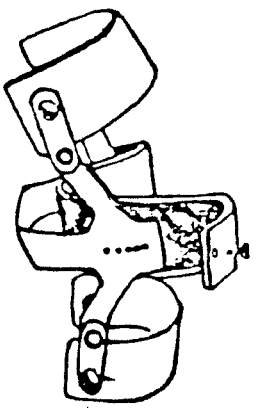


Fig. (17)
Swedish knee Cage.

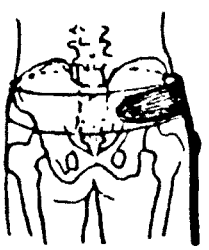


Fig. (18)
Unilateral pelvic band posterior view.

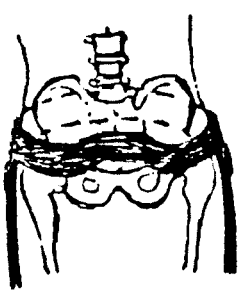


Fig. (19)
Bilateral pelvic band Posterior view.

Bilateral pelvic band :

Each side of the bilateral pelvic band begins at a point just posterior to the anterior superior iliac spines, midway between the greater trochanter and the iliac crests (Fig.19) . It then curves downwards and posteriorly to contact the most prominent portion of the buttocks and continues slightly upwards to overlie the sacrum .

Double pelvic band :

For maximum hip control a double pelvic band may be used (Fig.20) . It is difficult to fit and requires the making of a body cast, which increases the cost, time and skill necessary for fabrication .

Hip joints :

The pelvic band and the lateral upright of the orthosis are connected by the hip joint . Most hip joints have a single axis, allowing for flexion and extension but limited hyperextension (Fig. 21) . The single - axis hip joint may include a lock similar to these used at the knee joint to prevent flexion while standing

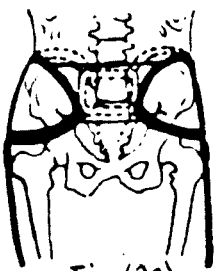


Fig-(20)

Anterior View

Double pelvic band

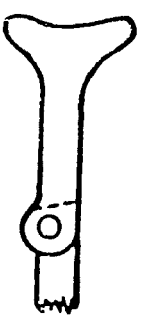


Fig (21)
Hip joint with
hyperextension stop

6) Application of pressure :

In order to provide any function, an external orthosis must apply force through the soft tissues to the musculoskeletal system, since bones are always covered by soft tissues of one type or another . Pressure above 25 mm Hg applied continuously over most soft tissues, result in a restriction of circulation, and eventually necrosis . Intermittent pressures above 25 mm Hg can be tolerated without danger . The unit pressures should be reduced as much as possible spreading the forces over as wide an area as is practical, not only to avoid restriction of circulation, but to provide as much confort as possible (Wilson et al., 1978).

7) Alignment :

It deals with the angular relationship of the orthotic components to each other and to a reference line relating the orthosis to the body . In lower limb orthotics the alignment of a brace cannot be based solely on the condition of the disabled limb to which the brace is intended . Rather, a functionally or structurally deficient limb must be considered as part of the body as a whole . Special attention must be given to the normal static and dynamic relationship of the hip, knee, ankle and subtaler joints . If these normal relationships are not taken into account during fitting and alignment procedures, the brace

may hinder the performance of the wearer and may tend to increase further any existing deformities (Lehneis, 1971)

8) Relative Motion :

Motion between the orthosis and the part of the body it encompasses must be kept to a minimum to avoid chafing .

9) Energy Consumption :

Energy consumption should be considered in any orthotic design, and should be kept to a minimum . Improving orthotic stability reduces energy cost (Lehneis et al., 1976) .

Perry et al., 1975 and Reuter and Pierre, 1980 in their study on energy consumption support the following orthotic guideline : "Lower extremity contractures should be corrected before definitive orthotic fitting, particularly when freely moving orthotic joints are prescribed" .

Waters et at., 1982 stated that joint motion should be permitted in an orthosis when sufficient muscle control and strength are present to move the joint normally through the available range . To do otherwise is to unnecessarily condemn the patient to a reduced walking speed and efficiency .

10) Weight :

In general, the lower the weight of an orthosis, the more acceptable will be the patient . Certainly, energy consumption during ambulation is proportional to weight . But in any orthotic design, stability should not be sacrified to achieved lighter weight (Lehneis et al., 1976) .

11) Cosmosis :

The appearance of an orthosis is quite significant to the vast majority of patients, and therefore, every effort should be made to make orthoses as inconspicuous as possible (Wilson et al., 1978)

12) Materials :

The metals most frequently used are surgical steel and some alloy of aluminium such as duralumin . The brace should be made as light as possible but not at the expense of strength, durability and safety .

Duralumin is lighter than steel, but does not tolerate the stress and strain of a heavy person climbing stairs .

Surgical steel should be selected for braces of the lower limb in heavy individual and the active child . In children, when extension bars are used to accomodate growth, a combination of steel and duralumin can be used .

The joints and attachments of braces to shoes are always of steel (Deaver, 1966) .

Sheet thermoplastics have many properties that make them suitable for use in lower limb orthotics .

Polycarbonate, with its high impact strength transparency and vacuum formability, is particularly suitable for use as clear back panels and structural companonts in orthotic assemblies .

Polyethelene is more of a general - purpose low - cost material, which can be easily vacuum formed . It has high chemical resistivity, fair strength and toughness and can be obtained in various colours .

A.B.S. (Acrylonitrile - butadiene - styrene) is a strong, tough material having good resistance to chemicals .

Polypropylene has a very high fatigue strength and low flexural modulus properties which make it useful for correction or support with respect to the foot - ankle complex . It is also applied in orthoses that require knee joints (Artamonov, 1972) .

Polysar and Orthoplast can be heated in boiling water until soft and then molded on the body (Murply and Burstein, 1985) .

Hazards and Errors in the bracing process :

In the bracing process, the signs and symptoms that are considered danger signals include :

1) pain

2) anaesthesia

3) absent peripheral pulse

4) brawny oedema and

5) fixed deformity .

These denger signs may indicate fractures, nerve damage, tissue vulnerability to pressure and difficult treatment problems requiring brace modifications or other treatment modalities .

While psychological factors may interfere with sucessful orthosis wearing, all complaints are not neurotic in origin .

One must be aware of dismissing patient's complaints casually.

Even in the absence of the signs mentioned above, the physician must be alert to the relationship between bracing errors and deformities . In a series of deformed children, a frequent finding has been the concurrence of malaligned orthoses and certain foot and knee problems .

Orthotic malalignment problems emphasize the synergistic effects of bracing and surgery and the fallacy of standardized orthotic construction without regard to careful alignment on the limb . (N.Y.U. Prosthet. and Orthot. Staff, 1981) .

SUBJECTS & METHODS

Subjects and Methods

1 - Sample

Our sample consists of two groups

1) Study group .

It consists of 30 male and female children with poliomyelitis and wearing lower limb orthoses . This sample was chosen from the inpatient service and orthopaedic and physical medicine outpatient clinics of our institute of poliomyelitis and Physical Medicine .

The criteria of inclusion in this study were :

1- These children were physically disabled and wearing lower limb orthoses .

2- Their ages were between 6 and 12 years

3- They were not moderately or severely mentally retarded .

2) Control group :

The control group consists of the same number (30) of similar disability (caused by poliomyelitis) but not wearing any orthoses .

2 - Procedure :

In both study and control groups the child was subjected to the following :

1- History taken from the mother using a questionnaire, designed on the basis of Rutter's parental scales in

assessing the deviant behavioaur in children .

This questionnaire is shown in Appendix "A" and it includes :

a) Data related to the child: name, age, sex, developmental status as regards to his mother language and personal - social landmarks ...etc .

b) Data related to his family e.g. social structure, home atmosphere, financial circumstances, sib - order of the child, family history of psychiatric disorders, ... etc.

c) Type and nature of child's behavioural disturbances .

d) Any observable deviant behaviour of the child at school, degree of concentration, attention, academic achievement in class and his relation to his peer group .

2- Psychiatric examination using an examination sheet .

This is represented in Appendix "B" and concentration was on the following points :

a) Detection of the maim problem in the child, its course, severity and relation to any particular events .

b) Assessing the child's verbal and non - verbal behaviour, his social interaction with the interiewer .

c) If one or both parents are present, assessing his personality, quality of their marriage, the parent's emotional attitude towards the child and their response to the child's behaviour .

3- Physical examination :

All children were examined to rule out any physical illness that may be present other than the polio disability .

4- Psychometry :

The self - concept of all children was measured using a self - concept scale prepared in 1984 especially for Egyptian children by Dr. Adel Ezz Eldin El-Ashwal, Psychology Department, Aim Shams University .

The scale consists of 80 questions all to be answered by Yes or No .

If gives an idea about self concept of the child as regarding 4 dimensions :

1- body dimension

2- social dimension

3- academic dimension

4- Neurotic dimension

This test is shown in Appendix "C" .

The questions that belong to each dimension are shown seperately in appendix "D" .

Appendix "A"

بطاقة الصحة النفسية للاطفال

اسم الطفل ثلاثيا : الجنس : ذكر / انثى

السنة الدراسية :

العنوان :

تاريخ الميلاد : / / ١٩ مكان الميلاد :

اولا : معلومات خاصة بنمو الطفل وعلاقاته :

أ ـ فترة الحمل والرضاعه :

١ ـ هل حدثت مضاعفات أو اصابات أثناء الحمل ؟ ما هى ؟

٢ ـ هل كانت الولادة طبيعية ؟

٣ ـ ما حالة الطفل عند ولادته ؟

٤ ـ ما هو السن الذى تم فطام الطفل فيه ؟

٥ ـ هل تقبل الامر بسهولة ؟

ب ـ اكتب بدقة السن (بالشهور) الذى بدا فيه الطفل يمارس الامور الاتيه :

	السن بالشهور		السن بالشهور
ـ بدا يبتسم للاخرين		ـ بدا يمسك الكوب ويشرب	
ـ بدا يسند راسه		ـ امتنع عن وضع الاشياء فى فمه	
ـ بدا يمسك الاشياء بيديه		ـ بدا يتحكم فى وظائف الاخراج	
ـ بدا يجلس بمفرده		ـ بدا يقول جمل صغيرة (مثلا : عاوز اشرب) .	
ـ بدا يحبو (يزحف على الارض)		ـ بدا ياكل بمفرده ويرتدى ملابسه بمفرده .	
ـ بدا يتكلم من ٢ ـ ٣ كلمات لها معنى (مثلا : ماما ـ البيت ـ الشارع)			

جـ ـ التاريخ المرضى للطفل :

ضع علامة (✓) عن يمين المرض الذى اصيب به الطفل :

( ) التهاب لوز متكرر ( ) حصبة ( ) تشنجات ( ) شلل أطفال

( ) التهاب الاذن ( ) سعال ديكى ( ) حمى معوية ( ) اصابات

( ) الحمى الروماتيزمية ( ) دفتريا ( ) طفيليات معوية ( ) عمليات جراحية

( ) كساح ( ) حمى شوكية ( ) بلهارسيا

د ـ علاقات الطفل الاجتماعية وتحصيله الدراسى :

ضع علامة ( ) عن يمين ما تراه صحيحا بالنسبه للطفل :

١ ـ الانطواء والانبساط ( )

ـ يسعى الى الاخرين ( )

ـ يبتعد عنهم ( )

ـ منطوى جدا لايعامل احد ( )

٢ ـ علاقته بوالدته ( )

ـ يسعى اليها ولايريد ان يتركها ( )

ـ يحب الجلوس معها ( )

ـ علاقة فاترة ( )

ـ ينفر منها ( )

٣ - علاقته بوالده : ( )

- يسعى اليه ولا يريد ان يتركه ( )
- يحب الجلوس معه ( )
- علاقة فاترة ( )
- ينفر منه ( )

٤ - علاقته باقاربه : ( )

- يسعى اليهم ويحبهم ( )
- علاقة فاترة ( )
- ينفر ويخاف منهم ( )

٥ - علاقته بالمدرسين : ( )

- يسعى اليهم ويحبهم ( )
- علاقة فاترة ( )
- ينفر ويخاف منهم ( )

٦ - علاقته بزملائه الاطفال : ( )

- يسعى اليهم ويحبهم ( )
- علاقة فاترة ( )
- يحب البعض وينفر من البعض ( )
- ينفر منهم تماما ( )

٧ - تحصيله الدراسي : ( ) جيد ( ) متوسط ( ) ردىء
درجاته اخر العام : ( ) لغة عربية ( ) حساب

٨ - الطاعة : ( ) مطيع جدا ( ) مطيع احيانا
( ) غير مطيع ( ) عنيد جدا ولا يستجيب مطلقا

٩ - ما انواع الالعاب التى يحبها ويقضى فيها وقتا طويلا ؟

ثانيا : معلومات خاصة بالاسرة :

أ - التاريخ المرضى للاسرة :

ضع علامة ( ) عن يمين المرض الذى اصيب به احد اقارب الطفل :

أقارب الدرجة			اقارب الدرجة		
الاولى	الثانية		الاولى	الثانية	
( )	( )	درن	( )	( )	صرع
( )	( )	سكر	( )	( )	امراض عقلية
( )	( )	سرطان	( )	( )	تخلف عقلى
( )	( )	تشنجات	( )	( )	أمراض القلب

ب - الحالة المنزلية والاجتماعية :

١ - اسم الوالد (او ولى الامر) :
٢ - مهنة الوالد :
٣ - مهنة الوالدة :
٤ - مستوى الدخل :
( ) يكفى نفقات المعيشة ( ) يكاد يكفى بصعوبة ( ) لا يكفى

٥ - اين يمكث الطفل اثناء تغيب الام ؟
ومن يعتنى به فى هذه الاثناء ؟
وما نوعية تصرفاته فى هذه الاثناء ؟

٦ - هل يعيش الطفل فى منـزل الاسـرة ؟ ( ) نعـم ( ) لا

٧ - مع من يعيش الطفل (فى معظم الايام) ؟ بالتفصيـل .

٨ - ما عدد غرف المنزل الذى يعيش فيـه الطفـل ؟

هل له سرير بمفرده ؟ ( ) نعـم لا ( )

من ينام معـه فى نفـس الغرفـة ؟

٩ - عدد افراد الاسرة (الذين يعيشون فى نفس المسكن) .

١٠- عدد اخـوة الطفـل ترتيب الطفل فى اخوتـه .

بيانات الاخوه بالترتيب من الاكبر الى الاصغر :

م	الاسـم	الجنـس	السـن	الدراسة او العمل	م	الاسـم	الجنس	السن	الدراسة او العمل

١١- هل انفصل الطفل عن احدى والديـه اوكليهما ( ) نعـم ( ) لا

- عن من انفصـل ( ) الاب ( ) الام ( ) كليهمـا .
- هل كان الانفصال مؤقتا ام دائما ، ( ) مؤقـت ( ) دائـم .
- ان كان مؤقتا فكم استغرق من الزمـن ؟
- سبب الانفصال بالتفصيل ( ) مـرض ( ) سـفر ( ) انفصال ( ) وفـاة
- ما سـن الطفـل عنـد حدوث الانفصال ؟
- ما مدى تاثـره بهذا الانفصـال ؟ (بالتفصيـل) ؟
- هل تاقلـم مع الوضع الجديد ؟ ( ) نعـم ( ) لا

١٢- هل ينزل الطفل الى الشارع للعب ؟

( ) باسـتمرار ( ) احيانـا ( ) لاينزل مطلقـا

١٣- هل توجـد قرابة بين الاب والام ؟ ( ) نعـم ( ) لا .

ما نوع هذه القرابـة ؟

( ) اولاعم اوعمة ( ) اولاد خال اوخاله ( ) من نفس العائلـة .

ثالثا : الاضطرابات السلوكية او الانفعالية التى يعانى منها الطفل :

ضع علامة ( ) عن يمين الامور الواضحة جدا والمتكررة فى حياة الطفل ، مع مراعـاة الدقـة الشـديدة :

ا - صعوبـات النـوم :

( ) يهدأ بصعوبـة شـديدة وينتابـه هياج قبل النوم .
عـدد المرات اسـبوعيـا :

( ) الارق (التاخير فى) الاستغراق فى النوم ، عدد المرات اسبوعيا :

( ) الارق (يستيقظ كثيرا اثناء النوم) ، عـدد المرات اسبوعيـا :

( ) الكابـوس (حلـم مزعـج يوقـظ الطفـل) يمكن تهدئـة الطفـل بعـده ، عـدد المـرات اسـبوعيـا :

( ) فزعـة النـوم (يقوم مفزوعـا) اثناء النوم دون ان يشعر بمن حوله - لايمكـن تهدئة الطفل وينسى ذلك بعد الاستيقاظ) عدد المرات اسـبوعيا :

( ) المشـى اثنـاء النـوم - عـدد المرات اسـبوعيـا :

ب - صعوبات التغذية :

( ) مغص شديد مستمر
( ) رفض الطعام (فقدان الشهية) ( ) دائما ، ( ) احيانا
( ) الشراهه (التهام الطعام بسرعة وكميات كبيرة) .
( ) اكل اى شئ (مثل خبز وخلافه) ؟

جـ - اضطرابات وظائف الاخراج :

( ) عدم التحكم فى التبول ليلا - عدد المرات : ( ) يوميا ( ) اسبوعيا ( ) شهريا .
( ) عدم التحكم فى التبول نهارا - عدد المرات: ( ) يوميا ( ) اسبوعيا ( ) شهريا .
( ) امساك مستمر .
( ) اى اضطرابات او شكاوى طبية اخرى (مثل الصداع المستمر ، ارتفاع درجة الحرارة ، الام مختلفة .....

د - صعوبة النطق والكلام :

( ) تاخر فى النطق ( ) تلعثم فى الكلام ( ) تهتهه .
( ) اللثغة ( ) صعوبات اخرى

هـ - اضطرابات الحركة :

( ) الحركة الزائدة وعدم الاستقرار مطلقا
( ) عدم الحركة ( ) رعشه ( ) قضم الاظافر
( ) مص الاصابع ( ) اية حركات غير طبيعية - مانوعها ؟

و - اضطرابات السلوك الاجتماعى :

( ) السرقة : ( ) باستمرار .. مع ايضاح الكيفية .....
( ) اخفاء الاشياء او القاؤها من النافذة . عدد المرات يوميا :
( ) الكذب باستمرار . ( ) الغيرة باستمرار .
( ) سهل الاستثارة والهياج .
( ) مشاجرات مستمرة (يعتدى على غيره باستمرار) .
( ) تخريب واتلاف كل ما يقع تحت يديه .
( ) غضب شديد (الارتماء على الارض وضرب الارض برجليه ويديه) : العدد : ( ) يوميا ( ) اسبوعيا
( ) دائما حزين او مهموم او يبكى كثيرا .
( ) الانطواء والبعد الدائم عن الاخرين .
( ) الخوف المستمر : ( ) من المدرسة ( ) الظلام .
( ) الحيوانات : ( ) اى موقف اخر .
( ) البكاء باستمرار فى المدرسة .
( ) سرعة الشرود وعدم التركيز فى اى عمل او لعبة لمدة معقولة .
( ) عدم الاعتماد على نفسه فى اى شئ .
( ) اهمال النظافة وعدم الحرص عليها (دائما يلوث ثيابه) .
( ) اى ملاحظات اخرى على تصرفات الطفل (او اى مشاكل يسببها) .

Appendix "B"

Psychiatric examination of children

Complaint of the child :relation to any particular event.

- Parents:

1 - Emotional attitude towards the child.
2 - Personality : Father & Mother.
3 - Specific features (violence, drinking , criminal behaviour)

Preliminary observation:

1- General appearance eg. (body built, scars in the face, congenital anomalies).
2- Dressing : if it is appropriate to age & sex?
3- Mood and emotional state: happy, depressed, anxious.
4- Attitude towards the family members.
5- Indication of social adjustment : Number of friends, preferable play, leader or follower.
6- Right or left handed.

Psychiatric Examination:

A) Motor behaviour:

Quantity a) hyperactive

b) hypoactive

Quality a) Incoordination

b) Stereotypes

B) Relation with interviewer

Eye : avoidance (autistic) or fixed direction (depressed, apathy) or normal.

- General social response:

a) Passive (depressed or apathetic)

b) Little response (mentally retarded)

c) resistant (antisocial)

d) Treat the doctor as an object (autistic).

- Similing response:

absent in neurotics & antisocial children .

C) Verbal behaviour:

1- Failure of speech development.

2- Quantity of spontaneous remarks

a) decreased

b) increased

3- Content of speech : logical or not, hallucination.

D) Non- verbal expression of affection

1- Anx iety (elevated eye brows, dilated pupils).

2- Depression (crying with no tears, eyes narrowed , angle of mouth is downwards.

3- Apathy (lack of mobility & social contact, face is devoid of emotions).

4- Anger (Boring teeth, clenching fist, stamping, destructiveness).

Appendix "C"

مقياس مفهوم الذات للأطفال

اعـــــداد

دكتور عادل أحمد عزالدين الأشول

كلية التربية جامعة عين شمس

قسم الصـــحة النفسـية

الاسم :

السن :

المدرسة :

السنة الدراسية :

الجنس : ذكر / انثى التاريخ

تعليمـــات

يعرض عليك فيما يلى مجموعة من المواقف التى نود ان تجيب عليها بصراحة ووضوح ، مع ملاحظة أن هذه المواقف ليست اختبارا لقدرتك العقلية أو مستوى تحصيلك ، ولكن يقصد منها التعرف على آرائك ومشاعرك نحو نفســـك .

نرجو منك قراءة كل موقف بدقة ، ثم تقرر ما اذا كان هـــذا الموقف صادقا بالنسبة لك أو غالبا ما يكون كذلك عليك أن تضع علامة (√) امام كلمة نعم ، واذا كان الموقف غير صادق بالنسبة لك ، عليك أن تضع علامة (√) امام كلمة لا .

ونود أن نذكرك بانه لا توجد اجابات صحيحة واجابات خاطئة ، فاى اجابة تعتبر صحيحة طالما انها تعبر عن رأيك فى نفسك بصدق ، حاول الاجابة على جميع المواقف ولا تترك اى منها .

ولك جزيل الشكر والتقدير ؟

نعم لا

١ ـ يسخر منى زملائى فى المدرسة ٠
٢ ـ أنا شخص سعيد ٠
٣ ـ من الصعب على تكوين اصدقاء ٠
٤ ـ كثيرا ما اكون حزينا
٥ ـ مظهرى جميل ٠
٦ ـ أنا شخص خجول ٠
٧ ـ اشعر بالضيق عندما يطلب منى المدرس الاجابة على سؤال معين ٠
٨ ـ يضايقنى مظهرى ٠
٩ ـ عندما اكبر ساصبح رجلا مهما ٠
١٠ ـ اشعر بالقلق اثناء الامتحانات ٠
١١ ـ زملائى لا يحبوننى ٠
١٢ ـ أتصرف بطريقة حسنة داخل المدرسة ٠
١٣ ـ عادة ما اكون سبب حدوث بعض الاشياء الخاطئة٠
١٤ ـ أسبب المتاعب لأسرتى ٠
١٥ ـ انا شخص قوى ٠
١٦ ـ لدى كثير من الأفكار الجيدة ٠
١٧ ـ انا شخص مهم داخل أسرتى ٠
١٨ ـ عادة ما اثابر لتحقيق اهدافى ٠
١٩ ـ يمكننى تكوين كثير من الأشكال الجميلة بيدى ٠
٢٠ ـ اشعر بالتعب بسهولة ٠
٢١ ـ انا جيد فى أعمالى المدرسية ٠
٢٢ ـ فعلت كثير من الأشياء السيئة ٠
٢٣ ـ يمكننى ان ارسم بصورة جيدة ٠
٢٤ ـ انا جيد فى الموسيقى ٠
٢٥ ـ تصرفاتى سيئة داخل المنزل ٠
٢٦ ـ انا بطيىء فى الانتهاء من الواجبات المدرسية ٠
٢٧ ـ أنا شخص مهم داخل فصلى المدرسى ٠
٢٨ ـ انا شخص عصبى (أتنرفز بسرعة) ٠

	نعم	لا
٢٩ ـ عيناى جمليتان ·		
٣٠ ـ استطيع شرح الدرس بصورة جيدة امام زملائى بالفصل ·		
٣١ ـ احلم كثيرا عندما اكون بالمدرسة ·		
٣٢ ـ اضايق اختى او اخى ·		
٣٣ ـ يعجب اصدقائى بافكارى ·		
٣٤ ـ غالبا ما اتورط فى المشكلات ·		
٣٥ ـ انا شخص مطيع داخل المنزل ·		
٣٦ ـ انا شخص سعيد الحظ ·		
٣٧ ـ كثيرا ما اكون قلقا ·		
٣٨ ـ يتوقع والدى منى اشياء فوق طاقتى ·		
٣٩ ـ تعجبنى الطريقة التى اتبعها فى التعامل مع الاخرين ·		
٤٠ ـ اشعر بالفتور (عدم الحماس) نحو الاشياء ·		
٤١ ـ شعرى جميل ·		
٤٢ ـ غالبا ما اكون مسرورا عند ذهابى الى المدرسة ·		
٤٣ ـ اتمنى اذا كنت مختلفا عما انا عليه ·		
٤٤ ـ انام جيدا بالليل ·		
٤٥ ـ اكره المدرسة ·		
٤٦ ـ انا اخر من يختار فى المباريات الرياضية ·		
٤٧ ـ كثيرا ما اكون مريضا ·		
٤٨ ـ كثيرا ما اضايق (ازعج) الاشخاص الاخرين ·		
٤٩ ـ يعتقد زملائى داخل الفصل بان لدى افكار جيدة ·		
٥٠ ـ انا شخص غير سعيد ·		
٥١ ـ لدى اصدقاء كثيرون ·		
٥٢ ـ انا شخص مرح ·		
٥٣ ـ لا استطيع تفهم معظم المقررات الدراسية ·		
٥٤ ـ مظهرى حسن ·		

نعم لا

٥٥ ـ اشعر بحيوية ونشاط كبير ٠
٥٦ ـ كثيرا ما تشاجر مع زملائى ٠
٥٧ ـ يحبنى تلاميذ فصلى الدراسى ٠
٥٨ ـ يضايقنى التلاميذ الاخرون ٠
٥٩ ـ اشعر ان اسرتى خاب املها فى ٠
٦٠ ـ وجهى جميل ٠
٦١ ـ عندما احاول عمل شىء ما ، عادة ماانفذه بطريقة خاطئة ٠
٦٢ ـ اشعر بالضيق من المنزل ٠
٦٣ ـ انا رئيس بعض الفرق الرياضية ٠
٦٤ ـ اشعر باننى ينقصنى كثير من المهارات ٠
٦٥ ـ افضل مشاهدة المبـــاريات الرياضـــية بدلا من الاشتراك فيها ٠
٦٦ ـ انسى ما اتعلمه ٠
٦٧ ـ انسجم مع الاخرين بسهولة ٠
٦٨ ـ يتقلب مزاجى بسهولة ٠
٦٩ ـ أنا محبوب من الفتيات ٠
٧٠ ـ انا قارىء جيد ٠
٧١ ـ افضل العمل بمفردى عن العمل فى الجماعة ٠
٧٢ ـ احب أخى ٠
٧٣ ـ شكلى جميل ٠
٧٤ ـ غالبا ما اشعر بالخوف ٠
٧٥ ـ كثيرا ما اكسر الاشياء ٠
٧٦ ـ زملائى يثقون فى ٠
٧٧ ـ أنا شخص مختلف عن الاخرين ٠
٧٨ ـ افكر فى افكار سيئة (شريرة) ٠
٧٩ ـ ابكى بسهولة ٠
٨٠ ـ أنا شخص طيب ٠

Appendix "D"

مفهوم الذات لدى الاطفال يتضح فى اربعة ابعاد رئيسية هى :

١ ـ البعد الجسمى ٠
٢ ـ البعد الاجتماعى ٠
٣ ـ البعد الاكاديمى ٠
٤ ـ بعد القلق ٠

وتوضح الجدوال الاتية بنود المقياس التى تشبعت بكل عامل من العوامل الاربعة للمقياس

رقم البند	نص البنـــد
٧	أشعر بالضيق عندما يطلب منى المدرس الاجابة على سؤال معين
١٢	اتصرف بطريقة حسنة داخل المدرسة
١٦	لدى كثير من الأفكار الجيدة
١٨	عادة ما أثابر لتحقيق اهدافى
١٩	يمكننى حل كثير من الالغاز
٢١	انا جيد فى اعمالى المدرسية
٢٣	يمكننى تذكر ما استذكره
٢٤	تحصيلى الدراسى مرتفع
٢٦	انا بطيىء فى الانتهاء من الواجبات المدرسية
٢٧	أنا شخص مهم داخل فصلى الدراسى
٣٠	استطيع شرح الدرس بصورة جيدة امام زملائى بالفصـــل
٣٣	يعجب أصدقائى بافكارى
٤٢	غالبا ما اكون مسرورا عند ذهابى الى المدرسة
٤٥	اكره المدرسة
٤٩	يعتقد زملائى داخل الفصل بأن لدى افكار جيدة
٥٣	لا استطيع تفهم معظم المقررات الدراسية
٦٦	انسى ما اتعلمه
٧٠	انا قارىء جيد

يتضح من الجدول السابق أن العامل الأول ، البعد العقلى والاكاديمى للذات ، يتشبع ببنود تعبر عن مدى تفهم الطالب لقدراته العقلية ، وقدرته على انجاز الاعمال الاكاديمية ٠

جدول رقم (٤) يوضح البنـــود الشـــبعة بالعامل الثانى

رقم البند	نص البنـــد
٥	مظهرى جميل
٨	يضايقنى مظهرى
١٥	انا شخص قوى
٢٠	اشعر بالتعب بسهولة
٢٩	عيناى جميلتان
٤١	شعرى جميل
٤٣	اتمنى لو كنت مختلفا عما أنا عليه
٤٦	انا اخر من يختار فى المباريات الرياضية
٤٧	كثيرا ما اكون مريضا
٥٤	مظهرى حسن
٥٥	اشعر بحيوية ونشاط كبير
٦٠	وجهى جميل
٦٣	انا رئيس بعض الفرق الرياضية
٦٤	اشعر بأننى ينقصنى كثير من المهارات
٦٥	افضل مشاهدة المبـــاريات الرياضـــية بدلا من الاشتراك فيها
٧٣	شكلى جميل

يتضح من الجدول السابق أن العامل الثانى « البعد الجسمى » يتشبع ببنود تعبر عن مدى تقبل الفرد لمفهوم ذاته الجسمية .

جدول رقم (٥) يوضح البنود المشبعة بالعامل الثالث

رقم البند	نص البنـــد
١	يسخر منى زملائى فى المدرسة
٢	انا شخص سعيد
٣	من الصعب على تكوين أصدقاء
٦	انا شخص خجول
٩	عندما اكبر سأصبح رجلا مهما
١١	زملائى لا يحبوننى
١٤	اسبب المتاعب لأسرتى
١٧	انا شخص مهم داخل اسرتى
٢٢	فعلت أشياء سيئة كثيرة
٢٥	تصرفاتى سيئة داخل المنزل
٣٢	أضايق اخواتى
٣٥	أنا شخص مطيع داخل المنزل
٣٩	تعجبنى الطريقة التى أتبعها فى التعـــامل مع الاخرين
٤٠	أشعر بالفتور (عدم الحماس) نحو الاشياء
٥١	لدى أصدقاء كثيرون
٥٢	انا شخص مرح
٥٦	كثيرا ما أتشاجر مع زملائى
٥٧	يحبنى تلاميذ فصلى
٥٨	يضايقنى التلاميذ الاخرين
٦٢	أشعر بالضيق من المنزل
٦٧	انسجم مع الأشخاص الاخرين بسهولة
٦٩	انا محبوب من الفتيات
٧١	أفضل العمل بمفردى عن العمل فى الجماعة
٧٢	أحب اخواتى
٧٦	زملائى يثقون فى
٧٨	افكر فى اشياء سيئة (شريرة)
٨٠	انا شخص طيب

يوضح الجدول السابق أن العامل الثالث « البعد الاجتماعى للذات » يتشبع ببنود تعبر عن مدى تفهم المرء لجوانب ذاته الاجتماعية والذى يتضمن مدى شعوره بحب الاخرين وتفاعله معهم ومدى تقبله كشخص داخل اسرته ، ومدى تقبل الاشخاص الاخرين له ،سواء كانوا بالمدرسة او خارجها ..الخ.

جدول رقم (٦) يوضح البنود المشبعة بالعامل الرابع

رقم البند	نص البنـــد
٤	كثيرا ما اكون حزينا
١٠	اشعر بالقلق اثناء الامتحانات
١٣	عادة ما اكون سبب حدوث بعض الاشياء الخاطئة
٢٨	انا شخص عصبى (أتنرفز بسرعة)
٣١	احلم كثيرا عندما اكون بالمدرسة
٣٤	غالبا ما اتورط فى المشكلات
٣٦	انا شخص سعيد الحظ
٣٧	كثيرا ما اكون قلقا
٣٨	يتوقع والدى منى اشياء فوق طاقتى
٤٤	انام جيدا بالليل
٤٨	كثيرا ما اضايق الاشخاص الاخرين
٥٠	انا شخص سعيد
٥٩	اشعر أن أسرتى خاب أملها فى
٦١	عندما أحاول عمل شىء ما ، انفذه بطريقة خاطئة
٦٨	يتقلب مزاجى بسهولة
٧٤	غالبا ما اشعر بالخوف
٧٥	كثيرا ما اكسر الاشياء
٧٧	انا شخص مختلف عن الاخرين
٧٩	ابكى بسهولة

يوضح الجدول السابق أن العامل الرابع « بعد القلق » يتشبع ببنود تعبر عن مدى شعور المرء بالقلق والخوف ، ومدى شعوره باتفاقه او باختلافه عن الاخرين ، واحساسه بالسعادة ومدى تقلب أو استقرار حالاته الانفعالية .

RESULTS

Results

I General information about the study and control groups obtained from questionnaire to the parents and including:

- Age distribution
- Degree of disability
- Past history of hospitalization
- Number of siblings
- The order of the child in the family
- Number of rooms at home
- Family history of significant diseases
- Number of children seperated from parents
- Parental behaviour towards their children
- Level of achievement in schools.

Table 1 : Age distribution among study and control groups.

Age group	Study group (No. 30)				Control group (No 30)			
	males No 18		females No 12		males No 16		females No 14	
6-8 yrs	4	22.2%	3	25%	4	25%	6	42.8%
8-10 yrs	7	38.9%	5	41.6%	7	43.7%	4	28.5%
10-12 yrs	7	38.9%	4	33.3%	4	25%	5	35.7%

$X^2 = 2.2$ $P > 0.05$

Table 1 shows that there was no statistically significant difference btween age distribution in study and control groups.

Table 2: Degree of disability in study and control groups

Degree of disability	Study group(No 30)				control group(No 30)			
	males(18)		females(12)		males(16)		females(14)	
Multiple limb dis.	8	44.4%	6	50%	7	43.7%	5	35.7%
Single limb dis.	10	55.5%	6	50%	9	56.2%	9	64.2%

$X^2 = 0.55$ $P>0.05$

Table 2 shows also no statistically significant difference between the multiple limb disabled and single limb disabled groups.

In study group severely disabled children are wearing bilateral braces with or without a spinal support. They are usually holding crutches, while single limb affected children are wearing a unilateral brace & not holding any crutches.

Table 2: Degree of disability in study and control groups

Degree of disability	Study group(No 30)				control group(No 30)			
	males(18)		females(12)		males(16)		females(14)	
Multiple limb dis.	8	44.4%	6	50%	7	43.7%	5	35.7%
Single limb dis.	10	55.5%	6	50%	9	56.2%	9	64.2%

$X^2 = 0.55$ $P>0.05$

Table 2 shows also no statistically significant difference between the multiple limb disabled and single limb disabled groups.

In study group severely disabled children are wearing bilateral braces with or without a spinal support. They are usually holding crutches, while single limb affected children are wearing a unilateral brace & not holding any crutches.

Table 3 : Past history of operations (hospitalizations)

	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
Previous Operations & hospitalizations	13	72.2%	8	66.6%	16	100%	11	78.5%

This table shows that most boys (72.2%) & girls (66.6%) of study group were exposed to operations. All boys (100%)& 78.5% of girls of control group were also exposed to operations. Almost all children of both groups were exposed to more than one operation . The number of operations done ranged from 2 to 11.

Table 4:Number of siblings of children of study & control groups

No. siblings	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
two	1	5.5%	2	16.6%	2	12.5%	2	14.2%
three	6	33.3%	2	16.6%	4	25%	2	14.2%
four or more	10	55.5%	8	66.6%	9	56.2%	10	71.4%

This table shows that more than half the children (55.5% of boys of study group, 66.6% of girls of the same group and 56.2% of boys of control group & 71.4% of the latter) had 4 or more than 4 siblings.

Table5 : Siborder of children of study & control groups

Siborder	Study group (30)		Control group(30)	
	Males(18)	females(12)	males(16)	females(14)
First	4 22.2%	4 33.3%	5 31.2%	3 21.4%
second	1 5.5 %	1 8.3%	2 12.5%	5 35.7%
third	4 22.2%	2 16.6%	2 12.5%	2 14.2%
fourth	5 27.7%	1 8.3%	2 12.5%	1 7.1%
fifth	2 11.1%	2 16.6%	2 12.5%	1 7.1%
sixth or after sixth	2 11.1%	2 16.6%	3 18.7%	2 14.2%

$X^2 = 10.48$ $P>0.05$

Table 5 shows that the difference in siborder in both study and control groubs is statistically of no significant value.

Talbe 6 : Crowding of dwelling & sleeping conditions

	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
1or2 persons/bedroom	2	11.1%	2	16.6%	2	12.5%	2	14.2%
3 or 4 "	6	33.3%	3	25%	8	50%	7	50 %
>4 persons/bedroom	10	55.5%	7	58.3%	6	37.5%	5	35.7%

$X^2 = 3.112$ $P>0.05$

Table 6 shows that there is overcrowding in dwelling & sleeping conditions in more than 50% of both study & control groups.

Table 7 : Family history of significant diseases in study & control groups

Disease	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
psychiatric disorders	2	11.1%	1	8.3%	-	-	-	-
convulsions	2	11.1%	-	-	-	-	1	7.1%
cancer	1	5.5%	-	-	1	6.2%	1	7.1%
H.failure	1	5.5%	1	8.3%	-	-	3	21.4%

Table 7 shows that there was low incidence of psychiatric disorders or other significant family diseases, which may affect the psychological status of their children, in both groups.

Table 8 : No. of children separated from one or both parents in study & control groups

Type of seperation	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
Temporary	1	5.5%	2	16.6%	3	18.7%	2	14.2%
Permanent	3	16.6%	2	16.6%	2	12.5%	3	21.4%
Total	4	22.1%	4	33.2%	5	31.2%	5	35.6%

$\chi^2 = 1.193$ $P>0.05$

Table 8 shows that the incidence of separation from one or both parents was more in control group (33.4%) than in study group (27.6%), but the difference between both groups was statistically insignificant.

Table 9 : Parental behaviour towards their children in study & control groups

Type of behaviour	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
- Normal , well-balanced	5	27.7%	4	33.3%	6	37.5%	4	28.5%
- Overprotection	10	55.5%	7	38.8%	8	50%	5	35.7%
- Violence	3	16.6%	1	5.5%	2	12.5%	5	35.7%

$X^2 = 4.446$ $P>0.05$

Table 9 shows that 56.6% parents of study group treat their disabled children with overprotection, while in control group (43.3%) treated them in the same way.

On th other hand , 23.3% of parents of control group treated them with violence , while only 13.3% of study group treated them so.However the difference between both groups was statistically insignificant.

Table 10 : Level of school achievement among children of study and control groups.

level of school achievement	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
- good	5	27.7%	3	25	3	18.7%	4	28.5%
- average	12	66.6%	7	58%	8	50%	6	42.8%
- below average	1	5.5%	2	16.6%	2	12.5%	1	7.1%

χ^2 $X=1.7$ $P>0.05$

Table 10 shows that most children of study & control groups were in the range of "average" degree.

6 children of the control group were not attending school.

The difference between both groups was statistically insignificant.

II Behaviour disorders in study and control groups obtained from questionnaire to the mother (Appendix A) psychiatrc examination of the child (Appendix B) and testing of self- concept (Appendix C)

Table 11 : Conduct disorders among study and control groups

Type of disorder	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
Stealing	-	-	-		2	12.5%	1	7.1%
Lying	2	11.1%	1	8.3%	3	18.7B%	1	7.1%
Aggression	13	72.2%	6	50%	9	56.2%	6	42.8%
Jealousy	7	38.8%	1	8.3%	8	50%	2	14.2%
Irritability	12	66.6%	10	83.3%	12	75%	10	71.2%
Temper tantrum	2	11.1%	1	8.3%	4	25%	4	28.5%
		33.3%		26.3%		39.5%		28.5%
average	29.8 %				34%			

χ^2=10.5 P>0.05

Table 11 reveals that conduct disorders are more prevalent in control (34%) than in study group (29.8%). This is especially evident in stealing, lying, jealousy & temper tantrum which were more prevalent in control group.

However aggression & irritability were more prevalent in study (61.1%& 74.9%) respectively than in control group (49.5% & 73.2%).

In both groups conduct disorders were more prevalent in boys than in girls. The difference between both groups was statistically of no significant value .

CONDUCT DISORDERS AMONG STUDY AND CONTROL GROUPS

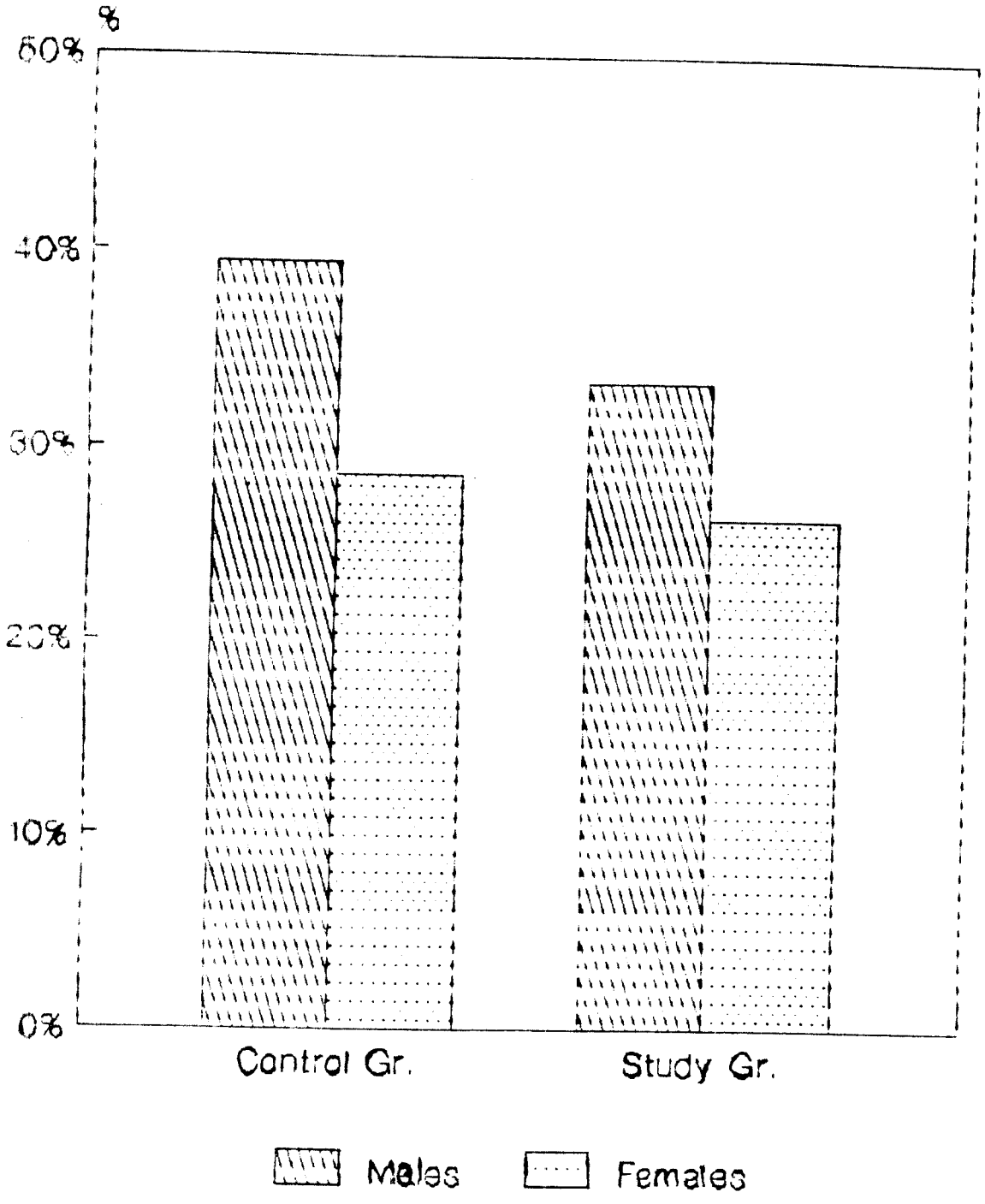


Table 12 : sleep disorders among study and control groups

sleep disorder	Study group (30)				Control group(30)			
	males(18)		females(12)		males(16)		females(14)	
-Insomnia at beginning sleep	5	27.7%	5	41.6%	5	31.2%	8	57.1%
-Insomnia ,recurrent awakening	5	27.7%	4	33.3%	9	56.2B%	8	57.1%
- Night mares	6	33.3%	2	16.6%	3	18.79%	6	42.8%
- Night terrors	7	38.8%	2	16.6%	4	25%	4	28.5%
		31.9%		27%		32.8%		46.4%
average		29.4 %				39.6%		

$X^2 = 5.23$ P>0.05

Table 12 shows that sleep disorders were more prevalent in control group (39.6%) than in study group (29.4%).

This was more apparent in recurrent spontaneous awakening during sleep which was found in 56.2% of control group and in only 30.5% of study group.

Next was difficulty in beginning sleep, which was present in 44.1% of control group in comparison to 34.6% of study group. Also night mares were present in 30.7% of control & in 24.9% of study group.

In control group sleep disorders were more in girls (46.4%) than in boys (32.8%) while in study group these were more in boys (31.9%) than in girls (27%).

However the difference was statistically insignificant as P value was > 0.05 X^2 = 5.23

SLEEP DISORDERS AMONG STUDY AND CONTROL GROUPS

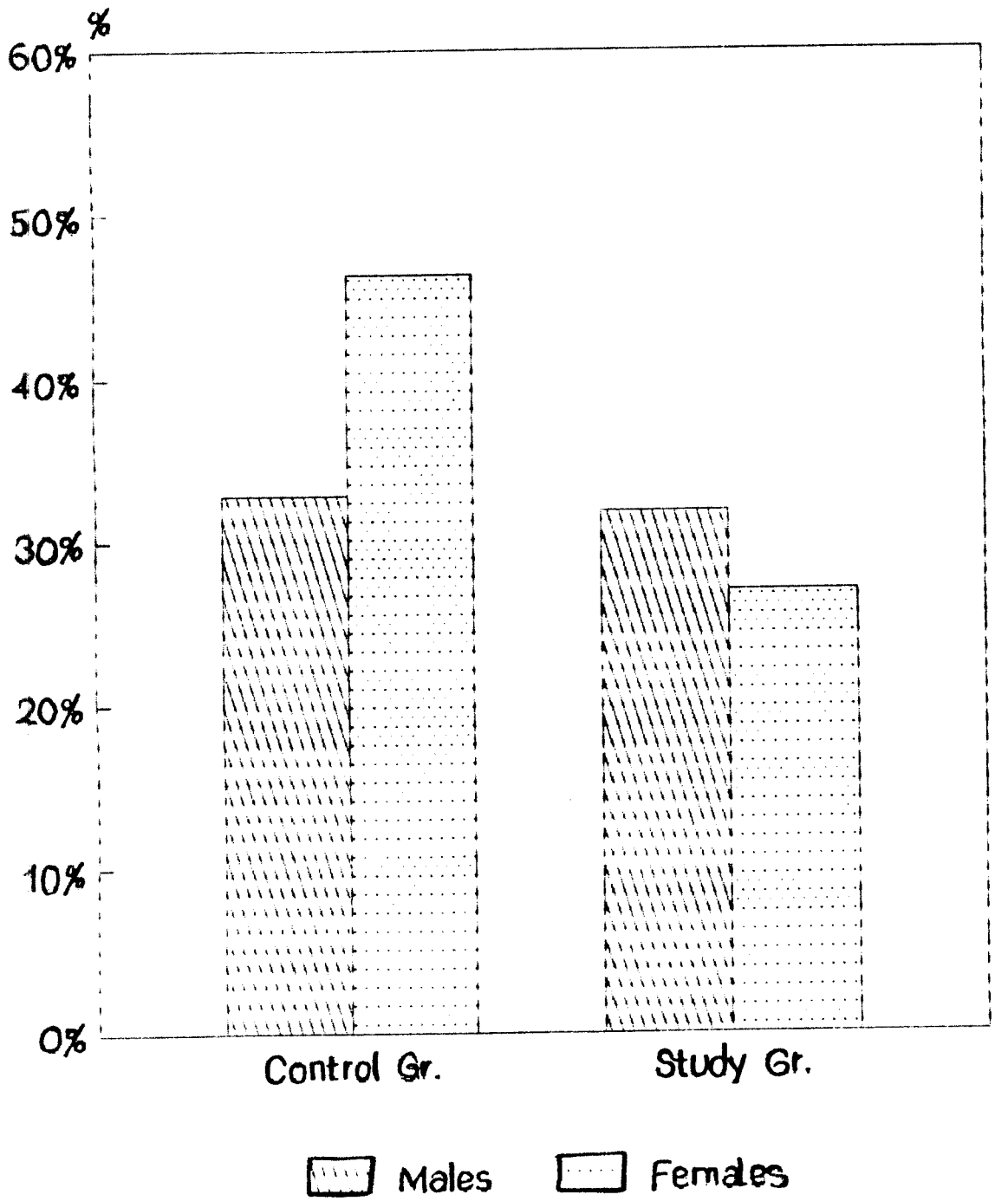


Table 13 : Feeding disorders among study and control groups

Type of disorder	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
- Severe colic	4	22.2%	1	8.3%	3	18.7%	3	21.4%
- Refusal of food	11	61.1%	6	50%	11	68.7%	10	71.4%
- Polyphagia	1	5.5%	1	8.3%	1	6.2%	-	-
- Headache & fever related to food intake	7	38.8%	4	33.3%	2	12.5%	5	35.7%
		31.9%		25%		26.5%		32.1%
average		28.4 %				29.3%		

$\chi^2 = 2.857$ $P > 0.05$

Table 13 shows that feeding disorders were more prevalent in control group (29.3%) than in study group (28.4%) This was more evident in severe colic , which was present in 20% of control group & 15.2% in study group . Also refusal of food was more in control group (59.3%) than in study group (55.5%). But the differnce was statistically of no significant value. $P>0.05$ $X^2 = 2.857$

FEEDING DISORDERS AMONG STUDY AND CONTROL GROUPS

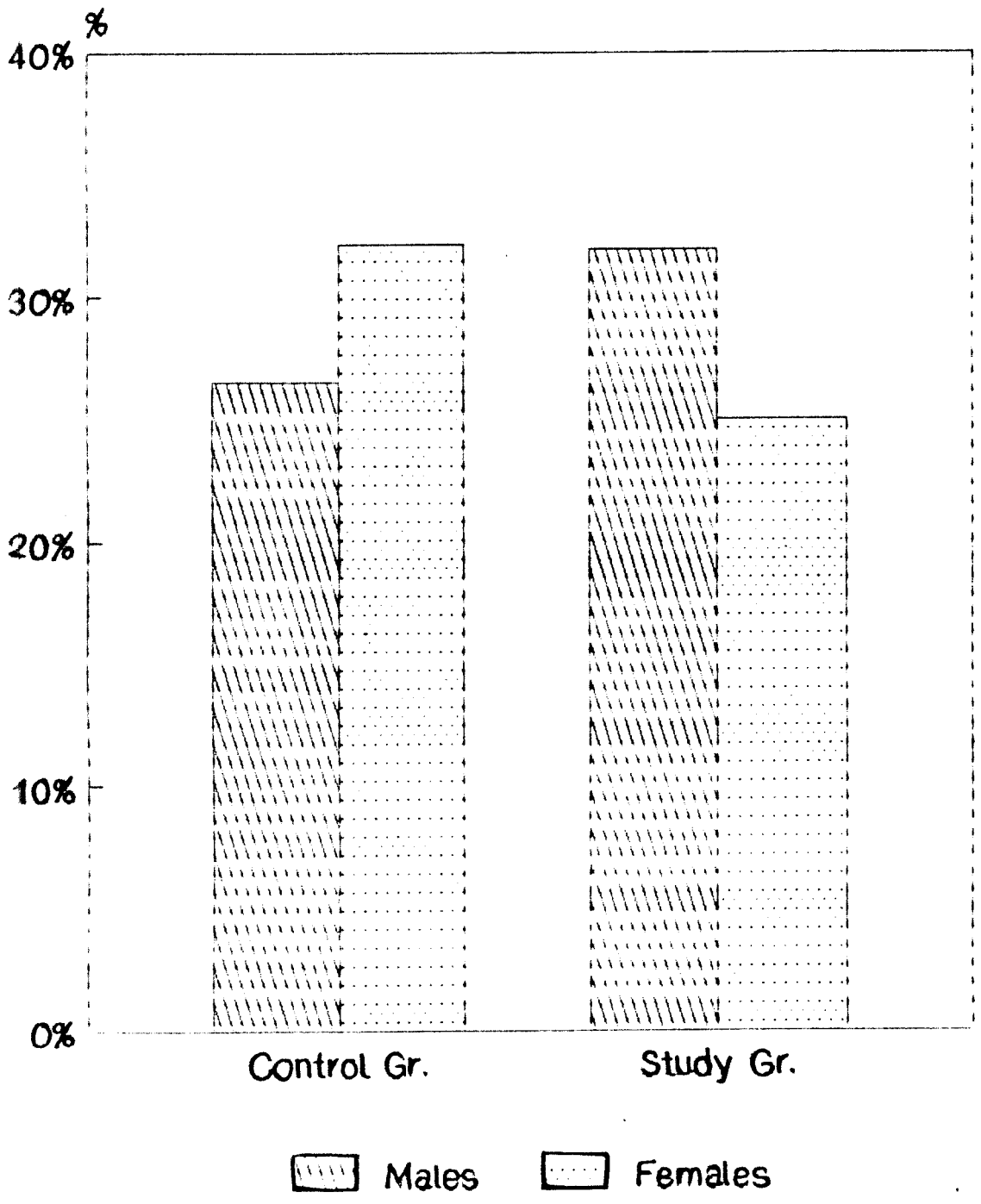


Table 14 :, Psychomotor disorders among study and control groups

Type of disorder	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
- Hyperactivity & restlessness	3	16.6%	3	25%	2	12.5%	2	14.2%
- Hypoactivity	1	12.5%	1	8.3%	2	12.5%	-	-
- Tremors	1	12.5%	-		2	12.5%	1	7.1%
- Nail biting	5	27.7%	1	8.3%	2	12.5%	2	14.2%
- Thumb Sucking	-	-	-	-	2	12.5%	3	21.4%
		13.8%		8.3%		12.5%		11.3%
average		11%				11.9%		

$X^2 = 1.5$ P>0.05

Table 14 shows that hyperactivity and nail biting were more prevalent in study than in control group, while thumb sucking was more in control group. However the difference was statistically insignificant (P value > 0.05)

Table 15 : Excretory function disorders among study and control groups

Type of disorder	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
Nocturnal enuresis	5	27.7%	1	8.3%	3	18.7%	1	7.1%
Diurnal enuresis	2	11.1%	-	-	1	6.2%	-	-
Chronic constipation	6	33.3%	-	-	2	12.5%	-	-
	24%		8.3%		12.4%		7.1%	
average	16.15%				9.75%			

$X^2 = 0.03$ $P > 0.05$

Table 15 shows that excretory function disorders were almost only present in boys in both study & control groups .

They were more prevalent in study group than in control group (12.4%) but the difference was statistically insignificant . P value was >0.05

Table 16 : Speech disorders among study and control groups

Type of disorder	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
Delayed speech	1	5.5%	1	8.3%	3	18.7%	3	21.4%
Stuttering	3	16.6%	1	8.3%	3	18.7%	1	7.1%
		11%		8.3%		18.7%		14.2%
average	9.6%				16.4%			

$X^2 = 0.017$ P>0.05

Table 16 shows that speech disorders were more prevalent in control group (16.4%) than in study group (9.6%), but the differnce was statistically insignificant. P value was >0.05.

Table 17:: social adaptation disorders among study and control groups.

Type of disorder	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
- Dependance	5	27.7%	5	41.6%	3	18.7%	3	21.4%
- Withdrawal from surroundings	5	27.7%	3	25%	8	50	10	71.4%
- Dark phobia	6	33.3%	3	25%	4	25%	8	57.7%
- School phobia	-	-	-	-	3	18.7%	3	21.4%
	22.1%		22.9%		28.1%		42.9%	
average	22.5%				35.5%			

X= 5.34 P>0.05

Table 17 shows that social adaptation disorders were more in control group (35.5%) than in study group (22.5%) However dependance was more in study group (34.6%) then in control group (20%) .Withdrawal from the surroundings, dark & school phobia were more in control group. Their percentages were 62.5%, 41.3% & 20% in control group in contrast to 26.3%,29.1% & 0% in study group respectively. The difference was statistically insignificant P value was >0.05 X = 5.34

SOCIAL ADAPTATION DISORDERS AMONG STUDY AND CONTROL GROUPS

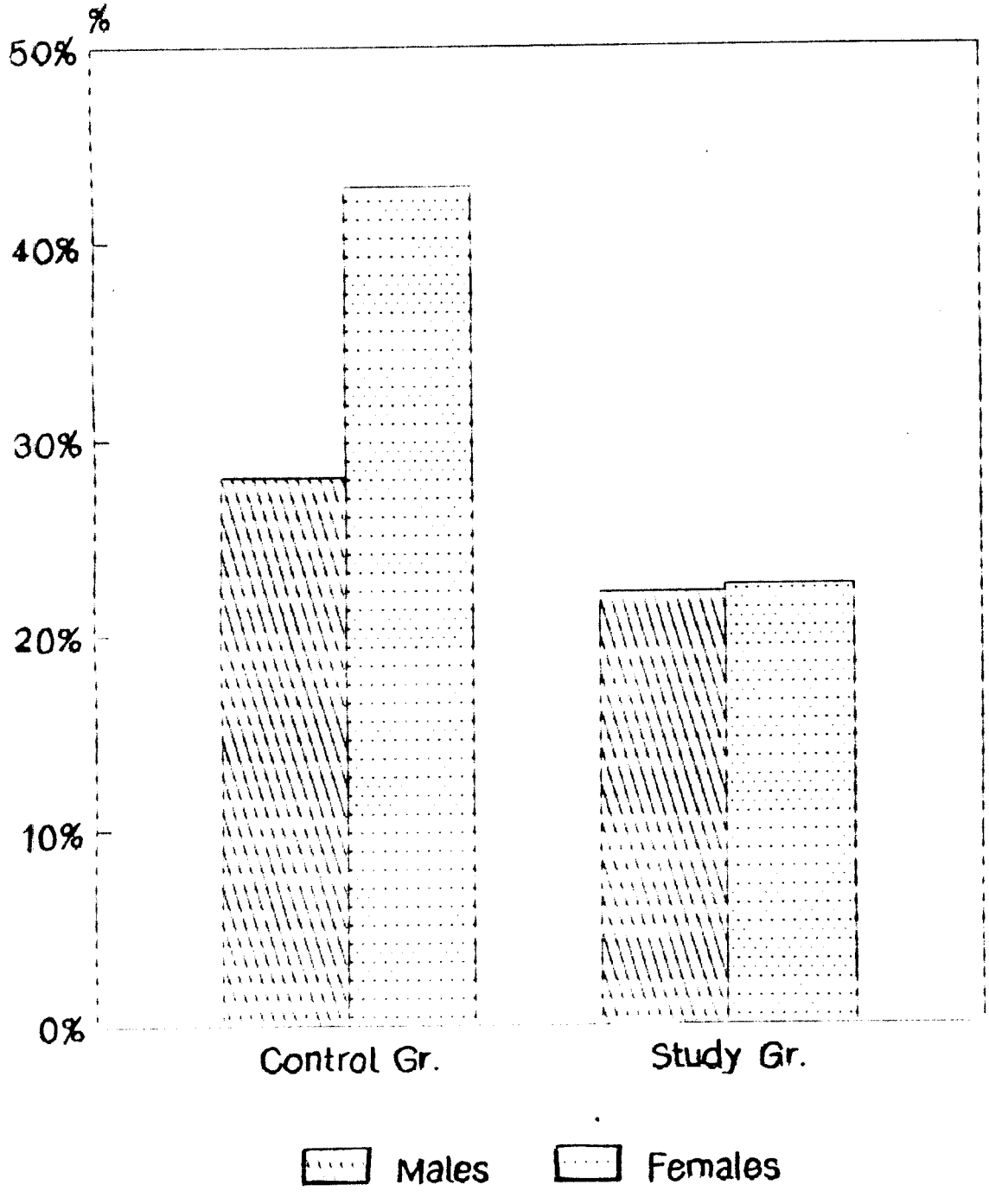


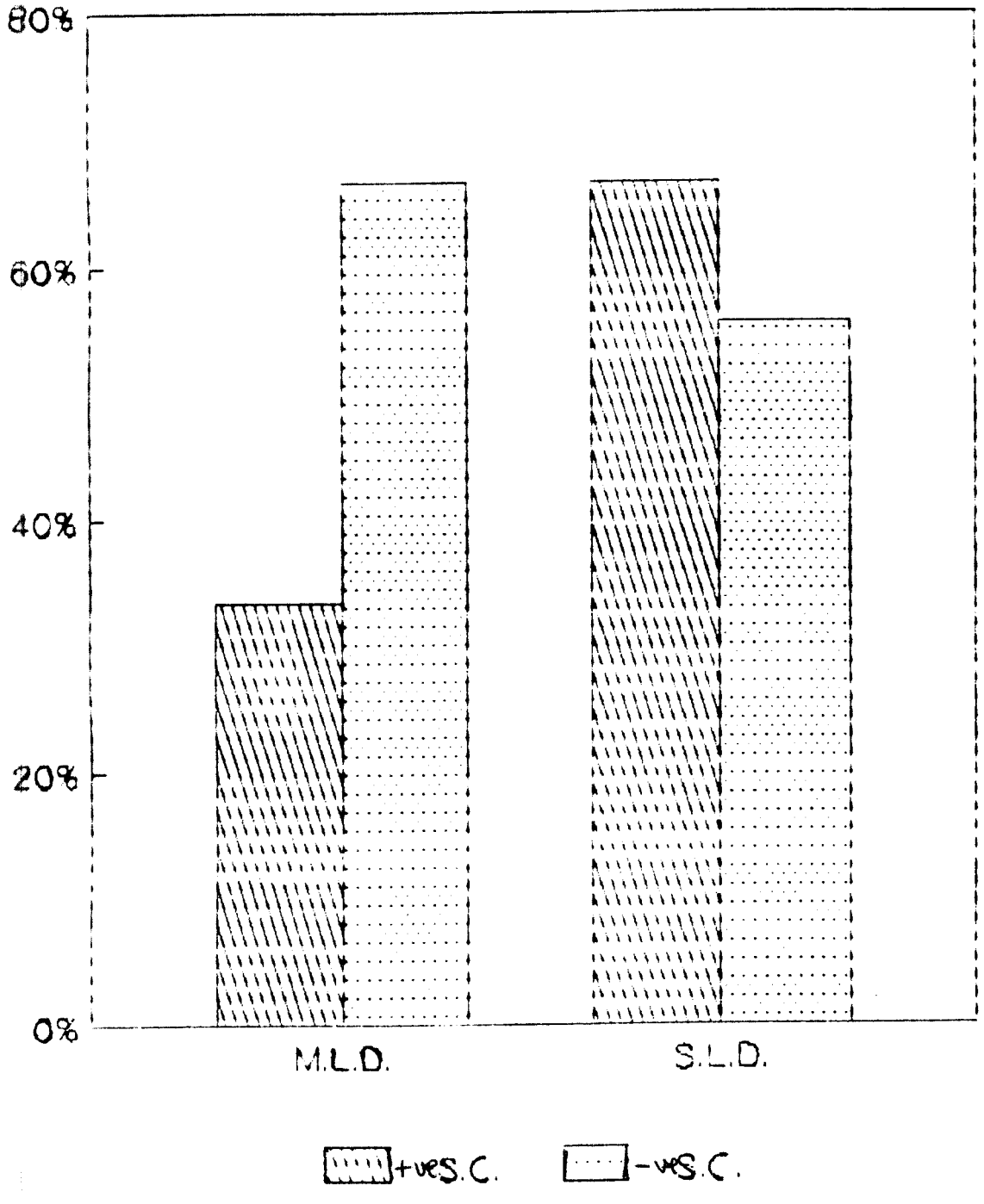
Table 18 : self concept in children of study and control groups

Self-concept	Study group (30)				Control group(30)			
	Males(18)		females(12)		males(16)		females(14)	
+ ve self -concept	6	33.3%	3	25%	9	56.2%	3	21.4%
- ve self -concept	12	66.6%	9	75%	7	43.7%	11	78.5%

$X^2 = 4.85$ $P>0.05$

Table 18 shows that boys with +ve self - concept were more in control (56.2%) than in study group (33.3%) while girls with +ve self-concept were more in study group (25%) than in control group (21.4%). The difference between both groups was statistically insignificant. P value was >0.05

% OF SELF CONCEPT AMONG THE CONTROL GROUP



Perentage of Behavioural disorders and self - concept among control group according to degree of disability

Type of Behavioural disorder \ Degree of Disability	Multiple limb disability						Single limb disability					
	males (7)		females (5)		Total (no=12)		males (9)		females (9)		Total (no=18)	
1) Conduct disorder	7	100%	4	80%	11	91.6%	7	77.7%	6	66.6%	13	72.2%
2) Sleep disorder	4	57.1%	5	100%	9	75%	5	55.5%	6	66.6%	11	61.1%
3) Feeding disorder	7	100%	3	60%	10	83.3%	7	77.7%	6	66.6%	13	72.2%
4) Psychomotor disorder	3	42.8%	3	60%	6	50%	3	33.3%	2	22.2%	5	27.7%
5) Enuresis	2	28.5%	-	-	2	16.6%	-	-	2	22.2%	2	11.1%
6) Speech disorder	1	14.2%	1	14.2%	2	16.6%	3	33.3%	3	33.3%	6	33.3%
7) Social adaptation disorder	4	57.1%	4	80%	8	66.6%	5	55.5%	8	88.8%	13	72.2%
8) +ve self concept	3	42.8%	1	14.2%	4	33.3%	6	66.6%	2	22.2%	8	66.6%
9) -ve Self concept	4	57.1%	4	80%	8	66.6%	3	33.3%	7	77.7%	10	55.5%

Table (19)

Percentage of Behavioural disorders and self - concept among study group according to degree of disability

Type of behavioural disorder \ Degree of disability	Multiple limb disability						Single limb disability					
	males (8)		females (6)		Total (no=14)		males (10)		females (6)		Total (no=16)	
1) Conduct disorder	6	75%	4	66.6%	10	71.4%	8	80%	6	100%	14	87.5%
2) Sleep disorder	6	75%	3	50%	9	64.2%	3	30%	3	50%	6	37.5%
3) Feeding disorder	8	100%	3	50%	11	78.5%	4	40%	4	66.6%	8	50%
4) Psychcmotor disorder	5	62.5%	-	-	5	35.7%	4	40%	2	33.3%	6	37.5%
5) Enuresis	1	12.5%	-	-	1	7.1%	3	30%	-	-	3	18.7%
6) Speech disorder	3	37.5%	-	-	3	21.4%	1	10%	-	-	1	6.2%
7) Social adaptation disorder	5	62.5%	5	83.3%	10	71.4%	5	50%	4	66.6%	9	56.2%
8) +ve self concept	3	37.5%	-	-	3	21.4%	3	30%	3	50%	6	37.5%
9) -ve Self concept	5	62.5%	6	100%	11	78.5%	7	70%	3	50%	10	62.5%

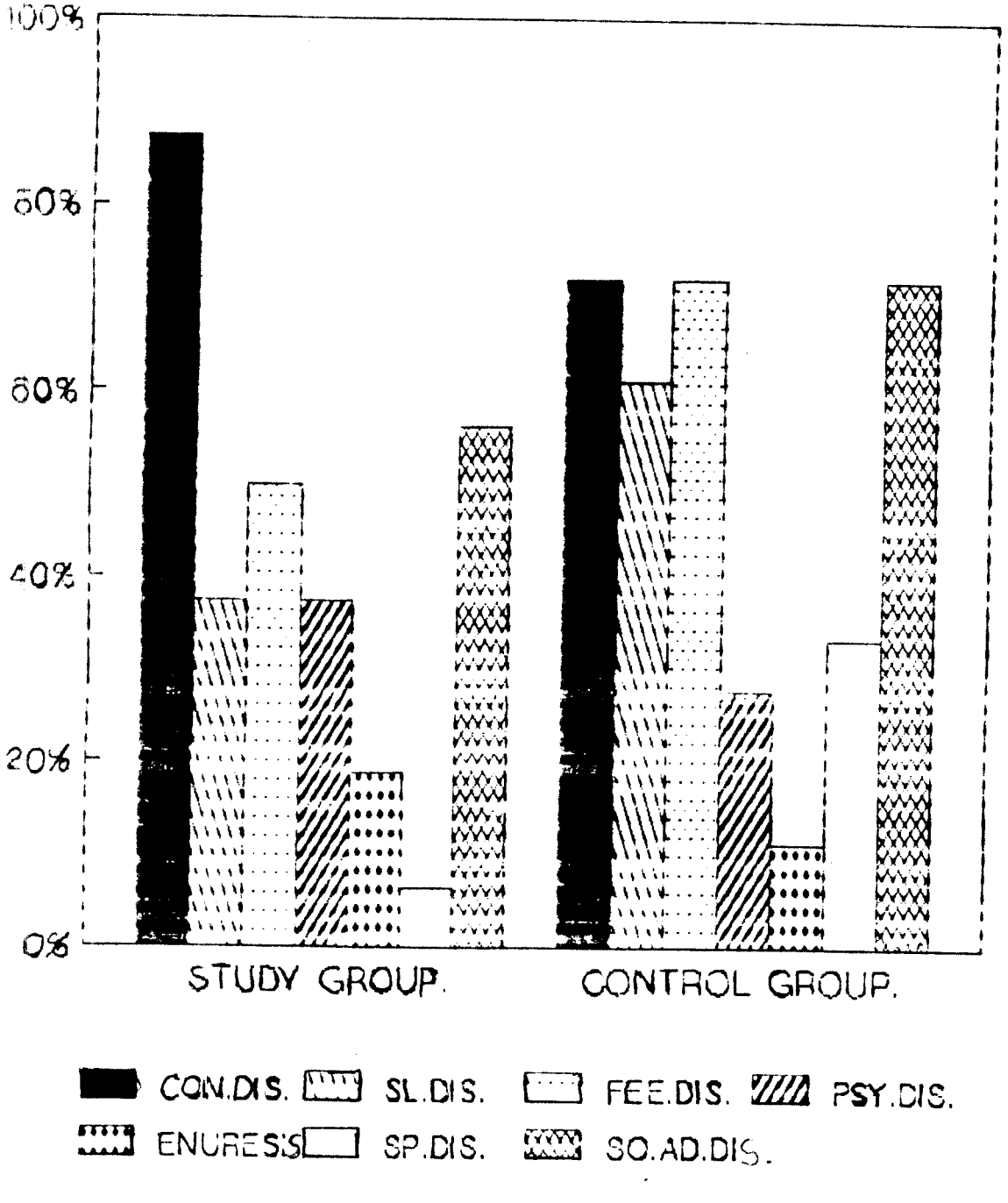
Table (20)

Table 19 shows that in control group with increase in severity of disability there was increase in behavioural disorders except speech & social adaptation disorders , the prevalence of which were more in the single limb disabled children.

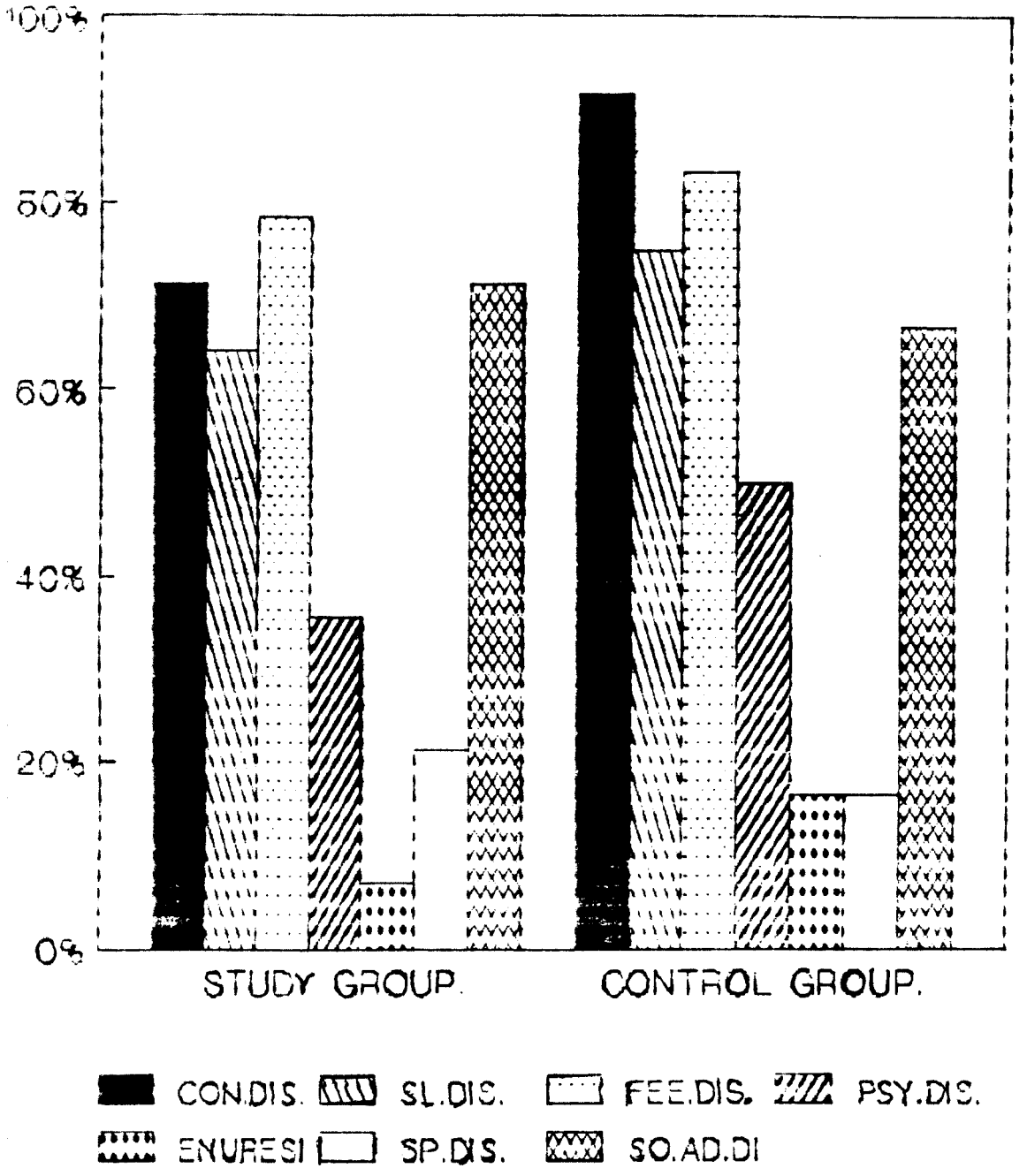
Table 20 shows that in study group sleep , feeding , speech and social adaptation disorders were more prevalent in the multiply disabled children than in the single affected children, while conduct , psychomotor disorders & enuresis were more in the single limb disabled children.

In both study & control groups children with +ve self concept were more in the group of single limb disability.

% OF BEHAVIORAL DISORDERS AMONG THE STUDY AND CONTROL GROUP REGARDING S.L.D.



% OF BEHAVIORAL DISORDERS AMONG THE STUDY AND CONTROL GROUP REGARDING M.L.D.



DISCUSSION

Discussion

Most studies suggest that up to 10% of all children have, for a period of their childhood, a moderately to severe handicapping long term illness or disability (Pless et al, 1977 & Perrin et al., 1984).

Data from the National Health Interivew Survey suggest that the proportion of activity has doubled over the last two decades (Starfield, 1977 , Kover 1981 & Starfield 1982).

Between 1960 & 1980, the proportion of children with any level of limitation of activity increased 111%, while the proportion with severe limitations increased 122% (Wilson, 1981).

Large scale epidemiologic studies, such as those summarized by Pless and Roghmann (1971), document an increased incidence of psychological problems among children with chronic conditions and suggest that severity of functional limitation is associated with greater risk of psychological maladjustment.

Other reports demonstrate that psychological problems may be most significant for those with less severe illnesses or those without apparant disability (Barker et al, 1953; Bruhn et al., 1971; Mc Anarney et al., 1974 and Pless et al., 1975).

Finally still others propose that illness and disability may even have positive effects on some aspects of adjustment and personality development (Wright, 1960; Gliedman and Roth, 1980 and Drotar et al., 1981).

In the present study, it was concluded that behaviour disorders were prevalent among disabled children.

A child is considered to have a behaviour disorder if he or she behaves, persistently in a way that is out of keeping for his or her age, sex, level of maturity and social setting , and sufficiently so to arouse the anxiety of other people around him at home or school (Robin, 1982).

The behaviour of disabled children varies from child to child, even with those who have similar disability. This is affected by many factors, particularly significant are the child's own self-image, communication skills, time of onset of disability, whether aided by an orthosis and parental reaction towards their child disability .

In our study we found that behavioural disorders were more prevalent in control group (i.e. disabled children not wearing any orthoses ; 53.5 %) than in study group (i.e. disabled children aided by orthoses; 45.9 %).

However, this incidence increased in control group to 57.1% in severe cases with multiple limb disability in contrast to 49.9 % single limb disabled children.

Again in study group the incidence increased to 50 % in multiple limb affected children in contrast to 41.9% in single limb affected children, (table 19, 20) .

This agrees with the finding of Pless and Roghmann (1971), who postulated that increased severity of functional limitation was associated with greater risk of psychological maladjustment.

However Rutter (1970), Pless & Roghman (1971)& Rae-grant (1985) reported that there was evidence of a closer relationship betweeen psychological disturbance and the maturational factors than with the severity of the illness itself.

The Ontario Child Health Study has reported that children with chronic illness associated with limitations of physical function have a three fold increase in psychiatric disorders and a significant excess of social adjustment problems in contrast to peers free of such health problems (Cadman et al., 1987).

We found that The most common behaviour disorders among disabled children were conduct disorders (34%) in children not wearing orthoses (control) & (29.8%) in children wearing orthoses (study group) (table 1)

The incidence was 91.6% among severely disabled children not wearing an orthosis (control) & 72.2% among children of the same group with a single limb disability. In study group i.e. children wearing orthoses the incidence was 71.% in severely disabled children and 87.5% in single limb affected ones.

This may be explained by the fact that with an orthosis the child is accecpting his disability and able to move unaided, which gives him a sense of self-confidence & independance, while children not wearing any orthoses are unable to move unaided leading to a sense of frustration and dependance.

Aggression (61.1%) & irritability (75%) were more prevalent in study group than in control group (49.5 %) &(73.2%) respectively, while stealing, lying, jealousy and temper tantrum were more prevalent in control group.

Aggression took place in the form of disobedience, destructiveness and excessive fighting with children.

Together with frustration and overdependance caused by

their disability many other coexisting adverse factors can lead to stress in these children and precipitate for the occurrence of conduct disorders . Among these factors the environment plays a major role especially disturbed home atmosphere through disharmony & frequent quarreling between parents or overprotecting mothers. In our study (47%) of mothers of study group & (42.8%) of those of control group were found to overprotect their children.

About 27% of children of study group were separated from one or both parents temporarily or permanently, while in control group the incidence was 33.3%(table 8.)

This can be explained by the effect of the burden of disability imposed on the family, relationship between parents, guilt sensation the parents usually have & most important is the anxiety about the future of their child.

This usually leads the parents, especially the mother, to react towards her disabled child by over- involvement to the extent of neglecting other family members including the husband , child siblings and even herself.

This creates many problems in the family which may end in divorce.

Some studies denied an increase in marital break downs (Droner et al., 1975), while others have reported that in some chronic illnesses higher rates of marital disruption are demonstrable (Gath, 1977). On the other hand others stated that chronic illness might even draw couples closer together (Koocher et al., 1981 & Marky, 1982).

Inspite that overprotection & overinvolvement were the rule in dealing with their disabled children , 13.3% of parents of study group & 23.3% of parents of control group didn't deny that they treated their children with violence. Parents frequently resort to physical punishment and restraint, rather than verbal discipline and explanation. This may be attributed to the high incidence of conduct disorders of their children.

The factors mentioned here as common determinants of prolonged parental overconcern also may lead to parental rejection or neglect of disabled child and to extreme parental denial of the severity of the illness. These latter types of reaction are infrequent compared to the former one of overprotection (Apley, 1968).

This denial , which is an intra psychic defense mechanism, protects them from overwhelming distress, but it also leads to rejection of medical help or wearing a corrective brace.

In our Institute of Poliomeyelitis we have seen many patients who prefer to remain with marked deformities or even

to walk on both hands and feet rather than to use a brace.

As the child grows, the problems created by his handicap inevitably increase .He experiences rejection by normal peers, heavier academic demands and a growing awareness that he will never be entirely normal. His sense of isolation and stigmatization increases as he grows older (Apley, 1968).

Another factor of great importance is the effect of hospitalization. In our study we found that about 70% of children of study group & 90% of children of control group were exposed to more than one operation. Some were exposed to 11 operations .

Douglas (1975) reported that one admission to hospital of more than a week's duration or repeated admissions to hospital were associated with both behavioural and reading problems in adolescents. One important study, using post hospitalization questionnaires, identified 6 dimensions of children's responses (Vernon et al, 1966):

1) General anxiety & regression
2) Separation anxiety
3) Anxiety about sleep
4) Eating disturbance
5) Aggression to authority
6) Apathy - withdrawal

These responses were more evident in younger children with longer lengths of stay. Therefore, it is now widely accepted

that hospital admissions should be kept to a minimum, both in duration & frequency (Wolfer et al., 1979).

Among conduct disorders we found temper tantrum with a percentage of (9.7%) in study & (26.7%) in control groups . This disorder usually begins in the preschool age and persists after that. It can be explained by the fact that the child is frequently pulled, dragged & taken to various places for evaluation and treatment without an adequate understanding of where, why or for how long; so the child responds frequently with tantrums due to his frustration . Sometimes the child responds with tantrum just on seeing "man in white" & therefore it is better for the team involved in his treatment to dress normally with no white coats.

- The low socio-economic standard from which all children of study & control groups come, can be another factor leading to more stress imposed on these disabled children. Almost all mothers were ignorant & all fathers were either ignorant or did not finish except primary school. More than half of them had 5 or more siblings & suffered from overcrowding in dwelling & sleeping conditions. The family's income was poor & insufficient in almost all cases .

- Sleep disorders were more prevalent in control group (39.6%) then in study group (29.4%) (table 12)

This was more apparent in recurrent spontaneous awakening during sleep which was found in 56.6% of control group & in only 30.5% of study group.

Next was difficulty in beginning sleep (44.1%) in control &(34.6%) in study group.

Also night mares were present in 30.7% of control group in contrast to 24.9 % of study group and night terrors were found in 30% of children of control & 26.6% of those of study group.

Night mares are common experience at any age and are no more than frightening dreams. Usually they are vivid, the child remembers them. They are usually associated with frightening recall.

Night terrors on the other hand are more serious but fortunately they are less common. They are peculiar to children. Usually the child does not waken fully and has no recollection of the incident. He is usually found sitting in bed or running about, greatly agitated and screaming .

Hallucinations are often found (Rakhawy et al., 1971).

Night terrors are regarded as a neurotic reaction to a conflict situation and occur more in chidren with alcoholic parents and frequently quarreling parents (Okasha, 1980).

Sleep disorders were associated with excess parental control mainly over restriction.

The high incidence of sleep disorders may be explained by the anxiety and frustration the disabled children have during commuincation with other people especially the peer

group, who usually refuse to play with the disabled child . It may be also contributed to the darkness of the room the child sleeps in because in the dark he is deprived also from visual sense which adds to his anxiety of falling asleep.

This agrees with the statement of Marky (1982),who reported that about half of chronically ill children of his study developed sleeping disturbances .

- Excretory function disorders :

These were almost only present in boys in both groups except 2 cases of nocturnal enuresis present in girls.

They were more prevalent in study (24%) than in control group (12.4%)(table 15).

Chronic constipation was present in 33.3% of boys of study group in contrast to 12.4% of those of control group, while nocturnal enuresis was present in 27.7% of boys of study group in contrast to 18.7% of these of control group.

The relationship between severity of disability & increasing incidence of excretory functions is not evident here.

Oppel et al. (1968) suggested that 20% of 6 years olds have this problem "enuresis". It was most common in boys, more in negros, children with low birth wight, with bladder abnormalities, in children from disturbed family backgroup, in handicapped children & children from lower socioeconomic classes (Cust 1958).

In Douglas study (1958) enuresis was highest among

children of manual workers, lowest in children of prosperous families. This can be explained by a number of incidental considerations :

A child is more likely to wet his bed if he lives in a home where habits of cleanliness are poor, if he sleeps with a sibling who wets his bed, if the toilet is not readily accessible, and if the house is cold at night, factors which are all present in poor families (Shaheen et al., 1973).

In our study we found that the excretory function disorders were commoner with violent brothers, excess parental control in the form of overprotection and overcrowding at home.

Dependency and dark phobia were associated with nocturnal enuresis.

- Psychomotor disorders:-

These were more prevalent in control (11.9%) than in study group (11%) (table 14).

Hyperactivity & nail biting were more in study than in control group, while thumb sucking was found more in control group. whether psychomoter disorders increase with the severity of disability or not is doubtful , as this is seen only in control group (50%) in severe cases & (27.7%) in mild ones, while in study group the reverse is seen (35.7%) in severe cases and (37.5%) in mild ones.

- Psychomoter disorders were found more in boys (13%) than

girls (9.8%) (table 12).

They were associated with parental inconsistency & overviolence.

- Hyperactivity and conduct disorder are fequertly present at the same time and in the same people .

Taylor et al. (1986) found that hyperactivity scales were associated with greater activity, younger age, poorer cognitive performance and abnormalities on a developmental neurological examination. The defiance scales were associated with impairment of family relationships and a dimension of inattentive, resltess activity should be separated from one of antisocial , defiant conduct in children with psychiatric disorder.

- Speech disorders :

Speech disorders in form of delayed speech or stuttering were found more in control (16.4%) than in study group (9.6%) (Table 16).

Again no definite relationship between severity of disability & increased incidence of speech disorders was seen.

Stuttering means repitition of a letter, a syllable or even the whole word.

There was strong association between speech disturbances and conduct disturbances mainly temper tantrum and sleep

disorders. Silver (1980) stated that stutering is aggravated by situations that arouse fear or self consciousness. This can explain the presence of this disorder among disabled children.

Hallgren (1959) reported that behaviour disorders, nervous symptoms and speech disorders were more frequent in enuretic children.

The reason of that fact is that all these previously mentioned disorders are associated with intrafamiliar affective relationships as disharmony between parents and they indicate severe emotional distress.

- Self - concept :

By using a questionnaire to detect children with +ve self-concept we found that control group contained 38.8% of children with +ve self-concept in contrast to 29.1 % children of study group (table 18)

This means that children wearing orthoses are less provided with a +ve self-image. Many of them feel embarrassed from wearing an orthosis and other refuse to hold crutches as these make their disability more apparant.

This is in accordance with the statement of Rudolf and Vivien (1980), who found that the stresses of special treatment procedures as the necessity of wearing a brace for certain orthopaedic disorders create additional adaptive tasks for patients. They also mentioned that changes in physical functioning or appearance, such as permanent weakness or paralysis must be incorporated into a revised self-image. This

necessitates a change in personal values and life style as these patients have to downplay the importance of physical attractiveness.

- Social adaptation disorders :

These were more prevalent in control (35.5%) than in study group (22.5%)(table 17) Withdrawal from the surroundings, dark & school phobia were more in control group, while dependance was more in study (35 %) than in control group (20%).

This was an unexpected finding, as children wearing orthoses (study group) are expected to be more independant than those unaided by any othoses (control).

Prugh (1963), Agle (1964) & Mattson (1966) stated that children with prolonged poor adjustment to their chronic disorder tend to show one of the three following behavioural patterns:

(1) One group is characterized by the patients'fearfulness, inactivity, lack of outside interests and a marked dependency on their families especially their mothers. Mothers of this group are usually described as constantly worried and overprotective .

(2) The second group contains the overly independant, often daring young patients,who may engage in prohibited and risk-taking activities . They make a strong use of denial of realistic dangers and fears. Since early childhood, many of these rebellious patients have been raised by oversolicitous and guiltridden mothers.

Usually at puberty, they rebel against the maternal interference and turn into overly active, defiant adolescents.

(3) A third, less common pattern of maladjustment is seen in older handicaps. They appear as shy and lonely people harboring resentful and hostile attitudes towards normal persons whom they see as owing them payment for their lifelong sufferings (Freud, 1916).

the Ontario Child Health Study has reported that children with chronic illness associated with limitatoins of physical function have a threefold increase in psychiatric disorders and a signifiant excess of social adjustment problems in contrast to peers free of such health problems (Cadman et al, 1987).

With development, the child becomes increasingly aware that he or she is different, which could give rise to preoccupations with body image.

In our study we found that social adjustment disorders were present in 71.4% of severe cases & 56.2% in single limb affected cases among the study group. This prevalence was higher in control group with percentage of 66.6% & 72.2% respectively.

The higher prevalence of behavioural & social adaptation disorders among children not wearing any orthoses may be contributed to the fact that these children are less able to move freely, which leads to

a sense of frustration, distress, resentment and anger. With increase of the degree of the disability the limitation of movement is increased, which means that an additional burden is imposed on him, his family & society . This inturn leads to more emotional and behavioural disorders in the severely disabled children than in children with mild disability.

This agrees with the results of Eisen et al. (1981), who surveyed 1468 children and found that in children with physical disability and limitations the risk of psychosocial problems, social & school adjustment difficulties were highest.

As regading the level of school achievement, most of children of study and control groups were in the range of average degree (62.5% of study & 46% of control group).

Psychiatric intervention can be of value for some young patients with marked difficulties in adapting to their disability . Also some recommendations described later can help the child and his family to achieve a satisfactory psychosocial adaptation and adjustment to school.

RECOMMENDATIONS

Recommendations

Our recommendations agreee with those of Sheila (1981), who mentioned that the psychosocial problems of a disabled child vary considerably from those of an adult. The child must grow and pass through all the stages of physical and emotional development, like any other child , but additionally has the problem of growing up as a handicapped individual .

If the parents can make a realistic adjustment to the child's disability , its chances for a relatively normal life are greatly enhanced . Such an adjustment does not occur easily.

At first, the problem may seem overwhelming and the parents may be unable to see beyond day to day experiences. Life goes go on, and the problem usually becomes less significant with the passing of time.

* Often the parents will want to hide with their problem , and may not be willing to face the pressures imposed by social contact. Not withstanding , the sooner an adjustment will occur.

If there are other children in the family it is important that they would not be unduly affected by their malformed or disabled sibling . Every child requires his or her share of parental attention and affection . An older child will anyhow

experience a normal sense of displacement with the arrival of a new baby in the family. If that new infant receives an excessive amount of attention and concern or is continually associated with parental unhappiness, a severe problem can develop .

It is therefore also necessary for all members of a family to continue with their usual interests. Other children should not be deprived of normal experiences because a handicapped sibling cannot participate. So various family activities can be planned to include all members.

It is additonally essential that a good marital relationship should be maintained , by advising the parents to spend some time together away from a malformed infant or disabled child.

* Too often, a mother will become overprotective of her handicapped youngster , and will feel that nobody else can care for the child.

She may also fear a reaction of repulsion or embarrassment on the part of a babsitter, and may simply avoid this possibility by not going out.

It is important for parents to realize that others can and will look after a handicapped child.

* As the handicapped child proceeds through a program of prosthetic fitting and training, care must be taken that parents and staff alike do not become so involved with the prosthetic aspect of rehabilitation that they lose sight of reality .

a) First , the child must not be deprivd of the activities and experiences normal for its age level.

b) Second , a young child should not be hospitalized unless absolutely necessary.

Too frequently the adverse effects of hospital experience outweigh the benefits of the treatment provided .

* Finally , disruption of family life should be kept to a minimum.

The clinic must refrain from making excessive demands in terms of treatment time, transport, expense and job interference.

* Parents must be prepared for the inevitable curiosity concerning their child's deformity. Honest, simple answers are best given in a casual matter- of - fact manner. No parent should feel obliged to provide curious strangers with lengthy explanations. Children are easily satisfied with simple responses, and seldom give the matter much further attention.

As the affected youngster matures and begins to notice how it differs from its peers, it is essential that everyone answer the youngster's questions with honesty and personal acceptance . Simple, positive explanations will provide the child with a basis for dealing independently with the problem.As the child grows older he or she may seek more detailed information.

A child's adjustment to the school situation is an extremely variable one.

This depends upon a number of factors, including personality, maturity, parents-child relationship and intellectual capablities.

If the child has been accepted and treated realistically until the time he enters school, he should be equipped with a sufficiently positive self-image to enable it to cope with the minor crisis or added stress imposed by school enrollment.

There are some suggestions that can facilitate adujustment to school :

1- The principal and staff of the school, and particularly the teacher involved, should be given the opportunity to meet with the child and his parents well ahead of the actual beginning of school.

An adecuate orientation to the child's actual disability, capabilities, areas of difficulty requiring special provision. and any other common concerns should be dealt with at this time. If a good relationship is then established, it will ultimately lead to closer communication as the school year procedds.

2- It is advisable for teh parents to accompany the child or visit the school frequently during the first few weeks, so that minor problems can be solved as they devlop on a daily basis.

As with any child , the more the parent is actively involved in the school life of the disabled child , the better will be the rapport between home and school .

3- During the first week of school it is advisable for the child to participate in a "show and tell" experience, in which it can show its prothesis , demonstrate its use and answer any questions. The teacher or parent may assist in this demonstration . Once the child's classmates curiosity has been satisfied in this way , there is seldom any further serious concern about the matter, and the handicapped child usually become just another member of the class.

4- Teasing , a normal activity of children on the way to school or in the playground , is almost inevitable for the handicapped youngster and the outcome of this will depend upon the youngster's ability to deal with the situation as it occurs: the handicapped should be given an opportunity to cope on its own, with parents and school staff providing support only when required.

5- Parents and therapists must realize that a very disabled child imposes an additional burden on the normal classroom,and that it is unreasonable to expect the child to receive an undue share of the teacher's time and attention. The parents can often help to alleviate any difficulties by being cooperative and by volunteering for excursions or other activities in which their child may require individual assistance.
There is need for good communication and effort on both sides. If the situation is handled effectively , the addition of a handicapped child to a class can provide a positive learning experience for the school, and the child will eventually be accepted by its peers as another classmate.

6- Participation of the handicapped child in school and extracurricular activites should be encourged as much as possible.

All too often the child is exempted, either because of its own reluctance and fear of failure or through the automatic assumption by others that it will be unable to participate .

The handicappped may be afraid of competition, rejection or failure; it is important that he realizes that meaningful relationships are based on more than physical appearance and that true friends will like and respect a person for what he or she is , independently of any handicap.

7- Handicap youngsters may wish to know more about their particular deficiency and often have the need to discuss their feelings relative to this with sameone outside their own family.

Counseling may be indicated if the youngster is having difficulty in coping with a self-analysis and is unusually depressed by it (Sheila 1981)

Rehabiltitation

- The ultimate purpose of rehabilitation of any disabled child is to produce an adult capable of achieving as much independence in society as possible. Such a person must be prepared psychologically . educationally and physically

in a manner appropriate to his or her disability and intellectual capacity.

In recent years, much more emphasis has been put on recreation for the disabled, and ideally all but the most extremely involved patients can participate at some level in well organized activities such as swimming, skiing and special summer camps or day camps that can provide much needed social life.

Ideally, specially trained personnel in the social work, family counseling and psychiatric areas can anticipate and alleviate problems at home and in the school.

The final and most important goal to which the clinic must direct itself is vocational. All achievements in terms of functional independence in daily living are ultimately frustrated if the rehabilitation process stops short of giving the multiply handicapped individual the ability to earn a living . The process of vocational planning is particularly applicable in the setting of a clinic whose patients attend from birth to the end of school . There exists under such circumstances an opportunity for through assessment and further vocational training appropriate both to the ability and disability of the handicapped patient, which can give the patient his or her best chance of realizing self-potential and the achievement of the maximum degree of independence. (Sheila, 1981).

SUMMARY & CONCLUSIONS

Summary and Conclusions

Behaviour disorders are common psycho - pathologic features among handicapped children.

In this work, we tried to know the percentage of behavioural disorders among children with lower limb disabiltiy and whether this perentage is higher among children aided by a lower limb orthosis or those unaided. We tried also to find out whether this percentage was rising with increase of the severity of the disability or not.

Two groups of children with chronic poliomyelitis of lower limbs were chosen from the Institute of Poliomyelitis & Physical Medicine in Imbaba.

The first group (study group) comprised 30 polio patients, 18 males and 12 females wearing a lower limb orthosis (14 of them were wearing bilateral orthoses with crutches & 16 were wearing unilateral one with no crutches). This group was compared to the second group (Control group), which comprised 30 polio patients not aided by any orthoses. 12 of them were having bilateral 1.1 disability, while 18 were with single limb disability.

Children of both groups were aged from 6 to 12 years & were not moderately nor severly mentally retarded.

We applied appropriate questionnaire to the mothers to collect data about the disabled child, dynamics in the family and other conditions which may precipitate the behaviour disorders.The psychiatric examination sheet and a test for self - concept were also applied.

It was concluded that:

- Behaviour disorders were more common in children not wearing orthoses (control group : 53.5%) than in those aided by orthoses (study group : 45.9%).

- Incidence of conduct disorders was (34%) in control and (29.8%) in study group respectively. These were mainly in the form of irritability, aggression, lying and stealing.

- Feeding disorders were more in control group (29.3%) than in study group (28.4%). The commonest disorder was refusal of food (59.3% of control & 55.5% of study group).

- Sleep disorders were also more prevalent in control (39.6%) than in study group (29.4%). This was more apparent in recurrent spontaneous awakening during sleep (56.6% in control & 30.5% in study group), difficulty in beginning sleep (44.1% in control & 34.6% in study group) and in night mares (30.7% in control & 24.9% in study group).

- Excretory function disorders were more prevalent in study group (24%) than in control group (12.4%)
  The most common disorders were nocturnal enuresis and chronic constipation.

- Psychomotor disturbances were slightly more in control group (11.9%) than in study group (11%)& were mainly evident as thumb sucking . On the other hand hyperactivity & nail biting were more in study than in control group.

- Speech disorders in form of delayed speech or stuttering were more in control (16.4%) than in study group (9.6%).

- Social adaptation disorders were more common in control group (35.5%) than in study group (22.5%). Common disorders were withdrawal from the surroundings, dark & school phobia. Dependance was (against our expectance) more in study group (35%) than in control group (20%).
  Self - concept:
  Control group contained 38.8% of children with +ve self - concept in contrast to 29.1% only in study group.

- It was noted that with increase in the severity of disabiltiy there was a corresponding increase in the incidence of behaviour disorders.

- About half the cases were associated with disharmony at home, parental overprotection or violence.
  They all came from a low socioeconomic standard and suffered from poor, unhealthy and overcrowded dwelling conditions.
  All these previous factors can be regarded as additional factors leading to emotional distress and precipitating psychological disturbances.

- At the end of this work some recommendations were mentioned, which can help the disabled children and their families to achieve a satisfactory psychosocial adaptation and adjustment to school.

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ARABIC SUMMARY

* الملخص العربى *

قررت دراسات سابقة كثيرة ان هناك نسبة كبيرة من المشاكل النفسية والاضطرابات السلوكية بين الاطفال المصابين بالامراض المزمنة و ان الاطفال المعاقين حركيا اكثر عرضة للاصابة بهذه المشاكل .

لهذا حاولنا فى هذا البحث ان نتعرف على مدى انتشار الاضطرابات السلوكية فى الاطفال المعاقين حركيا و المقارنة بين مجموعة منهم ترتدى اجهزة تعويضية للاطراف السفلية ومجموعة اخرى مصابة بنفس الاعاقة ولكنها لا تستخدم اى اجهزة تعويضية . كذلك حاولنا استنتاج ما اذا كانت نسبة هذه الاضطرابات السلوكية تزداد مع ازدياد شدة الاعاقة ام لا .

و قد تمنا باختيار العينة وهى عبارة عن ٢٠ من الاطفال ذكور واناث ممن بهم اعاقة حركية فى الاطراف السفلية ويستخدمون اجهزة تعويضية وتتراوح اعمارهم بين ٦ و ١٢ سنوات وذلك من الاقسام الداخلية والعيادة الخارجية لجراحة العظام والطب الطبيعى وحضانة المعوقين بمعهد شلل الاطفال والطب الطبيعى بامبابة . وتكونت المجموعة الضابطة من نفس العدد من اطفال معاقين ايضا ولكن لا يستخدمون اجهزة تعويضية ، وقد روعى ان يكونوا من نفس السن والجنس والمستوى الاقتصادى الاجتماعى .

وقد تم تطبيق استبيان للامهات وعمل مقابلة شخصية كما تم عمل صحيفة طب نفسية لكل طفل بهدف استكشاف الاضطرابات السلوكية فى

الأطفال وتم تطبيق اختبار مفهوم الذات للأطفال اعداد د. عادل احمد عزالدين الأشول بكلية التربية - جامعة عين شمس قسم الصحة النفسية.

** وكانت نتائج البحث كالآتى :-

- اضطرابات السلوك بصفة عامة منتشرة فى الأطفال المعاقين وبنسبة اكبر فى الأطفال المعاقين الذين لا يرتدون اجهزة تعويضية وهم يمثلون المجموعة الضابطة بنسبة (٥٢,٥ %) عن الأطفال المعاقين الذين يرتدون اجهزة تعويضية (عينة البحث) ٤٥,٩ % .

- السلوك غير السوى "Conduct disorders " كان اكثر انتشارا فى المجموعة الضابطة (٢٤ %) عن عينة الدراسة (٢٩,٨ %) .
* اتضح ذلك فى صورة التهيج وعدم الاستقرار والعند والكذب والسرقة.

- بالنسبة لاضطرابات التغذية وجد ان نسبتها كانت ٢٩,٢ % و ٢٨,٤ % فى اطفال المجموعة الضابطة وعينة الدراسة على التوالى . اتضح ذلك فى صورة رفض الطعام بنسبة (٥٩,٢ %) و(٥٥,٥%) فى المجموعة الضابطة وعينة البحث على التوالى .

- فى اضطرابات النوم وجد ان نسبة هذه الاضطرابات (٢٩,٦ %) فى المجموعة الضابطة و (٢٩,٤ %) فى عينة البحث .
اتضح ذلك فى صورة ارق وتكرار الاستيقاظ اثناء النوم (٥٦,٦ %) فى المجموعة الضابطة و (٢٠,٥ %) فى عينة الدراسة ، يلى ذلك الصعوبة فى بدء النوم (٤٤,١ %) فى المجموعة الضابطة و (٢٤,٦ %) فى عينة البحث وكذلك فى الكابوس الليلى (٣٠,٧ %) فى المجموعة الضابطة و (٢٤,٩ %) فى عينة البحث .

- بالنسبة لاضطرابات وظائف الاخراج :

كانت هذه اكثر انتشارا فى مجموعة البحث (٢٤ %) عن العينة الضابطة (١٢,٤ %) وقد اتضح ذلك فى صورة التبول اللا ارادى والامساك .

- الاضطرابات الحركية العصبية :

كانت هذه اكثر انتشارا فى المجموعة الضابطة (١١,٩ %) عنها فى مجموعة البحث (١١ %). واخذت صورة مص الاصابع . بينما كانت الحركة الزائدة وعدم الاستقرار وقرض الاظافر اكثر فى مجموعة البحث .

- اضطرابات الكلام :

وجدت اكثر فى المجموعة الضابطة (١٦,٤) عن مجموعة البحث (٩,٦%) وظهرت فى صورة التاخر فى الكلام والتهتهة .

- اضطرابات السلوك الاجتماعى :

كانت ايضا اكثر فى المجموعة الضابطة (٢٥,٥ %) عن مجموعة البحث (٢٢,٥ %) وظهر ذلك فى الانطواء والخوف من الظلام والمدرسة .
بينما كان الاعتماد على الغير اكثر فى مجموعة البحث (٢٥ %) عن المجموعة الضابطة (٢٠ %).

- بالنسبة لاختبار مفهوم الذات للاطفال .

وجد ان نسبة الاطفال الذين لديهم مفهوم ذات ايجابى (٢٨,٨ %) فى المجموعة الضابطة فى مقابل (٢٩,١ %) فى عينة الدراسة .

واستنتجنا انه مع زيادة شدة الاعاقة الحركية يصاحب ذلك ارتفاع فى نسبة حدوث اضطرابات السلوك .

- فى اكثر من نصف الاطفال المضطربين سلوكيا وجد ان هناك عوامل اخرى مرسبة لاضطرابات السلوك منها وعدم التوافق بين الوالدين، انخفاض مستوى المعيشة الحماية الزائدة من الوالدين لابنهم المعوق او استعمال القسوة فى معاملتهم .

فى نهاية البحث اوضحنا الدور الذى يقع على عاتق العائلة لمساندة اطفالهم المعاقين ورفع روحهم المعنوية وكيف ان لذلك اثر فعال فى مداومتهم على استعمال الجهاز التعويضى .
كذلك فان مساندة الفريق المتكامل الذى يتعامل مع المريض من جراحى العظام ، اطباء الطب الطبيعى و اخصائى العلاج الطبيعى وصانعى الاجهزة وكذلك اطباء وحكيمات الصحة المدرسية له اهمية كبيرة فى حرص واستمرار المريض على ارتداء الجهاز .

جامعة عين شمس
معهد الدراسات العليا للطفولة
القسم الطبى

الآثار النفسية المترتبة على استخدام جهاز تعويضى فى الاطراف السفلية للأطفال

رسالة

مقدمة توطئه للحصول على درجة الماجستير
فـــــى
دراسات الطفولـــــه
مقدمة مـــــن

الطبيبة / سهير محمد فتحى ابو الســـــعود

تحت اشراف

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كلية الطب - جامعة عين شمس	جامـــعة عـــين شمـــس

الاستاذة الدكتورة / صفيـــة ابراهيم
مديرة معهد ظـــل الأطفال والطـــب الطبيعى
استشارى الطب الطبيعى والتأهيل

١٩٩٠