A Follow-Up Study of Twenty Children Undergoing Cardiac Surgery from 1946 to 1950

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A FOLLOW-UP STUDY OF TWENTY CHILDREN
UNDERGOING CARDIAC SURGERY
FROM 1946 TO 1950

by
Joan Duffy

A Thesis Submitted to the Faculty of the Graduate School
of Loyola University in Partial Fulfillment of
the Requirements for the Degree of
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INTRODUCTION

The study is based on a review of the clinic records and personal interviews with the mothers of twenty children who have undergone cardiac surgery at The Children's Memorial Hospital from 1946, when the first operation of this type was performed, through 1950. These twenty children represent a 23 per cent sample of the children who had undergone cardiac surgery during the specified period and who were clinic patients. This excludes all private patients. The sample was selected on the basis of residency in Chicago, Illinois, the total number of which was forty-four. Of these, seven children had died, twelve families could not be located, five could not be reached by telephone and the mothers did not respond to letters requesting that they call for an appointment. The remaining twenty children comprised the study group.

The purpose of the present study is to consider:

1. The present social adjustment of the child who has undergone cardiac surgery, in terms of school, play, relationships with others, and family relationships.
2. The parental attitudes toward the child's present social adjustment.
3. The extent of the medical social worker's activity prior to and
following surgery.

The method of investigation employed was the personal interview. The mothers of the twenty children selected were contacted by telephone and appointments were made for them to come to the Social Service Department of the hospital, where the interviews were held. Background information was secured from a summarization of the clinic records of the twenty cases. Contacts with other agencies were made only if indicated by the past history or through the interview with the mother.

Prior to 1938, when the first Patent Ductus Arteriosus operation was performed, little or nothing could be done for these children and few of them survived puberty. In November, 1944, Alfred Blalock, M.D., and Helen B. Taussig, M.D., performed the first "blue baby" operation at the Johns Hopkins Hospital in Baltimore, Maryland. In 1946, Willis J. Potts, M.D., performed the first "blue baby" operation at The Children's Memorial Hospital in Chicago, Illinois. Since 1946, Dr. Potts has performed 432 operations on the heart. Of this total 79 per cent were private patients and 21 per cent were clinic patients. The death rate of 10 per cent, is considered to be relatively low.

In summary, the twenty children selected as a basis for this study represent;
1. A 25 per cent sample of children who had undergone cardiac surgery and who were clinic patients at The Children's Memorial Hospital.

2. Those children who have undergone cardiac surgery during the period of 1948 through 1950.

3. An age range which did not exceed fifteen years.

4. Children who have residency in Chicago, Illinois.
CHAPTER I

MEDICAL AND SOCIAL FACTORS IN CARDIAC SURGERY

Congenital malformation of the heart is the result of an arrest or defective development of the heart at some specific point. The remainder of the heart develops as nearly as possible in the normal manner. In making such a diagnosis, many methods are employed. The physical examination gives an indication of the size of the heart and of its functional capacity. Clinical manifestations of cyanosis and clubbing of the fingers indicate there is difficulty in getting an adequate supply of oxygenated blood to the systemic circulation. Fluoroscopic and x-ray examinations reveal changes in the size and shape of the heart. The electrocardiogram gives a graphic tracing of the electric current produced by the contraction of the heart muscle. These tests are given routinely in every case while catheterization of the heart,

1 The medical information given in this chapter has been approved by the resident in Cardiology of The Children's Memorial Hospital.

angiocardiology and aortography are given only when indicated.

Not all children present the typical symptoms and it is through these tests that the doctor is able to differentiate the typical from the atypical patients. The child with the typical symptoms will benefit greatly from surgery, while the selection of those from the atypical group who may be helped by surgery requires the utmost in diagnostic ability. The ones who are selected as candidates for surgery are admitted to the hospital for a period of from two to three days prior to the operation, for complete study and observation. Because their general health is delicate they must be in the best possible physical condition at the time of surgery, even a mild cold is a contraindication. Penicillin is routinely given every three hours for twenty-four to forty-eight hours before the operation.

The operation itself, does not correct the defect, but creates an artificial pathway through which more blood is sent to the lungs for oxygen. A special anesthetist, highly trained in the technique of open chest anesthesia, is essential to the operation. Following surgery, these children are given special nursing care and close medical supervision for forty-eight hours or longer, if indicated. The children usually remain in the hospital from twelve to fourteen days.

The structure of the heart and the course of the circulation will be altered in each instance of a congenital malformation of the heart. In order to have some basis for
comparison, an explanation must be given of the mechanism of the
normal heart.

The heart is a hollow, muscular organ, whose sole
function is to keep the blood in circulation through the blood
vessels and to provide an adequate supply to all the organs of
the body. The blood is so distributed as to provide the tissues
with the necessary substances for the carrying out of their
function and for the repair and replacement of worn out cells.
The blood flow also disposes of waste products which result from
tissue activity. An adequate circulation of blood is essential
for the efficient functioning of the human body.

The heart is composed of four chambers divided by
septa into right and left halves; the upper cavities are called
auricles and the lower cavities are called ventricles. Oxygenat-
ed blood (pure blood) from the lungs passes through the veins to
the left auricle, through the valve to the left ventricle and is
then pumped into the body through the main artery, the aorta.
The blood gives off oxygen and picks up waste materials. Re-
turning from this circulation, the blood passes into the right
auricle, through the valve into the right ventricle and from
there is pumped into the outgoing pulmonary artery to the lungs
to be oxygenated. The valves between each auricle and its corre-
spanding ventricle, open freely when the blood is flowing from
auricle to ventricle and close firmly when the blood is pumped
from the ventricles into the outgoing arteries. These valves
keep the blood from flowing backwards. This cycle continues as long as there is life.3

In the twenty cases selected for this study, three syndromes were presented; Tetralogy of Fallot, Patent Ductus Arteriosus and Coarctation of the Aorta—adult type. Congenital heart disease associated with cyanosis is most commonly due to the syndrome known as Tetralogy of Fallot. This syndrome presents four features:

1. Pulmonary stenosis—the pulmonary artery which joins the right ventricle is smaller than in the normal heart at the point of conjunction.
2. Dextroposition of the aorta—in the normal heart, the aorta comes off the left ventricle, but, in this syndrome, it is pushed to the right so that it joins not only the left but also the right ventricle. It is called a "riding aorta."
3. Inter-ventricular septal defect—the normal closing between the right and left ventricles (the septum) is not possible because the aorta is pushed over.
4. Hypertrophy of the right ventricle—because the right ventricle receives more blood than the left ventricle, it is forced to do most of the work, thus becoming enlarged.

Of these, pulmonary stenosis is most important. The degree of incapacity and of the cyanosis is proportional to the severity of the stenosis. Cyanosis is most prominent in the

lips, the ends of the fingers and toes and the nail beds. The entire skin surface also has a dusky, bluish color. Other clinical manifestations are clubbing of the ends of the fingers and toes and dyspnea or shortness of breath. The physical growth and development may also be delayed and the child's ability to exercise may be extremely limited. There may be a frequent need for rest which not only varies from patient to patient but also varies for the same patient from day to day. Squatting is a common habit among the children who suffer from lack of circulation to the lungs. In this way, or by sitting in a knee-chest position, the children find it easier to catch their breath.4

Patent Ductus Arteriosus is a condition that occurs more frequently in females than males. In this condition, the ductus remains open and thus provides a channel through which some of the oxygenated blood of the aorta passes into the pulmonary artery and courses through the lungs for a second time. As a result, the heart becomes greatly enlarged, there is extreme dyspnea on exertion and a definite retardation of physical growth and development. The child with Patent Ductus Arteriosus may lead a fairly normal life until young adulthood. Because the

Symptoms are not as prominent as in Tetralogy of Fallot, this diagnosis may not be made until the time when the child undergoes a complete physical examination. It is not unusual for a child with this type of malformation of the heart to be unaware of it and, at the time of examination, be seeking the physician's advice for another distinct complaint. The most suitable age for this operation is between the third and seventh years. The operation consists of closing the ductus by division and suture, thus eliminating the channel through which some of the oxygenated blood was returning to the lungs for a second time.  

The essential feature of the condition known as Coarctation of the Aorta--adult type, is a localized constriction of the aorta which most commonly occurs just proximal to the point of entrance of the ductus arteriosus. It may be so extreme that no blood can flow through it to the descending aorta. The condition is much more common in men than in women. These patients usually suffer from hypertension, headaches and throbbing of the head, numbness and coldness of the lower extremities and considerable heart strain. In the operation, the Coarctation is resected and sutured. The post-operative period is usually uneventful and normal activities can be resumed within a month.  


SOCIAL FACTORS

The role of the medical social worker in these cases is an important one. This is especially true in working with children who are suffering from congenital malformations of the heart and in working with their parents. The worker usually begins with an explanation to the parents of the functions and procedures of the clinic and the hospital. This can be carried on to some extent during the examination of the child, since the worker is present at that examination. If the parents are unusually upset, or, if they need special interpretation of the medical terms, the social worker will help the doctor in this clarification of the findings and recommendations. This interpretation represents the initial contact of the social worker with the family, a contact which extends as long as the child continues to come to the clinic for post-operative check-ups.

When the tests are completed and the child is considered to be a candidate for surgery, the social worker, acting as a liaison person, arranges for the parents to confer with the surgeon and the cardiologist. At this meeting the doctors tell the parents of the possibility that the operation may add years to

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The information pertaining to specific functions of the medical social worker will probably be applicable only to the Children's Memorial Hospital.
the child's life expectancy. At the same time, the hazards and
risks of surgery are also presented, and the social worker helps
the parents weigh the advantages against the disadvantages thus
enabling them to reach a decision. Arrangements are made at this
point for the parents to talk with the parents of a child who has
already undergone surgery, if such a request is made. In the
event that the parents are separated, every effort is made to
locate the absent parent, so that he, too, may have the opportu-
nity of talking with the doctors. In the beginning, the con-
sent of both parents was required before the doctor would operate
on the child. Because this is not always possible or practical,
the surgery is sometimes carried out with the consent of one
parent only.

When the parents have consented to the surgery and a
date is set for the operation, the social worker helps them ex-
plain the surgery to the child and prepare him for the operation,
the anesthetic and the probable results. He is told that, when
he wakes up following the operation, he will be in an oxygen tent
so that this will not be too frightening an experience for him.
He is also told that he will not "feel too well" for a few days
after the operation but soon will feel "fine" and "ready to play."
Sometimes the child will be quite fearful of the prospect of
undergoing the operation and will be resistive. The social
worker then works with the parents in handling the situation and,
on occasion, talks with the child himself. If the child is old
enough to understand the factors involved in the operation, the social worker may arrange for the child to talk with the doctors and ask them any questions he may wish.

The social worker is present at the time the child is admitted to the hospital, to answer any further questions the parents or child may have, to handle any immediate difficulties that may arise, and to expedite the admissions process. She explains the visiting regulation and also makes clear to the parents the procedures by which they may contact her for any information or help that they may wish. She usually visits the child at least once a day and attempts to ease his adjustment to the hospital, if he is having difficulty in that area. She sees the parents the day of the operation and attempts to handle their natural fears regarding the surgery. During the convalescent period the worker visits with the child and encourages him to participate in the activities on the ward, in accordance with the doctor's recommendations.

Following surgery the social worker talks with the parents about the prospect of the child living a normal life with normal activities. She tries to impress upon them the importance of the fact that the child should no longer be treated as an invalid but can now be treated like any other normal child. He does not need the special attention that has been his due to his illness. The possibility of his continuing to use his illness as an excuse or a threat is also discussed with the parents.
They are told that the child is now faced with the problems of readjustment that accompanies the change from being an invalid to becoming a well person in a short period of time.

If the child is of school age and is attending special school, the social worker, upon the recommendations of the doctor, will make the necessary arrangements with the school board for his transfer to a regular school. This change is sometimes difficult for the parents to accept in spite of the child's eagerness for it and the doctor's sanction of it. Because these children have lived a protected and restricted life prior to surgery, and this has taken up a good deal of the parents' time and interest, it sometimes is as difficult for them to adjust to a well child as it is for the child to make his own adjustment as a well person. For this reason then, and in view of the medical and social problems that may develop in the future, the medical social worker continues her contact with the family as long as the child receives medical care in the clinic.

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8 The terms "special school" and "regular school" are the accepted terminology between the Board of Education and the clinic where the present study was conducted. For this reason, the terms will continue to be used; "special school" to designate the school for handicapped or crippled children and "regular school" used to designate that type of school the average, normal child attends.
CHAPTER II

THE STUDY GROUP

The influence of the family and its setting is an important factor in the development and growth of a child, but when the child is physically handicapped this influence will have even a greater effect on the development of his personality. It is for this reason, then, that the focus of the interviews with the mothers of these children was fourfold and embraced the interpersonal relationships, the parent-child relationships, the sibling relationships, the patient's ability to get along with other children and his ability to function in the school situation. In addition, the interviewer attempted to obtain some picture of what the child did in his free time, how he responded to discipline, his reaction to surgery, and whether or not he seemed to want to continue to exist in a protected environment or wanted gradually to become more and more independent.

From the material brought out in these interviews, twelve of the children seemed to have made what appeared to be satisfactory social adjustments and the remaining eight children made adjustments that appeared to be unsatisfactory.
In order to make these arbitrary classifications, the children were grouped according to age; pre-school, pre-adolescent and adolescent. Various factors were considered in each grouping. The many changes in behavior norms from year to year had to be considered. The pre-school child may present difficulties which are common for that particular age group but which may be actual behavior disorders, if they occur, at a later age. The pre-adolescent child is concerned with school and with establishing himself with other children of the same sex. The adolescent is undergoing many changes, physical and emotional, and as a result, will behave differently from children in the other categories. Standards as to normal behavior in these years were derived from various sources, including Irene Josselyn's "Psycho-Social Development of Children," English and Pearson's "The Emotional Problems of Living" and Susan Isaacs' "Social Development of Young Children."

The study group was comprised of twelve girls and eight boys. Ten girls and seven boys were white children and the remaining two girls and one boy were negro children. The ages at the time of the study ranged from three to fifteen years, but differed at the time of surgery when they ranged from one to thirteen years.

The size of the family ranged from an only child to a family of seven children. Four of the children were only children, and six of the patients were the youngest children in the
family, while five were the oldest children in the family.

Eighteen families were financially independent and their incomes ranges from $100.00 per month to $387.00 per month. The remaining two families received Aid to Dependent Children grants. Four mothers were employed. In four cases the parents were separated. One mother had remarried and the step-father was supporting the family. One father was deceased and one child was illegitimate. The remaining fourteen fathers were in the home. Three families lived with the maternal grandparents.

Because of the wide age range, five children were not of school age. The grade placement of the fifteen children who attended school varied from kindergarten to Freshman year of high school. Five of the children were behind in school placement, ranging from one-half year to five years. Fourteen children attended regular school and one attended a special school for crippled or handicapped children. Five of the children had transferred from special school to regular school following the operation.

All of the children were physically improved by surgery and, as a result, led a more active life after, than prior to, the operation. The improvement differed somewhat in degree, but in all cases the children were able to lead fairly normal and unrestricted lives. Two of the children were not permitted to enroll in the gymnasium classes at school but otherwise had no further restrictions placed upon their physical activity.
The children were referred to the clinic by various sources. Eight were referred by the family physician, five by other medical clinics in the city, three by the Infant Welfare Society, two by family friends, one by the public assistance agency and one was a self-referral. Sixteen of the twenty children were referred by medical agents or agency. Eleven children presented the syndrome known as Tetralogy of Fallot, the diagnoses of eight children were Patent Ductus Arteriosus and one child was diagnosed as Coarctation of the Aorta--adult type. The length of time spent in the hospital varied from twelve to seventy-two days. Sixteen of the children spent from twelve to nineteen days in the hospital. The length of stay of the remaining four children ranged from twenty-seven days to seventy-two days. Eleven of the twenty children experienced no difficulty in adjusting to the hospital and the remaining nine children adjusted quite poorly. The amount of time elapsed between surgery and the time of the present study ranged from one year to four years. Five of the children showed concern about the scar resulting from the incision.

Out of this group of twenty children, eight had physical defects or handicaps other than the heart malformation. Two of the children were mentally retarded; one was found to be of dull intelligence, one had a speech handicap, two were partially paralyzed, one had to undergo a kidney operation prior to cardiac surgery, one had a congenital deformity of the right hand and
four had extremely poor eyesight. Nine of the children were underweight, a condition which the doctors were not too concerned about as it was thought that the less a child weighed, the less strain would be placed on the heart. The situation would differ if the child were undernourished rather than underweight. Three of the mothers complained of having difficulties in the area of feeding. One mother complained of fingernail biting and another of thumb-sucking.

The ages of the mothers at the birth of the patients ranged from eighteen to thirty-eight years and at the time of the study, ranged from twenty-four to forty-nine years. Through the analysis of the case records and the personal interviews with the mothers, it was found that ten children had what appeared to be normal relationships with their mothers, seven mothers seemed to be protective and indulgent and three mothers might be classified as rejecting mothers.

The twelve children who made what appeared to be satisfactory social adjustments included nine girls and three boys. Eight girls and three boys were white children and the remaining one girl was a negro child. Their ages at the time of the study ranged from three to fifteen years, while their ages at the time of surgery ranged from one to twelve years.

This group of twelve children were representative of the entire study group in that the size of these twelve families, the ordinal positions of these children and the diagnoses
embraced the extremes of the common factors presented by the entire study group.

These twelve cases included an illegitimate child, a child whose parents were separated and one child's father was deceased. The remaining nine fathers were living in the home. The length of time spent in the hospital coincided with that of the entire study group. Eight of the children adjusted quite well to the routine of the hospital but four experienced difficulty in adjusting to the new surroundings. The amount of time elapsed between surgery and the time of the present study was the same as that of the total group. Six children were underweight, in spite of having good appetites and presenting no feeding problems, one child had a congenital deformity of the right hand, one child was partially paralyzed was also found to be of dull intelligence, two children had poor eyesight which had been improved by glasses, one mother complained of nail biting and another mother complained of thumbsucking.

These twelve children who seemed to have made satisfactory social adjustments differed from the total study group in that their grade placements at school ranged from first grade to Freshman year of high school. Five of the children were behind in school placement, ranging from one-half year to three years. Four of these children were registered in special school prior to the operation and experienced the minimum of difficulty in making the transfer to regular school but none of these children
still attended special school. All twelve of the families were financially independent and the monthly salaries of the wage earners ranged from $100.00 to $387.00.

Through the interviews with the mothers and an analysis of the case records of these twelve children, it was found that three of the mothers seemed over-protective towards their children and the remaining nine had what appeared to be normal parent-child relationships. They differed from the entire study group in that none of the mothers seemed to be rejecting mothers.

The remaining group of eight children who made what seemed to be unsatisfactory social adjustments following surgery, was comprised of five boys and three girls. Six of the children were white children and one girl and one boy were negro children. The age range at the time of the study was from four years to fourteen years while the ages at the time of surgery ranged from one year to thirteen years.

The size of the family ranged from three families of two children to five families of three children. The ordinal positions of the patients varied from the youngest child to the oldest child in the family. None of these eight children were only children. The monthly incomes ranged from an Aid to Dependent Children grant to $310.00. One mother was employed. In three cases the fathers were out of the home because of separation. One mother had remarried and the step-father was supporting the family. The other two fathers had deserted their families.
several years prior to the study.

Five of these children attended regular school, two were not yet of school age and one attended special school. The grade placement ranged from kindergarten to eighth grade and only one child was in the correct grade placement. One child was transferred to regular school from special school after the operation.

The length of stay in the hospital ranged from twelve days to forty-eight days. Seven of the children spent from twelve to eighteen days in the hospital and one was in the hospital for forty-eight days. Three of the children had little difficulty in adjusting to the hospital surroundings but five children made very poor adjustments.

The mothers of three of these children complained of the children being underweight and being feeding problems since birth. Two of the children were mentally retarded; one was also suffering from an eye condition that cannot be corrected by glasses and the other had a speech defect accompanying the mental defect. One child was partially paralyzed (spastic hemiplegia) and another child had one kidney removed prior to the cardiac operation.

The personal interviews with the mothers and the analysis of the case records of these eight children whose adjustments appeared to be unsatisfactory, indicated that one mother and child had what appeared to be a normal parent-child relationship, four of the mothers seemed to be over-protective and three
mothers could be classified as rejecting mothers.

In summary, it seems that the attitudes of the parents towards these children who have undergone cardiac surgery play the most important role in the child's adjustment. Children who seemed to have had normal relationships with their parents made satisfactory social adjustments, as did some children, in spite of having major physical handicaps, other than the congenital malformation of the heart.
CHAPTER III

THE SATISFACTORY POST-OPERATIVE ADJUSTMENTS

The nine girls and three boys who seemed to have made satisfactory social adjustments embraced the extremes of the majority of the common factors as discussed in Chapter II. Eleven of the children were white and one girl was a negro. In order to gain a clearer picture of the total situation presented by these twelve children, they have been divided into four groups of three children each. The cases of the three boys will be treated separately; the three younger girls comprise a second group; the three girls whose adjustments seemed influenced by over-protectiveness form a third group; and, the three girls who were approaching the adolescent age make up the fourth group. It is hoped that through this presentation the similarities and differences in these cases will be more easily seen.

The three boys, all of whom were white, were eleven, fourteen and fifteen years of age at the time of the present study. Eleven year old Mitchell was one of four children and was nine years of age at the time of surgery. Mitchell had a congenital deformity of the right hand but this had not been an
additional handicap. He was able to participate in several sports and had even taught himself to write with this deformed hand. Prior to surgery Mitchell attended special school and his activity was extremely limited. He was blue, his fingers and toes were clubbed and he became short of breath on the slightest exertion. After the operation he had transferred to regular school where he had many friends. His favorite sports were ice skating, roller skating, swimming, baseball and riding his bicycle.

Mitchell's relationship with his siblings was fairly good, although his mother stated that the "normal" amount of quarreling took place. Mitchell had chores to do at home and rarely complained about them. At the time of the interview his activity was still somewhat restricted, since the supervising physician would not permit him to participate in gymnasium classes, although eventually this will be possible for him. In the meantime, he had learned to live within his physical limitation and has restricted his own activity. He enjoyed regular school and, although his grades did not represent the best performance of which he was capable, he was always promoted.

The mother expressed the opinion that Mitchell's failure to reach capacity performance was due to the new surroundings of the regular school and to the fact that in it many new worlds were open to Mitchell that had previously been closed.

His father thought the school should be more strict with Mitchell
but his mother argued that the teacher would have sent for them if the boy were a serious problem. She was convinced that it would take him a while before he was "ready to settle down."

John, aged fourteen, was more active than Mitchell. He was the middle child of three children and was operated on at the age of twelve years. John adjusted well to the hospital and both he and his parents were eager to have the surgery done. Immediately following the operation there was some friction between John and his mother who thought he was over-active but, as the members of the family gradually stopped waiting on him and he was able to assume more responsibility, this was no longer a problem.

At the time of the interview John was doing well in school, he had many friends his own age and he had a good relationship with his siblings. He had his own paper route and enjoyed earning his own money. John belonged to the neighborhood Boys Club where he was a member of the basketball team, the swimming team and where he took part in the ping-pong tournaments. According to his mother John presented no problems and the entire family felt that he was a "regular" boy.

The history of Gerald is presented in detail as his recovery was considered to be the most spectacular of the three boys.

Gerald, a child of unmarried parents, aged fifteen at the time of the present study, has been known to the clinic since 1939. Gerald's mother was born in 1911. His father's whereabouts were unknown. Gerald and his mother lived with the maternal grandparents who cared
for the boy while his mother worked. Her monthly income was about $100.00.

Since 1939, when Gerald was first seen in the clinic, he was hospitalized at one time with rheumatic fever and recovered from that with very little heart damage. For years prior to surgery Gerald suffered with bronchial asthma and was admitted to the hospital several times for treatment. The medical social worker arranged for Gerald to have special allergy pillows and case and, because of the severity of his asthma, arranged for special home teacher during his convalescence. Gerald was admitted to the hospital on 1-15-48 because of a severe attack of bronchial asthma and while he was in the hospital the doctors decided to perform the cardiac surgery. Both Gerald and his mother were eager to have the surgery done, and, although the operation was not essential at this time, the doctors were of the opinion that it would be beneficial in later life. Gerald was described as an attractive, well mannered, alert, bright and friendly child.

Before Gerald was transferred to an adult clinic for future medical care, the social worker attempted to help Mrs. W. with her problem of telling Gerald he was an illegitimate child. The worker also attempted to help Mrs. W. in her attitude toward men, to whom she was resentful and hostile. According to the mother Gerald had never shown any interest in his father and, although the mother was hesitant about telling the boy about his status, she realized he was an intelligent thirteen year old child and would soon be questioning it himself. This mother was described as being quite protective of Gerald, although their relationship seemed to be a constructive one.

Mrs. W. began the interview by expressing her appreciation of all the clinic had done for her and for Gerald and of how happy she was to have the opportunity to do something for it in return. Mrs. W. spontaneously offered the information that she had never seen such a complete change in one person as she saw in Gerald. I asked Mrs. W. in just what ways Gerald had changed. Mrs. W. then went on to say that prior to surgery Gerald "tired out" easily. He was not able to run at all and became short of breath upon the slightest exertion. Since the operation Gerald is able to take part in any sport, he has not had an attack of asthma and his appetite has greatly improved. Mrs. W. had no idea why
Gerald's asthmatic condition has disappeared, but she stated that she was thankful that it had because Gerald had suffered so greatly from the attacks.

Mrs. W. then straightened up in her chair and proceeded to tell me how proud she is of Gerald. She stated that he was in his first year in a parochial high school where he was on scholarship. He was a member of the school varsity swimming and basketball teams. Gerald was taking accordion lessons and starting to organize his own dance band. Mrs. W. said that Gerald has a good many friends at school and he was so much more active now than before the operation. I asked what Gerald was like at home. Mrs. W. replied that Gerald was not home very much. He usually did not come home from school until dinner time and then he would do any chores his grandmother wanted done. Mrs. W. smiled and said that he was very helpful to her mother and graciously did anything she asked. Gerald was very much interested in school and spent about two hours every evening doing his homework.

I asked Mrs. W. what Gerald had thought about the operation, since he was twelve years of age at the time. Mrs. W. replied that Gerald had wanted to undergo surgery and was more enthusiastic about it than she was. He finally convinced her that he should have the operation. Mrs. W. said it seemed odd that she would be more concerned about the surgery than was Gerald. I said that it was only natural for her to have been worried about it, and Mrs. W. replied that the hours he was on the operating table were the longest hours of her life. She added that it was well worth the hours of worry to see Gerald so happy and active today.

Mrs. W. volunteered the information that the opportunity had never presented itself for her to tell Gerald that he was an illegitimate child. He never mentions his father. She seemed to be aware of the fact that if she does not tell Gerald someone else will tell him, but she was not concerned about it. I did not become involved in a discussion of this matter but referred it to the regular social worker who had previously discussed the situation with Mrs. W.

This mother related easily in the interview and was eager to give the information. She did not seem overprotective of Gerald and appeared to allow him to participate in all physical activities. Before concluding the interview Mrs. W. showed me a snapshot of Gerald and
exclaimed that he was five feet, ten inches tall and weighed 155 pounds. I said he certainly looked as if he was well cared for and Mrs. W. replied that Gerald had a big appetite and she never had difficulty getting him to eat.

The fact that Gerald was not told of his illegitimacy may be an unfavorable factor in this situation but apparently it has not interfered with his present social adjustment.

The situation of the three younger girls differed from that of the boys. Two of these girls were three years of age and one girl was six years of age. Pauline, a three year old white girl, was operated on when she was a year and a half old. An only child, she was born one year after her parents were married. The parents were described as being capable and intelligent people who showed a warm and affectionate interest in the baby. In the interview, the mother stated that Pauline was very inactive prior to the operation. Since the surgery she has been more lively and energetic and seems not to "tire out" from physical exertion, as she did before the operation. Although the surgery was not considered to be too successful in Pauline's case, her general health improved to some extent and she was more nearly normal after the operation than before it. The mother complained of Pauline's continual thumbsucking but in view of the child's age, this was not considered a serious problem.

Joyce, aged six years, was not too restricted prior to the surgery and continued to be active afterwards. Her father was killed in action during World War II and she lived with her
mother and older brother, with whom she seemed to have a good relationship. Joyce was in the first grade and was doing well in school. She spent most of her time with her playmates and was able to participate in all physical activities. Joyce had never taken advantage of her illness, and her mother thought that Joyce was old enough to accept some responsibilities at home. The mother allowed her to help with the dishes in the evening.

Karen, aged three, was the oldest of two children. She was "a different person" following the operation, according to her mother, and because there seemed to be a definite change in Karen's personality, her history is given in some detail.

Karen, who was seven months older than Pauline, was operated on when she was two years of age. Prior to the operation Karen was described as an extremely fearful, shy child who cried when anyone strange approached her. She was quite irritable and "finicky" while in the hospital. Before the operation Karen's physical activity was extremely limited.

Mrs. S. was eager to make an appointment for the interview and stated she was happy for the opportunity to show her appreciation of all that had been done for her. When I asked Mrs. S. how Karen was, she replied that she could not put into words the complete change that Karen has undergone. She said, "It's just like a miracle." Mrs. S. repeated this phrase several times throughout the entire interview.

Mrs. S. stated that before the operation Karen was unable to walk. She would turn blue from the slightest exertion. She took no interest in her younger sister. No matter what the family did, they were unable to please Karen who cried continually. Following the surgery, Karen's activity gradually increased. She walked for the first time several weeks after the operation. Her appetite improved and she was gaining a normal amount of weight. Mrs. S. thought the amazing change was in Karen's
personality. She seemed to be a happy and contented child who took an interest in all that was going on about her. The relationship with her sister has improved and the two children have become constant companions. Karen enjoys riding her bicycle and plays outdoors with her friends every day.

According to Mrs. S. both she and her husband were in favor of the surgery. Mrs. S. stated that it was the "thrill of her life" to see Karen walk for the first time. Both parents were naturally anxious and concerned the day of the operation but when they saw the immediate change in Karen's coloring, they realized the operation was successful.

The parents appeared to be consistent in their disciplining of Karen. Mrs. S. expressed her desire that Karen grow up feeling that she was no different from other children and that she does not need special attention because of her previous illness.

Mrs. S. appeared to be a capable person who would be able to cope with any problems that might arise in the future. The parent-child relationship seemed a healthy and consistent one. Mrs. S. showed no apparent anxiety about Karen's health, but seemed secure in her belief that Karen should be treated as a normal child. When Mrs. S. spoke of her family, the warmth and affection she had for them could easily be seen. Karen's adjustment might have been more difficult with different handling, but it was evident from the interview that the success of her social adjustment was a direct result of the attitudes which the parents maintained toward the illness and the recovery.

The three girls whose social adjustments did not quite measure up to the standards set by those already discussed, and yet could not be considered unsatisfactory, presented one common
factor, over-protectiveness on the part of their mothers.

Dianne, aged eight, was an only child who was operated on at the age of four years and who adjusted poorly to the hospital. Her parents were separated and although her father's whereabouts were unknown, it was established that he was discharged from the Army in 1945, with a diagnosis of psychoneurosis. Dianne and her mother lived with the maternal grandparents who cared for Dianne while her mother worked. At the time of the present study, Dianne was doing good work in the third grade in school. She had friends her own age and spent her free time playing with them. Her grandmother did not allow Dianne outdoors in the cold weather and insisted that she take a nap every afternoon. The mother complained of only one difficulty with Dianne, her concern about the scar resulting from the incision. When asked how she accounted for this concern, the mother explained that she and the maternal grandmother had tried to impress upon Dianne the importance of protecting the scar. They have never allowed her to stretch on that side and will not spank her for fear of injuring the scar. This was an indication of the extent to which the child was evidently kept conscious of the operation and of the fact that she could not do things that other children could.

Judith, who was seven months older than Dianne, was the oldest of four children. She was operated on at the age of five years and adjusted well to the hospital. Both of the parents were
extremely apprehensive about the surgery and the attitude was reflected in the child who was fearful and anxious. Prior to the operation Judith was a feeding problem but afterwards she gained a normal amount of weight and her appetite improved. She transferred from special school to a regular school and, although she was doing well in school, her mother thought it was taxing her strength. Contrary to the mother's thinking, Judith was quite active after the surgery and was able to participate in all physical activities with her many friends.

According to her mother, Judith was a nervous child and continued to bite her fingernails. At the time of the interview the mother insisted that Judith take a nap every day and required the other children to do the same so that Judith would not think she was being left out of things. Judith's father, on the other hand, seemed to be quite practical and appeared to encourage Judith to take part in physical activities. He accompanied the mother for the interview because she was anxious and concerned after making the appointment.

A more detailed account of Jane's history is given because her situation differed from the situations of the other two girls in this group.

Jane, aged five, was handicapped by a paralysis of the right leg in addition to the cardiac condition. She was the oldest of five children and was operated on at the age of four years. She adjusted poorly to the hospital. Her parents experienced some difficulty in accepting the fact that the cardiac operation would not improve Jane's paralysis. While in the hospital, Jane
appeared to be a lonely and unhappy child but when she began to walk for the first time, after surgery, she was quite thrilled and would show everyone how well she was doing.

In 1948, Jane was given psychometric examination which revealed a mental age of three years, a chronological age of three years and eight months and an intelligence quotient of eighty-two. She was found to be of dull but not defective intelligence. Because of her illness, the psychologist was of the opinion that Jane may not have had normal stimulation and, therefore, her rating would be slightly lower than her actual ability.

Mrs. J. had difficulty in making arrangements to come in for the interview because of the other children. She had to cancel two appointments but always indicated her willingness to come. When Mrs. J. did come in, I commented on how much I appreciated the fact knowing how difficult it was for her to find someone to care for the children. Mrs. J. said she was happy to be able to repay the clinic for all that was done for Jane. I then told Mrs. J. that we were interested in knowing how Jane was doing since the operation and in what ways she had improved. Mrs. J. stated that, prior to surgery, Jane was severely handicapped. She did not sit up until she was a year and a half old, and she would turn blue after she had been sitting up for a short time. Her fingers and toes were clubbed.

Following the operation Jane's appetite improved, she gained weight but was still somewhat thinner than she should be. Jane was no longer a feeding problem. She was able to walk and even run, although she was handicapped by the paralysis of the right leg. When I asked Mrs. J. about Jane's playmates, she replied that Jane got outdoors to play a good deal. She had friends her own age but they attended kindergarten. Jane enjoyed writing and coloring and frequently talked about starting to school, but her parents thought it would be best to wait until she has undergone orthopedic surgery and then her school year would be uninterrupted.

Mrs. J. said that Jane had always been a good natured child and had never presented any problems of behavior. She had a fairly good relationship with her siblings although they did the "usual amount" of quarreling that always exists between brothers and sisters. According to her mother, Jane demands very little atten-
tion and would much rather do things for herself than be waited on. However Mrs. J. attempts to keep Jane from having too much activity, or from exerting herself, as she does not think the child has too much physical strength.

On the basis of the mother's account, it would seem that Jane has adjusted fairly well in spite of being partially paralyzed. She appears to be more out-going and friendly since the operation, and the fact that her mother has curtailed her activities to some extent does not seem to have interfered with her present social adjustment.

The three girls who were approaching adolescence comprise the next group of children. They were ten, twelve, and thirteen years old at the time of the present study; two were white children and one was a negro child.

Emma Jean, aged ten years, a negro girl, was severely handicapped prior to surgery. She was operated on a year prior to the present study. Before the operation Emma Jean was described as a "mean and irritable" child and had frequent outbursts of temper. Her parents were described as intelligent, capable, cooperative people who showed a good deal of initiative in handling their children. According to her mother, Emma Jean was in the third grade and was doing "fine" work at school. She has friends from school with whom she plays but she also spends a good deal of time with her six siblings. She is no longer mean and demanding but has been happy and content since the operation. This, according to the mother, was the most noticeable change in
the child. She is "a great help" to her mother and seems to enjoy helping with the household tasks.

Bernadine, aged twelve, was an only child. She was operated on four years prior to the time of the study and was one of the first children to undergo cardiac surgery. Her parents were quite apprehensive about the operation. After surgery Bernadine was able to roller skate, jump rope and play baseball. She had a good many friends and played outdoors with them upon her return from school. Because of the severity of her illness, Bernadine was three years behind her regular school placement but, since her transfer from special school, she has been doing excellent work. Immediately following surgery Bernadine's parents were somewhat over-protective of her but, according to her mother, this condition no longer existed. They permitted her to do the things that the normal twelve year old does and gave no evidence of being overly concerned about the child.

Frances, aged thirteen years, was the youngest of four children, three of whom were children of a previous marriage. Her history is given in some detail.

Frances was operated on at the age of eleven years and four months. She seemed to have difficulty in adjusting to the hospital and was thought to be quite demanding. She expressed a desire to undergo surgery but became extremely fearful when admitted to the hospital. Before the operation Frances had no energy or vitality. She was unable to walk more than one block. Her parents had to carry her in to the clinic. She had a poor appetite and was extremely thin. Since the operation, Frances has gained weight, her appetite has improved and there were no restrictions placed on her physical activity.
Mrs. M. was eager to tell me how Frances had improved since surgery. Among other things she had many friends her own age and, although she had to walk a mile to and from school, she was not at all tired out from this exertion. Her favorite sports were swimming, ice skating, roller skating and horseback riding. Prior to the operation Frances used to embroider but, after surgery, she showed very little interest in anything that did not require a good deal of physical activity.

I asked Mrs. M. if Frances was enjoying regular school. Mrs. M. replied that Frances was not in favor of the transfer from special school but her attitude seemed to change in a short time. She was in seventh grade at the time of the present study, only one half year behind her regular grade placement. This could be accounted for by the fact that Frances had missed time at school during her illness and while she was in the hospital.

According to her mother, Frances seemed to have a good relationship with her siblings. They were all "close to one another" and never referred to themselves as half-sisters. In fact, they became insulted if someone else referred to them in that manner.

Mrs. M. said that every Saturday Frances helped her with the dusting. She had no trouble getting Frances to do her share of the housework, although it sometimes took her longer to do the work than it took the other children. Mrs. M. thought this was a normal type of behavior for a thirteen year old girl and saw it as a part of the early adolescent pattern.

Immediately following surgery Frances was concerned about her scar. She was afraid of stretching the left arm for fear the stitches would break and the entire incision would come apart. This apparently is no longer a problem since Frances never mentions the scar and does not seem to favor that side when she participates in sports.

The parents were described as intelligent, cooperative people. Following the operation they had some difficulty in changing their rather indulgent attitude toward Frances but at the time of the interview this no longer seemed to be a problem. According to Mrs. M., the entire family had worked toward Frances' present adjustment. They have all helped her to be more independent.
and to accept more responsibilities.

Although entirely different personalities were involved in these twelve cases, the one basic factor common to all was the far reaching influence of the attitudes of the parents of these twelve children. Those parents who were well adjusted were able to help their children through the difficult period of adjusting to be well persons. It is not too surprising that two of the twelve children experienced change in their dispositions, a well person is naturally a happier person than one who is ill. All twelve of these children were physically improved by surgery and were able to become more physically active as a result. Three girls were able to make fairly adequate social adjustments, in spite of the over-protectiveness of their families. The parents of the other children had apparently been able to avoid this over-protection and, as a result, the children were free to develop as normal children should, with no carry over from an earlier condition in which protectiveness was essential. Because these parents were able to relinquish the protectiveness when it was no longer necessary, the child made a proportionally normal, happy adjustment.
CHAPTER IV

THE UNSATISFACTORY POST-OPERATIVE ADJUSTMENTS

The five boys and three girls whose social adjustments appeared to be unsatisfactory presented problems of behavior and conduct which made it easier to arrive at an arbitrary distinction between satisfactory and unsatisfactory social adjustments. Two predominant factors appeared in this group; one was the absence of a normal parent-child relationship, and the other was the presence of physical handicaps in addition to the malformation of the heart.

The group was composed of two negro children, a boy and a girl; and six white children, four boys and two girls. The ages of the children, at the time of the study, ranged from four to fourteen years. Their ages at the time of the operation varied from one to thirteen years. Two of the girls had fairly good relationships with their siblings but the remaining six children did not. Two of the children were not yet of school age, one child was in the proper grade placement, but the remaining five children were retarded in school, from one year to five years. A brief presentation of these eight cases will serve to clarify the
similarities and differences seen in the children. The three youngest boys ranged in age from four to six years. None made good adjustments to the hospital and at home. Each one had difficulties with his own brothers and sisters.

John, a four year old white boy, was operated on at the age of one year. He was described as a "spoiled, fussy, irritable child who was not at all friendly and very unresponsive." Prior to surgery he was rather restricted in his activity and his mother complained of his having feeding difficulties. She stated that the baby seemed extremely slow in talking and at the time of the present study, at the age of four years, he was not yet able to form sentences.

His parents were described as "quarrelsome" and as always having difficulty in managing the child. They seemed inconsistent in their discipline and, at the time of the study, this mother complained of her inability to handle the boy, who, among other things, frequently quarreled with his younger sister. The mother was employed during the morning and early afternoon and the father was employed at night. He cared for the children while the mother was at work and the children were required to remain in bed until the father got up and was preparing for work.

According to the mother, John does not play with anything that requires much activity on his part. He likes to play with dolls but does not care to "run around" at all. The mother compared John unfavorably with his younger sister who can "talk
better, run faster and all in all is much more developed than John." This mother was interested in registering John in a school for the retarded next September. This matter was not discussed with the mother but referred to the regular social worker.

Like John, Walter, another four year old, was also a disciplinary problem. He was operated on two years prior to the study and was admitted to the hospital on two occasions for surgery. During his first admission he became upset and nervous and developed a fever whenever his mother visited him, thus making it impossible to plan surgery. At the time of the second admission the parents were requested not to visit the child until the morning of the operation.

In the interview, the mother, an Italian war bride, was able to express herself without too much difficulty. She complained that Walter was a feeding problem and was extremely underweight. She described him as a quiet youngster who had no playmates other than his younger brother, with whom he continually fights. She does not allow the children outdoors very often because she thinks the weather is "too strenuous" for Walter. During the interview she showed considerable concern about allowing Walter to exert himself in any way, and told of the careful measures she takes to see that he does not become too active.

The mother also expressed the opinion that Walter would not be able to begin his schooling for "several years," although the doctors had explained to her that he has made a satisfactory
physical recovery. According to her, the child was "worried" about his scar and questioned her about it frequently. She had not explained the reasons for the scar because she thought it best that the child not know of his experience of surgery. The mother was evidently baffled by the whole situation and needed direction in handling the child. Unless she herself could arrive at a more nearly normal adjustment, there seems little chance that the child can do so. The situation will, conceivably, become more difficult as the child grows older, especially if the mother persists in her idea that his schooling be delayed.

Quince, a six year old negro boy, presented an interesting history.

Quince was operated on one year prior to the time of the study. He was quite fearful of surgery and adjusted poorly to the hospital during his twelve days there. Following surgery the medical social worker arranged for his transfer to regular school since his mother had made arrangements for him to begin special school in the Fall. At the time of the study, Quince's mother was twenty-five years of age. Quince, who was the middle child of three children, was born when she was nineteen years old. Little is known about the father who deserted the family several years ago. The family was receiving a monthly Aid to Dependent Children grant.

Quince was described as a "fearful, immature child who clung to his mother a good deal and cried most of the time." Mrs. H. was described as being over-protective of Quince and becoming unduly alarmed over insignificant things."

According to Mrs. H., Quince was severely handicapped prior to the operation but since then has been quite active. Although physically improved, the child was still shy and fearful, and preferred to spend his time alone. He did not play with the other children,
he was demanding at home and quarreled with his brother and sister unless they gave in to him. Whenever he was asked to do some task about the house he would refuse to do it using his handicap as an excuse. Mrs. H. said that he permitted no one to touch his scar and when she bathed him he stiffened when she came near the scar and pushed her away.

Mrs. H. thought that Quince was "too delicate" to attend a regular school and that the other children were "too rough" for him. Mrs. H. had visited the school ten times this year to talk with the teacher and to find out how Quince was behaving in school. Actually he was in the first grade and was doing fairly well in his school work.

It is evident that this mother was unable to adjust to the fact that Quince was now a well child and, in spite of the doctor's assurance that Quince was able to attend a regular school, the mother was not able to accept this even a year after surgery. Quince's marked concern about his scar is probably related to the mother's own fearfulness and over-protectiveness and his behavior may become more disturbed unless his mother is able to release him and permit his assuming more independence.

The cases of Gary and Eugene are treated separately because the two present different modes of behavior, but, in each case the mother was apparently over-protective and the child's difficulty either stemmed from, or was aggravated by, that fact.

Gary, aged seven years, and the youngest of three children, underwent surgery at the age of five years. Gary was mentally retarded, a factor which probably played an important role in his poor adjustment to the hospital. The child was born after his parents had been married for ten years and, throughout
the entire history there was indication that the parents disagreed on the child's disciplining. This disagreement was sharpened after the operation when the father was described as "strict" and as thinking that Gary should be treated as a well child and not "catered to" after the operation; the mother was lenient and protective.

Prior to the operation Gary was severely limited. It was only after the surgery that he was able to walk and to talk. He was fearful about undergoing the operation and still cried whenever his mother brought him to the clinic where, two years later, and at the time of the present study, he was being treated in the Eye Clinic for crossed eyes and in the Orthopedic Clinic for the correction of flat feet. He argues considerably with his brother and sister and does not seek their companionship. Instead, he played with two and three year old children rather than with children of his own age. Gary was in the kindergarten at school and enjoyed it very much. He was three years behind his proper grade level. His mother was aware that Gary was mentally retarded but felt this condition was only temporary and that as his physical development improved and his motor coordination improved, so would his mental development improve.

In connection with the present study, a report was received from the school to the effect that:

Gary was a shy, quiet child who showed no initiative and never played with the other children. One year ago he was given a psychometric examination and
his intelligent quotient was found to be sixty-four. When Gary was given a group test his rating was forty-six. The school hoped that by next year Gary would be capable of placement in an ungraded room.

Gary had been physically improved by the operation and the negative factors, such as, his preference for two and three year old children as playmates, his continual quarreling with his brother and sister and the fact that he was three years behind his proper grade placement in school, may be attributed to his mental retardedness. Due to the mother's attitude regarding this, the matter was referred to the regular social worker who will attempt to get the mother to accept the child's mental retardedness on a reality basis.

Eugene was an eleven year old boy who underwent surgery one year prior to the time of the study. He was in the hospital for seventeen days and made a very poor adjustment. He was fearful about the operation and refused to enter the hospital on several occasions. His fears were interpreted to the doctors and nurses and to the play therapists, and it was with their cooperation that he was helped to enter the hospital and to go through the period of hospitalization. Prior to the operation Eugene was severely restricted and even following surgery, the doctors advised that he not enter gymnasium classes. However, this was the only restriction placed on his physical activities.

Eugene was the youngest of three children. He maintained a fairly good relationship with his sisters because they
were always told by their mother to permit him to have his own way. According to her, Eugene preferred attending regular school to special school and was enthusiastic regarding the transfer. He was in the fifth grade, and was not doing too well in school. He was two years behind his proper grade placement.

According to his mother, Eugene liked to be waited on and would do nothing for himself. He was quite demanding and insisted upon sleeping with her. He played outdoors and had several close friends but, even with his friends, he had to "be the boss." The mother complained of difficulty in managing him. His appetite improved after the operation and he made a normal weight gain. This indicated improvement in view of the fact that he had been a feeding problem prior to surgery. The mother expressed embarrassment when Eugene had a temper tantrum on the steps leading to the clinic. The father was strict and Eugene seemed to be afraid of him. This may have accounted for the fact that he obeyed his father rather than his mother. The latter was convinced that the child has been through a "bad experience" and the family should continue to "baby" him for a time. The child was self-conscious about the scar and would not wear swimming trunks because the scar could be seen.

The remaining group of three children was comprised of one negro girl and two white girls whose ages ranged from eleven to fourteen years. Two of these girls adjusted well to the hospital. The father of one child had deserted the family several
years prior to the time of this study; the parents of another were separated, the mother had remarried and the child lived with the mother and step-father who supported the entire family; the parents of the third child were both in the home.

Patricia, an eleven year old negro child, and the younger of two children, was operated on one year prior to the time of the study. She was in the hospital for forty-eight days and seemed to have adjusted well to the new surroundings. Her parents were divorced and for three years the family received an Aid to Dependent Children grant. In 1949, her mother remarried and the second husband assumed all responsibility for the support of the family.

In 1948, Patricia, whose lower right leg and foot is partially paralyzed, underwent a cardiac operation which was not successful and one year later the second operation was performed. The child showed no apparent concern about the second operation. Following it she attended special school where she was in the first grade, which was five years behind her proper grade placement. The teachers have told her mother not to "push" the child who may gradually improve and be able to function at her normal age level. According to the mother, Patricia has friends at school and has a good relationship with her sister who has always been kind and considerate toward her. She prefers to play by herself rather than with other children and has a family of imaginary dolls with whom she spends a good deal of time conversing.
She loved to "be catered to" and the mother expressed difficulty in handling this because all of the relatives enjoy waiting on Patricia.

Patricia had been more active physically following her operation in spite of the paralysis of her right leg and foot. Her preference for being by herself rather than with other children and her retardedness in school may be due to her physical handicap or her mother's over-ambitiousness for Patricia and her "pushing" of Patricia.

Barbara, a fourteen year old white girl, was operated on one year prior to the study. She adjusted well to the hospital during her first admission for a kidney operation, but was opposed to undergoing cardiac surgery and adjusted poorly during the thirteen days of this hospitalisation. Prior to her cardiac operation Barbara was enuretic and the condition was quite upsetting to her mother.

At the time of the study, Barbara, who was the middle child of three children, did not get along well with her brothers. She refused to accept any duties around the house and did not think it necessary for her to help out in any way. She was physically improved by the surgery, and, was more active and was able to participate in gymnasium classes. She was in the eighth grade, one year behind her proper grade placement, and according to her mother, her school record was poor. She had no friends her own age and spent very little time with her classmates. She had two
girl friends who were two years younger than she. The enuresis was no longer a problem. Barbara accompanied her mother to the clinic and refused to leave the office during the interview. The mother had nothing positive to say about the child and seemed to have a "belittling attitude" towards her. This seemed to be indicative of the mother-child relationship and is probably quite influential in Barbara's present adjustment.

JoAnne, aged eleven years, presented one of the most interesting histories of the entire study because of the behavior problem that she presented.

JoAnne was operated on one year prior to the study and was in the hospital for thirteen days where she adjusted quite well.

In 1947, JoAnne's father deserted the family and since that time they had been receiving an Aid to Dependent Children grant. JoAnne was the oldest of three children and seemed to have a good relationship with the others although the "usual amount" of quarreling took place.

Prior to surgery JoAnne played with other children but was unable to keep pace with them. She had been described as a serious behavior problem for many years. It seemed that she had always felt unwanted and had marked feelings of inferiority and thought that other children did not like her because she had no father. She never brought any of her school friends home. She suffered from hypertension and, after surgery, continued to be over-active and overly sensitive. This behavior dated back to the time of her father's desertion.

Mrs. C. stated that JoAnne was in the sixth grade, one year behind her proper grade placement and was doing poor work. She refused to do any work at home and used her illness as an excuse. The mother did not expect JoAnne to have any responsibilities when she was
ill but, after surgery, Mrs. C. thought that JoAnne should help her with the housework.

At the time of the present study, JoAnne had been in the Juvenile Detention Home for a month. Mrs. C. had requested she be sent there because she was keeping late hours and refused to tell where she had been. Mrs. C. was concerned about this, as she had to call the police on several occasions in order to find JoAnne.

In connection with the present study, a report was received from the Juvenile Court to the effect that;

JoAnne had been known to the Court for five months. She was brought there at the request of her mother because of stealing. In the summer of 1950, she was apprehended by the police on two different occasions for stealing, and five months later her mother decided that she could no longer handle the situation.

While at the Detention Home, JoAnne made a poor adjustment. She was unable to get along with the other children. She had many nervous mannerisms, such as, biting her fingernails, making facial grimaces, etc. She masturbated openly and on several occasions was found initiating minor sex play among the other children. She was found to have an intelligence quotient of ninety-three, and after a psychiatric examination, institutional care was advised. At the time of the study, JoAnne was in the Detention Home awaiting placement in an institution.

The preceding cases emphasize the importance of the parent-child relationship in the post-operative social adjustment of the child who has undergone cardiac surgery. They also illustrate the extent to which other defects, whether physical or mental, may be contributing factors in the maladjustment of these children. Five of these children had defects other than a congenital malformation of the heart and, of these five, only one child had a fairly normal relationship with her mother. Seven of the children were disciplinary problems but only one of these
children had been brought to the attention of the Court.

In attempting to determine why these eight children had made social adjustments that appeared to be unsatisfactory, it would seem that the difference lies in the manner in which these children were treated in the home; rather than in the extent or the severity of the physical handicap. The child who was over-protected, for example, had more difficulty in making a good adjustment to his environment than the child who was allowed to be normally independent. At the same time, the child who was deprived of a certain amount of protection and consideration had an equally difficult time. In each instance, however, the degree of physical handicap might have been the same.
CONCLUSIONS

The social adjustment of an individual is contingent upon many factors. In this group of twenty children, factors influencing the social adjustment were to some extent influenced by the cardiac condition and by cardiac surgery. For the most part, however, the problems of social adjustment of the twenty children studied were little different to the problems that would be found in a group of twenty children selected on a random sample basis.

The age factor was no different in the group studied to a similar group with no cardiac deformity. There was no difference as to racial groups. The size of the family followed the pattern found in any group. Problems of the only child of parents who are over-protective were the same with the cardiac child as with the normal child except the focus was the heart condition. The advantages of a child as a member of a group of siblings where that child is expected to live up to his maximum capacity was found when the cardiac child was a member of such a family. Some disadvantages of over-protecting a particular child and, in this study, the "sick child" whether a lone sibling or one of several children were evidenced in the study.

The study did indicate that the child who has under-
gone cardiac surgery can adjust satisfactorily in terms of school, play, relationships with other children and family relationships. It showed that the parental attitudes towards the child's social adjustment play an important role and have a great deal of influence upon the child's post-operative social adjustment. The parents who were able to relinquish their protectiveness towards their child when it was no longer necessary, thus enabled their child to make a normal, happy social adjustment. This factor was also evidenced in the children who had other defects, whether mental or physical, besides the cardiac malformation. Whether these parents were over-protective of their child or whether they deprived their child of a certain amount of protection and consideration, the children experienced an equally difficult time.

Because of the problems that one can foresee and other problems that may arise, it is evident that the social worker should continue contact with the family following the operation, as the help she can give to the family during the post-operative period is as important as the help she offers prior to surgery.

The most important conclusive factor in the study was the little difference between the problems arising in the social adjustment of the twenty children comprising this study group and the problems of the adjustment of normal children.
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