THE USE OF CHILDREN'S FREE DRAWINGS IN ASSESSING THE PRESENCE OF PAEDIATRIC PAIN

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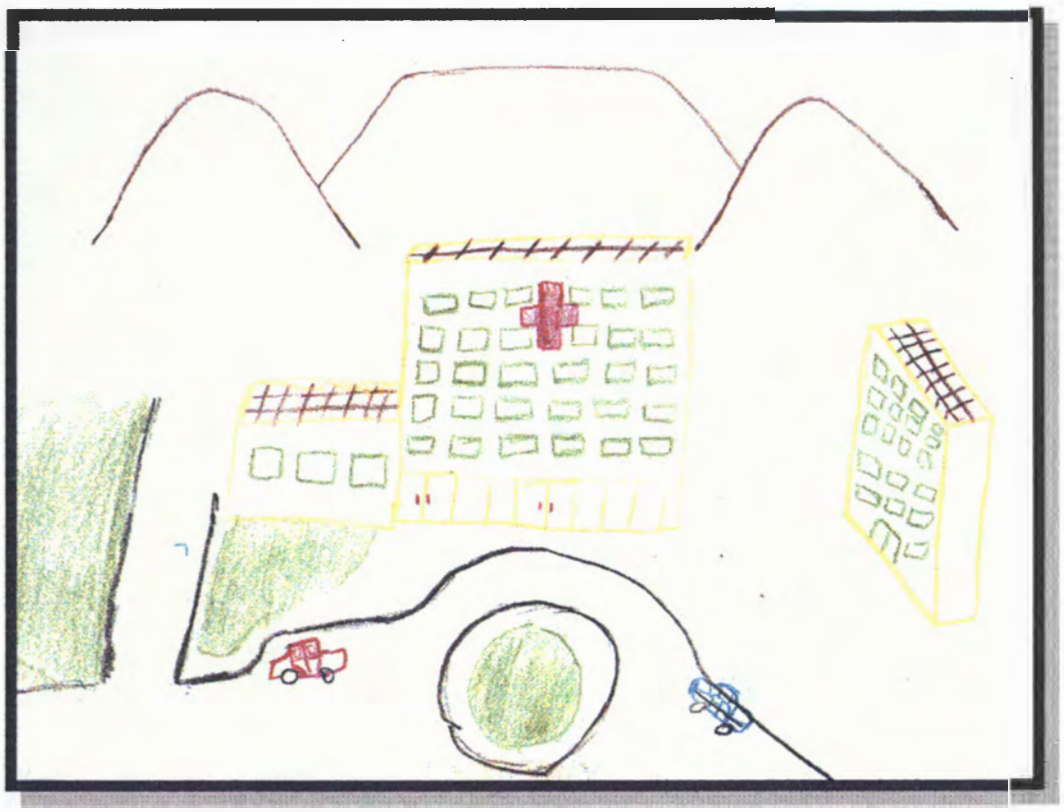

THIS IS DEDICATED TO MY FATHER WHO TAUGHT ME TO DREAM THE IMPOSSIBLE DREAM

ABSTRACT

This study aims to investigate the use of hospitalized children's free drawings to assess the presence of post-operative pain in patients where language barriers previously prevented the use of existing pain assessment methods. This research involved 50 children ages 6 - 13 years, mostly from impoverished families, treated at the Red Cross Children's Hospital.

The design is exploratory-descriptive in nature. The methodology was to collect drawings (110) on admission, after surgery (described as minor to moderate), when the children were expected to be experiencing pain, and also on discharge from hospital. These drawings were compared for picture content and children's responses to a combination of two scales developed and tested elsewhere (Word Graphic Scale and the Pain Ladder Scale), in an attempt to devise an alternative route to gauge subjective pain through drawings. Parental (44) and respondent (6) interviews provided information on parental reaction to children when in pain, and patient pain behaviour.

Evidence suggests that children's free drawings can be successfully used in assessing the presence of pain but not the intensity thereof, and are recommended for use in the treatment process.

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CHAPTER 1

INTRODUCTION

1.1 RATIONALE FOR THIS STUDY

Paediatric pain management provides health professionals with particular challenges. Unlike adults, young children are unable to understand the source, nature and duration of their pain. This is further complicated by the existing tendency amongst some health professionals to ignore the possible existence of pain in children. The popular myth widely acknowledged in journals and publications is that 'children do not experience pain in the same way that adults do due to an immature nervous system' (Schechter, 1989:787). These and other misconceptions can be ascribed to a lack of knowledge regarding pain assessment, and are responsible unfortunately, for the under treatment of pain in children.

Adequate pain management is largely dependent on the accurate measuring of the degree of pain experienced by the young patient. The assessment of pain is known to be difficult and some researchers have recorded that it is virtually impossible to accurately determine the level of pain experience by the child (McGrath et al, 1989:6). Verbal capabilities and the number of pain descriptors in the child's vocabulary play important roles in the diagnosis of pain. The inability to verbalize pain could lead those responsible for treatment to be unaware of its existence. The origin of pain, impact of disease, or injury on the body as well as the age and cognitive developmental level of the child are all important factors to be considered when selecting an assessment method.

The literature suggests the availability of a variety of assessment methods, each with it's own criteria and application method. These methods have

been developed mainly for use in first world hospitals and require a sophisticated level of insight from the child, making such methods unsuitable for use in South African hospitals. The success of these assessment methods depend largely on the child's understanding of the measurement tool, his or her willingness to comply and the investigator's knowledge and ability to use the instrument objectively. The literature reviewed revealed no specific research done on pain assessment methods for children in South African hospitals. This led to the decision to investigate in a South African context, the use of children's free drawings to assess the presence of pain. Drawing is usually enjoyed by children and limited verbal compliance is required. This may also address the problem of language and cultural barriers in the local situation.

Many professionals at Red Cross Hospital have mentioned (in consultations, meetings and with author) the discrepancy between their perception of the child's pain and the treatment afforded. This again suggests an inadequacy in the present methods. Drawings for pain assessment are fairly widely used in hospitals abroad although in South Africa it is still an unknown concept. Drawings are also a useful means of communication and are widely used by those in the helping professions. Hence, the present effort to study this approach here at the Red Cross Hospital.

This study will examine and compare drawings done before and after surgery targeting only those patients admitted for minor surgery with no pain on admission, but who are acknowledging pain post operatively. This study will only focus on comparing the content of the drawings according to certain observable characteristics as discovered in the reviewed literature. This study did not attempt to assess or measure the cognitive development of

children, and no other form of psychological testing or assessment was used as this would fall beyond the scope of the social work profession.

The hospital social worker plays an important role as a member of the health team and should be involved in supporting the child in pain and supporting his/her family. Information from this activity will also inform the medical profession about the child's background and potential pain behaviour.

The researcher hopes that this study will demonstrate that social workers through their specialised training are equipped to become professionally involved in new and previously unexplored areas of Health Management. Greater involvement in pain management could provide social workers with exciting new challenges.

The Red Cross War Memorial Children's Hospital, being the only children's hospital in Africa renders a multi-disciplinary service to all children. Statistical data obtained from this hospital indicated that 345 671 patients were seen in the 1994/1995 financial year, the majority of whom come from a lower socioeconomic background. The motivation for this research project originates from this hospital's lack of objective methods to assess the presence of pain and associated distress in the injured or sick child.

1.2 STATEMENT OF THE PROBLEM

Local health professionals are facing the dilemma of having to work with assessment methods that re Euro-centric and do not fit easily within the modes of thought of many South African children coming from different cultural backgrounds. Unfortunately as highlighted by the writer's personal experience, these methods are impractical for use in South African hospitals as they require a high standard of intellectual ability and insight which is

often not manifest in patients under study. The patients find themselves unable to respond appropriately to the instructions as required by these pain assessment methods. A less culturally and specific easy to follow assessment method sensitive to the specific needs of the South African child is needed in local hospitals.

Information obtained from studies done in America and Europe on the use of drawings in pain assessment could only be used as guidelines in the design of this study due to the above mentioned factors.

Only children fluent in either Afrikaans or English were included in this study, excluding Black children who constitute a significant proportion of the hospital population. A statistical analysis indicated that an estimated 110 824 Black patients were seen at this hospital for the 1994/1995 financial year. Different language and culture involving both the staff and patient population make assessment of pain more complicated. (Statistical data obtained from Medical Informatics, Red Cross Hospital).

1.3 HYPOTHESIS

It is hypothesized that children's free drawings done in the acute phase after injury, will provide useful information as to the presence and degree of pain which might otherwise be difficult to ascertain.

1.4 UNDERLYING RESEARCH QUESTIONS

1.4.1 Are children's free drawings a reliable indicator of the presence of pain?

1.4.2 Are children's free drawings a reliable indicator of the degree of pain being experienced by them?

1.4.3 Are drawings a reproducible measure of the presence of pain

1.4.4 Do drawings provide useful information about cultural and social factors which influence a child's method of expressing pain?

1.5 LIMITATIONS

There are several limitations which may influence the study:

1.5.1 Children's inability to comply when acutely ill:

This study only included children scheduled for minor or less complicated surgical procedures, since more seriously ill children could not be expected to draw.

1.5.2 Limited cultural application:

This study is restricted to the patients and parents from one general hospital, the Red Cross War Memorial Children's Hospital. Consequently language barriers and cultural differences placed severe restrictions on this study. The ability to communicate with both parent and child is very important and the writer's inability to speak a black language leads to the overrepresentation of 'Coloured' children in this study.

1.5.3 Difficulties with drawing: Some of the children are from a socially deprived background and have had very little exposure to drawing material.

1.5.4 Frequent unstable subject population: Transfer within the hospital for various reasons, for example. early discharge, transfers to intensive care, etcetra. This resulted in losing 17 patients in a six month period.

1.5.5 Difficulties using previously developed drawing methods: Methods described in the literature were found to be difficult as they required the young patient to have a high standard of verbal and mental capability.

1.5.6 Lack of a rater: The inclusion of another professional person to act as a rater in the assessment of the data in this study would have been valuable to ensure inter rater reliability. Constraints within the hospital made it impossible to include such a person. Professionals lack the time to become involved in other research projects due to the already high work volume and subsequent lack of time.

1.5.7 Results obtained from assessing drawings are not easily generalizable because the interpretation of drawings is to some extent subjective.

1.6 OBJECTIVES

1.6.1 To create an environment for patients to draw freely.

1.6.2 To achieve a better understanding of paediatric pain and the way children respond to and cope with pain.

1.6.3 To understand how child rearing methods influence the child's ability to communicate about his/her pain.

1.6.4 To understand to what extent drawings can indicate the presence of paediatric pain.

1.6.5 To provide medical professionals involved in caring for sick children with guidelines to assess the presence of pain.

1.6.6 To describe the assessment methods accurately so it can be used and developed further.

1.7 CONTRIBUTION TO FIELD OF STUDY

It is hoped that drawings might be a valuable means of improving our understanding of pain in children particularly where linguistic and cultural barriers exist. Although this study excludes African children, information gathered from this study might theoretically enable African children, as well as other children, with communication difficulties, to communicate the presence of their pain to those responsible for their treatment.

The apparent lack of social work involvement in paediatric pain management is alarming. This writer is of the opinion that medical social workers have much to contribute to the management of pain. Pain is an intense human experience subjective in nature and with the potential to cause emotional reactions in every one involved - the patient, the parent and those responsible for treatment. As social workers are trained to be supportive and to adapt to different roles, social work involvement in pain management and assessment could be largely beneficial to both the health team, the patient and the family.

Better insight would lead to the diminishing of fear and anxiety in the child. By developing the use of drawings (commonly used in other areas of social work) in paediatric pain assessment, this writer hopes that social workers will become more aware of their potential role and that in future greater social work involvement in paediatric pain assessment may occur.

The use of drawings in the process of assessing pain can be used outside the health context by professionals in other areas of child care. Social workers dealing with all forms of child abuse might find the guidelines set out in this study of value.

1.8 DISCUSSION OF STUDY

The first chapters (2, 3 and 4) contain literature reviews which are constricted within three broad areas of background research. Chapter 2 reviews research definitions of paediatric pain and the problem of the assessment thereof. Then this study reviews research regarding the use of drawings in paediatric pain assessment (Chapter 3). The study looks at substantial research into the nature of free drawings which are drawn upon in the later construction of pain assessment tools (Chapter 4). This chapter specifically includes a review of work on the psychological assessment and interpretation of drawings. For the actual study, psychological interpretations or assessments of drawings are not required. Background information on the interpretation of drawings was merely used to formulate the process of the study, as literature is limited and that which is available could not have been applied to local hospitalized children.

Chapter 5 discusses information on the pilot study, the size and the selection of the sample, data collection and scoring methods, and methods of obtaining consent for the study. An exploratory-descriptive method is discussed and implemented here.

Finally, Chapters 6 and 7 contain the research results, case examples to illustrate the use of drawings and a discussion on the role of the medical social worker in paediatric pain assessment (Chapter 6). There is a discussion (Chapter 7) of the conclusions and recommendations to the social work profession.

1.9 DEFINITIONS OF TERMS

Author/researcher/writer	These terms all refer to the author of this manuscript.
Respondent	This term refers to the patients included in the study.
General surgery	This refers to surgery that deals with surgical problems of all kinds.
Day surgery	Surgery restricted to the management of minor problems where patients are admitted and discharged within a period of 8-10 hours.
Surgical procedure	Refers to an operation performed under general anaesthetic.
Pain assessment	Refers to the method used to gain insight into the amount of pain a person is suffering, usually by using a measurement instrument.
Health professional	This term refers to everybody professionally involved in health care.
Nil per mouth	This means nothing by mouth and is used to indicate that the patient is not allowed to eat or drink anything.

Medical social work health social work	Refers to a specialized field of social work practice in the health care setting.
Pain drawings	This term is used to refer to drawings done while in pain.
Elective surgery	Surgical procedures that are advantageous to the patient but not urgent.
Free drawings	The idea is that as far as possible instructions as to what to draw, how to draw it are reduced and eliminated, hopefully allowing the patient a sense of freedom and more choice.

CHAPTER 2

A LITERATURE REVIEW ON PAEDIATRIC PAIN

'Pain is what the experiencing person says it is, occurring when he (sic) says it does'. (McGaffery 1983)

2.1 INTRODUCTION

Pain plays a very important role in the development of the child. It stimulates the primitive will to survive and in that way teaches the child to avoid danger from a very early age (Graig, 1983:815). This is of great importance as all children may experience pain in normal everyday situations e.g. play. Studies have indicated that children engaged in normal play are subjected to pain 0.33 times per hour (McGrath et al, 1993:S2).

Despite the obvious importance of paediatric pain, health professionals and researchers still have insufficient knowledge of the subject. This lack of knowledge is seen as being directly responsible for misconceptions regarding paediatric pain amongst health professionals and the resulting undertreatment of patients (McGrath et al, 1989:823). Also contributing to this lack of knowledge is the complex nature of assessing and diagnosing paediatric pain, which is dependent on the child's verbal abilities and cognitive development (Villaruel et al, 1991:32). Research on paediatric pain is further complicated by an increasing awareness of ethical problems. No researcher would like to see a child suffer unnecessarily purely for the sake of studying pain (McGrath et al, 1989:824).

The proposed study aims to investigate the possible use of children's free drawings in assessing the presence of pain. A further aim is to promote

social work involvement in the process of pain assessment. Both of these aims necessitate the development of some insight into the concept of pain. The purpose of this chapter is thus to provide a general basis for understanding the issue of pain. Specific issues such as the physiological and medical aspects of pain, as well as the treatment thereof will not be discussed here.

This chapter will discuss:

- the definition of pain
- the importance of understanding paediatric pain and associated problems
- the assessment of pain
- the child's response to pain and coping mechanisms used
- the possibility of social work involvement in paediatric pain management.

2.2 DEFINING PAEDIATRIC PAIN

Pain can not be seen as a purely physical phenomenon, nor is it purely psychological as a trigger stimulus can usually be identified (Walding, 1991:388).

Jacox (1977) formulated a definition of pain, based on 3 characteristics which reads as follows:

> 'Pain is an abstract concept which refers to a personal and private sensation of hurt'.
>
> 'Pain is a harmful stimulus which signals current or impending tissue damage'.
>
> 'Pain is a pattern of responses which operate to prevent the organism from harm'. (Jacox, 1977:57)

Finally, the International Association for the Study of Pain Subcommittee defined pain as 'An unpleasant sensory and emotional experience connected with actual or potential tissue damage or described in terms of that damage' (Schechter, 1989:781).

2.3 THE IMPORTANCE OF UNDERSTANDING PAEDIATRIC PAIN

A retrospective literature search as indicated by Eland (1977:454), covering the period 1970-1975, revealed a total of 1380 original papers on pain of which only 33 dealt with paediatric pain. Little or no data appeared in these articles regarding children's pain behaviour or assessment methods.

Statistical data published in a medical journal in 1985 indicated that, in a study on analgesic administration conducted on 2 000 children, 66% of children between the ages of 4 and 10 years who were hospitalized in the United States of America received no medication for the relief of pain (Copp, 1985:30).

In another study, the hospital experiences of 25 children (ages five to eight years), who were admitted to a large teaching hospital for surgery, were evaluated according to the analgesics used. According to the publication in all 25 cases surgery was performed under general anaesthesia. It was reported that 13 out of the 25 children were never given any medication for pain relief during their entire hospitalization. One child had a traumatic amputation of the foot at the age of 4 years - with no pain medication given (Eland, 1977:454).

The abovementioned information was predominantly based on past experiences in American hospitals. Although there is no supporting

evidence published, it is assumed that health workers and researchers in South African hospitals have to deal with a similar shortage of information on paediatric pain. The major conclusion drawn from this short literature review is that a definite discrepancy exists between adult and paediatric pain management (Rice, 1989:S42). Lack of knowledge due to a shortage of information on certain aspects of paediatric pain management could be the cause of this discrepancy and this underlines the importance of understanding paediatric pain (Macher et al, 1992:55).

2.4 ASSOCIATED PROBLEMS IN THE UNDERSTANDING OF PAEDIATRIC PAIN

From a study of the literature, certain key elements were identified as being influential in the general understanding of paediatric pain:

- The developmental level of the paediatric patient (Savendra et al, 1989:24; Gafney et al, 1986:114).
- A lack of knowledge and misconceptions amongst health professionals as to the assessment of pain (Schechter, 1989:786).
- Ethical implications regarding research of paediatric pain (Schechter, 1989:787).
- Lack of proper measurement instruments (McGrath et al, 1989:6; Schechter, 1989:787).

2.4.1 The developmental level of the paediatric patient (see Appendix 2)

The clinical measurement of pain usually involves an objective assessment based on the patient's comments and appearance as well as the observer's own personal pain experiences (McGrath et al, 1989:835).

Diagnosing the full extent of paediatric pain is therefore very difficult, as the assessment appears to be dependent on the child's verbal capabilities and

his/her willingness to share the experience (McGrath et al, 1989:6). It can be assumed that it will never be possible to judge entirely accurately to what extent the child is experiencing pain (Savendra et al, 1989:24; Schechter, 1991:171; Graig et al, 1991:172).

Children's responses to pain vary according to their developmental stage, and some knowledge of developmental stages and developmental appropriate responses is therefore required by health professionals (Stoddard, 1982:737). Psychological assessment of cognitive development was not within the scope of this study.

2.4.2 A lack of knowledge and misconceptions amongst health professionals

The lack of knowledge on children's pain behaviour, combined with existing misconceptions regarding pain, are well discussed in the literature. This can be summarized as:

- Incorrect assumptions about pain and management. For example:
  a. Incorrect claims that children do not experience pain, e.g. circumcisions and that (Schechter, 1989:786)
  b. Children recover quickly from a painful experience (Rice, 1989:S42)
  c. Inaccurately described dangers of drug addiction (Eland, 1977:458).
- Misconceptions due to personal attitudes. For example: different parental opinions about expressing complaints (Schechter, 1989:788).
- Inaccurate assessments due to the complexity of pain assessment in children. For example: the possibility of an injection might frighten them more than the pain itself (Schechter, 1989:787; Rice, 1989:S42).

- Misconceptions caused by training and research inadequacy. For example: the existing lack of clinical interest, the lack of pain assessment techniques and ethical constraints on medical research on children (Schechter, 1989:878; McGrath et al, 1989:6).

2.4.3 Ethical implications regarding research of paediatric pain

The very thought of children in pain causes strong emotional reactions in most adults as nobody would willingly expose children to painful situations or withhold pain medication from them in order to study their pain responses. This type of ethical concern limits the use of children in many experimental studies on paediatric pain (McGrath et al, 1989:6; Schechter, 1989:6). Thus, this researcher decided to study only children who required minor surgical procedures. Children were only approached to produce the second drawing when they were fully awake, co-operative and free from the effects of anaesthesia. (This will be discussed in Chapter 5).

2.4.4 Lack of proper assessment tools

The assessment of paediatric pain may be one of the most difficult challenges facing health professionals (Beyer et al, 1989; 837). This is mainly because of the limited cognitive ability of the young child to understand measurement instruments and their inability to verbalize their pain (Savendra et al, 1989:24). These limitations are primarily responsible for the lack of investigations into post-operative pain in children (McGrath et al, 1985:395).

Several problems can develop during the use of existing pain assessment methods. The interpretation of the intensity of pain might differ amongst health professionals. For example certain behaviour might represent pain to

one observer, but anxiety or emotional arousal to another (Lavigne et al, 1986:134; McGrath, 1987:150). In addition children's pain behaviour is not a simple and direct expression of the intensity of their pain (Beyer, 1989:840). A child with previous pain experience might have learned to cope with it and would not exhibit the same stress behaviour to a pain stimulus that a less experienced child would. It is therefore important to interview the parent to obtain information on the child's way of expressing pain before observing the pain behaviour (McGrath, 1987:150; Karoly, 1991:168)). This led to this author's decision to include parental interviews on the respondents pain behaviour in this study.

2.5 CRITICAL EVALUATION OF THE METHODS USED IN THE ASSESSMENT OF PAEDIATRIC PAIN

As indicated by McGrath (1987:149), not all measurement instruments are appropriate for all children and all conditions. The selection of an instrument must be made according to the child's medical condition, age, sex, ethnic background and level of cognitive development (Beyer et al, 1989:839; Varni et al, 1987:29).

Bernstein and Pachter (1993) supported the assumption that culture or ethnicity should be considered in the assessment of paediatric pain, as well as in the interpretation of the results (Bernstein et al, 1993:117). Socio cultural differences were not tested in this study because mainly 'Coloured children' were included in the sample.

Assessment methods can be grouped in two categories:

- Behaviour assessment methods
- Psychological measurement instruments

2.5.1 Behavioural assessment methods

These methods attempt to observe behaviour and determine the level of pain during a painful episode (Beyer, 1989:841). Such behaviours as facial expression, crying, verbal expressions, torso positions, touch behaviour and leg positions were observed in various studies, such as the CHEOPS (Children's Hospital of Eastern Ontario's Pain Scale) (McGrath et al, 1985:396; Marvin, 1995:353).

McGrath (1987:149) suggested that the non-verbal behaviour displayed by older children has often been regarded as a more reliable and more objective indicator of pain - more so than verbal discriptors.

It was originally assumed that the CHEOPS assessment scale would be ideally suited for patients at the Red Cross Hospital as it involves observations only and excludes verbal instructions to the patient. Fifty patients from Red Cross Hospital were included by this researcher in a pilot study intended to test the effectiveness of the drug Myprodol as an analgesic in the treatment of paediatric burn patients. The CHEOPS was used as an assessment tool and was found wanting for the same reasons indicated in the reviewed literature. The scoring system used in the CHEOPS was found to be inaccurate as well as subjective and unreliable, and therefore not suitable for use at this hospital. The literature reviewed also indicated that the CHEOPS has not been validated as an accurate and sensitive pain measure and Health Professionals might rate behaviour differently, thus producing conflicting pain scores (McGrath, 1987:150).

2.5.2 Psychological measurement strategies

These methods include projective instruments and descriptive measurements.

2.5.2.1 Projective instruments:

Projective measurements tried out at the Red Cross Hospital include the Eland Colour tool (Savendra et al, 1989:27) and patient drawings (McGrath, 1987:162). Choosing a colour crayon as indicated in the Eland Tool to match the experienced pain and then to indicate the location of the pain on a given body outline proved too difficult and stressful for children who had no prior drawing experience ((Lavigne et al, 1986:135). Cultural differences may have made it difficult for children to understand the connection between the colour and the pain.

Pain drawings tested at Red Cross Hospital required subjects to draw themselves and their pain (Bush et al, 1991:75; McGrath, 1987:162).

Such non-verbal descriptions are worthy of further exploration because it avoid the problem of verbal descriptions where there are marked language differences. This was seen as one of the advantages of using drawings in the search for an appropriate pain assessment tool at this hospital. But the present methods have failed to provide information about the intensity of pain experienced (Kurulyszen, 1987:155).

More research is necessary to determine how children's responses may vary according to their age and sex, and coding schemes must be developed to allow more meaningful comparisons in content analysis (McGrath, 1987:163). Research done on the specific use of drawings in pain assessment will be discussed in Chapter 3.

2.5.2.2 Descriptive measurements:

These methods include the: Faces scale (Savendra et al, 989:27), Visual and Linear Analogue scales (McGrath 1987:168; Ahles et al, 1984:122; Beyer et

al, 1989:843), the Oucher scale (Beyer et al, 1989:843; Savendra et al, 1989:27) and the Ladder Scale (Beyer et al, 1989:845). To implement these scales children are asked to select a level on the scale that matches their pain.

The problem here was that the children would misinterpret the subjective meaning of these scales. Therefore these tools were unable to assess the presence and intensity of the pain. Language barriers made it difficult to explain the method to the children at Red Cross Hospital.

The Ladder Scale (Beyer et al, 1989:843) (used in the method of this dissertation), suffered from some of these problems but a modified use for the ladder scale has been found more effective than the other pain assessment methods. This scale can only be of value in cases where children are able to verbally indicate the selected rung and where it is know what is requested. This led to the inclusion of this scale in the method of this study as respondents were capable of doing so.

Personal interviews as described in the literature by McGrath (1987:167) and Karoly (1991:68) have been found to be time consuming and requires verbal compliance from the child and were deemed unsuitable for use at the Red Cross Hospital.

Descriptive measurement tools such as Oucher (Beyer et al, 1989), the Linear Analogue Scale (McGrath, 1987), the Visual Analogue (Ahles et al 1984) scale and the Faces Scale (Savendra et al, 1989) were unsuccessfully tried by a local paediatrician (as indicated in a private conversation).

This doctor concluded that African and 'Coloured' children found difficulty identifying themselves with the facial expressions of White children photographed in the Oucher Scale. Methods such as the Analogue scales and the Faces Scale which consist of cartoon like drawings were ineffective because the children at this hospital found them amusing rather than effective in measuring their pain.

2.6 CHILDREN'S RESPONSES TO AND COPING WITH PAIN

It is obviously important for health professionals dealing with children to know how they react to, and cope with pain. A child's insight into pain develops with time and it is during childhood that the child learns about the various meanings of pain (Bond, 1984:40; McGrath et al, 1989:7).

Very little is known about how and when children start to learn about pain. Understanding of the causes, processes and treatment of disease is strongly dependent on the child's cognitive development as is the ability to verbalize feelings of pain (Bush et al, 1991:14; McGrath et al, 1989:825). Young children's limited cognitive development might influence their understanding of pain: for example, in the case of needle pain the child might not realize that the pain will be over quickly and as a result might not employ cognitive coping strategies (McGrath et al, 1993:S3; Perrin et al, 1981:841; Siegel et al, 1989:111).

The literature suggests that in dealing with illness and pain children show the same responses as adults, that of anger, 'the why must it be me' reaction. Because of this 'adult response' health professionals forget, or choose to ignore, the child's perspective of pain and thus expect the child to react like an adult (Bond, 1984:40; Copp, 1985:21).

McGrath (1989:7) states that it is important to remember the subjective nature of the child's pain experience and that because of this it has been virtually impossible to know what the child is actually experiencing. This argument was one of the main incentives responsible for the decision to investigate the possibility of assessing pain through drawings. It was assumed that by studying children's pain drawings one might gain insight into their pain experience (Kurulyszen et al, 1987:155).

There has been considerable research concerning the development of pain responses according to age (McGrath, 1991:S4). In this study the researcher limits comments to school aged children (6-13 years) since they were the only ones studied. School-aged children can understand and describe the type and cause of pain-related conditions (Siegel et al, 1991:160). They are in the concrete operational stage of thinking, which allows them the ability to conceptualize the healing process. These children will be able to use dimple logic to understand what causes the pain under the body surface (Hart et al, 1992:252; Ross et al, 1984;:182).

It is in this age group that children are concerned about the influence pain will have on their activities. According to Bond (1984:40) once the pain is over they will forget all about it. They also tend to be angry with themselves for being ill Gildea and colleagues (1977:633) suggested that this self-directed anger is a prominent characteristic of this group.

Another response to pain is coping behaviour. Children's ways of coping with pain are formed through developmental processes and learning experiences. Their ability to use coping strategies will be influenced by their cognitive development (Stoddard, 1982:737; Siegel et al, 1989:11). The child's ability to understand the reasons for painful medical procedures,

and the child's ability to ask for information about medical procedures are all dependent on the cognitive developmental level (Bush et al, 1991:3).

Coping with pain can lead to an indirect or disguised response. One child might become aggressive and verbally or physically attack medical personnel while others might just withdraw from the environment (Stoddard, 1981:737).

2.7 THE ROLE OF THE SOCIAL WORKER IN PAIN ASSESSMENT

The question arising is whether social workers have a role in the assessment of paediatric pain. A computerized literature search revealed very little information on social work involvement in pain assessment. According to Subramanian and colleagues (1988:49), social workers have not taken sufficient interest in the problem of dealing with pain to develop an appropriate role model.

The same authors further emphasize the assertion that social workers do have a role to play in pain management, because pain is a major human concern and can influence everyday life. The traditional roles of the social worker, those of therapist, teacher, advocate and broker can be applied in helping the patient suffering from pain (Subramanian et al, 1988:50).

The reason for this apparent reluctance to become involved in pain management could be attributed to social workers trying to avoid role blurring. Davidson (1990:228) states that conflict can arise between members of different interdisciplinary groups when they see themselves providing the same service.

For social workers in a health setting the definition of role in hospitals is an ongoing challenge Studies conducted on how other disciplines view social workers, suggest that social workers present an unclear image of their profession to team members (Cowles et al, 1992:64). This problem can be solved by social workers continuing to redefine and clarify their roles, to orientate others to the 'person-in-environment' in social work and to collaborate with other health care workers (Cowles et al, 1992:64; Davidson, 1990:233; Gross et al, 1987:266).

In order to achieve patient-community integration hospital social workers have to create their own case loads, run their own groups and co-ordinate their own programmes, as do the occupational therapists, the psychologist and the nursing staff (Davidson, 1990:232). This also leads to role blurring because there is seemingly little difference between the methods used by other disciplines in the process of attaining professional goals, and that of social work.

Similar problems face the social worker involved in paediatric pain assessment. The reviewed literature unanimously suggests that the whole concept of paediatric pain provides a tough challenge to all those involved because a uniform approach to pain management and assessment is lacking (Eland, 1977:454; Macher et al, 1992:55).

The issue of role blurring comes to mind if one reviews interdisciplinary involvement in pain assessment. Research on corresponding pain assessment methods has been conducted by medical doctors e.g. Ahles et al in 1984 and McGrath in 1987; psychologists e.g. Melzack, 1975; and nurses e.g. Beyer et al in 1989. Which of these disciplines would then be responsible for clinical pain assessment? As Davidson points out social workers in health

settings are trained to work with patients in a range of areas of human need, unlike other hospital staff members whose education relates to physical care only.

2.8 CONCLUSIONS

The initial shortage of information on paediatric pain as identified by the literature in the early 1970's appears to have been rectified, as more health professionals recognize the importance of understanding paediatric pain (McGrath et al, 1989:823). One of the major problem areas has been identified as being the inability to find proper instruments for the assessment of paediatric pain (McGrath, 1987:149). It is assumed that the inability to assess pain could be directly responsible for the under-treatment thereof.

The assessment of paediatric pain is dependent on the cognitive developmental level of the child, cultural background and previous experience of pain (Beyer et al, 1989:839). In spite of this and the ethical limitations imposed on paediatric pain research, researchers have managed to design a number of assessment methods, each with its own advantages and disadvantages. The disadvantages are often associated with the fact that many of the assessment methods are not entirely reliable because measurement is influenced by the subjective nature of pain and observer biases (Lavigne et al, 1986:134). This could lead to the conclusion that it is not possible to design an assessment instrument in such a way that it would objectively measure pain distinctly from all other responses.

This argues that other forms of assessment, such as drawings can and should be used to broaden our approaches to pain assessment. According to this study drawings can give specific information, requires limited verbal output

from the child, requires fewer instructions to the child and can introduce an enjoyable component to pain assessment.

The social worker, as a member of the multidisciplinary team, is ideally equipped to provide health workers with information on matters such as the patient's cultural background, previous pain experience and pain assessment. Valuable information gathered through patient/parent interviews and observations and the use of drawings could contribute towards better paediatric pain management. Unfortunately, it appears that social workers, probably because they fear role blurring in the team context, have not yet developed an adequate interest in paediatric pain management.

CHAPTER 3

RATIONALE FOR THE USE OF DRAWINGS TO ASSESS THE PRESENCE OF POST-OPERATIVE PAIN IN CHILDREN

'The soul never thinks without an image'

(Aristotle)

3.1 INTRODUCTION

Investigations into the measurement of post-operative pain in children have, for many years, been virtually non-existent (Eland, 1990:871). This statement was strongly emphasized by the literature reviewed and is furthermore evident in the lack of local publications on this matter. The reason for this is probably because the assessment and treatment of pain in children is one of the most difficult challenges facing health professionals and clinical researchers (McGrath et al, 1985:397).

With children the assessment of pain is confounded by their changing but relatively limited cognitive ability to understand measurement instructions and to articulate descriptions of their pain (McGrath et al, 1985:385). A number of pain assessment methods were described in the previous chapter, all of which required a high level of cooperation from the children. Use of these methods where children were already handicapped by an inappropriate vocabulary, language inabilities, impaired development and anxiety due to hospitalization and treatment, can prove to be unsuccessful. Consequently, it is often assumed that children are unable to communicate their pain and furthermore, that they do not experience pain in the same way that adults do (McGrath et al, 1985:395; McGrath et al, 1989:6).

These assumptions are proven to be incorrect as indicated by Schechter (1989:788), Rice (1989:S42) and Eland (1977:458). Children do experience pain and if there is an inability to verbalize pain, different means of communication should be explored (Schechter, 1989:786). One possibility is the use of drawings as according to DiLeo (1983:3) this shows great potential for working with children, especially when there is a language barrier. Many children, especially young ones, prefer drawings as a way of expressing painful experiences, as it is often easier than talking (Forest et al, 1991:373). Children's drawings contain far more beneath the surface than meets the eye and are often indicative of general skill and development. Drawings can tell something about the child, including the nature of thought and problem solving skills (Goodenow, 1977:2).

John Milton so aptly describes the hidden message of a drawing with the following quotation:

> 'That I may see and tell
> of things invisible to mortal sight'.
> (Furth,1988

The aim of this chapter is to discuss the use of drawings as a potential measurement tool in assessing the presence of pain. Bear in mind that this study does not intend to include therapeutic intervention or any form of assessment related to the discipline of psychology, as this would be beyond the scope of the social work profession. It is simply intended to compare the content of drawings done while the child was pain free with those done while in pain, and is designed primarily for use by social workers in the health setting. Although extensive literature exists in the use of drawings in the assessment process little pertaining to pain could be found.

3.2 HISTORICAL BACKGROUND TO THE USE OF CHILDREN'S DRAWINGS

The first important work on children's drawings appeared in 1887, with the publication of a tiny volume 'L'Arte Dei Bambini' by C Ricci, in Bologna. Interest in this subject soon developed throughout the rest of the Western world.

Drawings were predominantly used in the early years for assessing the various developmental stages of the child. Considerable efforts were made in various countries to collect, describe and analogue them. Researchers who were important leaders in the analysis of drawings were, amongst others, Kerschensteiner (1905) who worked on categorizing drawings; Rouma (1913) who studied the development of the human figure as drawn by children of various ages; and lastly, Luquet (1913, 1927) who influenced the subsequent work of Piaget. Both Luquet and Piaget assumed that children's drawings were based on an internal mental model. Florence Goodenough followed in 1926, with the 'Goodenough-Draw-A-Man' IQ test. She proposed that drawings could be used in the assessment of intellectual development (Thomas et al, 1990:27).

Clinical interest in the drawings of patients goes back to the beginning of this century. The first attempt to evaluate them for clinical purposes came from Morgenthaler (1901) and Mohr (1906), who tried to correlate characteristic forms and designs with specific mental illness. Freud's discovery of the unconscious realm laid the foundation for the possibilities of interpretation. Jung's contribution to the analysis of picture content was his work on symbols and the interpretation thereof (Bach, 1990:70).

3.3 RECENT RESEARCH ON DRAWINGS AS A PAIN ASSESSMENT TOOL

Paediatric patients can find pain to be a confusing experience, heightened by the complex and subjective nature of pain itself (Copp, 1985:31). The conclusion of Karoly (1991:27), Furth (1988:1) and Unruh et al (1983:385) is that the pain experience could be approached indirectly or on a more subconscious level. (This has led directly to the idea of using drawings).

In his book 'The Secret World of Drawings, Healing through Art'. Greg Furth (1988:4) states that drawings, like dreams, stem from the unconscious mind and are in fact a private perception. Drawings as a way of measuring pain have been used in both adults and children in the assessment of the intensity of pain. Adult patients were asked to shade in the areas in which they experienced pain on an outline of a human figure (Ginzburg et al, 1988:141; Hilderbrandt et al, 1988:682; Marigolis et al, 1986:57).

Regarding the assessment of paediatric pain, drawings were used in more or less the same way by using a combination of the McGill Questionnaire and the Eland Colour tool (Savendra et al, 1989:27; Melzack, 1975:277). As with adults, children were asked to locate their pain on a body outline and then colour it in, in a way that best expressed their pain. In this case, the pain assessor looked at the area of pain indicated on the drawing, in connection with the colour used to describe the pain. Eight different colour pencils were offered to the child, to allow colour coding of the pain (Lavigne et al, 1986:135; Savendra et al, 1989:25).

But why use drawings to measure pain?

As previously mentioned, important psychic images are conveyed in drawings and if the unconscious mind could be deciphered it might provide highly valuable therapeutic insight (Kurulyszen et al, 1987:155).

Susan Bach (1990) in her book 'Life Paints its own Span', demonstrates by using the free drawings of terminally ill children, that the unconscious contents of drawings can be deciphered psychologically, and that through drawings the unconscious can hypothetically project what is happening to the body (Bach, 1990:1). Because Bach worked predominantly with sick children, observable characteristics described in her work were used in the formulation of the method of this dissertation.

Unruh, McGrath and Cunningham (1983) motivated their study on children's drawings of their pain by stating that drawings have been extensively studied in terms of developmental stages and symbolic meaning, but that there has been limited and inconclusive information on children's feelings, attitudes, understanding and perception of their pain (Unruh et al, 1983:385). The underlying assumption was that the unconscious mind of the child is symbolically projected in his/her art work and through verbal comments on the drawing (Unruh et al, 1983:386).

Unruh and co-workers selected 109 children between 5 and 18 years, who were attending the Neurology, Physiotherapy and Orthopaedic clinics at the Children's Hospital of Eastern Ontario. Complaining of pain was the only includsion criteria. Children with other medical, psychological and behavioural problems were excluded. Respondents were noted to have experienced either migraine headaches or chronic musculoskeletal pain. It is

important to note that the respondents were all able to verbalize their pain feelings (Unruh et al, 1983:387).

Two sheets of white paper and 8 coloured pencils were given to the respondents. They were then instructed to draw two pictures, one a drawing of their actual pain and the other one of themselves in pain. On completion the drawings were sorted into categories on the basis of picture content, and definitions for these categories were defined. A similar approach was used in formulating the method, but with different categories.

These categories were:

- actions and instruments causing pain
- personification of pain
- physiological representation of pain
- abstract representation of pain
- location of pain
- non-specific representation of pain.

These categories were determined by the examination of the drawings (Unruh et al, 1983:389).

These authors also assumed that children have the ability to draw pictures of their pain and that these images could be used in pain management. As a result of this study, it can be concluded that children's drawings of their pain can be reliably categorized by both content and dominant colour. The dominant colours in this case were red and black. Findings indicated that children with musculoskeletal pain drew fewer drawings of themselves in pain than did the children suffering from migraine (Unruh et al, 1983:391).

The research done by Unruh, McGrath and Cunningham (1983) provided valuable guidelines for the formulation of the methodology of this study. It was impossible to duplicate this method in the pilot study as respondents included in the Unruh and co-workers work were able to acknowledge the presence of pain. The inability to do so was found to be a problem amongst patients in the Red Cross Children's Hospital. Their instructions to respondents to draw their pain and themselves in pain were met with an instant refusal to draw at this hospital. Guided by these author's work, the writer decided to use two blank pages and the same 8 colour pencils. It was also decided to categorize drawings after completion, but children were not told what to draw.

Scott (1978) examined colour, texture, shape, pattern and time sequences in children's perception of pain. She demonstrated that the colour red was frequently used to represent pain, warm colours were most often selected by boys to demonstrate their pain and that hammer pain was seen as dark and needle pain as light (Scott, 1978:791).

Scott's research was based on using cartoons to illustrate two situations in which children commonly experienced pain, a self-administered hammer blow, and a doctor administered needle. This study included a complex set of cartoon pictures, sheets of paper showing different colours, texture sheets made of different materials and sheets of paper in different shapes. Children were asked to identify the cartoon which to them presented the most pain. They then had to select sheets of paper representing their interpretation of colour, shape, texture and pattern of pain. Scott included in her study 58 children aged 4-10 years attending outpatient clinics at the Children's Hospital Medical Center in Boston (Scott, 1978:788).

In her resume, Scott (1978:791) wrote that the results of her study must be regarded as 'exploratory'.

Scott's study was found to be impractical because of the material used, and the variety of instructions given to respondents. This study could only be seen as another demonstration of the role colour plays in pain assessment.

The aim of the third study done by Kurulyszen, McGrath and Cappeli (1987) and being an extension of the Eland Colour tool, was to assess whether children can express intensity of pain through drawings, and whether independent adult raters could reliably assess children's drawings.

Parental and child permission was obtained upon the commencement of the first session with each child. This approach was adopted in the methodology of this dissertation.

In accordance with the proposed study, children were given 3 sheets of paper and 8 crayons and were asked to draw one picture of themselves in which they are not experiencing pain (intensity 0), one in which they are experiencing moderate pain (intensity 3), and a third in which they are experiencing extreme pain (intensity 5). A numerical intensity scale was used to rate the drawings (Kurulyszen et al 1987; 156):

0 = no pain

1 = pain, but I am only aware of it if I pay attention to it

2 = pain, but I can ignore it some of the time

3 = pain, which I cannot ignore, but I can do my usual activities

4 = pain, it is difficult for me to concentrate

5 = pain, I cannot do anything (Kurulyszen et al 1987:156).

In discussing the results, Kurulyszen and co-workers wrote that this study demonstrated that different intensities of pain could be drawn by children but, that classification of the drawings by means of their specific characteristics was very difficult. This may be because children do not employ universal features to describe pain of different intensities. For example, it appears that intensity 3 as it was represented by children, contained elements of both 0 and 5 on the intensity level of pain (Kurulyszen et al, 1987:158). This observation supported the author's decision to assess the presence of pain and not the intensity thereof.

In contradiction to the findings of Unruh et al (1983), Kurulyszen, McGrath and Cappeli's (1987:158) results showed no dominant colours used to describe pain. They finally recommended that for similar studies in the future discrimination should be made between no pain and some pain and between intermediate levels of pain.

Duplicating this study proved yet again to be impractical. It required direct instructions of what to draw. Findings from the pilot study indicated that children at the Red Cross War Hospital were unable to draw abstract images such as the intensity of pain. It was also assumed that children at this hospital would not meet the inclusion criteria as set out by Kurulyszen et al (1987:155). The writer, however, adopted the definitions of the numerical intensity scale as it could be incorporated with the ladder scale used to indicate the presence of pain.

As mentioned before previous attempts by this researcher to reproduce studies where children were given highly specific and abstract instructions to draw their pain, or themselves in pain failed because many of the children treated at the Red Cross Children's Hospital came from different and

deprived socio-economic and culturally different backgrounds. To use this type of instructional language in which the children are asked to 'draw themselves' or to draw an abstract concept like pain causes anxiety and an instant refusal to draw. The majority of these children have never had the opportunity to draw or to handle drawing materials and many of them lag in their educational development due to their socio-economic backgrounds and/or long-term hospitalization.

In the research study, these highly abstract instructions were eliminated and patients were able to engage in 'free drawings'. and their drawings do seem to be analysable and tell us information about the child's pain.

This can be illustrated in the following case drawings (see Figure 5). A six-year old girl from a squatter camp was admitted to the Red Cross Children's Hospital after being assaulted by her uncle. With the help of a translator the patient was asked to draw the drawing shown in Figure 1 shortly after she was admitted. She worked with great dedication and took about 30 minutes to complete this. On close inspection one can see the vague outline of what appears to be a human figure on the drawing. Although the artist appears to be immature in her cognitive development her drawing reveals a wealth of information. The construction of figures in this drawing revealed close parallels to the work of 3 or 4 year old children whose drawings have been presented and analysed by Phomas et al (1990:37). (Abovementioned case drawings were not included in the results of this study).

Figure 6 shows the spontaneous drawing of a 7 year old girl who had very little schooling due to frequent hospitalization for chronic liver failure, which later necessitated a liver transplant. This drawing was called 'A room full of sick children'. Again, comparing this to findings published by

Thomas (1990) the drawing indicates a developmental age of 4 to 5 years (see Figure 8) (Thomas, 1990:37).

The proposed study will attempt to explore the use of children's drawings as an assessment tool by comparing drawings done in the pre-surgical phase where children were booked for elective surgery and are considered to be pain-free, to those done in the post-surgical phase where pain is inevitably present to a certain degree.

Comparisons will be made between the size and placement of the figures and the colours and symbols used in the drawings. Information gathered through parental and patient interviews will also be used.

3.5 CONCLUSIONS

The literature reviewed clearly indicates a discrepancy amongst the various authors on the use of drawings in assessing paediatric pain. Unruh, McGrath and Cunningham's (1983:386) assumption that children's pain drawings could be categorized according to content and dominant colour were in sharp contrast to Kurulyszen and co-workers (1987:158) research results which indicated no correlation between colour and pain.

The duplication of study methods and the use of suggestions and information indicated by the reviewed literature proved to be very difficult when attempted on children admitted to Red Cross Children's Hospital. This could be attributed to inappropriate vocabulary, language inabilities and impaired understanding of the existing methods in pain assessment as was evident in the patients of this hospital.

Finally, a word of caution: Because drawings are a subjective way of measuring pain, their value must never be overrated in the total assessment of pain. Social workers in a health team context can use drawings as a method of measuring the intensity of physical discomfort and could by so doing create greater awareness of paediatric pain amongst other health professionals.

CHAPTER 4

CHILDREN'S DRAWINGS - THEIR HIDDEN LANGUAGE

'Read me what you write
and show me what you draw
and I'll tell you what you are'.
(Emanuel F Hammer)

4.1 INTRODUCTION

Chapter 2 of this dissertation dealt with the literature's findings on difficulties experienced by children in verbally expressing their pain. Children often prefer to express themselves through drawings rather than through verbalizing their thoughts and feelings. This accounts for the fact that therapists, including social workers, often make use of drawings as a channel of communication (Forest et al, 1991:373). Research done by Koppitz (1968:74) in this regard indicates that children can share their feelings and attitudes in graphic images long before they can actually verbalize them.

Drawings can be seen as a product of the unconscious mind and the fact that they can be interpreted for their hidden content was discovered in the early 1900's (Bach, 1990:7). Carl Jung emphasized the importance of symbols and indicated through his work that symbols are made manifest by the unconscious mind through the use of drawings. He saw the value of drawings as containing symbols from the unconscious that could be used as a healing agent (Furth, 1988:1). Susan Bach strongly supported this idea by adding her own thoughts on how drawings can empirically project what is happening to the body (Bach, 1990).

This chapter will focus on a literature review regarding the interpretation of drawings and will include information on:

1. Cognitive development related to drawings
2. Collecting drawings
3. Interpreting drawings
4. Focal points
5. Translating colour

Although the present study does not attempt to interpret or psychologically analyze children's drawings, the author deemed it necessary to include the abovementioned. Information accumulated on the general use of children's drawings will be used in formulating the process of the proposed study as there is very little in the literature on the comparative use of drawings in post-operative pain assessment. The nature of this study furthermore excludes any form of cognitive, developmental or emotional assessment. The information included in this chapter was intended to be informative as social workers dealing with children are often involved in the use of drawings.

4.2 COGNITIVE DEVELOPMENT RELATED TO DRAWINGS

> 'Their inner eyes, those eyes with which they look through their physical eyes upon reality'.
>
> (From prologue to Invisible Man by Ralph Ellison)

Knowledge of the young child's cognitive developmental phase is essential in the analysis of drawings, because the danger exists that the analyst could consider 'deviant what is merely the immaturity of a normal developing psyche' (DiLeo, 1973:18). The present study excludes measuring cognitive development as it focusses on a comparison of the content of drawings and

not on the psychological analysis. It is important for the purpose of the proposed study on children's pain drawings to remember that sick children could manifest regressive behaviour in their response to hospitalization (Hart et al, 1992:2).

Children draw what is known to them, even if the end product does not make sense to the adult observer. From 13 months to 3 years children respond to paper and crayons by producing scribbles. This is mainly a visible recording of movement.

Around the age of 3 to 4 years the child discovers that drawing can symbolically reflect the real world. A circle represents a head, a smaller circle for instance the mouth.

Legs and arms are added to a drawing of a human figure at approximately ages 5 to 7 years. Drawings of huge heads carried on legs drawn during this period are sometimes called the tadpole stage of drawing (Wilson et al, 1990:23). Children in this age group draw what they know is there regardless of whether it is visible or not. They will, for instance, draw the chimney of a house at a right angle to the base of the roof. Only later, when the child's level of thinking and development has advanced, will the chimney be drawn vertically - regardless of the incline of the roof (DiLeo, 1983:46).

Drawings done in the concrete operational stage of development will become more visually realistic. Human figures will be drawn more realistically and the child will even attempt to draw a profile facing left. Intellectual development influences drawing skill and the older the child becomes the more accurately reality is portrayed (Wilson et al, 1990:23).

4.3 COLLECTING DRAWINGS

Information on collecting drawings as described below was found to be extremely useful and was extensively used in accumulating drawings in this study (see Chapter 5).

i. The initial approach

Getting sick children to draw is not an easy task, even though the literature suggests that children prefer drawing about themselves than talking about themselves and even though it was mentioned that 'all children love drawing' (Furth, 1988:3). Children admitted to hospital are facing different challenges from those who might draw in the comfort of their own homes. Apart from not feeling physically well, the hospitalized child has very little to say about what is happening to him/her and is separated from home and family. This was probably one of the reasons why children refused to draw an abstract image such as the intensity of pain when approached by the researcher in the pilot study. The young patient is at the 'mercy' of others, telling him/her what to wear, when to sleep, eat or bath, as well as being subjected to medical procedures which are often painful (Robertson, 1977:750).

Susan Bach (1990:13) and Greg Furth (1988:28) in writing about children's drawings devoted significant time to explaining how important it is to 'prepare the child' in the process of collecting drawings.

The keys to the process of collecting drawings seems to be the initial contact where the researcher or analyst meets the patient for the first time. The initial contact will determine the success of the collecting

process and great emphasis is placed on the importance of a genuine relationship between the child and the therapist/researcher. Furth provided basic guidelines by suggesting that the child should first be greeted and if there are any family members present they too should be informed as to the reason why drawings would be collected. It was also suggested that drawings should be collected not only from the patients but from the family members as well (Furth, 1988:28). This suggestion was not indicted for the purpose of this study.

The importance of a warm and genuine approach can not be over-stressed. This is usually begun by greeting the patient by name when meeting for the first time. It is important that the young patient should realize that the researcher/analyst does not belong to the medical profession (that is that there would be no examination, treatment or injections) and that the only intended goal is to play and draw with the child (Bach, 1990:7). The social work profession places great emphasis on the importance of developing a trusting relationship with clients, and the abovementioned principles were applied in the researcher's approach to respondents.

In the case of hospitalized children the invitation to draw should be fitted in with the ward routine. If the patient is constantly interrupted by medical staff he/she might stop drawing altogether (Bach, 1990:5).

The child's interest in drawing could be stimulated once the desired relationship is established. It is important to remember not to rush the patient into activity but rather to allow the child to decide what he/she wants to draw. This resulted in the author's decision to

include children's free drawings in the study. As previously mentioned children in hospitals have very little opportunity to decide for themselves what they want to do and it is a great possibility that the hospital environment might be totally overwhelming (Bach, 1990:13; Hofmeyer, 1974:50).

Both Bach and Furth feel that it is advisable to sit on the bed with the child, that is on the same level as the child, when he or she is drawing. Never observe the child from a distance or secretly look at his/her drawings. It is best to respond as little as possible to comments from the child and to allow the child to do the talking (Bach, 1990:13; Furth, 1988:28). It may happen that children sometimes ask probing questions perhaps about the treatment of their illness. It is best to answer the child directly without any elaboration - using simple direct language (Bach, 1990:13).

The literature warns against changing or adding to a child's drawing. Drawings should be left as they were drawn, even if the drawing obviously lacks certain qualities. These obvious mistakes will be important in the later evaluation of the drawing.

Bach furthermore suggested that in the event of a child refusing to draw on the initial approach the researcher should leave the matter and try again an hour or even a day later (Bach, 1990:15). These suggestions could not be applied to this study as it was important to collect drawings as soon as possible post-operatively in order to assess the presence of pain. If the drawings were collected the following day, children would be pain free and would not have met with the inclusion criteria.

ii. Drawing materials

The literature suggests that standard white typing paper should be used as it is the most suitable for drawing (Bach, 1990:15; Furth, 1988:29). If the paper is too large the child might experience difficulty in handling it and if it is too small some of the ideas might not fit on it. Placement of the paper should not be dictated. The child must be allowed to place the paper either vertically or horizontally. These suggestions were followed by the researcher in the accumulation of the drawings used in this study.

It is advisable to use standard coloured pencils as they allow for greater detail. Felt pens should not be used as they do not permit shading. It is also important to include a graphite pencil with an eraser because observation of what is erased allows for psychological insight into the areas of difficulty (Furth, 1988:29). The inclusion of a graphite pencil was deemed unnecessary as psychological insight was not intended for this study, but the researcher agrees that felt pens should not be used for the mentioned reasons.

iii. Verbal instructions

Verbal instructions should be short and direct. Start by telling the patient that he/she may draw anything. Should the child have a problem in choosing the subject ask him/her to think of a happy moment, a favourite place, home or family and then ask him/her to draw it (Furth, 1988:28). In the present study respondents were allowed to draw whatever they wanted and no restrictions were placed on them.

Certain data should be recorded on the back of the page once the pictures are collected. Relevant data would be the patient's name, sequence of drawing, age and date of the drawing. It is of great importance to record everything the patient said about the drawing and this will include all comments made during the process of drawing.

Bach recommended writing these comments on the back of the drawing in a very soft pencil, while Furth suggests the use of a tape recorder to record all comments (Bach, 1990:16; Furth, 1988:31).

Other relevant data which should be recorded would be relevant events that could have had an influence on the child while he/she was drawing. An example of such events would be where a child had to stop drawing because he/she was called away for an examination or where the child is more than usually homesick or perhaps unusually apprehensive about an operation (Bach, 1990:16). The researcher tried to prevent situations where children could be stopped from drawing by coordinating the inclusion of children and the collecting of drawings with the ward routine and those in charge. Homesickness was never an issue in this study as the majority of respondents had either a parent or caregiver with them although the presence of post-operative anxiety could not be excluded.

4.4 INTERPRETING DRAWINGS

If we begin in certainties
we shall end in doubt, but if
we begin in doubt and persevere,
we shall end in certainties. (Bacon)

Authors whose work was reviewed for the purpose of this chapter unanimously agreed that picture analysis should be approached with great caution. DiLeo defined interpretation as: 'to bring out the meaning' and warns the investigator that the interpretation of child art can not 'validly shed the human element of subjectivity' (DiLeo, 1983:4).

Both DiLeo and Koppitz underline the importance of understanding the child as an individual before attempting analysis (DiLeo, 1983:4; Koppitz, 1968:55). Koppitz recommended that when attempting to assess a drawing the total drawing as well as the combination of various signs and indicators should be considered and then analyzed in conjunction with the child's

- age
- cognitive development
- emotional level
- social and cultural background

(Koppitz, 1968:55).

The abovementioned indications are recommended for the psychological assessment of drawings and are not indicated for the study.

Regarding analysis Koppitz warns the would-be analyst to beware of the 'cookbook approach', where one is inclined to simply look up the meaning of certain symbols. Koppitz's work also cautions against the assumption that each and every sign or feature in a drawing is clinically significant, as it is important not to read more into a drawing than is written (Koppitz, 1968:550). Drawings according to DiLeo are a 'contribution to our understanding and should be regarded as an aid to deeper understanding of a problem that could not be verbally expressed' (DiLeo, 1973:20).

Picture interpretation involves 'hearing with the eyes', and it is very important to recognize the individuality of each drawing in the assessment thereof (Furth, 1988:33). The following guidelines for picture analysis were formulated:

- Try to avoid interpreting at first glance, rather concentrate on the initial feeling or impression created by the drawing
- Act as a researcher by analyzing the content of each picture objectively. Try to observe what the artist is trying to tell, and focus on focal points
- Add all the information gathered from individual components and assemble this into what Furth called a 'whole' (Furth, 1988:36)
- Record observations in detail. It is also helpful to name each picture and to make a copy by tracing the picture in order to have a duplicate to work on (Bach, 1990:29).

These guidelines would make the identification of focal parts so much easier (Furth, 1988:36). Some of the mentioned focal points were used as guidelines in this study, and those selected were observable in the content of the drawings.

4.5 FOCAL POINTS

i. Follow the patient into the picture

DiLeo explained this process thus:

'Imagination frees the spirit
from the bonds of reality'.

(DiLeo, 1973)

It is the use of imagination that Susan Bach recommended when she advised her readers to 'follow the child into the picture and see what it is like to become the person or object drawn' (Bach: 1990, 37). In other words view the picture from the inside. Adding to Bach's thoughts, Furth commented that a drawing always communicates a feeling. His advice therefore, is to capture the initial experience and then if possible to express that feeling in one word e.g. happy, sad or frustrated. If this proves to be difficult ask the patient how he/she felt when drawing the picture (Furth: 1988, 37). This is an interesting conclusion but not applicable to the study.

ii. Size

The proportion of figures in a drawing is very important. If they are out of proportion, either too big or too small, try to find out what the reason for that is. The self esteem of the 'artist', according to DiLeo and Burns, could be observed in the drawing. Insecure children will tend to draw smaller figures in contrast to the large figures drawn by secure, happy children (Burns, 1972:300; DiLeo, 1983:66). Burns, on the other hand found that disproportionately small body parts could indicate feelings of inadequacy in specific areas as well as denial and repression (Burns, 1972:299). Koppitz contributed by adding that shy and aggressive children draw more tiny figures (Koppitz, 1968:44). The size of symbols/objects used in the drawings by children when pain free and in pain were included in this study as they could be observed without attaching any psychological connotation to them. Respondents each drew two drawings, where the size of the symbols used in the pain free drawing were compared with the size of the symbols used in the pain drawings, and were then rated according to being normal in size,

very small or very big. Symbols/objects were rated as normal when they were in proportion to other symbols/objects in the drawing, any deviation was seen as either smaller or bigger.

iii. Shape distortion

Children's drawings could often show a distortion in some part of a figure or an object. This could be a symbolic indication of a problem area (Furth, 1988:51). This was excluded on the basis of its psychological content.

iv. Shading

Much time and energy is invested in shading an object or figure. The energy invested in shading could be an expression of anxiety. Shading, according to DiLeo, occurs in drawings of persons whose anxiety is an outstanding element of their behaviour. The author issued a further warning that one should not confuse abnormal shading with the shading used for artistic intent (Bach, 1990:31; Burns, 1972:300; DiLeo, 1983:22; Furth, 1988:59).

Shading or the occurrence of filled-in vs empty drawings was included in the study because it was indicated that this could have an 'artistic intent' and not necessarily a psychological origin. It was easily observable whether drawings were shaded (coloured in) or transparent. This inclusion could be counted and be used as a guideline in the comparison of pain free drawings vs pain drawings. Transparencies in a drawing could be an indication of body anxiety, frustration and anger, which can lead to aggressiveness (Koppitz, 1968:47).

v. Underlining

A figure that is underlined in a drawing usually indicates a lack of grounding or unsteadiness (Furth, 1988:70). Burn's explanation is that children will normally underline those with whom they have an unstable relationship (Burns, 1972:124). The psychological implication of symbols being underlined or not, was not intended for this study. However, this was included in the study where symbols/objects were scored according to whether they hung 'in the air' or had a foundation (were underlined). This could be observed in the drawings and it could also be counted. Drawings done while the child was pain free were thus compared with drawings done by the same child when in pain in order to observe the number of symbols/objects that were drawn without a foundation, that is symbols/objects hanging or those underlined.

Children feeling instability in their home can draw a line at the bottom of the page in an attempt to create stability by drawing a 'strong solid foundation' (Burns, 1972:134).

vi. Quality of line

Figures or objects drawn in a light wavy line speak of an insecure, possibly depressed child. Contrary to this is the bold, continually freely drawn figure or object of the self-confident and secure child. The first artist is hesitant while working on his drawing and appears to think as he/she goes along. The second artist, if observed, seems to be carrying out what he has already visualized (DiLeo, 1983:17). Burns, however, felt that the pressure used in a drawing might suggest inward or outward direction or impulses. The depressed person presses lightly, where the aggressive, acting out individual uses excessive pressure (Burns, 1972:300). This again was included

in methodology of the study, because the line pressure was used to draw the symbol could be observed and the number of drawings with normal line pressures could be counted vs those line pressures that were either bold or noticeably lighter.

vii. The use of symbols in drawings

Symbols should be taken as indicators that need to be followed-up by the analyst. They are merely hints and their presence needs not necessarily to be seen as absolute correctness. A symbol needs to be seen in the context of its position in the drawing, its colour and whether it is out of place or out of season (Bach, 1990:73).

It is advisable to view symbols against the actual situation of the person who made the drawing, as well as the condition of his/her body and mind at the time of the drawing. In other words compare the image with the actual situation.

More than one indicator or symbol is needed before a valid conclusion can be made. It is important to ensure that when drawing conclusions, the translation of the symbol makes sense when compared to the life and health situation of the child (Bach, 1990:74).

The content of the drawings accumulated in this study were scored according to the type of symbols used. It was intended to determine whether certain symbols were more evident in pain drawings than those done when the child was pain free. This could be achieved by observing, identifying and counting the symbols as they appeared in the drawings.

viii. Figure drawing

It was found that the way in which a child draws a figure, regardless of whom he/she drew, reflects his/her own self-concept. The person drawn is the person of great concern and importance to the child at the time of the drawing (Koppitz, 1968:75). Drawings in which children drew themselves were included in this study and were described under the type of symbols used. Self-portraits were not scored for their psychological content.

xi. Quadrant assessment and the use of space

Quadrant assessment refers to the division of a drawing, that is, the paper on which it was drawn, into four equal parts or quadrants. Each quadrant has, according to the literature, a specific symbolic meaning. A great diversity of thought and lack of agreement amongst the various authors regarding quadrant assessment makes it necessary to discuss each quadrant theory individually in this section. The proposed study aims to investigate the use of the quadrant theory in the analysis of children's drawings of their pain.

DiLeo like most of the other authors divided the drawing by using a imaginary transverse line to divide the upper and lower half of the page and a vertical line to divide the right and left sides of the paper (Bach, 1990:39, DiLeo, 1983:13; Furth, 1988:112).

According to DiLeo's theory, small figures placed at the bottom of the paper express feelings of inadequacy, insecurity or depression. Figures or objects drawn in the upper half of the page (where the rest

of the page remains empty) suggests optimism, narcissism and fantasy (DiLeo, 1983:13).

In the process of investigating the use of a quadrant theory for the purpose of analyzing the presence of pain from drawings, emphasis will be placed on the work of Susan Bach. Bach's (1990) quadrant assessment theory was formulated mainly from work done with critically ill children and could thus be linked to the analysis of pain in hospitalized children.

Bach found the four quadrants to be of indicative value as she speculated that objects or human figures placed in the upper right quarter (++) might point to the situation in the here and now. On the other hand, objects or figures placed in, or moving within, or towards the lower left (--) quadrant, have been observed as going downhill, moving towards darkness and the unknown. Objects of human figures moving from the right across the centre and into the upper left (-+) quadrant where the sun is last seen to the west, was found to occur in the drawings of children and adults whose illness was of such severity that it was taking them slowly out of life. Movement in this quadrant is said to be horizontal to the left but at the same time upward and beyond.

Bach further theorized that objects or figures in the lower right (+-) quadrant often indicate the potential future or the 'artist's' recent somatic state which is still within or coming into treatment. Whatever is drawn in the centre of the picture is frequently of central significance and an empty centre is equally revealing.

Regarding quadrant assessment Bach advises the analyst to collect a series of drawings, at least two or three, in order to follow-up on any developments. This is important as it enables the analyst to see whether movement continues in the same directions, changes or even reverses.

A preliminary evaluation regarding quadrant assessment can be made by:

- noting the choice of objects
- noting whether objects are increasing or decreasing in numbers
- noting whether objects are filled in or outlined
- the use of and intensity of colour.

All of these must be considered in relation to the age of the child (Bach, 1990:39).

This study included Bach's Quadrant theory in the sense that the paper on which the drawings were done were divided into four quadrants as suggested by Bach. Drawings were then observed and scored according to the placement of symbols in the quadrants. It was attempted to distinguish between the placement of symbols in the various quadrants in pain drawings and pain free drawings. It would indicate, for example, whether children in pain prefer to draw in a specific quadrant vs those drawings done when the child was pain free.

4.6 TRANSLATING COLOUR

As with quadrant assessment, theories on colour interpretation differ greatly. Individually, people experience colour in a direct relationship to their surroundings where for example gold and yellow relate to the sun and green to the trees (Bach, 1990:43). On a deeper level Furth suggests that colour can symbolize feelings, moods and even relationships and that the use of a particular colour and it's placement on the paper is significant and can suggest a balance or imbalance in the life of the 'artist'. Because they play an important part in the individual's life, somatic factors will appear in drawings (Furth, 1988:97). This is of great importance to the proposed study as the use of colour in sick children's pain drawings will be investigated and discussed in the dissertation. Drawings accumulated for the purpose of this study will be observed according to the most prominent colours used by children when they are pain free vs when they are in pain.

As with other forms of assessment it is important to remember that there are no direct rules when it comes to colour interpretation. Furth used the colour red as an example, explaining that red could indicate danger, burning, fever, infection, love, passion or joy. Also of great importance is the fact that the meaning of colour could differ between one culture and society and another (Furth, 1988:97). Symbolically, the colour white is used in the Japanese culture as an indication of mourning and bereavement, whereas black is traditionally used in the Western culture to indicate the same thing (Bach, 1990:55).

4.7 CONCLUSIONS

The clinical assessment and interpretation of drawings as discussed in this chapter will not be applicable to the present study, which aims to compare drawings rather than to analyze them. However, the information obtained

from reviewing the literature has provided valuable insights and guidelines. Issues such as identifying focal points, symbols, quadrant assessment and the use of colours will be investigated for their occurrence in children's pain drawings and not for the purpose of interpretation.

The importance of incorporating the young artist's cognitive developmental phase in the assessment process was clearly indicated. To do so the researcher would need a comprehensive understanding of the drawing abilities of children in the various age groups. DiLeo warns that unless one has sufficient knowledge regarding the child's developmental phase, one might consider deviant what is in actual fact intellectual immaturity (DiLeo, 1973:18). It is important to remember that sick children, especially those in pain, might produce drawings that could indicate regression to an earlier developmental phase due to the emotional distress accompanying hospitalization (Hart et al, 1992:2). The assessment of cognitive development is not included in this study.

Gaining the confidence and trust of the young patient is necessary to ensure co-operation when collecting drawings and a number of useful and practical suggestions on this issue were found in the literature. These issues were successfully incorporated in the collection of drawings in this study. It is important to ensure that the drawing activity does not interfere with the ward routine or planned medical procedures and secondly, that the child draws of his/her own free will and not because he/she is pressurized into doing so.

The pitfalls facing the analyst during the interpretation of children's drawings warrant a cautious approach. One of the biggest problems is the temptation to make use of the so-called 'cook book approach', where one can simply look up the meaning of symbols in the literature and directly

apply that to the child (Koppitz, 1968:55). Added to this is the apparent confusion regarding interpretation which is created by the diversity of thought evident in some areas (DiLeo, 1983:13).

The ideal of allowing the child and his/her circumstances and surroundings to guide the analyst in the interpretation of the drawings might be seen as time consuming and vague.

CHAPTER 5

METHOD OF INVESTIGATION

5.1 INTRODUCTION

Chapter 5 will discuss the study sample, scoring method, method of data collecting, analysis of data and the pilot study.

The study design was built around and challenged by the question whether drawings could be used in the process of assessing paediatric pain in South African hospitals. It was mentioned in Chapters 3 and 4 of this dissertation that the formulation of the method was guided by work done by other authors. As far as is known no corresponding research on drawings and pain has been attempted in any other South African hospital.

The use of drawings as indicated in this study was designed to be relatively uncomplicated as it requires limited verbal instructions, and scoring would be done according to certain characteristics observable in the content.

The study design is an exploratory-descriptive in nature. It is designed to gain new insight into the use of drawings as a pain assessment tool, as well as formulating corresponding characteristics of drawings done by children in pain. It is furthermore designed to assess the presence of post-operative pain in children rather than to treat or eliminate pain. This design is theoretically supported by Arkava (1983) who defined descriptive studies as 'a design where the research worker merely collects data without introducing changes, he/she simply measures or observes existing conditions (Arkava et al, 1983:27. Further Treece (1982) defined exploratory-descriptive as a method which is not aimed at discovering the cause of a phenomenon, but rather to provide an accurate description (Treece et al, 1982:190). Exploratory-descriptive studies are valid in situations where there is little objective

information on the nature of the problem and the factors influencing it (Arkava et al, 1983:190). There is no existing pain measurement tool designed specifically for the South African children and very little data is available on the influence of pain on children's drawings.

5.2 PILOT STUDY

A pilot study involved a duplication of the methods of Unruh, McGrath and Cunningham (1983), Kurulyzen, McGrath and Capelli (1987) and Savendra and Tesler (1989) as described in Chapter 3. It included 5 children, 3 boys and 2 girls between the ages of 6 and 8 years, fluent in Afrikaans or English, admitted to the surgical ward at Red Cross War Memorial Children's Hospital, and who were attending school at the time being in Sub A to Standard 1. As they were in the post-surgical phase it was assumed that these children were experiencing some form of post-operative discomfort.

Children included in the pilot study were asked to draw their pain and themselves in pain and then had to rate their pain according to the intensity of pain experienced using the numerical intensity scale. They were given white paper size A4, and 8 colour pencils. The same children were then subjected to the Eland Colour tool where they were given a drawing of a body outline on which they had to identify the location of their pain, and 8 colour pencils. They had to select a colour representing the intensity of pain experienced.

It was found that these children were unable to draw in response to abstract instructional language such as 'draw your pain'. This is probably due to a variety of factors including the anxiety involved in an admission to hospital, poor socio-economic background and different cultural expectations. Asking children to draw their pain resulted in instant anxiety and a refusal to draw. This was contradictory to the American and European experience. It furthermore appeared that some

children found working with the thinner colour pencils difficult, and a choice between crayons and pencils was recommended.

Various pain assessment methods were tried prior to the pilot study in the search for a suitable tool to assess the level of pain the children were experiencing. The Visual Analogue Scale, the Oucher and the Eland colour tool were all tried and found to be unsuitable mainly because children lack the expertise to use these tools according to the given guidelines (see Chapter 2). Children found the faces drawn in the Oucher and Visual Analogue scales amusing and thus were missing the deeper meaning of the test.

It was decided to change the method to the current one where instructions were limited and children were allowed to draw anything they wished pre- and post-operatively. The use of the Numerical Intensity scale was not practical as children were unable to remember the definitions. The author then decided to use the Ladder scale, which in this study consisted of a small wooden ladder with 5 rungs to visually demonstrate the Numerical Intensity scale. Children could now visually see the tool, and place themselves in an imaginary game on the appropriate rung of the ladder. It was applied to children included in the pilot study and was found to be effective as children verbally responded to the instructions given. The use of the combined Ladder Scale and Numerical Intensity scale was found to be useful in this instance but would be unsuitable for use with children unable to communicate verbally. Hense drawings were considered.

5.3 SAMPLE: SIZE AND SELECTION

For practical reasons the sample population was selected from one hospital only, in this case the Red Cross War Memorial Children's Hospital. This is the only children's hospital in Africa. The upper age limit for admission to this hospital is the child's 13th birthday.

A stratified random sampling method was used in this study. The universe which included all children in the hospital was firstly divided into a sub-universe containing all children scheduled for surgery over a 6 month period. This was further divided into a second sub-universe including all children admitted to general surgical wards over a 6 month period with elective surgery and post-operative pain as the criterion. Because this study aimed to investigate pain in drawings, children were excluded when according to their own judgement, they experienced no post-operative pain.

Included in the study were patients requiring surgery under general anaesthesia from the general surgical ward (D2) and day surgery (Ward A7). Children admitted to the general surgical ward (Ward D2) were assessed on admission and included in the study if they met the inclusion criteria. Inclusions from this ward (D2) were few because older children were often operated on later in the day or early evening and patients in this ward generally required major surgical procedures. Children admitted over weekends and on public holidays were excluded.

Patients meeting the inclusion criteria admitted to day surgery (Ward A7) on a Monday, Tuesday and Wednesday were included in the study. The sample included fifty (50) children predominantly selected from ward A7. The inclusion criteria were more readily met by patients in this ward. Fifty children were seen to be representative of children requiring minor surgical procedures, when inclusion criteria such as age, type of surgical procedure and the presence of pain, were met. More young children under the age of six years are admitted to this ward (and to the Red Cross War Memorial Children's Hospital). An estimated 60% of children admitted in 1994/1995 to this hospital were under 6 years of age. Subjects were selected from available operating theatre lists or ward admission books. The age of

the child, the proposed surgical procedure and the length of time available for pre-operative interview played an important role in the inclusion criteria. This supported the decision to collect drawings as soon as possible after admission and on return from theatre but not during phases of resuscitation or when the child is acutely ill.

The sample population included all races, both sexes and children between ages 6 to 12 years i.e. children attending primary school. Excluded from the study were children who could not speak English or Afrikaans because the author is not able to conduct an interview in an African language. Also excluded were children who required major surgery such as organ transplantation and intensive care. Children who said they did not have post-operative pain were also excluded.

5.4 DATA COLLECTION

An extensive computerized literature search preceded the accumulation of data.

Information was obtained through implementing a pre-compiled questionnaire. Questionnaires were divided into three sections and questions were designed in such a way that a computerized analysis would be possible.

Section A dealt with the respondents' personal information and included information on school standard and progress, medical history and social background. Data accumulated on the child's school performance, standard and age will indicate his/her previous exposure to drawing, as well as intellectual development. The social circumstances of each child is important in order to identify support systems at home as well as financial status.

Section B dealt with the child's reaction to painful experiences and parental response to the child's pain. It was important to determine whether the child was

encouraged by his/her parents to verbally express pain and discomfort and parental reaction to this. Information on the patient's tolerance of pain or pain threshold was also obtained. The researcher assumed that a child who was not encouraged to verbalize pain at home will find it difficult to do so at the hospital. This was supported in the literature reviewed in Chapter 2 (Schechter, 1989:788). Attitudes towards hospitalization are subjected to social class, educational - and often cultural variables. The scope of this study does not allow for a thorough investigation of this.

Section C involved information obtained from actual drawing made by the respondent and included the amount of time spent on the drawing, an observation of the content and medium used.

Drawings were accumulated according to the guidelines indicated by Bach (1990) and Furth (1988) as explained in the literature reviewed (see Chapter 4). Data were collected as follows:

The nursing staff were informed of the study and the ward routine assessed. Permission to use ward equipment and patients were obtained from the nursing sister in charge of each ward. Information obtained through ward admission books, theatre lists and medical records were used to identify respondents for inclusion. The age of the child, the surgical procedure intended and time available for post-operative information gathering were important criteria. Parents and respondents were only approached once it was decided on which children should be included. The researcher was then introduced and the aim and method of the study were explained to both parents and respondents. It is important to explain to the respondents and parents/caregivers why two drawings will be needed, when they will be collected and that they were free to withdraw from the study at any time.

Pre-operative drawings were collected on admission in the ward playroom. The respondents were asked to draw the first drawing while their parents/caregivers were interviewed to accumulate data on the child's response to pain and parental reaction to the child when in pain. Children included in this study were given the option to choose between crayons or pencils. Respondents were interviewed once they had completed the first drawing.

Post-operative drawings were collected as soon as possible after the child was fully awake and had indicated that he/she was willing to draw. Post-operative drawings were done on drawing boards provided by the researcher or on hospital trays. It is hospital policy to encourage the intake of fluids as soon as possible after an operation. Refusal by the patient to accept food, or vomiting after eating and drinking will be an indication that the patient is still affected by the anaesthesia. The second drawing was only collected once fluids were tolerated and the respondent was fully alert. At no time was any child in distress or showing signs of distress forced to draw the second drawing.

For the actual drawing the child was presented with a white A4 paper and 8 pencils or crayons. The child was asked to draw a picture, with no advice given as what to draw. No time limit for completion was set. Drawings in each phase were done on a separate piece of paper.

The presence of pain was measured by using a small wooden ladder to compare the intensity of pain experienced with the content of the drawing. The ladder scale was applied before each drawing was done. Children were asked whether they were in pain and then to choose a rung on the ladder that represents the level of pain they were experiencing.

Where possible each drawing was compared with a third drawing done by the same child on the day of discharge. It was assumed the child would then be pain free and physically more comfortable. When patients were discharged within twelve hours of admission only two drawings could be collected.

A post drawing discussion was held with each child. Children were asked to comment on each drawing. They were asked to name it, to explain what they were drawing and why. These comments were all written down by the author.

5.5 SCORING METHOD

The actual level of pain experienced was measured by using a combination of the Numerical Intensity scale and the Ladder scale. This implies using a wooden scale model of a ladder as a pain measurement tool. The lowest rung (No 1) indicates no pain, while the highest rung (No. 5) indicates the highest intensity of pain. This enabled the child to place himself/herself on the ladder to indicate his/her pain level.

Knowing the level of pain is important in order to describe features in the content of drawings done while the child was in pain. Hospitalized children prefer this method above other methods such as colour cards, the poker chip tool and verbal assessment scale in evaluating pain (Savendra et al, 1989:27).

Children included in the study were all able to verbalize pain and to describe the level of pain by using the Pain ladder. This study is, however, aimed at those children who are unable to verbalize pain, and where drawings would be the only means of communicating the presence of pain.

Section C contains information on the content of the drawings collected (see Appendix 3). It was based on the observable content of the drawing. The content of the two different drawings were scored according to:

- The size of the symbols/objects drawn (Burns, 1972:300; DiLeo, 1983:66).
  The size of the contents in the pre- and post-operative, as well as discharge drawings were compared with each other. Size was defined as normal, small and large.
- Placement of symbols/objects on paper (Bach, 1990:43; DiLeo, 1983:9).
  The paper on which the drawing was done was divided into four squares in order to rate the placement of the symbols/objects on the paper.
- Most prominent colour used (Bach, 1990:43; Furth, 1988:9).
  The most prominent colours used in the drawing were noted. Drawings were defined as 'multi colour' where all 8 colours were used.
- Amount of time spent on the drawings.
- The occurrence of transparencies vs shaded symbols/objects (Bach, 1990:31; Furth, 1988:59)
  The content of the pre- and post-operative drawings were rated according to the number of transparent symbols/objects used in the drawing versus those that were completely coloured in.
- Most prominent symbols/objects used (Bach, 1990:73)
  Drawings were scored according to their content to establish whether children in pain prefer to draw specific symbols as opposed to when they were pain free..
- Description of line quality used (DiLeo, 1983:17; Burns, 1972:300).
  Drawings were scored according to the quality of the line pressures and were rated in terms of normal line pressure as opposed to very light and very bold pressure.
- Symbols/objects hanging in the air versus those placed on a foundation (Furth, 1988:70; Burns, 1972:134)

Drawings were rated according to whether the content was scattered over the paper or whether it was placed on a foundation - normally indicated by a solid line drawn under the symbol/object.

- Interaction between objects/symbols drawn

  The content was assessed to determine whether the picture was 'telling the story' or were symbols/objects drawn scattered over the page bearing no relevance to each other.

- The medium used, that is a preference for crayons or pencils.

All the drawings collected were scored according to the abovementioned and linked to the level of pain as indicated by the Ladder scale. The input of a second rater/observer would have been of some value, but because of constraints within the hospital was found to be impractical.

5.6 DATA ANALYSIS

Questionnaires used in this study included open and close ended questions. Close ended questions were coded in their design to enable the entering of data on a pre-compiled computerized data base (DBase III). This involved the defining of each question as required by the computer programme and the entering of coded information as obtained by the respondents or as obtained from their drawings. Specific information such as the placement of objects on paper, colours used, time spent, age of patient etcetera were analysed in this manner since conclusions can be drawn on this quantitative basis.

Open ended questions were answered by the respondents and analysed on a spread sheet. These answers provide more subtle distinctions and could therefore not be coded.

5.7 CONSENT FOR THE STUDY

Verbal consent was obtained from both parent and child. The researcher explained the nature of the study in that drawings were to be collected to assess pre- and post-operative pain in children. A child's refusal to take part in the study was respected in all cases and no child was forced to draw. The study did not include sensitive or revealing information and patients' identities were withheld.

CHAPTER 6

RESEARCH RESULTS

This chapter reports on the findings of this study. It describs the respondents use of drawings in relation to the larger context which includes social background, medical diagnosis and pain behaviour before this episode. It also discusses the role of the social worker in paediatric pain management.

Findings of this study:

Information regarding personal details, social background and medical history was obtained from:

1. Patient medical records
2. Parental and patient interviews
3. Social work notes in medical folder

6.1 AGE, GENDER AND RACE DISTRIBUTION

Fifty children (50) between ages 6-12 were included in the study. The majority of children (48%) were between 7 and 8 years of age. Coloured children were predominantly targeted (42) of which 27 were male and 15 were female. Only 7 black children (3 male and 4 female) were found to be English or Afrikaans speaking and could therefore be included (Table 1 and 2).

TABLE 1: AGE AT PRESENTATION (n = 50)

6 years old	=	5
7 years old	=	10
8 years old	=	14
9 years old	=	7
10 years old	=	4
11 years old	=	7
12 years old	=	2
13 years old	=	1

TABLE 2: GENDER AND RACE DISTRIBUTION (n = 50)

African male	=	3
African female	=	4
Coloured male	=	27
Coloured female	=	15
While male	=	1

6.2 SCHOOL STANDARD AND PERFORMANCE

This study included only school going children where the school standard ranged from Sub A to Standard 4. The majority of the respondents (36) were either in Sub A, Sub B or Standard 1 (Table 3).

TABLE 3: RESPONDENTS SCHOOL STANDARD (n = 50)

Sub A	=	14
Sub B	=	12
Standard 1	=	10
Standard 2	=	5
Standard 3	=	4
Standard 4	=	5

School performance were primarily rated by either the parent/caregiver or adult family member (44) accompanying the child to hospital. Six of the respondents rated their own school performances due to the absence of a parent/caregiver at the time of the interview.

Respondents described by their parents as doing well and enjoying school numbered 34. The rest were described as average performers (8) and poor performers (8).

Reasons given for these poor performances were: only recently diagnosed hearing problems (3 children), sudden death of both parents (1 child), physical abuse and neglect resulting in foster placement and divorce (2 children) and slight mental retardation requiring remedial teaching (2 children).

6.3 SOCIO-ECONOMIC BACKGROUND

Regarding monthly income: It was revealed that 12 families had no income, with 9 families earning less than R500 per month. Of these, 12 families had three or more, up to 7 children to support.

An income of between R500 and R1999 were found in 8 of the families. Seven of these families had 3 children and 1 family had four children to support.

Seventeen families earned between R1000 - R2000 per month. Five of these families had 3 children and one family 6 children to support.

Only three families earned more than R2000 per month (Table 4).

TABLE 4: PARENTAL/CAREGIVER'S MONTHLY INCOME (n = 49)

No income/unemployed		
Married	=	6
Divorced	=	1
Single	=	5
≤ R499 per month		
Married	=	2
Divorced	=	2
Single	=	5
R500 - R999 per month		
Married	=	2
Divorced	=	2
Single	=	4
R1 000 - R1 999 per month		
Married	=	14
Divorced	=	1
Single	=	2
R2 000 per month +		
Married	=	3
1 Orphan - no family income		

Just over half of the parents interviewed (27) were married. There were 16 single parent families with primarily the mother as breadwinner. One family had the maternal grandmother as guardian after the biological parents were killed in a motor accident. Six of the parents were divorced and 1 respondent being an orphan, currently in Astra School (Table 5).

TABLE 5: PARENTAL/CAREGIVER'S MARITAL STATUS (n = 50)

Married	=	27
Divorced	=	6
Single	=	16
Unknown	=	1 (Patient an orphan)

6.4 MEDICAL HISTORY AND SURGICAL PROCEDURES

Only those booked for elective surgery and requiring less serious surgical procedures were included in the study. Umbilical and inguinal herniotomy repairs were indicated in 9, and tonsillectomy and adenoidectomy in 8 of the cases.

Excisions e.g. clitorial mass, removal of ganglions and cysts, were reported in 5 children with a further 5 requiring laparotomies. The rest of the respondents required procedures such as oesophageal and anal scopes for the removal of polyps, surgery to the hand (amputation of finger and separating fingers), chronic constipation requiring the surgical removal of faeces and the manipulation and plating of a broken humerus.

Only two children had medical histories of recurrent admissions (Table 6).

TABLE 6: SURGICAL PROCEDURES (n = 50)

Anal and oesophageal dilatations	=	4
Removal of tonsils/adenoids	=	8
Herniotomy (umbilical/inguinal)	=	9
Biopsies and removal of polyps	=	2
Excision of mass (includes cysts, ganglion, clitorial mass)	=	5
Insertion of grommets	=	2
Surgery to the inner ear	=	5
Circumcision	=	4
Amputation of finger	=	1
Laparotomy	=	5
Rectal prolapse	=	1
Release of contracture of fingers	=	1
Skin flap to cover bed sores on buttocks	=	1
Manipulation and splint of a humerus fracture	=	1
Chronic constipation and removal of faeces	=	1

6.5 RESPONDENTS PAIN BEHAVIOUR AND PARENTAL RESPONSE

Those interviewed regarding the respondents pain behaviour were:

- Mother in 41 (82%) of the cases
- Grandmother 1 (2%)
- Foster mother 1 (2%)
- Family member 1 (2%)
- Patient 6 (12%)

The interviews were all conducted on admission. Parents/caregivers were unavailable in six cases which necessitated interviews with the patients. Five of these children were from areas outside Cape Town and were either unaccompanied by parents/caregivers or parents/caregivers had left the hospital shortly after the child was admitted. One child was an orphan.

Findings indicated that 28 of the mothers/caregivers were at home during the day. This includes the caregivers of the orphan patient as well. Twenty two mothers/caregivers were working. This question was asked to determine the availability of the mothers to their children.

When asked about the child's reaction to pain, 24 of the parents/caregivers interviewed confirmed that their children were sensitive to pain and will cry easily when hurt (Table 7). Twenty one (21) of the abovementioned confirmed that their children, when hurt will tell their mothers/caregivers and subsequently will seek comfort from them. Three (3) of the abovementioned 24 mothers/caregivers interviewed were sure that their children would not tell them, or approach them for comfort or support when hurt or in pain.

TABLE 7: PATIENT'S RESPONSE TO PAIN (n = 50)

Sensitive to pain, will cry easily	=	24
Tough would not cry easily	=	17
Will cry occasionally when badly hurt	=	9

Nine children (9) were said to respond to pain by crying only when badly hurt. Of these, 3 children would tell their mothers/caregivers or seek

comfort from them when hurt, 3 children would definitely not tell their mothers/caregivers when hurt or seek comfort and 3 could only tell or approach their mothers/caregivers when seriously injured.

Seventeen children (17) were rated to have high pain thresholds and would rarely (almost never) respond to pain by crying. Of these, 9 would definitely not tell or approach their mothers/caregivers when hurt, 5 would only on occasion approach their mother/caregivers and 3 would definitely approach mothers/caregivers when hurt (Table 8).

TABLE 8: PATIENT'S COPING WITH PAIN (n = 50)

Will come to mother/caregiver when hurt	=	27
Will not come to mother/caregiver when hurt	=	15
Will only come when badly hurt	=	8

When asked about the mother/caregivers reactions to the child when hurt it appeared that: Thirty two (32) of the mothers/caregivers would comfort or support their children verbally or non-verbally when approached by the child. Non-verbal support included the applying of medicines, salves or plasters. Eleven (11) of the mothers/caregivers felt that their children did not need them and that they can look after themselves. One mother said that 'she simply couldn't be bothered'. Seven (7) of the mothers/caregivers would only occasionally render help and support and only when the child is badly hurt (Table 9).

TABLE 9: PARENTAL/CAREGIVER'S REACTION TO PATIENT WHEN HURT/IN PAIN (n = 50)

Comfort and support child	=	22
Try to help by applying salve/lotion	=	10
Will only help if he/she is badly hurt	=	7
Child can look after himself/herself	=	10
Don't care	=	1

6.6 ANALYSIS OF PICTURE CONTENT

Seventeen children (34%) duplicated the work done in the pre- and post-operative phase by drawing the same objects with differences noted in colour, size etc. It was found that children in pain tended to draw fewer objects than when they are pain free. Thirty children (60%) in this study drew less symbols when in pain than when they were pain free.

6.6.1 Pain levels as rated by respondents

Pain levels as described in this section were according to the patient's own assessment and by using the Pain Ladder Scale. No problems were encountered when implementing this scale and children generally understood what was expected of them (Table 10).

TABLE 10: LEVEL OF PAIN EXPERIENCED BY RESPONDENTS

Drawing 1 (pre-operative) (n = 50)		
Level 1 pain (no pain)	=	49
Level 3 pain (moderate pain)	=	1
Drawing 2 (post-operative) (n = 50)		
Level 1 pain (no pain)	=	1
Level 2 pain (minor pain)	=	18
Level 3 pain (moderate pain)	=	26
Level 4 pain (severe pain)	=	5
Level 5 pain (intense pain)	=	0
Drawings 3 (on discharge) (n = 10)		
Level 1 pain (no pain)	=	10

The majority of children included in this study were discharged within 12 hours after surgery, with only 10 drawings collected on the day of discharge. It is hospital policy to minimize the duration of hospitalization where possible.

Children were generally pain free on admission, with 49 children reporting no pain. One child who reported a level 3 (moderate) pain on admission was admitted with a chicken bone stuck in his throat causing much physical discomfort. Level 1 pain (no pain) was reported by all the children on the day of discharge.

6.6.2 Time spent on drawings

The following table (Table 11) indictes that no significant difference occurs with time spent on drawing in the Pre- and post-operative phases.

TABLE 11: TIME SPENT ON DRAWING (n = 50)

Drawing 1 (on admission/pre-operative)	
32	Children spent 15 minutes or less
9	Children spent between 16-20 minutes
3	Children spent between 21-25 minutes
4	Children spent between 26-30 minutes
2	Children spent more than 30 minutes
Drawing 2 (post-operative)	
43	Children spent 15 minutes or less on their drawing
5	Children spent 16-25 minutes on their drawings
2	Children spent more than 30 minutes
Drawing 3 (day of discharge)	
7	Children spent less than 15 minutes
2	Children took between 16-20 minutes to complete their drawing
1	Child spent more than 30 minutes to complete drawing

6.6.3 Time spent on drawing vs pain level

The majority of children spent 15 minutes or less on their drawings in the pre- and post-operative phases and on discharge.

Drawings done in the post-operative phase indicated that 1 child (2%) experienced no pain and had spent less than 15 minutes to complete the drawing.

Of the 18 children experiencing a level 2 pain (mild), 16 spent less than 15 minutes on their drawings with 2 children spending between 20 and 30 minutes.

Twenty six (26) children reported a level 3 (moderate) pain, of which 22 children spent less than 25 minutes, 7 children took between 15-20 minutes and 3 children between 20-30 minutes.

Severe pain (level 4) was reported by 5 children, of which 4 spent less than 15 minutes on their drawings. Only 1 child spent between 15-20 minutes on the drawing.

6.6.4 The presence of pain vs the use of symbols

A great variety of symbols were identified during the analysis of the picture content. It was therefore decided to focus on the following symbols as they were the most frequently used:

- The house - empty or transparent
- The house filled in
- The self-portrait
- Human figures
- The mother figure
- Siblings

Drawing 1 (on admission):

The house symbol occurred in 18 of the drawings with 7 houses being transparent or empty and 11 house being filled in with either furniture or people.

Sixteen respondents drew themselves with 10 completed and 6 of the self-figures not completed in terms of hair, facial features and arms or legs.

Eight drew human figures and 5 drew their siblings. The child with the level 3 pain included none of these symbols.

Drawing 2 (post-operatively):

Pain level 2:

The house symbol occurred in 5 of the drawings. Four (4) of which were empty and one (1) which was filled in. Three (3) children drew themselves and in two (2) of the drawings the self was completed. Three children drew human figures. One child drew the mother and 1 child his/her siblings.

Pain level 3:

Children experiencing moderate pain drew the house symbol in 8 of the drawings. Six of which were empty and transparent. Seven (7) children drew themselves with 5 of the self-figures not completed. Only 1 child drew the mother figure.

Pain level 4:

Only 1 completed house was drawn by children experiencing severe pain. Two (2) children drew themselves, with 1 self-figure not fully completed. No mother figures were drawn with only 1 drawing containing siblings.

Drawing 3 (on discharge):

Four (4) children drew houses - two of the houses were empty and transparent. One (1) child drew the self-figure fully completed and one (1) child drew siblings (Table 12).

TABLE 12: SYMBOLS PREDOMINANTLY USED IN DRAWINGS

Drawing 1 (pre-operative)			
Animals	=	3	
Water	=	3	
Cars	=	7	Predominantly by boys
Ball	=	4	
Flowers	=	8	Predominantly by girls
Cartoon characters	=	2	Drawn by boys
Train	=	1	
Police cars	=	3	
Trees	=	2	
Scattered symbols	=	2	
Self figures	=	16	
Human figures	=	8	
Siblings	=	4	
Houses	=	18	
Drawing 2 (post-operative)			
Animals	=	3	
Cars	=	7	
No symbols (writing/ patterns	=	5	
Flowers	=	6	Mostly drawn by girls
Cartoon characters	=	3	Drawn by boys
Police cars	=	2	
Boats	=	1	
Pain ladder	=	2	
Scattered symbols	=	1	
Houses	=	14	
Self figures	=	3	
Human figures	=	3	
Siblings	=	2	
Mother	=	3	
Drawing 3 (on discharge)			
Car	=	1	
No symbols (...)	=	1	
Flowers	=	3	
Houses	=	4	
Self figures	=	1	
Human figures	=	1	
Siblings	=	1	

6.6.5 Colours used

Drawings were evaluated according to the four most prominent or outstanding colours observable. The term 'multi colour' was used to describe drawings in which all the available colours were used.

Drawing 1 (on admission):

Black was the most prominent colour in 22 of the drawings done on admission, with the colour red featuring predominantly in 10 of the drawings. Brown in 8 drawings, blue in 7 drawings and green in 5 drawings were the next most prominent colours used. Of the collected drawings 24 appeared to be 'multi-coloured'. Orange in 3 drawings and purple in 3 drawings were the least favourite colour.

Drawing 2 (post-operatively):

Black was again used in 22 of the drawings with red in 16. Green was prominent in 11 drawings, purple in 8 drawings and orange in 7 drawings. Multi-colours were used in 11 of the drawings. The colour yellow was only prominently used in 2 of the drawings.

Drawing 3 (on discharge):

Red and brown were more prominent in 2 drawings each. Multi-colours were used in 5 of the drawings with green, blue and purple the least popular colours.

6.6.6 Colour vs pain level

The following table (Table 13) indicates respondents colour preference when drawing while in pain.

TABLE 13: COLOURS PREDOMINANTLY USED IN DRAWINGS vs THE INCIDENCE OF PAIN

Post-operative		
Level 1 (no pain)		
Multi-colour	=	1
Level 2 (minor pain)		
Black	=	8
Red	=	8
Green	=	3
Blue	=	2
Brown	=	2
Orange	=	1
Yellow	=	1
Multi-colour	=	4
Purple	=	0
Pain level 3 (moderate pain)		
Black	=	13
Green	=	8
Red	=	6
Purple	=	6
Multi-colour	=	4
Brown	=	4
Orange	=	1
Yellow	=	0
Pain level 4 (severe pain)		
Red	=	2
Multi-colour	=	2
Purple	=	2
Brown	=	1
Yellow	=	1
Green	=	0
Blue	=	0
Orange	=	0
Pain level 5 (high pain)		
None		

6.6.7 Placement of symbols on paper

The placement of symbols were scored according to the placement of the majority of symbols on the page.

Drawing 1 (on admission):

Children who are predominantly pain free tend to draw full page drawings. Twenty three (46%) filling the whole page with symbols. Symbols placed in the top half of the page occurred in 8 of the drawings. Drawings placed in the bottom half of the page occurred in 4 of the drawings, with middle page placements occurring in 3 drawings. Symbols placed to the left, away from the mid-axis were found in 6 drawings. Only in 1 drawing were symbols placed in the right hand side of the page away from the mid axis.

In three drawings symbols were predominantly placed in the upper (L) quadrant of the page and only in 1 instance were symbols placed in the upper (R) quadrant and lower (L) quadrant.

Drawing 2 (post-operative):

Children in pain drew 13 full paged drawings. In 9 drawings the symbols were predominantly placed on the left side of the page away from the mid-axis. Six children placed symbols on the top half of the page away from the mid-axis and 5 drawings symbols were placed in the middle of the page. Only 3 children used the right hand side of the page and 4 the bottom half of the page.

Six children placed their symbols predominantly in the upper (L) quadrant, and one in the upper (R) quadrant of the page with 3 in the lower (L) quadrant of the page.

Drawing 3 (on discharge):

Six children drew full page drawings, with symbols in 1 drawing placed in the middle of the page. In 2 drawings symbols were placed on the top half of the page and in 1 drawing symbols were placed on the bottom half of the page.

6.6.8 Level of post-operative pain vs placement on paper

The placement of symbols/objects were scored according to the level of pain experienced while doing the actual drawing (see Table 14).

TABLE 14: THE PLACEMENT OF SYMBOLS vs THE INCIDENCE OF POST-OPERATIVE PAIN

Pain level 1 (no pain)		
Full page drawing	=	1
Pain level 2 (minor pain)		
Full page drawing	=	7
Placement on top half of page	=	3
Placement on middle of page	=	2
Placement on lower (L) quadrant	=	2
Placement in upper (R) quadrant	=	1
Placement on bottom half of the page	=	1
Right side of the page	=	1
Left side away from middle axis	=	1
Pain level 3 (moderate pain)		
Placement to the left side of page away from middle axis	=	8
Placement in upper (L) quadrant	=	4
Full page drawing	=	4
Placement in top half of the page	=	3
Middle page drawing	=	2
Placement on the bottom half of the page	=	2
Placement to the (R) side away from mid-axis	=	2
Placement in lower (L) quadrant	=	1
Pain level 4 (severe pain)		
Full page drawings	=	2
Placement in upper (L) quadrant	=	1
Placement in middle of page	=	1
Placement on bottom half of page	=	1
Pain level 5 (high pain)		
None		

6.6.9 Size of symbols used in drawings

Symbols used in the drawings were compared with each other for size. It appeared that in:

Drawings on admission/pre-operatively:

Thirty eight (72%) children drew normal sized symbols with 6 drawings having smaller symbols and 6 having larger symbols when compared with each other. Symbols were scored as either small or large when there were visible differences when compared to the size of the majority of symbols.

Drawings post-operatively:

When in pain children tend to draw smaller symbols (22) with normal size symbols in 19 drawings and larger symbols in 9 of the drawings.

Drawings on discharge:

Normal size symbols occurred in 5 of the drawings with smaller symbols in 3 and larger symbols in 2 of the drawings (Table 15).

TABLE 15: SIZE OF SYMBOLS USED IN DRAWINGS

Drawing 1 (on admission/pre-operative) (n = 50)		
Normal size drawings	=	38
Small drawings	=	6
Large drawings	=	6
Drawing 2 (post-operative) (n = 50)		
Normal size drawings	=	19
Small drawings	=	22
Large drawings	=	9
Drawing 3 (on discharge) (n = 10)		
Normal size drawings	=	5
Small drawings	=	3
Large drawings	=	2

6.6.10 Description of line quality

Drawings done pre- and post-operatively were compared for line pressure used (see Table 16).

TABLE 16: DESCRIPTION OF LINE QUALITY USED IN DRAWINGS

Drawing 1 (on admission/pre-operative) (n = 50)		
Bold/hard pressure	=	10
Normal line pressure	=	31
Light, almost invisible	=	9
Drawing 2 (post-operative) (n = 50)		
Bold/hard pressure	=	14
Normal	=	18
Light	=	17
Drawing 3 (on discharge) (n = 10)		
Bold/hard pressure	=	5
Normal	=	5

6.6.11 The occurrence of transparencies in drawings

Drawings done on admission showed no transparencies in 29 cases. Transparent symbols were found in 38 drawings done by children in pain. Five of the drawings done on discharge revealed transparencies (Table 17).

TABLE 17: THE OCCURRENCE OF TRANSPARENCIES IN DRAWING

Drawing 1 (on admission/pre-operative) (n = 50)			
Transparent symbols drawn	Yes	=	21
	No	=	29
Drawing 2 (post-operative) (n = 50)			
Transparent symbols drawn	Yes	=	38
	No	=	12
Drawing 3 (on discharge) (n = 10)			
Transparent symbols drawn	Yes	=	5
	No	=	5

6.6.12 Symbols hanging in the air vs having a foundation

Children experiencing no pain on admission drew symbols grounded on a firm foundation in 26 drawings. Foundations could either be a line, or grass, or maybe a path placed directly under the symbol. In six of the drawings done on discharge symbols were drawn grounded on a foundation.

Children in pain tend to draw loose symbols hanging in the air (32 instances). Grounded symbols were found only in 18 drawings (Table 18).

TABLE 18: SYMBOLS HANGING IN THE AIR vs HAVING A FOUNDATION

Drawing 1 (on admission/pre-operative) (n = 50)		
Symbols drawn with a foundation	=	26
Symbols hanging in the air	=	24
Drawing 2 (post-operative) (n = 50)		
Symbols drawn with a foundation	=	18
Symbols hanging in the air	=	32
Drawing 3 (on discharge) (n = 10		
Symbols drawn with a foundation	=	6
Symbols hanging in the air	=	4

6.6.13 Symbols interacting with each other

It was found that children do not normally draw full drawings telling a story but prefer to draw loose symbols having no apparent interaction or no connection with each other. Drawings made by children reported to be in pain where the symbols were not interacting with each other were found in 31 instances. Children reported to be pain free draw (38 drawings) with non-interacting symbols (Table 19).

TABLE 19: SYMBOLS INTERACTING vs SYMBOLS NOT INTERACTING

Drawing 1 (on admission/pre-operative) (n = 50)		
Symbols interacting	=	32
Symbols not interacting	=	18
Drawing 2 (post-operative) (n = 50)		
Symbols interacting	=	19
Symbols not interacting	=	31
Drawing 3 (on discharge) (n = 10)		
Symbols interacting	=	6
Symbols not interacting	=	4

6.7 CASE EXAMPLES

The following case examples will illustrate the use of children's drawings in paediatric pain assessment. Loss of picture quality occurred during the reproduction of the drawings. The writer wishes to apologize for this.

Case Example 1: KL, 8 years old, coloured female

KL was admitted to the Red Cross War Memorial Children's Hospital for the insertion of bilateral grommets under anaesthesia - a procedure that should cause minimal physical discomfort. She was in standard 1 and although happy in school was reported to be struggling.

Her mother who was then divorced, worked during the day, earning between R500 - R1000 a month and was responsible for supporting KL and her two siblings.

KL was described by her mother as a sensitive and moody child, who cried easily. KL would not seek comfort from her mother when hurt and would only inform her after a painful incident. Mother admitted that she normally did not react to that.

Pre-operative: (Drawing 1.1)

Pain Level: 1

Time spent on drawing: 8 minutes. Patient comments: 'It is me that I am drawing'.

KL drew a very feminine image of the self, wearing a long dress and with long black hair. The rosy cheeks could indicate health. The figure is well grounded indicating stability.

Drawing 1.1

Drawing 1.2

Colours used	Multi-colour, with the face and hands done in brown, the skin colour of the coloured child which contradicts Furth who wrote that the colour brown indicates decay (Furth, 1988:98).
Placement on paper	The self-figure was placed more or less in the middle of the page.
Quality of line	Normal line pressure.

Post-operative (Drawing 1.2)

Pain level: 2

Time spent on drawing: 7 minutes. Patient comments: 'This is my mother'.	Smiling, armless mother and at the bottom a well grounded tree.
Colours used	Multi-colours and the mother was drawn with the brown pencil.
Placement on paper	The mother and the transparent house hangs suspended in the air, with the mother in the top (R) quadrant. The house is in the top (L) quadrant and the tree is placed on the bottom half of the page.
Quality of line pressure	Normal line pressure.

In real life the armless mother admits that she is never approached for comfort when her child is hurt. The pain level 2 is compatible with the minimal physical discomfort associated with this procedure.

Case example 2: CE, 6 years, coloured female

CE was admitted for the removal of pre-auricular sinus - a procedure that should cause moderate pain. She was in Sub A and according to mother not doing well and it had been decided to keep her in Sub A for another year.

CE's parents were married and earning between R1000 and R2000 per month. Mother was not working and was at home to look after CE and her two siblings.

CE was described by her mother as a tough but sensitive little girl, who normally preferred her own company and in general could look after herself. Mother was unsure how CE would react to pain as she did not normally seek comfort and support from her.

Pre-operative: (Drawing 2.1)

Pain Level: 1

Time spend on drawing: 35 minutes. Patient comments: Me and my house. Very anxious on admission.

Started by drawing a house and a human figure in blue, then added a lot of looser non-interacting symbols.

Drawing 2.2

Colours used	Multi-colours - with the self and the house in blue. The colour black is the most prominent colour followed by red and green. Blue according to Furth could be an indication of withdrawing or contemplation and black of fear or anxiety.
Placement of symbols	A loose scattering of small symbols filling the whole page.
Quality of line	Normal line pressure.
Post-operative: (Drawing 2.2) **Pain level: 3** Time spend on drawing: 10 minutes. Patient comments: 'Me and my cat. I'm not feeling well'.	Similar to previous drawing, with the same non-interacting symbols.
Colours used	CE used a variety of colours, with the black dominating. Other prominent colours are orange and red. Orange as a paler red indicates a decrease of energy (Bach, 1990:47). Red is also the traditional colour for pain.

Placement on paper	The self is drawn in the top (R) quadrant and the here and the now (Bach, 1990:39). The rest of the symbols are on the R half of the paper.
Qualify of line	Light almost invisible.

There are interesting differences when comparing these two drawings. The removal of the pre-auricular sinus is normally seen by health professionals to be a potentially painful procedure. Yet CE rated herself as to have a pain level of 3, indicating a moderate amount of pain. The differences in the number of symbols, placement on paper, colours used, time spent and line quality in the second drawing when compared with the first drawing is very obvious. It could be assumed that she was physically not feeling the same at the time of the second drawing as she was when doing the first drawing.

6.8 THE ROLE OF THE SOCIAL WORKER IN PAIN MANAGEMENT

'The health field is no longer the
monopoly of the medical profession,
it requires the services of all sorts
of other skills'.
(Rene Dubois 1980 from 'Man Adapting')

Pain, in spite of its impact on the physical and emotional well-being of the patient, has not been sufficiently recognized by social workers. This is an unfortunate situation and should be rectified as it is believed that the medical social worker has much to offer in terms of professional skill and knowledge

and can therefore play an important role in the multi-disciplinary approach to pain management.

The absence of a specifically formulated role could contribute to the current lack of social work involvement in pain management. Hospital social workers have long been exposed to the idea that their role and direct services are misunderstood and undervalued by health professionals. Ambiguous role definition could cause role blurring, resulting in conflict when members of different groups see themselves providing the same services. The fact that pain management is perceived to be a predominantly medical domain could be directly responsible for social workers being reluctant to get involved.

The reactions of children to pain are not simple. These are related to their maturity and ability to communicate. Distinction between emotional pain and physical pain are at times meaningless. Emotional factors such as anxiety influences the expression of pain. Children, furthermore, respond to pain in the manner which is characteristic of the family.

Pain management in which social workers can play a constructive role can be divided into three areas:

Pain assessment

Treatment

Evaluation and research

6.8.1 Pain assessment

Current research led to the development of a variety of pain assessment methods each with its own criteria and method of application. The medical social workers' knowledge of the psycho-social implication of illness on the

patient as well as professional skills developed through training could contribute to the assessment process. For example, observational pain assessment methods are becoming more popular as they do not require a verbal input from the child. Observational and evolutionary skills form an important part of social work training.

Pain assessment necessitates the accumulation of specific information which can only be obtained through interviewing the patient, the parent/caregiver and those responsible for treatment. Information is required regarding:

- The child's developmental phase and reactions to pain and coping with pain. This is obtained through interviewing the parent/caregiver or the child
- The child's illness or injury and the proposed treatment. This is obtained through interviewing those responsible for treatment.
- The child's previous pain experiences and parental attitudes towards pain. This information can be obtained through interviews with the parent/caregiver and child.

6.8.2 Treatment

Understandably, social workers cannot involve themselves in the medical treatment of pain, in the so-called drug therapy. There is, however, a non-medical side to the treatment of pain in which the social work profession could play an important role. The non-medical treatment of pain would include strategies such as: The teaching of relaxation techniques and cognitive coping skills, imaginary and fantasy games and distraction.

Treatment is made more efficient when combined with education. Social workers can play a role in the education of:

- patients regarding their illness and reasons for experiencing physical discomfort, as well as in coping mechanisms
- parents regarding their children's pain and non-medical ways of coping and dealing with pain (as well as providing moral support)

6.8.3 Evaluation and research

The preoccupation with clinical practice has limited social workers capacity for evaluative input and research and unfortunately many social workers still see research as 'somebody else's business'.

Social workers must be alert to discover new areas in which social work skills could be employed in paediatric pain assessment and management, ensuring that these inputs are identifiable as a social work contribution.

CHAPTER 7

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

7.1 DISCUSSION

Findings from this study suggest that children enjoy drawing under the conditions of minimal instructions and will do so even when experiencing pain and physical discomfort. This was supported by the fact that all respondents were willing to complete the second drawing (post-operatively) when they had the opportunity to refuse. Evidence accumulated supports the assumption that the use of drawings as indicated in this study can be successfully used by health professionals in the assessment of paediatric pain. The value of using drawings in the process of pain assessment was highlighted by the fact that drawings done pre- and post-operatively when compared for picture content could indicate the presence of pain or physical discomfort. (This will be discussed later in the chapter).

The act of assessing and comparing the picture content of drawings has an element of subjectivity as different individuals will come to different conclusions. It is therefore advisable to use the drawings of each patient on an individual basis, rather than to make general comparisons and broad assumptions. This will ensure that the young patient's unique personality, developmental phase and previous pain experiences will be taken into account when assessing his/her pain.

Drawings were accumulated according to the guidelines provided by the literature as discussed in Chapter 4. The writer's experience supported the findings of Bach (1990) and Furth (1988). Explanations as to the nature, aim and method of the study are not only important to the parents and respondents, but also to the nursing staff. Furth warned that parents and siblings might try to help the children with their drawings as opposed to this study where members of the nursing staff tried to help the patient. It was found that drawing should not be forced and that the sick

child's decision not to draw should be respected. Drawing should be fitted in with the ward routine and parents. Children should be informed as to why drawing are being collected. This will improve patient/parent compliance (Bach, 1990:7; Furth, 1988:28).

This study was the first of its kind and no similar studies were found with which to compare results. The literature reviewed was used as a guideline as to what can be observed in children's drawings without psychologically assessing them. One example was Bach's Quadrant theory (1990:39), which was originally used for the psychological assessment of terminally ill children. In this study it was used to see if children in pain prefer a specific part (quadrant) of the paper as opposed to when they were pain free. Valuable and interesting findings were accumulated this way and will be discussed later in this chapter.

This study included so-called Coloured children since they made it easier to obtain data in languages similar to the researcher. The use of these languages in this study does not indicate that the results are inapplicable to other language groups in South Africa.

The fifty (50) children in the sample were representative of children six years and older, fluent in Afrikaans or English, requiring minor surgical procedures, and indicating post-operative pain. These criteria excluded quite a number of patients unable to speak English or Afrikaans and those under six years of age. The policy of free medical treatment for those under six years and the specialized knowledge required in matters such as anaesthesia and treatment could account for the large number of children in this age group ($\pm$ 60%) treated at the Red Cross War Memorial Children's Hospital.

Children included in this study were free from the effects of the anaesthetic when approached for the second drawing. The second drawing was only collected once it was clear that the child was fully alert and able to tolerate oral fluids. Children scheduled for day case surgery, or minor surgical procedures are often discharged within a twelve hour period. According to hospital policy, children must be fully alert on discharge. Drawings were only collected after the nursing staff indicated that the patient was fully recovered and ready for discharge. The effects of anaesthesia will therefore not have influenced the quality of the drawings.

Although the sample size is small and includes mainly one population group, it is felt that drawings would be useful for assessing the presence of post-operative pain in any paediatric setting. Drawings were used to assess the presence of post-operative pain in children, but need not to be used for this alone. Drawings can also be used to assess the presence of physical pain from other causes e.g. wound dressings.

In analyzing the data of this study it was found that:

1. Drawings provided children with the opportunity to express pain and physical discomfort. Children who were previously handicapped by verbal incapabilities and language barriers can now communicate through the use of drawings with those responsible for their treatment:

   i. Size of symbols/objects drawn

   Findings in this study indicated that children who are not feeling well or who are experiencing pain will tend to produce drawings with smaller symbols/objects than those done while they are pain free. Only a small insignificant number of pain drawings (18%) were larger than those done while pain free. It could be concluded that drawings done while in pain will differ in size from those done while pain free.

ii. *Number of symbols/objects drawn*

The number of symbols/objects produced by children in pain are less than those drawn by children who where pain free. The assumption could be made that the presence of pain could be indicated by the sparseness of symbols/objects included in the drawing.

iii. *Line pressure used*

Normal line pressure is not used to draw symbols/objects when the child is in pain. Most children used lighter or almost invisible line pressure, while a few used hard or bold line pressure. These findings indicate that weak line pressure may indicate the presence of pain or physical discomfort.

iv. *Transparencies as opposed to filling in symbols/objects*

Transparencies in the picture content were evident in the pain drawings. Children produced more transparent symbols/objects when in pain as opposed to when they are pain free.

v. *Interaction between symbols/objects*

Children in pain will produce drawings containing non-interacting symbols/objects as opposed to the full picture drawings made by children who are pain free. It was evident from the findings that children in pain will draw loosely scattered, non-interacting symbols/objects who were not forming a full picture.

vi. *Symbols/objects hanging in the air*

Children preferred to draw symbols/objects 'hanging in the air' when in pain versus the pain free children who drew firm lines under their symbols/objects. This fits in with the abovementioned criteria where symbols/objects drawn in pain were loosely scattered over the page. Drawings not properly 'finished off' could be seen as indicators of pain or physical discomfort.

These facts accumulated from the data supported the assumption that health professionals including medical social workers could assess the presence of pain according to the following guidelines. The picture content of children's pre- and post-operative drawings should be compared for:

- line pressure
- the size and number of symbols used
- transparencies
- whether or not symbols are in interaction with each other.

Noticeable differences in these areas could indicate the presence of pain and physical discomfort. It was interesting to note that none of the abovementioned criteria were indicated in the studies reviewed in Chapter 3.

The findings of this study do not fully support Kurulyszen, McGrath and Capelli's results as discussed in Chapter 3, where it was found that it was difficult to classify drawings according to specific characteristics as children do not employ universal features to describe pain. Evidence from this study indicates that certain features as discussed in the previous paragraph could indicate the presence of pain. It however agreed with these authors who found that different intensities of pain could not be drawn by children (Kurulyszen, 1987:158).

2. There was no conclusive evidence to indicate that the use of colour in drawings could play a role in paediatric pain assessment. The use of the colours red and black found to be favoured by American and European children in pain as indicated by Scott (1978:791), played no significant role in the drawings of the local hospitalized children who were in pain. Children in this study generally preferred to use a variety of colours producing multi-coloured drawings.

3. No conclusive evidence indicating the presence or absence of pain could be found through the placement of symbols on paper. Children generally preferred full page drawings whether they were in pain or pain free. Bach formulated her quadrant theory as a psychological assessment tool used in analyzing the drawings of terminally ill children. Findings as indicated by this study could not support the use of Bach's quadrant theory in the process of paediatric pain assessment (Bach, 1990:39).

4. A great variety of symbols were used in both the pain drawings and pain free drawings with no real significance in the type of symbol used. Houses, self-portraits and human figures seemed to be the favourite symbols used in both pain drawings and pain free drawings. This was also supported by Furth (Furth, 1988:3).

5. Regarding time spent on drawings, study findings indicated that there was no significant difference in the time spent on pain drawings when compared with the pain free drawings. The majority of children used 15 minutes or less to complete their drawings. It appeared that pre- and post-operative anxiety led to the children spending less time on their drawings than they would under normal circumstances. This is merely an assumption as the presence of anxiety was not addressed in the study.

6. The pain ladder scale (5 rungs) as used in this study was useful in indicating the presence of pain, rather than a specific level of pain. Although all the children included in this study rated their pain according to a specific level, it could not be proved beyond any doubt that they were indeed experiencing that amount of pain. Findings from this study did indicate however that in spite of having had pain medication children still reported post-operative

pain with moderate pain (level 3) in 26 and severe (level 4) pain in 6 instances. No incidence of intense pain (level 5) were reported.

7. There was no significant evidence indicting preference for either crayons or pencils as a medium for drawing. The choice between crayons and pencils was due to personal taste and could not be positively linked to the indication of pain.

8. This study furthermore attempted to investigate the manner in which respondents express pain when hurt at home, as well as parental response to pain. This information was obtained to see whether respondents were able to answer questions in this regard. An assessment of the accumulated answers indicated that there was scope for more intensive research, but this fell beyond the scope of this study. Evidence obtained from the findings of this study indicated that some children are not encouraged to approach their parents when hurt, or were unable to express pain through crying. The parent/caregiver from whom the interviewed were obtained were predominantly the patient's biological mother.

Findings indicated that less than half (23) of the respondents will respond to pain by crying when hurt. It was significant to note that 26 children will only cry when badly hurt or will not cry at all. Only 27 respondents will seek comfort and support from their mothers/caregivers when hurt. A significant number of mothers/caregivers (11) admitted that they are not available and that they do not encourage their children to approach them for support and comfort when hurt or in pain, while 7 mothers indicated that they would only help their children if they were badly hurt or in severe pain. It is significant to note that 22 mothers worked full-time and were thus not really available to support their children during the day time.

The assumption could be made that some hospitalized children in pain could be reluctant to admit to experiencing pain as it was not encouraged by parents/caregivers. The inability to verbalize pain could be due to inexperience because of the lack of encouragement to verbalize pain at home. This could lead to the misinterpretation and management of pain in hospitals, a fact widely supported by the literature (McGrath et al, 1989:823; Macher et al, 1992:55). These children will have the opportunity to express the presence of their pain through drawings, as proposed by this study. It also proved that in the assessment of pain information regarding the child's previous experience, and ways of coping with pain, as well as information regarding parental/caregiver response to the child's pain is essential. This information could be obtained through social work interviews which highlights the role social workers can play in paediatric pain assessment.

9. The majority of children included in this study were between 6-8 years old. As all the respondents were school going the assumption could be made that they were all exposed to the use of drawing materials prior to the study. An inability to draw was noted in the drawings of children included in the pilot study and was again evident in the findings of this study. There was a tendency amongst children and especially those in pain (n = 31), to produce drawings with non-interacting symbols. Drawings did not tell a story but just contained loose symbols or scribbles. This could be explained by the fact that most of these children were from poorer families and thus had not had the stimulation and exposure to drawing when at a younger age. Twenty one (21) families had an income of less than R500 per month or no income at all. Twenty three (23) respondents were raised by single parents,

with twenty seven (27) respondents living in families where there were three or more children.

10. Drawings when assessed for picture content and when compared for each patient individually could be used as an indicator of the presence of pain or physical discomfort. This is supportive of the hypothesis formulated in Chapter 1. Drawings can provide valuable information regarding the presence of pain which might have been difficult to assess due to factors such as the child's inability to communicate pain. However, drawings done while in pain cannot indicate the degree of pain experienced.

11. It is not possible to separate emotional and physical pain and therefore drawings cannot be used to do so. The act of drawing is a means of communication, therefore children's drawings can contain other forms of useful information, as discussed in the first part of this chapter, that can be used by medical social workers in the process of pain assessment.

7.2 CONCLUSIONS

- When drawings are assessed they must be done so individually. That is the child's age, previous pain experience and parental response to the child's pain must be borne in mind. It is also important to compare a drawing done while pain free with a drawing done by the same child when in pain. This comparison can indicate the presence of pain but not the degree of pain experienced.
- The experience of pain is highly subjective and for this reason pain must be assessed on an individual basis.
- Because many children in this study have not been encouraged to express pain verbally to their parents/caregivers they have not developed the ability to do so. This makes the use of drawings important in assessing pain.

- The findings of this study furthermore concluded that children's free drawings are valuable aids for assessing the presence of pain and could be recommended in the assessment and treatment process of paediatric pain. The method as described in this study is uncomplicated and could be of value for social workers and medical staff in other paediatric health settings.

7.3 RECOMMENDATIONS

1. The use of children's drawings in the assessment of paediatric pain as discussed in this study can be recommended. The following guidelines towards the use of drawings could be implemented by health professionals in local hospitals

   - The first suggestion is that drawings should be used to assess the presence of post-operative and procedural pain in school going children. It is, therefore, recommended for use with children admitted for minor surgery and potentially painful medical procedures. Drawings are however not recommended for use in children scheduled for major surgical procedures.
   - Drawings should be accumulated pre- and post-operatively or on admission and after a potentially painful medical procedure. Drawings should be scored individually for each child.
   - Information on the parents response to their children's pain and the patients reaction to pain is essential and should be accumulated during the admission period.
   - Children and their parents should be informed as to why the drawings are required and it is recommended not to leave the patient while he/she is drawing. This will eliminate parental or sibling interference during the drawing process. Children should not be forced to draw and a refusal to draw should be respected. Ward routine could influence the drawing process and it is therefore

recommended to accumulate drawings either mid morning or later afternoon when there is less activity in the wards.

2. A further recommendation is the involvement of medical social workers in paediatric pain assessment and management. The lack of social work interest in paediatric pain management is mentioned in the literature reviewed. The writer wishes to comment on this statement as it is felt that not a lack of interest, but a lack of time, specific knowledge and a well defined role prohibit social work involvement in pain management. The writer is also of the opinion that social workers have a lot to offer and that involvement in paediatric pain management could contribute to the professional status of the social work profession. Apart from actively participating in the assessment and management of paediatric pain, the hospital social worker can offer counselling, support and information to both the patient and his/her parents as well as to the health professionals involved in the treatment of the patient.

3. A multi-disciplinary team responsible for the assessment and management of paediatric pain should be appointed at the Red Cross War Memorial Children's Hospital as this is already existing at Groote Schuur Hospital as well as in all major hospitals abroad. This will ensure some form of standardization in pain management, and will prevent the under-treatment of pain in children. This team should involve the medical, nursing and social work professions.

4. Collaboration between health professionals regarding paediatric pain assessment and management should be encouraged as it is believed that each discipline could contribute to the better understanding of paediatric pain in local hospitals.

5. Ongoing education in the form of workshops, meetings and talks regarding paediatric pain management, including pain assessment methods, should be offered to health professionals.

6. All children subjected to potentially painful medical conditions or procedures should have routine pain assessment, preferably by the same professionals.

7.4 RECOMMENDATIONS FOR ADDITIONAL RESEARCH

1. Valid pain assessment methods suitable for the South African child are needed. Research focussing on the needs of specifically the African child in pain assessment is needed.

2. It is also recommended that cultural and social influences in the expression of pain should be investigated as they were not addressed in this study.

3. Pain assessment methods aimed specifically at younger children such as neonates, toddlers and pre-schoolers should be investigated.

4. The non-medical treatment of pain, such as coping skills, the implementing of relaxation therapy and distraction specifically aimed at South African children, should be investigated.

5. Parental influences on children's ability to verbalize pain should be investigated as this aspect was only briefly touched on in this dissertation. Further research is needed on the socio-cultural differences in children's understanding of pain.

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APPENDICES

APPENDIX 1

BEHAVIOURAL OBSERVATION SCALE

CHILDREN'S HOSPITAL OF EASTERN ONTARIO'S PAIN SCALE (CHEOPS)

ITEM	BEHAVIOUR	SCORE	DEFINITION
Cry	No crying	1	Child is not crying
	Moaning	2	Child is moaning, silent cry
	Crying	2	Child is crying but the cry is gentle or whimpering
	Scream	3	Child is in a full lunged cry, sobbing, may be scored with complaint or without complaint
Facial	Smiling	0	Score only if definite positive facial expression
	Composed	1	Neutral facial expression. Score only if definite positive facial
Child verbal	Positive	0	Child makes any positive statement or talks about other things without complaint
	None	1	Child not talking
	Other complaints	1	Child complains but not about pain
	Pain complaints	2	Child complains about pain
	Both complaints	2	Child complains about pain and about other things
Torso	Neutral	1	Body, not limbs, is at rest. Torso is inactive
	Shifting	2	Body is in motion in a shifting of serpentine fashion
	Tense	2	Body is arched or rigid
	Shivering	2	Body is shuddering or shaking involuntarily
	Upright	2	Child is in a vertical or upright position
	Restrained	2	Body is restrained
Touch	Not touching	1	Child is not touching or grabbing wound
	Reach	2	Child is reaching for but not touching wound
	Touch	2	Child is gently touching wound area
	Grab	2	Child is grabbing vigorously at wound
	Restrained	2	Body is restrained

ITEM	BEHAVIOUR	SCORE	DEFINITION
Legs	Neutral	1	Legs may be in any position but are relaxed. Includes swimming or serpentine like movements
	Squirming	2	Definite uneasy or restless movements in the legs and/or striking out with foot or feet
	Drawn up	2	Legs tensed and or pulled up tightly to body and kept there
	Standing	2	Standing, crouching or kneeling
	Restrained	2	Child's legs are being held down

0 = Behaviour that is the antithesis of pain
1 = Behaviour that is not indicative of pain and is not the antithesis of pain
2 = Behaviour indicating mild or moderate pain
3 = Behaviour indicating severe pain

APPENDIX 2

COGNITIVE DEVELOPMENT vs RESPONSE TO AND COPING WITH PAIN

AGE	COGNITIVE DEVELOPMENT	RESPONSE TO PAIN	COPING WITH PAIN	INTERVENTION
0-12 months	No clear understanding of pain	Large body movements crying Associate people, objects with pain Cry before painful procedure	Crying and withdrawal	Soothing and verbal reassurance Rocking/holding infant Pacifier. Familiar cuddling object Presence of parents
1-3 years	Develop a clear fear for pain. Use single words to indicate pain. Pre-operational period	Respond with anger No insight or understanding of the pain experience	Learns about pain through sensorimotor mechanisms will use activity to cope with pain. Need parent or distraction to cope	Distraction by talking music, video, cartoons Active play. Presence of parents
Pre school	Begin to describe pain and can give an indication of the intensity of pain	Limited insight into pain Dont understand the value of pain. No insight into the cause of pain	Repetition of the pain procedure during play might help the child to gain control	Slow, rhythmic breathing Role play, distraction and stories. Songs. Presence of parents
School aged	Concrete operational stage	Conceptualize the healing process	Behavioural coping strategies. Needs previous experimental and coping strategies to effectively deal with pain	Distraction, relaxation techniques. Preparation and rehearsal of painful procedure
Adolescent	Formal operational stage	Capable of abstract thought. and problem solving strategies	Cope through increased awareness and insight	Verbalization. Imagery Relaxation techniques Pre-procedural preparation and practice
	McGrath, 1989	**Sieger, 1991**	**Perrin, 1981**	**Hart, 1991**

APPENDIX 3

ASSESSING THE PRESENCE OF CHILDREN'S PAIN THROUGH ANALYSIS OF FREE

DRAWINGS IN THE PRE- AND POST-SURGICAL PHASES AND

ON DISCHARGE

Drawing 1: done on day of admission
Drawing 2: done post-operative
Drawing 3: done on day of discharge

Study No: _____

A. PATIENT INFORMATION:

Patients Initials: _____ Age: _____ Race: B/C/W

Medical History: _____

Surgical Procedure: _____

Current School Standard: _____ Sex: M/F

School Progress: _____

Socio economic background:

1. Marital status of parents:
   - (M) Married
   - (D) Divorced
   - (S) Single parent

2. Monthly family income:
   - (A) Unemployed/no income
   - (B) < R500
   - (C) R500 - R999
   - (D) R1000 - R1999
   - (E) R2000 +

3. No of siblings: _____

B. INFORMATION ON PATIENT'S BEHAVIOUR:

Person Interviewed: _____

IN THE CASE OF AN ADULT RESPONDENT:

1. Is mother at home or at work during the day: _____

_____

2. How does this child respond to painful situations: _____

_____

_____

3. Will he/she seek comfort from you/any other adult when hurt/in pain:

_____

4. How do you normally react when he/she is hurt/in pain:

_____

IN CASE OF THE PATIENT AS RESPONDENT:

5. What do you do when you hurt yourself and are in pain:

_____

_____

_____

6. When hurt do you tell your mother/somebody else:

(Y) Yes
(N) No
(S) Sometimes

7. In case of somebody else who would that person be:

_____

8. How does that person respond to you when in pain:

_____

C. ANALYSIS OF DRAWINGS
DESCRIPTION OF DRAWING

Drawing 1: _____

_____

Drawing 2: _____

Drawing 3: _____

2. Comments made by patient while drawing:

   Drawing 1: _____

   Drawing 2: _____

   Drawing 3: _____

3. Pain level according to the patient:

   Drawing 1: _____

   Drawing 2: _____

   Drawing 3: _____

4. Time spent on drawing:

   Drawing 1: _____

   Drawing 2: _____

   Drawing 3: _____

5. Symbols/objects drawn:

   Drawing 1: _____

   Drawing 2: _____

   Drawing 3: _____

WHICH OF THE FOLLOWING SYMBOLS ARE INCLUDED:

Drawing 1:
(A) Houses filled in
(B) Houses transparent
(C) The self completed
(D) The self not completed
(E) Human figure
(F) Father figure
(G) Siblings

Drawing 2:
(A) Houses filled in
(B) Houses transparent
(C) The self completed
(D) The self not completed
(E) Human figure
(F) Father figure
(G) Siblings

Drawing 3:
(A) Houses filled in
(B) Houses transparent
(C) The self completed
(D) The self not completed
(E) Human figure
(F) Father figure
(G) Siblings

6. Four most predominant colours used:

Drawing 1: _____

Drawing 2: _____

Drawing 3: _____

Multi colour drawings:

Drawing 1: Yes / No

Drawing 2: Yes / No

Drawing 3: Yes / No

7. Predominant placement and size of symbols on paper:

Drawing 1:
(A) Top (L) quadrant
(B) Top (R) quadrant
(C) Bottom (L) quadrant
(D) Bottom (R) quadrant
(E) Top half of page
(F) Middle of page
(G) Bottom half of page
(H) Left side of page
(I) Right side of page

Size of symbols:
(N) Normal
(S) Small
(L) Large

Drawing 2:

(A) Top (L) quadrant
(B) Top (R) quadrant
(C) Bottom (L) quadrant
(D) Bottom (R) quadrant
(E) Top half of page
(F) Middle of page
(G) Bottom half of page
(H) Left side of page
(I) Right side of page

Size of symbols:
(N) Normal
(S) Small
(L) Large

Drawing 3:

(A) Top (L) quadrant
(B) Top (R) quadrant
(C) Bottom (L) quadrant
(D) Bottom (R) quadrant
(E) Top half of page
(F) Middle of page
(G) Bottom half of page
(H) Left side of page
(I) Right side of page

Size of symbols:
(N) Normal
(S) Small
(L) Large

8. Description of line pressure:

Drawing 1:
(H) Hard/bold
(N) Normal
(L) Light/almost invisible

Drawing 2:
(H) Hard/bold
(N) Normal
(L) Light/almost invisible

Drawing 3:
(H) Hard/bold
(N) Normal
(L) Light/almost invisible

9. Are the symbols interacting:

Drawing 1: Yes / No

Drawing 2: Yes / No

Drawing 3: Yes / No

10. Are there any transparencies:

    Drawing 1: Yes / No

    Drawing 2: Yes / No

    Drawing 3: Yes / No

11. Are the predominant symbols grounded:

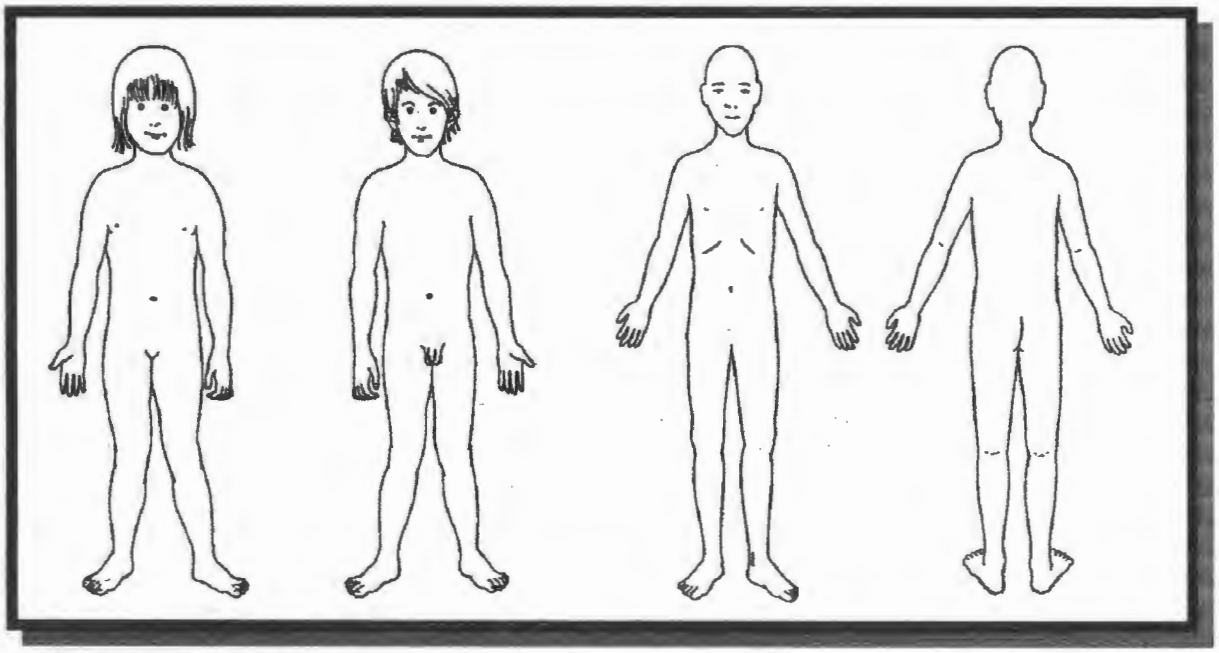
    Drawing 1: Yes / No

    Drawing 2: Yes / No

    Drawing 3: Yes / No

Fig. 1

The Mc Gill Pain Questionnaire



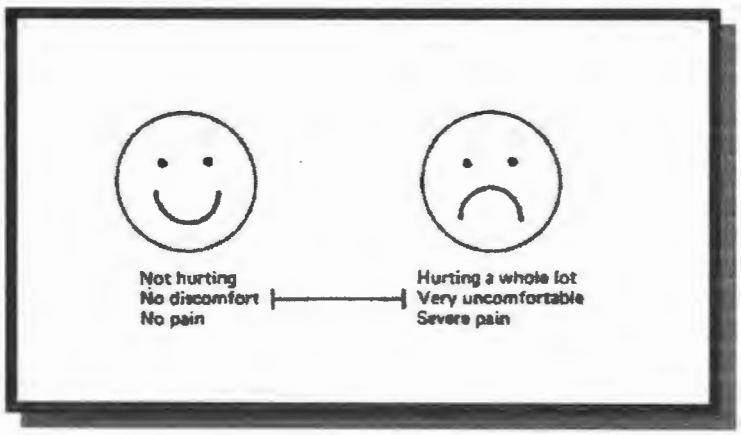
Child's figures

School-age child/adolescent body outline.

Savendra, 1989; 25

Fig. 2

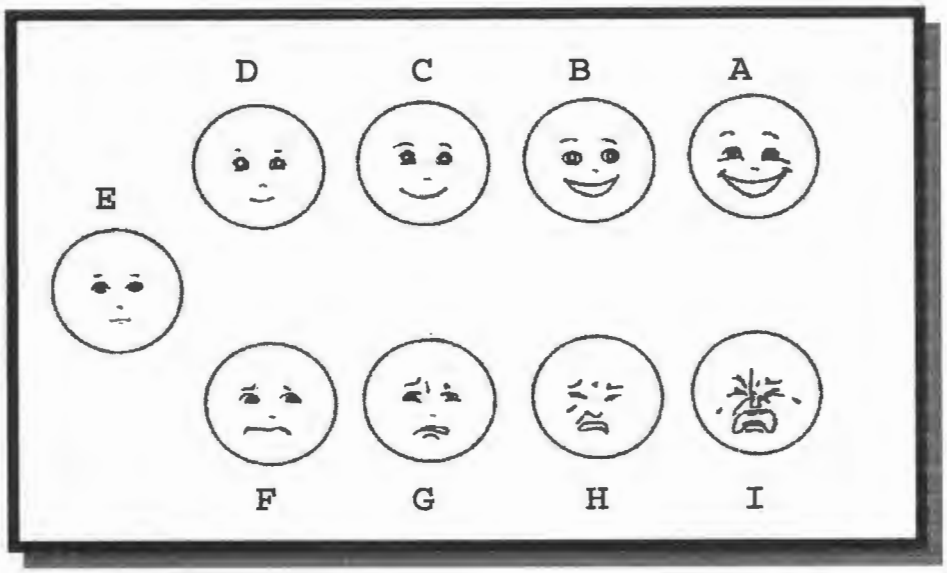
Faces Scale



Savendra, 1989; 25

Fig. 3

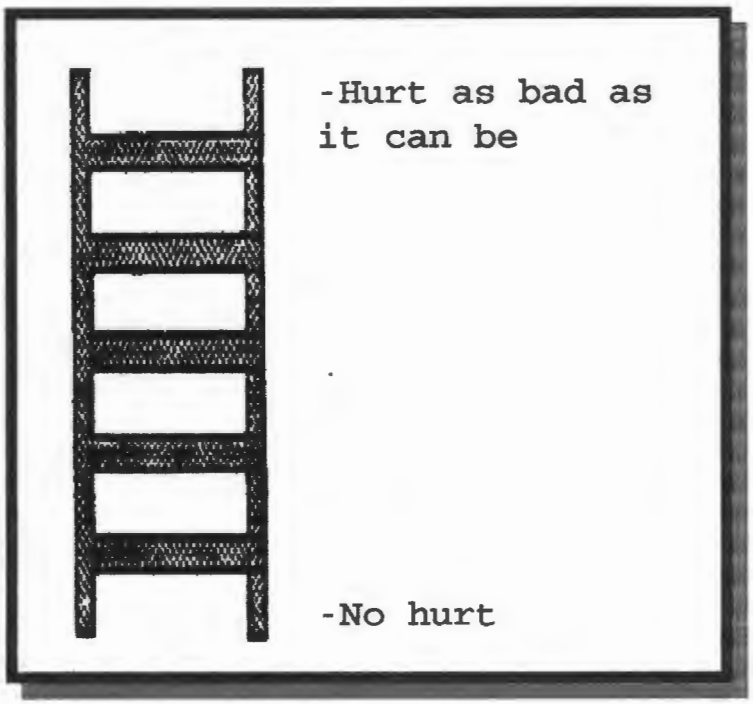
The Oucher pain assessment scale



Savendra, 1989; 25

Fig. 4

Pain Ladder Scale



Savendra, 1989; 25

Fig. 5

Drawing by a 6yr old child admitted to Red Cross Children's Hospital

Fig. 6

Drawing by a 7yr old child admitted to Red Cross Children's Hospital

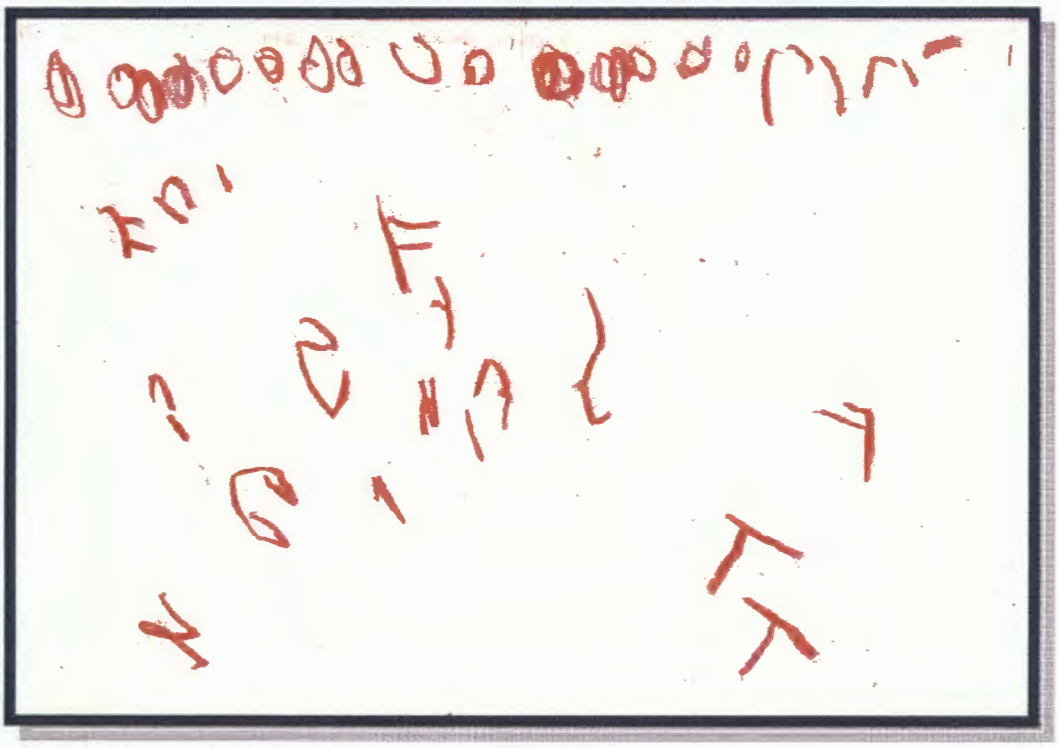
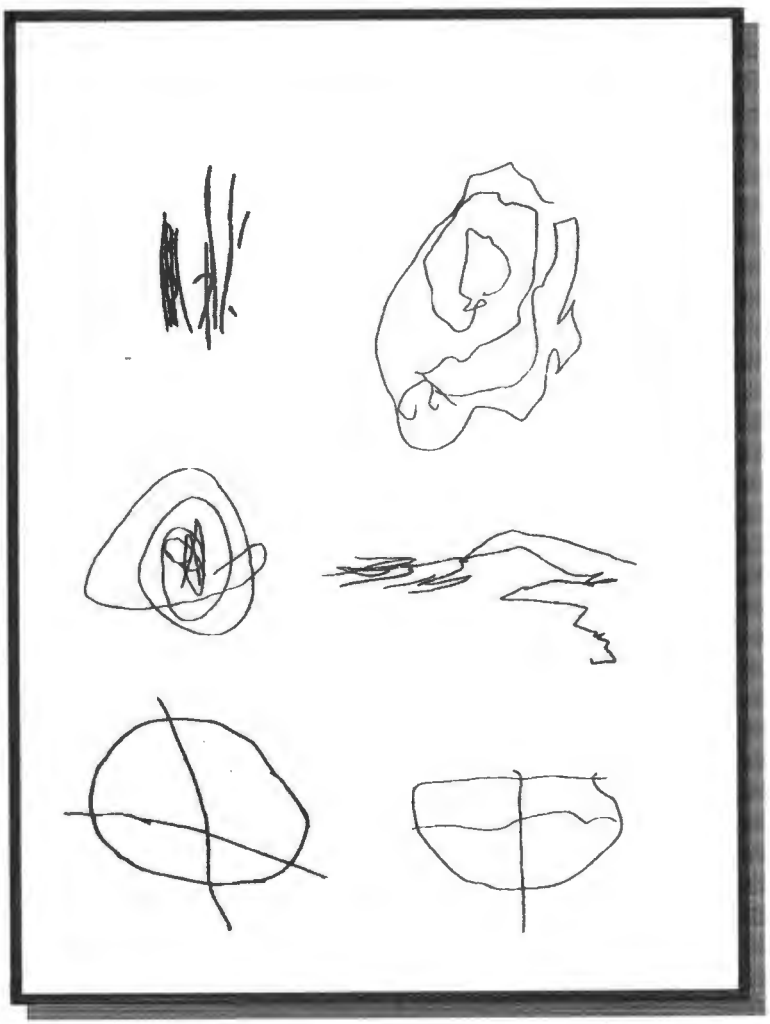


Fig. 7

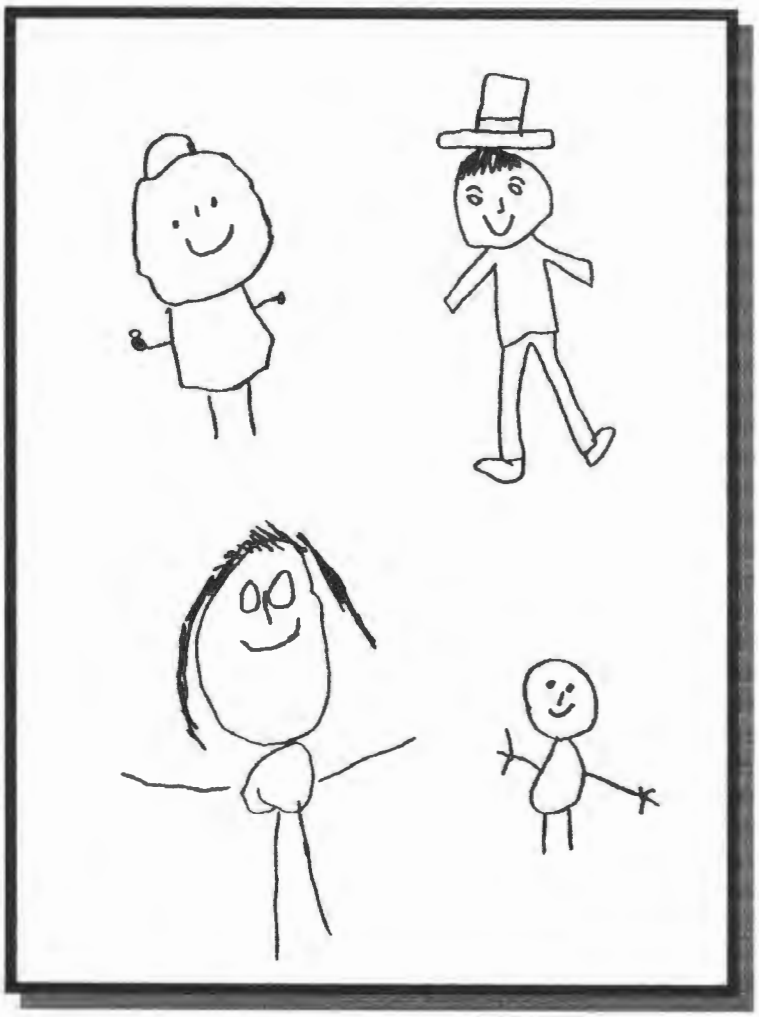
Scribbles and patterns drawn by children aged 2-4 yrs



Thomas, 1990; 7

Fig. 8

Examples of drawings by 4-5 year old children.



Thomas, 1990; 16