THE USE OF PHYSICAL RESTRAINT IN A SCHOOL SETTING:
AN EXAMINATION OF PHYSICAL RESTRAINT USE AND INJURIES TO
STUDENTS AND STAFF

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THE USE OF PHYSICAL RESTRAINT IN A SCHOOL SETTING:
AN EXAMINATION OF PHYSICAL RESTRAINT USE AND INJURIES TO
STUDENTS AND STAFF

A Thesis

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Division of Criminal Justice
Abstract

of

THE USE OF PHYSICAL RESTRAINT IN A SCHOOL SETTING:
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Statement of Problem

The use of physical restraint in order to control violent or aggressive adolescents and adults continues to be practiced widely throughout various agencies, as it has for many years. Historically the use of physical restraint in educational settings has typically been in special education programs, but recent reports show that the use of physical restraint is believed to be used more broadly and being widely integrated into more schools. While there is no exact number on the amount or extent of injuries to students or to staff as a result of the use of physical restraint, it is believed that the use of physical restraint has increased as more students with difficult or severe behavioral needs are being served in schools throughout the nation. Injuries and deaths associated with the use of physical restraints in school settings have come to the attention of the public and have created an increased concern of the use of these procedures in school settings. While most professionals view restraint as an emergency procedure, little is known about its intended purpose or outcomes, let alone whether it achieves that purpose or is effective in achieving desired outcomes. The dearth of information about the purpose, use and outcome of physical restraint in school settings is of great concern considering that educators are supposed to rely on evidence-based practices that are supported by scientific research. This study aims to determine the relationship between the use of physical restraints and subsequent injuries in school settings.

Sources of Data

This study is based on data gathered from nonpublic agency records of a Non-Public School located on site of a California Residential Treatment Facility for adolescent males from September 1, 2004 to August 31, 2005. Within the facility is a staff operated incident report database containing information on every incident for the entire facility, for which an incident report was required to be written. From the incident report database facility staff created a new database excluding all personal information that could have been used to identify the students or staff involved in the physical restraint. Data for this
study were gathered from the newly created incident report database excluding all personal information.

**Conclusions Reached**

The highest number of physical restraints occurred within the fall months of September, October and November throughout the 2004-2005 school year. With 87 total restraints in September, 83 physical restraints in October, and 72 physical restraints in November, this data supported Hypothesis 4 that the highest number of restraints would occur within the fall months, specifically September, October and November, when comparing the number of physical restraints of all four seasons.

This study also revealed that students yielded a higher number of injuries from physical restraints compared to staff, supporting Hypothesis 1. Specifically there were 96 student injuries, compared to 36 staff injuries. Another finding was the time of day in which the highest percentage of injuries as an effect of physical restraint occurred was from 11:01am to 12:00pm. These findings did not support Hypothesis 3, which stated that the highest percentage of injuries would occur during the first hour of school, specifically 8:00am to 9:00am.

Lastly, the Team Prone Restraint yielded the highest number of injuries compared to any other type of physical restraint, with 60 injuries between students and staff. This data supported Hypothesis 2, which stated that the use of the Team Prone Restraint would yield a higher number of injuries compared to the other four methods of physical restraint used.

__________________________, Committee Chair
Jennie Singer, Ph.D.

__________________________
Date
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Chapter 1

INTRODUCTION

Statement of the Problem

On January 23, 2007, Isaiah Simmons died at Bowling Brook Preparatory School in Maryland. Investigation of Simmons’ death led officials to discover that Simmons had allegedly acted out in the dinner line and was restrained. Four youths who witnessed the incident said staff sat on him for three hours until he passed out and died. The death was ruled a homicide, the school was closed, and the indicted staff were charged with waiting 41 minutes before calling 911 to report Simmons’ unresponsiveness (Nuchols, 2007). Unfortunately, deaths similar to that of Simmons are described throughout the nation each year. The exact number of deaths and injuries caused by physical restraints remains in dispute. The Hartford Courant, a Connecticut newspaper reported 142 restraint-related deaths occurred in the United States over a 10-year period (Weiss, Altini, Blint, & Megan, 1998). A more recent report from the Child Welfare League of America (CWLA) estimated that between 8 and 10 children in the U.S. die each year due to restraints, while numerous others suffer injuries ranging from damaged joints, broken bones and friction burns (CWLA, 2002).

Use of physical restraint in order to control aggressive and violent behavior of adult and adolescent clients has been a treatment option of psychiatric facilities, prisons, group homes, and some schools for many years (Day, 2002). Proponents of restraint have found there to be positive behavioral outcomes from the use of restraint in the psychiatric treatment of children (Cotton, 1989), while critics of restraint find them unnecessary (Crespi, 1990; Goren, 1991) and have focused on their harmful effects to both children
and staff (Measham, 1995; Walsh & Randall, 1995). Today, most schools or programs that employ the use of physical restraint view it as an emergency procedure to prevent injury to the student or others when a student is in a crisis (Ryan & Peterson, 2004). While historically the use of physical restraint in educational settings has typically been in special education programs, such procedures are widely believed to be used more broadly and being integrated into more schools as part of an overall school program (Ryan, Peterson, & Rozalski, 2007). While there is no exact number on the amount or extent of injuries to children or to staff as a result of the use of restraint, it is believed that the use of physical restraint has increased as more students with difficult or severe behavioral needs are being served in schools throughout the nation (National Disability Rights Network, 2009).

Although only a limited amount of research has been conducted on topics surrounding the use of physical restraint with children and very little research has been conducted on the use of physical restraint in schools settings, reports by national advocacy organizations have provided information on the use of physical restraint in school settings. The Government Accounting Office in 1999 stated that an accurate estimate of deaths or injuries due to restraint was impossible due to only 15 U.S. states having established reporting procedures for such incidents (U.S. Government Accounting Office, 1999). A recent report from the National Disability Rights Network recorded a wide variety of physical restraint procedures in school settings, with many resulting in death or injury (National Disability Rights Network, 2009). As a result of such situations, many states are considering policy development or policy changes
related to the use of restraint procedures in schools. However, a recent examination of state policies and guidelines has found that a substantial number of states have no regulations or guidelines for the use of restraints in school settings (Ryan et al., 2007a).

Purpose of the Study

The purpose of this study is to examine the use of physical restraints in a school setting to determine what, if any, relationship exists between the use of restraint and subsequent injuries to students and staff. Injuries and deaths associated with the use of physical restraints in school settings have come to the attention of the public and have created an increased concern about the use of these procedures in school settings. While most professionals view restraint as an emergency procedure, little is known about its intended purpose or outcomes, let alone whether it achieves that purpose or is effective in achieving desired outcomes. The dearth of information about the purpose, use and outcome of physical restraint in school settings is of great concern considering that educators are supposed to rely on evidence-based practices that are supported by scientific research. Due to the amount of restraint related injuries in school settings coupled with the dearth of information surrounding the use of physical restraint in school settings, this study asks: What is the relationship between using physical restraints and subsequent injuries in school settings?

Definition of Terms

The following definitions of terms are included in order to provide a general understanding of the technical terms referenced throughout this study.
**Incident Report:** The form that is completed in order to record details of a physical restraint. This form is completed by the staff involved in the physical restraint.

**Milieu Therapy:** A form of psychotherapy involving a planned treatment environment and strategic use of the physical and social environment to promote therapeutic interactions and positive patient outcomes.

**Non-Public School:** privately operated, publicly funded institution for the teaching of children that specializes in providing educational services for students with needs so exceptional that they cannot be met in a public institution.

**Physical Escort:** The transport of a student against his will from one location to another with the application of force by two or more staff that reduces or restricts the ability of a student to move his arms, legs, or head freely.

**Physical Restraint** (also referred to as a restraint or containment): The application of force by one or more individuals that reduces or restricts the ability of an individual to move his or her arms, legs, or head freely, for the purpose of preventing harm to self or others.

**Seated Restraint:** A type of physical containment where the student is placed in a seated position, typically on the floor or in chair and application of physical force by two or more staff that reduces or restricts the ability of a student to move his arms, legs, or head freely is applied, for the purpose of preventing harm to self or others.

**Staff:** An employee of the Non-Public School and who is responsible for conducting physical restraints.
Standing Restraint: A type of physical containment where the student remains in a standing position with staff standing slightly behind and to the side of the student with application of physical force by two or more staff that reduces or restricts the ability of a student to move his arms, legs, or head freely, for the purpose of preventing harm to self or others.

Student: Any child aged 6 to 15 and enrolled in the Non-Public School.

Team Prone: A type of physical restraint where the student is placed in a “face-down” position on the floor with application of physical force by two or more staff that reduces or restricts the ability of a student to move his arms, legs, or head freely, for the purpose of preventing harm to self or others.

Wall-Assisted Restraint: A type of physical containment where the student remains in a physical escort position and a safe wall is used to add stability to the containment. With the student facing the wall, staff holds the arms and legs against the wall. The student’s toes, thighs, hips, shoulders, and backs of the hands touch the wall.
Chapter 2

REVIEW OF THE LITERATURE

Introduction

An extensive search was conducted to identify literature related to physical restraint. The findings of this search resulted in an array of literature related to the use of physical restraint within several populations. A majority of the literature found was based on physical restraint with adult populations. Examination of the adult literature allowed for the identification of relevant studies. Studies found to be relevant were used as sources to gain access to literature on the use physical restraint, specifically with children and youth. Through checking the citations from the relevant sources in the adult literature, a wide assortment of literature specifically relating to the use of physical restraint were identified.

The use of physical restraint with children and youth are analyzed throughout the themes of this literature review. Starting with a broad historical perspective on the use of physical restraint, and leading to an overview of the use of physical restraint with children and its theoretical rationale, followed by specific examination of physical restraint use with children, and concluding with an overall examination of the presence and use of physical restraint in educational settings, this review provides a general overview of the literature related to physical restraint with children and youth.

History of Physical Restraint

Originating in psychiatric hospitals in France during the 18th century, physical restraint is a procedure that has been used for several centuries (Weiner, 1992).
Developed by Philippe Pinel and his assistant Jean Baptiste Pussin as a method for preventing patients from injuring themselves and others, physical restraint is still used with the same intention today (Fisher, 1994; Ryan & Peterson, 2004; Weiner, 1992). “Restraint” is often defined today as any physical method of restricting an individual’s freedom of movement, physical activity, or normal access to his or her body (International Society of Psychiatric and Mental Health Nurses, 1999). Since their initial use, physical restraints have been and continue to remain controversial procedures. While many suggestions for alternatives to the use of physical restraints exist, the first movement in opposition of the use of physical restraints took place in England during the 19th century (Masters et al., 2002; Ryan & Peterson, 2004). Leaders of this movement worked towards preventing the use of physical and often brutal mechanical restraints from being used on psychiatric patients (Jones, 1972; Masters et al., 2002). From this movement came the creation of a Lunacy Commission, which was responsible for the regulation of seclusion and restraint practices, and also for Parliament’s careful supervision of asylums (Masters et al., 2002).

While such a movement led England to decrease its use of restraints during this time frame and view the use of these procedures as a nontherapeutic approach, the United States embraced the use of physical restraints as a form of therapeutic treatment. Adopting it as a highly accepted practice, the American use of restraint was estimated to be 10 to 15 times that of England’s (Masters et al., 2002; Tomes, 1988). The use of physical restraint continued to be utilized as a form of therapeutic treatment in several settings throughout the United States until the 1880s when its efficacy was put into
question. Meant to aid in the prevention of mental illness and mentally ill patients, the use of physical restraint failed to alter such occurrences, and subsequently interest in such procedures diminished (Masters, 2008).

Now in the 21st century, the use of physical restraint spans across several settings and is used with a variety of populations. Although physical restraint has been practiced throughout several centuries, and still is today, questions surrounding its efficacy and ethical grounding remain. In more recent years, as use of physical restraint has expanded to many settings where it was once not utilized, controversies surrounding its use have taken more precedence. One of the more recent and controversial issues surrounding physical restraint is its use with children and youth.

**Use of Physical Restraint with Children**

While the use and rationale of physical restraint within adult populations can be traced back to the 18th century, the clinical rationale for restraint was first extended to its use with children in the 1950s by Redl and Wineman (1952) who believed children and adolescents had immature inner controls, coping skills, and interpersonal skills, and that a child’s loss of control should be viewed as an emergency situation where assistance should come through use of physical restraint. Since Redl and Wineman’s (1952) initial discussion of physical restraint use on children, there have been several other publications discussing its use. While most reports and studies on physical restraint of children originally came from medical and psychiatric settings, increasing numbers of behaviorally difficult clients resulted in the use of physical restraint in less restrictive settings (Garrison, 1984). Locations such as treatment centers, group homes and special
schools began utilizing physical restraint with children (Bath, 1994; Garrison, 1984). The expansion of physical restraint of children into a variety of settings led to an increased number of publications discussing the use of physical restraint on children.

Although literature on this subject has grown in both quantity and context, it remains controversial. Most restraint literature examining the use of restraint has focused on adults, specifically referring to geriatric, adult psychiatric and adult corrections populations, and not on children or youth (Nunno, Day, & Bullard, 2008). Few controlled and rigorous studies exist on the use of physical restraint with children and youth, and those that do exist are characterized by conflicting and strongly held viewpoints that reflect those who are either in favor of or opposed to its use on children.

Theoretical Framework

Much of the theoretical bases for the use of physical restraint with children has been undertaken within the framework of attachment theory, which is largely based on the work of Bowlby (1973), Cline (1979), Zaslow and Breger (1969), and Zaslow and Menta (1975). A smaller number of theoretical bases has been formulated within psychodynamic theory, based on the work of ego psychologist Donald Winnicott (1960, 1965).

Attachment is described as a “lasting psychological connectedness between human beings,” and Attachment Theory is based in the idea that the earliest bonds formed by children with their caregivers have a tremendous impact that continues throughout life (Bowlby, 1973, p. 194). Bowlby (1973) believed there to be four distinguishing characteristics of attachment. These characteristics included: (1) Proximity
Maintenance - the desire to be near the people we are attached to; (2) Safe Haven - returning to the attachment figure for comfort and safety in the face of a fear or threat; (3) Secure Base - The attachment figure acts as a base of security from which the child can explore the surrounding environment; (4) Separation Distress – anxiety that occurs in the absence of the attachment figure.

From an attachment perspective, holding is thought to promote a positive relationship between the client and caregiver through the process of bonding, allowing the child to develop trust within relationships (Stirling & McHugh, 1998). According to this view, the objective of physical restraint, then, is to promote a positive relationship with the child through the process of bonding, derived from the physical contact of being firmly held (Day, 2002).

While Attachment Theory derives from the work of Bowlby (1973), Cline (1979), Zaslow and Breger (1969), and Zaslow and Menta (1975), recent literature has further explored the relationship of Attachment Theory to the use physical restraint. Levy and Orlans (2000) claim physical restraint “re-creates the elements of secure attachment which were unavailable in the child’s early developmental stages” (p.16). Other Attachment theorists claim to use physical restraint in order to reproduce “the bonding cycle,” which is said to be based on an infant’s experience of frustration and distress, followed by receptiveness to parental comforting (Keck & Kupecky, 1995, p. 296). According to Keck and Kupecky (1995), the repetitiveness of this “bonding cycle” allows for attachment between the child and caregiver, and allows the child to begin to trust that the caregiver will provide care and protection.
Children with certain disorders such as autism, borderline personality disorder and children with a history of severe attachment disorders resulting from adoption, abuse, neglect, and multiple changes of caregiver, are often believed to have not developed a secure attachment with a primary caregiver (Bath, 1994; Mercer, 2001). In not developing what is considered to be a crucial bond, children experiencing such circumstances are believed to become defensive, develop maladaptive self-control and coping skills, and display destructive, aggressive and violent behavior (Day, 2002). The use of physical restraint or “therapeutic holding” with these children is used for the purpose of “holding,” which provides the child with a safe and secure feeling enabling the child to form a healthy attachment with the caregiver (Bath, 1994).

Psychodynamic theory is centered on the belief that a conflict, from the early childhood, reflects itself in an actual conflict, without the person affected being aware of it. Winnicott (1965) believed the mother to be an infant’s main caregiver as well as a natural provider of a “holding environment” through her sensitive and responsive interaction with her child (p. 13). It was through this natural “holding environment” that the infant was “contained” while expressing difficult feelings, leading to development of a healthy sense of separation from the mother as well as self-integration (Winnicott, 1965). Overall, Winnicott viewed holding as an essential element of maternal care and imperative for infant development. He believed that without holding and a “holding environment” provided by a mother’s sensitive and responsive interaction, the child would later experience detachment from their emotions.

Within the framework of psychodynamic theory use of physical restraint with
children are believed to cause a cathartic effect on the child, leading to the child express
difficult feelings and become “psychologically more real and available” (Ziegler, 2004, p. 3).

While the literature provides few details surrounding the use of physical restraint
with children according to psychodynamic theory, recent literature has examined
psychodynamic theory as a theoretical basis for the use of physical restraint with
children. Rich (1997) claims physical restraint to be effective with children who display
acting-out behavior as a result of their immature ego defenses. In having an immature ego
defense these children take the source of blame for all the problems surrounding their
lives and externalize it. Rich (1997) believed such behavior and beliefs of such children
can be contained through the use of physical restraint.

Much of the debate surrounding the use of physical restraint with children is due
in part to the lack of attention paid to the theoretical underpinnings of their clinical utility
and the dearth of empirical studies addressing specific issues surrounding the use of these
practices. While various theories, such as these two theories, have been used to provide
the theoretical justification for their use, no one theory has undergone careful empirical
examination in order to determine its validity (Day, 2002). The underlying rationale for
determining the use of physical restraint lies in the theoretical underpinnings of their
utility, yet no empirical studies of such theories exist (Cotton, 1989). Given the
widespread use of physical restraints with children throughout various settings it is
imperative that rationales for the use of physical restraint, such as in attachment theory
and psychodynamic theory, be theory driven and empirically based. Without evidence,
there is no theoretical justification for the use of physical restraint, and improper use and unjustified reasoning for such practices are inevitable.

**Studies Supporting the Use of Physical Restraint with Children**

Proponents of using physical restraints on children claim that physical restraints have clear therapeutic benefits for children and adolescents (Agee & McWilliams, 1984; Barlow, 1989; Bath, 1994; Doughtery, 1982; Sourander, Aurela, & Piha, 1996; Steele, 1993; Trieschman, 1969; Wimberley, 1985). Other proponents have asserted that physical restraints are effective and show positive clinical outcomes (Cotton, 1989; Drisko, 1976; Drisko, 1981; Grigson, 1984; Schloss & Smith, 1987).

One of the first pieces of literature proclaiming the positive effects of physical restraint when used on children was written by Barlow (1989). Barlow referred to physical restraint of children as “therapeutic holding” and conceptually defined it as, “the physical restraint of an aggressive child” (p. 10). In order to illustrate the positive outcomes from using “therapeutic holding” with children, Barlow (1989) used the case study of a six year old boy named Charlie who was hospitalized for repeated aggression towards himself, and others. Charlie was informed that a “therapeutic holding” would occur each time he was aggressive. One day when Charlie became aggressive toward a peer and staff member, he was placed into a “prone position” therapeutic hold by staff, preventing him from being aggressive towards others. Charlie screamed, shouted obscenities, spit, and kicked his legs repeatedly. After continuing to do this for approximately ten minutes Charlie began to sob. The staff responded to his sobs by relaxing their positions, but not removing their hands. Charlie eventually calmed down
and was able to quietly talk with staff. From this Barlow, as well as others (Agee & McWilliams, 1984; Doughtery, 1982) asserted that physical restraint is an “effective and humane method for handling aggressive, out-of-control, and often abused children” (Barlow, 1989, p. 12).

Bath (1994) reviewed a number of theoretical explanations for the use of physical restraint with children and concluded that physical restraint, when used appropriately, can have significant therapeutic benefits. Wimberley (1985) believed that from “therapeutic holding” a child could learn to trust others and develop new strategies to help them seek assistance. Steele (1993) completed a study during the summer of 1990, where she surveyed staff that use physical restraints, in order to determine the current attitudes and opinions about the use of restraint. Staff from four facilities were surveyed and asked a combination of structured questions such as how they felt about using restrictive methods, what factors influenced their decision to initiate restraint and what their role was while the client was being restrained. Of the four facilities included in Steele’s study, Hospital “A” and Hospital “D” were completely comprised of children, while Hospital “B” and Hospital “C” were comprised of all ages. In her conclusion, Steele (1993) reported that in general, “the use of seclusion or restraint was seen as therapeutic” (p. 26) with children in psychiatric hospitals.

Aside from being seen as therapeutic, physical restraints with children were also found to be necessary or needed by some proponents. The American Academy of Pediatrics Committee on Pediatric Emergency Medicine (1997) reported that the use of physical restraint on children and adolescents may be needed due to various procedures,
such as “disruptive behavior, or to prevent injury to themselves or others” (p. 497).

Schloss and Smith (1987) reviewed the advantages and disadvantages associated with physical restraint with the purpose of presenting the procedural and ethical guidelines governing its use in public schools. In summarizing the guidelines governing the use of physical restraint in public schools Schloss and Smith (1987) reported that physical restraint serves critical functions that cannot be avoided.

Other proponents of physical restraint use with children believe that the process helps the child with their own internalized feelings and toward the staff physically restraining them. Sourander et al. (1996) observed that therapeutic holding may serve to inhibit aggressive behavior in a safe manner and “encourage children to verbalize and act out strong feelings” (p. 378). Trieschman (1969) interpreted physical restraint as a response to a child’s communication, and believed that when applied, physical restraint could be an interactive process where staff listen and respond to the child. Miller, Walker, & Friedman (1989) suggested that the close physical contact between a child and staff member during a physical restraint allowed staff to determine a child’s state of mind more precisely so that they could respond more appropriately and accurately.

Proponents often referenced children’s inability to regain control due to their young age and lack of coping mechanisms. Physical restraint use with children was seen as a way to help children regain control. Cotton (1989) analyzed the developmental-clinical rationale for the use of seclusion in the psychiatric treatment of children. In considering the development of children and adolescents, Cotton recommended the use of physical restraint, claiming its beneficial use through which they can regain control.
Drisko (1976) considered physical restraint as “an external control or supportive technique” when using it on children (p. 469).

Other proponents also considered children’s inability to regain self control, but correlated it to their need of a mature adult figure who could provide limits. Grigson (1984) believed restraint could address maturational needs, while Drisko (1981) described appropriate and professional uses of physical restraint to enhance the safety of children and staff, to end destruction of property, and to demonstrate adult-imposed limits.

Studies Refuting the Use of Physical Restraint with Children

Researchers and clinicians refuting the use of physical restraint on children contended that restraints are harmful, have potentially fatal outcomes, and should be used with extreme caution, if at all (Amos & Ardmore, 2004; Delaney, 2001; Jones & Timbers, 2002; Kennedy & Mohr, 2001; Mohr, Mahon & Noone, 1998; Mohr & Mohr, 2000; Natta, Helmbeck, Kupst, Pines, & Schulman, 1999). Harm is a general concern surrounding the use of physical restraint with children, and an overwhelming number of individuals refuting these procedures with children base their arguments on the lack of empirical evidence (Crespi, 1990; Garrison, 1984; Mohr and Anderson, 2001; Mohr, Petti, & Mohr, 2003; Persi & Pasquali, 1999; Singh, Singh, Davis, Latham, & Ayers, 1999; Walsh & Randell, 1995). Other arguments based on the lack of empirical evidence claim that the use of physical restraint with children is ineffective (Garrison, Ecker, Friedman, Davidoff, Haeberle, & Wagner, 1989; Goren, 1991; Murray & Sefchik, 1992).

Several individuals refuting the use of physical restraint with children do so
because the lack of empirical data to support its need and efficacy. Walsh and Randell 
(1995) stated that physical restraints are controversial, restrictive interventions used 
widely, while relatively little is known about them. From their analysis of four child and 
adolescent treatment settings, Persi and Pasquali (1999) emphasized how little is known 
about the actual uses of physical restraint across similar and different settings. Garrison 
(1984) refuted the supposed therapeutic function of physical restraints suggesting that 
their functions have not been substantiated and their implementation can vary widely 
from one setting to another. Garrison (1984) concluded that little empirical evidence 
supported the view that these “primitive” procedures are therapeutic.

Singh et al. (1999) asserted that research does not fully support either the long 
term effectiveness or the use of physical restraint. Mohr and Anderson (2001) refuted 
several faulty assumptions supporting the continued practice through their analysis of 
empirical literature and theory. Through their analysis, they concluded that an insufficient 
amount of attention has been paid to the restraint process and the effects it has on 
children. Mohr et al. (2003) reported the lack of monitoring of physical restraint 
throughout the United States and the lethal consequences occurring from the lack of such 
procedures. Their research was based on a literature review of actual and potential causes 
of deaths linked to the use of physical restraint. In reviewing over ten different academic 
areas, Mohr et al. (2003) concluded that the existing literature does not represent a body 
of knowledge upon which continued use of physical restraint can be justified. Crespi 
(1990) argued that despite the controversial nature of the issues surrounding the use of 
restraint procedures with youth, surprisingly little data are available. He believed the lack
of data on use of restraint with youth to be as unsettling as the procedures themselves.

From the lack of empirical evidence surrounding the use of physical restraint with children also came findings about the ineffectiveness of these procedures. Goren (1991) noted negative effects of restraint use with children. She concluded that such interventions lead to superficial compliance rather than behavioral changes and internal controls. Murray and Sefchik (1992) reported that physical restraint has no instructive value in teaching appropriate behavior and may give the undesirable message that use of force is an appropriate way to deal with conflict. Garrison et al. (1989) concluded that counter-aggressive strategies, such as physical restraint, did not yield any therapeutic effects on a group of 99 patients ages 5 to 15.

While some refute the use of physical restraint on children due to lack of empirical evidence proving its efficacy, others refute its use due to the belief that such procedures are counterproductive and damaging. In a study by Natta et al. (1999), repeated use of punitive interventions, such as physical restraint, were found to be counterproductive and lead to further acting out by the child. Mohr and Mohr (2000) considered the standpoint of a child being restrained by an adult and reported that, for children who are already faced with multiple risk factors, the experience of a physical restraint can add to an already damaged psyche. Delaney (2001) claimed that restraint of children has tremendous potential for harm and maintained that “physical restraint is a dangerous, sometimes deadly practice, with no therapeutic benefit” (p. 129).

Mohr et al. (1998) presented preliminary data from an ongoing study that investigated the experiences and memories of formerly hospitalized children. They
described three types of trauma experienced by the children involved in the study: vicarious trauma, alienation from staff, and direct trauma. The conclusions reached by Mohr et al. (1998) stated that milieu therapy intended to provide support and structure can actually cause trauma to a child when procedures such as physical restraint are used. Amos and Ardmore (2004) stated that “trusting, positive, supportive human relationships” cannot coexist with the use of restraint (p. 269). She viewed the use of restraint as a cause of harm that has not yet adequately been investigated or researched. Through analyzing the “physical restraint cycle” Jones and Timbers (2002) asserted that physical restraint invites a lose-lose outcome for everyone involved in them.

After several news and advocacy groups brought recent deaths linked to the use of physical restraint into the public sphere, Kennedy and Mohr (2001) examined the literature indicating that use of physical restraint can be dangerous to patients. From their analysis of the literature surrounding this topic Kennedy and Mohr (2001) concluded that the use of restraints puts a child at great risk for injury and even death and argued that the use of physical restraint is not only unethical, but that it may have constitutional implications.

Prevalence of Physical Restraint Use with Children

While there is a limited scientific base for the use of physical restraints with children and youth, a large number of articles and reports exist providing knowledge and insight into this controversial issue (Carter, Jones, and Stevens, 2008; Donovan, Plant, Peller, Siegel, and Martin, 2003; Forster, Cavness, and Phelps, 1999; Garrison et al., 1990; Larson, Sheitman, Kraus, Mayo, and Leidy, 2008; Leidy, Haugaard, Nunno, and
Kwartner, 2006; Luiselli, Kane, Treml, and Young, 2000; Petti, Mohr, Somers, and Sims, 2001; Persi and Pasquali, 1999; Sourander, Ellila, Väimäkäki, and Pihlajamäki, 2002). The first studies examining the use of physical restraints with children were descriptive and sought to find out when, where and for what reasons such procedures occurred. Some of these studies examined the rate at which physical restraint with children occurred and determined rate of restraint to be a predictor in determining if a patient was to be restrained or not (Hunter, 1989; Kalogjera, Bedi, Watson, and Meyer, 1989; Miller et al., 1989; Swett, Michaels, and Cole, 1989).

Overall, each study examining the prevalence of physical restraint use with children yielded results unique to the environment in which the study took place. While each study was conducted in an age-specific environment, exclusively with children and youth, no environment or approach to collecting data was the same, causing there to be no identical results.

Hunter (1989) explored the use of physical restraint with children from a staff perspective in order to document their feelings regarding intense situations. Frontline staff from five different agencies in the Toronto area were polled via anonymous, self-report questionnaires and asked about their experience with, and views about working with “out-of-control” youth (p. 141). His findings showed that 58 staff indicated that they used physical restraint less than once in a period of one week and 30 staff employed physical restraint more than twice in a one-week period. The study revealed no significant difference between male and female respondents.

Petti, Mohr, Somers, and Sims (2001) conducted a study of staff and child
patients in order to examine their perspectives on the restraint process. Data were collected from October 1999 through September 2000, where a total of 81 physical restraints occurred.

While some studies examined the rate of physical restraint with children according to staff perspective, other studies examined the rate of physical restraint use with children by simply tracking the number of restraints that occurred over a set period of time. Swett, Michaels, and Cole (1989) conducted a one year study in a children’s state hospital, where the rate of physical restraint was 46%. Miller et al. (1989) examined the episodes of physical restraint that took place on an inpatient adolescent psychiatric unit over an 18 month period. Data were collected retrospectively through chart review and incident reports of each physical restraint episode. Results showed that of the 175 adolescent inpatients, 40 required physical restraints at least once. Of the 40 that required physical restraint at least once, 21 required this procedure only once. Overall a total of 112 episodes of physical restraint were recorded and examined (Miller et al., 1989).

Persi and Pasquali (1999) tracked the frequency of physical restraints used with children during a one-year period from January 1 to December 31, 1995 from one of four settings: (1) a child psychiatric inpatient unit, (2) a five day residential group home, (3) a day treatment program in a segregated school, and (4) a day treatment program in a community school. The findings showed that in the one-year period of data collection a total of 297 incident reports across settings accrued. Of the 297 incident reports, a total of 107 reported use of physical restraint.

In a study by Sourander et al. (2002) the analysis of physical restraints in a child
and adolescent psychiatric in-patient treatment facility was conducted. Data for the study were collected throughout the year 2000, and included 504 child and adolescent psychiatric in-patients. In their study physical restraint use accounted for 28% of restraint measures used. Specifically, 132 physical restraints occurred in the year 2000.

In a study done by Leidy et al. (2006), the restraint data of a residential treatment center for adolescent females was reviewed in order to see if any characteristics correlated to the frequency of restraints. Data were collected from January 1999 to May 2002 and included 1,059 reported physical restraints involving 155 adolescents from the residential treatment center. Results showed that 38% of the adolescents at the facility were restrained at least once.

In conducting an informal examination of Vanier, a children’s mental health agency, Carter, Jones, & Stevens (2008) discovered several trends surrounding the use of physical restraint. One of the trends discovered was the consistent rate of physical restraint use over a period of three years. From 2000 to 2003, the average rate of restraint use was 600.

Garrison et al. (1990) completed a one year descriptive study of aggressive incidents and staff counter-aggressive strategies within a child psychiatry inpatient unit. Data were collected from critical incident reports written by staff following an aggressive incident. Incident reports were filed when a patient was confined to a quiet room, restricted to the patient’s room, physically restrained, or mechanically restrained. Within the 12 month time-frame of data collection, their study yielded a total of 887 reportable aggressive incidents produced by 99 child and adolescent patients. Out of the 887
reportable aggressive incidents, staff utilized physical restraint as a counter-aggressive strategy a total of 82 times.

Some studies examining the rate of physical restraint use with children compared it to the rate of seclusion of children. Donovan et al. (2003) examined characteristics associated with the use of seclusion and restraint of psychiatrically hospitalized youth. A total of 442 youth were included in the study. The study took place between the year 2000 and 2001, where a total of 5,929 seclusion and restraint incidents occurred. Of the 5,929 incidents that occurred use of seclusion accounted for 51 percent and restraint 49 percent.

Forster et al. (1999) compared the rates of seclusion and restraint in a psychiatric hospital during the 12 month periods before and after implementing recommendations to reduce the hospital’s use of physical restraint. Results showed that prior to following the reduction recommendations the total number of restraint episodes in 1995 was 2,379 per 2,560 admissions compared to 2,380 restraint episodes per 3,010 admissions in 1996.

Other studies examined the rate of physical restraint use with children and youth before and after the implementation of organizational initiatives to reduce the use of physical restraint. In a study by Kalogjera et al. (1989), three inpatient adolescent psychiatric units were examined during two five-month periods before and after implementing “therapeutic management protocol” (p. 280). In the first five-month period of data collection, specifically January through May 1980, a total of 205 incidents of physical restraint occurred. In the second five-month period of data collection, specifically January through May 1981, a total of 72 incidents of physical restraint
occurred.

Luiselli et al. (2000) addressed the effects of restraint-reduction procedures with two adolescent males who had developmental disabilities and displayed severe aggression. Glen, 16 years old and Paul, 14 years old, the two participants in the study, resided at separate group homes, but attended the same school. Prior to the initial implementation of restraint-reduction procedures a baseline evaluation, lasting one month took place. Within this one month baseline evaluation period both Glen and Paul’s behavior and number of physical restraints they were in were recorded. Results showed that Glen was physically restrained 19 times and Paul 6 times during the one month baseline evaluation.

Larson et al. (2008) conducted a study measuring the efficacy of installing a padded seclusion room to decrease the use of restraints being used. Through their use of a retrospective chart review, they conducted their study at an acute adolescent inpatient unit at a state psychiatric hospital. They collected data on the monthly rates of seclusion and restraint use 18 months before and 18 months after the installation of the padded room. Their results showed that in the 18 months prior to the installation of the padded room, a total of 103 restraints occurred. With the installation of the padded room, the total number of restraints was 4.

Types of Physical Restraint Used with Children

The type of restraint and the position of a child during a restraint are large determinants in the outcome of such an event. While staff working with these often aggressive and violent children and youth are trained in crisis intervention prevention and
how to effectively utilize physical restraint procedures, no staff could receive training on every situation they may encounter. For that reason it is imperative that data be collected on the types of physical restraints being used with children and youth, as to identify commonalities or trends in using particular types of physical restraint.

While the need for data collection surrounding the types of physical restraints used with children is identified throughout the literature, only two studies discuss the type of physical restraints being used with children and youth. Nunno, Holden, and Tollar (2006) conducted a descriptive study where they examined child and adolescent fatalities related to physical restraints in residential placements in the United States from 1993 to 2003. Their examination resulted in a total of 45 child and adolescent fatalities related to the use of physical restraint. For each of the 45 fatalities the year and state it occurred in, age and gender of the child, cause of death and type of restraint used were provided. Of the 45 fatalities, 28 were due to use of a team prone restraint, and one was due to use of a seated restraint.

Henderson et al. (2005) completed a study in 2003 in order to compare the frequency of injury to clients and staff with the use of two types of physical restraint systems, Therapeutic Crisis Intervention (TCI) and Professional Crisis Management (PCM). Descriptions of both TCI and PCM were provided. PCM involved a 5-point system of holds: Wrist triceps (staff members steady client while standing or walking); Sunday stroll (staff members interlace arm around client upper arm); One arm wrap (staff member wraps arm around the client at the waist); Vertical immobilization (standing hold immobilizing client arms); Brief assisted required relaxation (staff hold at the wrists,
triceps, and feet to completely immobilize client). TCI involved a 4-point system of holds: Breaking up a fight technique (2 staff intervene to separate 2 people involved in a fight); Standing hold technique (2 staff approach from both sides, grasp the client’s arms, pivot, and hold client from behind); Team restraint front initiated (involves 2 staff and begins from a standing position facing the client—the client is lowered to the floor onto his back and the arms and legs are secured); Team restraint rear initiated (involves 2 staff and begins from a standing position behind the client—the client is lowered to the floor on his back, is turned to a prone position, and arms and legs are secured) (p. 194). Within the 12 month study, PCM was utilized a total of 5580 times, and TCI was utilized a total of 1274 times.

**Physical Restraint Occurrence by Month**

A number of studies have examined how rates of restraint are affected by environmental factors and other precipitants such as seasonal variations or time of year according to month. While such studies do exist, most are in the adult literature, and include no examination of children or youth. Of the identified studies examining the use of physical restraint in child and youth populations, two studies discussed rates of physical restraint according to month.

Carter et al. (2008) conducted an informal examination of Vanier, a children’s mental health agency in Canada. From their examination, certain trends surrounding the use of physical restraint were revealed. One such trend discovered was the recurrence of seasonal variations of physical restraints. The most restraints occurred in the fall, specifically September through November. A smaller peak occurred in the spring,
specifically around March. The fewest restraints occurred in the summer, specifically in July and August. Thompson, Huefner, Vollmer, Davis, & Daly (2008) included rates of physical restraint according to month in their study of a therapeutic group home, but not for the purpose of examining trends. Rather this data was used to form a baseline as a point of comparison prior to the implementation of an organizational intervention.

**Physical Restraint Occurrence by Time of Day**

Time has been a variable included in many studies examining the use of physical restraint. In analyzing the time that physical restraints occur, “hot spots” or times of the day where a disproportionate amount of restraints are occurring may be identified, allowing for preventative measures to be put in place. Time trends can reveal a significant amount of data allowing researchers and practitioners to gain insight on patterns of physical restraint use. While analysis of physical restraint rates according to time does exist throughout the literature it predominantly exists in the adult literature and includes no examination of children or youth. Of the identified studies examining the use of physical restraint in child and youth populations, three studies discussed rates of physical restraint according to time of day.

Miller, Hunt and Georges (2006) conducted a quasi-experimental field study in order to examine the effectiveness of a 2-phase physical restraint reduction intervention. Their study was conducted in a residential treatment center over a period of two years and nine months. The total number of children included in this study was 409, specifically 276 boys and 133 girls. From data collection they found that the last two hours of school and transition times, indicated as: 2:00-3:00 PM, at the end of school;
4:00-5:00 PM, during dinner; and 7:00-8:00 PM, getting ready for bed, tended to have the highest rate of restraints.

Leidy et al. (2006) found that of the 1,059 physical restraints reported in their study, 77 percent of the restraints occurred in the late afternoon or evening. Rates of restraints revealed a gradual build of restraints through the evening with a peak between 8:00 PM and 9:00 PM. Delaney and Fogg (2005) found clustering of restraint incidents during particular times of the day. Seventy-nine restraint incidents occurred within a similar afternoon time frame. Specifically 27 in the early afternoon, 26 in the midafternoon, and 26 in the early evening. Only eight restraint incidents occurred in the early morning, and only two occurred during sleeping hours.

Effects of Physical Restraint on Children

From the literature surrounding the use of physical restraint, there is no question that the use of these procedures comes with great risk, both physical and mental. These risks impact both the person being restrained as well as the persons implementing the restraint. While routine data on injuries caused by physical restraint are almost impossible to obtain, a limited number of studies reveal what has been documented in terms of injury caused by physical restraint. Of these studies several reveal that a large percentage of staff and patient injuries occur during episodes of seclusion and restraint (Lipscomb, 1992).

For many children and adolescents within these settings, life has been everything but easy. Enduring traumatic events, several children may recall past events, and find their present situations just as frightening. The experience of a physical restraint may
reinforce past trauma and result in the child or adolescent enduring more traumatic events (Howard, 1991; Mohr et al., 1998; Mohr & Anderson, 2002).

Some claim that restraint may be more frequently used on children, due to their small size, making it easier to restrain them. This also means that young people may be at increased risk due to the size and weight ratio of children compared to adults (Boyle, 1999). Mohr and Mohr (2000) argue that a child’s small size alone would be a significant factor in their increased susceptibility to death from the use of restraint. Weiss et al. (1998) suggested that children are four more times likely to be restrained than adults. In the Hartford Courant report, children comprised 26% of fatalities, but only comprised 15% of the population within the care settings studied.

While, many claim restraint is not designed to be a punishment, children who experience it often perceive it to be a form of punishment (Mohr et al., 1998). Patients have reported that being placed in restraints is a traumatic and stressful experience (Mohr et al., 1998). Petti et al. (2001) conducted semi-structured interviews with both staff and child patients in order to gain perspective on how each viewed the physical restraint. Starting in April 1999, interviews were initiated. If a child was restrained, a staff member not involved in the restraint sat with them and asked a series of questions surrounding their restraint. Staff involved in the restraint were asked the same set of questions from staff not involved in the restraint. Of the several questions asked, one inquired about any injuries that occurred during the procedure to the child or staff. Of the child responses, 10 reported injuries to themselves or staff occurring during the restraint, 60 said no injury occurred, and 11 provided no response. Of the staff responses, 12
reported sustaining injuries, 58 said no injury occurred, and 11 provided no response.

Several publications report the dangers of the prone restraint, claiming it places the child at risk for asphyxia (Belviso, De, Vitale, & Introna, 2003; Chan, Nueman, Clausen, Eisele, & Vilke, 2004; O’Halloran & Frank, 2000). A study conducted by Nunno et al. (2006) found 45 child or adolescent fatalities related to the use of physical restraints. The cause of 25 of those fatal cases was asphyxia. Masters et al. (2002) reported the dangers of a seated restraint, claiming that when positioned in this type of restraint one’s chest or abdominal movement is restricted. Johnson (2007) asserted that there is no safe restraint.

The Use of Physical Restraint in Education

The use of physical restraint has had procedural use in hospitals and psychiatry, particularly related to treatment for violent or aggressive persons, for several centuries. While practiced in certain fields for centuries, the use of physical restraints in educational settings is a relatively recent concept (Ryan & Peterson, 2004). Appearing for the first time in education literature in the 1950’s, Redl and Wineman (1952) introduced restraints as one of the “techniques for the antiseptic manipulation of surface behavior” for children with emotional behavior disorders (p. 63). Explicitly stating that physical restraint should not be used as punishment, Redl and Wineman believed a child that is unable to control his or her behavior should be viewed as an emergency situation and the educator should remove the student from the situation, or prevent the student from doing harm to themselves or others. The authors also suggested that the person performing the restraint remain calm, friendly, and affectionate in order to permit the opportunity for therapeutic
progress once the student’s crisis had subsided.

The information that Redl and Wineman (1952) provided on physical restraints in educational settings served as a base for more knowledge to be built upon. A later piece of literature promoted physical restraint as an intervention technique for use by all teachers as a part of classroom management strategies (Long, Morse, & Newman, 1996; Ryan & Peterson, 2004). While some discussion of the use of physical restraint in educational settings appears in the literature, there is little empirical evidence surrounding the use of physical restraints in educational settings.

After extensive research surrounding the use of physical restraint with children, the results only yielded a total of five studies of physical restraint use in educational settings (Grace, Kahng, & Fisher, 1994; Magee & Ellis, 2000; Persi and Pasquali, 1999; Ruhl and Hughes, 1985; Ryan, Peterson, Tetreault, & Van der Hagen, 2007). While each of these five studies were conducted in educational settings, only one sought to better understand the overall use of physical restraint procedures in the field of education (Ryan et al., 2007b), though none examined the rates of physical restraint by month or time, the types of physical restraints used, or the injuries which occurred as a result of the physical restraint.

In conducting a pilot study, Ryan et al., (2007b) sought to better understand the use of physical restraint in the field of education. Specifically, Ryan et al., (2007b) examined how often physical restraint procedures are used, the circumstances under which they are utilized, and other environmental circumstances that may affect their use. The study was conducted in a public special day school for students with emotional and
behavioral disorders. Participants in the study were 42 students who attended at least 75 days of school during the 2002-2003 and 2003-2004 school years. As part of the study all staff followed a “gated” school-wide behavior intervention plan when dealing with a student’s behavior. Essentially the gated plan worked in such a way that a staff member used the least restrictive intervention (e.g., timeout) and if necessary moved to more restrictive interventions (e.g., physical restraint). Data were collected from incident reports written during the 2002-2003 and 2003-2004 school years. Results provided various insights on the use of physical restraint within an educational setting. During the 2002-2003 school year, staff performed 68 physical restraints on nine different students, and during the 2003-2004 school year, staff performed 56 physical restraints on five different students. Of the students placed in physical restraints most were elementary and middle school students, as high school students were rarely placed in restraint. Overall, elementary school students were the majority of students placed in a physical restraint. The most common reason staff provided for having to implement a physical restraint was the student displaying physical aggression towards staff.

Two studies conducted in an educational setting examined individual students in order to determine the efficacy of physical restraint with their specific students (Grace et al., 1994; Magee & Ellis, 2001). Grace et al. (1994) conducted a study of an 11-year-old boy named Cory, displaying signs of severe aggressive behavior in school. Cory’s behavior severity began occurring at uncontrollable rates, and with parental approval, a 3-minute seated restraint, contingent upon severe behavior, was added to his treatment plan. An analysis to determine the effectiveness of implementing the seated restraint compared
to use of direct communication was completed. During “baseline sessions” the therapist working with Cory used only “verbal reprimands” (p. 171). During “partial sessions” the therapist would use “verbal reprimands” followed by a 3 minute seated restraint, and during “full sessions” the therapist only used a 3 minute restraint. After a 9-month follow up results showed that Cory’s aggressive behavioral outbursts decreased during the “full sessions” when only the 3 minute seated restraint was used. Later results also revealed that during the last seven “full sessions” the number of seated restraints used decreased. From these results Cory’s school administrators began using the 3 minute seated restraint for more and less severe behaviors.

Magee and Ellis (2001) conducted a similar study through analyzing the use of physical restraint on two individual students in order to evaluate the effects of physical restraint as a consequence for problem behavior. Sid, a 13-year-old boy who engaged in physical aggression toward teachers and peers and sexual touching of female teachers, and Paul, a 13-year-old boy who engaged in yelling, self-injury and aggression toward teachers were the participants in this study. First, both Sid and Paul were exposed to four conditions three to five times daily, three days a week by a therapist. The conditions included: “no interaction condition” where no interaction occurred between the therapist and the student; “attention condition” where the therapist ignored the student but made statements about the behavior they were displaying (e.g., “you are yelling), “play sessions” where the therapist interacted continuously except for when a student displayed negative behavior and attention was withdrawn for 30 seconds, and “demand condition” where the therapist delivered requests (e.g., “write your name) but would withdraw for 30
seconds if the student displayed negative behavior (p. 502).

Second, Sid and Paul were exposed to the same four conditions for the same duration as the first analysis, but instead of the therapist making statements about each student’s displayed behavior during the “attention condition” or withdrawing for 30 seconds during the “demand condition” the therapists would place each student into a physical restraint. Results from this study revealed enough for physical restraint to be discontinued in the classroom. It was shown that physical restraint evoked or maintained Sid’s negative behavior and that use of physical restraint with Paul increased the risk of him displaying higher rates of negative behavior.

In a study conducted by Ruhl and Hughes (1985) within a public school, high rates of physical restraint use were found. Students within this study were considered to be “behaviorally disordered learners” and often displayed aggression towards themselves and others. Through surveying teachers of these students, responses indicated that 71% of teachers said they used a restraint when students displayed aggression toward others; 40% said they used a restraint when a student demonstrated self-injurious behavior; and 34% said they used restraint when students directed aggressive behavior toward objects.

Persi and Pasquali (1999) conducted a study where a day treatment classroom in a “segregated” school was compared to a community classroom to see if children with more severe problems are likelier to receive more intrusive interventions, such as physical restraint. Twenty boys from both the day treatment classroom in the segregated school, and the community school were randomly selected. Their problem, severity and aggression were measured, and it was hypothesized that children who had more problems
and aggressive behaviors in their classrooms should pose more risks, requiring more use of physical restraint. Results revealed that nineteen of twenty students in the day treatment classroom had incidents involving physical restraint, whereas only two of twenty students in the community school classroom have incidents involving physical restraint. Persi and Pasquali (1999) concluded that although both types of classroom serve the same type of students, one classroom makes only minimal use of physical restraint resulting in unexplained differences in similar settings.

**Hypotheses**

After extensive review of the literature surrounding the use of physical restraint, and the dearth of information about the use and outcome of physical restraints in school settings the following hypotheses were reached:

**H1:** Students will yield a higher number of injuries from physical restraints compared to staff.

**H2:** The use of a team prone restraint will yield a higher number of injuries compared to the other four methods of physical restraint used.

**H3:** The highest percentage of injuries will occur during the first hour of school, specifically 8:00am to 9:00am.

**H4:** The highest number of restraints will occur within the fall months, specifically September, October and November, when comparing numbers of physical restraints of all four seasons.

**Conclusion**

In summary, there are few definitive findings about the use of physical restraint
with children and youth, especially as they relate to educational settings. With a majority of the literature related to physical restraint based on the adult population much more research is needed to fill gaps in knowledge regarding the controversial use of such procedures with children and in educational settings.
Chapter 3

METHODS

Introduction

From the previous two chapters it is clear that the use of physical restraint on children is controversial and understudied in educational settings. Application and use of physical restraint is not as evidence-based as it needs to be, considering the emotional and developmental vulnerability of the child population in acute care settings, and the physical risks associated with physical restraint use. This study examines the use of physical restraints in a school setting to determine the relationship between using physical restraints and subsequent injuries in school settings. This chapter discusses the methodological research design, the research setting from which the study sample was drawn, the source of data and sampling procedures, the coding procedures, the variables used for analysis, hypotheses, the strengths and limitations of the chosen methodological design and approach, and the process for the protection of human subjects.

Design

The design employed in this study was descriptive research. Descriptive research seeks to clarify the nature of a phenomenon in a specified, static context while viewed from a specific, fixed perspective (Manicas & Secord, 1983). The sampling frame for this study consists of all incident reports occurring in the NPS, specifically between the hours of 8:00am and 2:00pm, Monday through Friday, during the 2004-2005 school year. Incident reports in the sampling frame that lacked the use of physical restraint were excluded from this study. Therefore the sample of this study included all incident reports
occurring in the NPS, specifically between the hours of 8:00am and 2:00pm, Monday through Friday, during the 2004-2005 school year, and written due to the use of physical restraint.

Research Setting and Population

Data for this study was collected from a Non-Public School (NPS) located on site of a California residential treatment facility for adolescent males. Serving students with emotional disturbances, specific learning disabilities, and an overall range of emotional and behavioral difficulties, the NPS combines elements of educational and therapeutic treatment. The NPS has received full certification from the California Department of Education and is structured to meet students’ needs for security, consistency, predictability and academic growth. The goal for each student is to progress academically, behaviorally, and emotionally to the point where the student may graduate to an appropriate, less restrictive, public school in the community. Academic, functional, and social lessons are taught by a teacher and two classroom counselors in each of the eight student classrooms. The overall total number of full-time classroom teachers is 10, in conjunction with 21 full-time teaching aides present throughout each classroom.

Serving up to 72 students, grades kindergarten through tenth, the NPS is a year-round school providing students schooling 236 days a year. In order to become a student at the NPS individuals must be male, between the ages of 6 and 15, and have a referral to a NPS educational setting. Once enrolled in the NPS, students must fulfill exit criteria in order to be discharged. Such exit criteria consists of being referred to another educational
setting at any point during their treatment, and transitioning into public school classes as their academic and behavioral progress allows.

Source of Data and Sampling Procedures

This study is based on data gathered from nonpublic agency records of a Non-Public School from September 1, 2004 to August 31, 2005. Data for this study were gathered from the incident report database maintained by the facility. The incident report database contains information on every incident for the entire facility, for which an incident report was required to be written. While many types of incidents occur within the facility that require the writing of an incident report, the most frequently occurring incident is physical restraint. Containing information on every physical restraint occurring in the facility, the incident report database included the name of the student physically restrained, the staff who performed the physical restraint, the date, time, and location the physical restraint occurred, which facility program the restraint occurred within, restraint method used, and if an injury occurred and to whom.

From the incident report database, facility staff created a new database that excluded all personal information that could be used to identify the students and staff involved in the physical restraint. Because this was a descriptive study examining the relationship between physical restraints and subsequent injuries solely in educational settings, facility staff isolated a particular sample of incident reports within the incident report database in order to make the new de-identified database. For an incident report to be included in the new de-identified database the incident report had to fit the following criteria: have occurred within the NPS (between the hours of 8:00am to 2:00pm, Monday
through Friday), and had to have occurred within the 2004-2005 school year, specifically September 1, 2004 to August 31, 2005. Using these criteria to narrow the population for this study, facility staff created a new de-identified database containing 1,161 incident reports.

While all 1,161 incident reports in the new de-identified database fit the criteria necessary to be included in this study, not all were written due to the use of a physical restraint. Because this study was examining the relationship between the use of physical restraint and subsequent injuries, if an incident report within the new database was not written due to the use of a physical restraint it should not be included in the population. Of the 1,161 incident reports in the initial population, 524 were excluded from the study due to no use of physical restraint recorded. After the 524 incident reports containing no use of physical restraint were excluded, the total number of incident reports to be used as the population of this study was 637.

**Coding Procedures**

Once provided the new de-identified database, now consisting of 637 incident reports, the information within the de-identified database was coded and entered into another database for the purpose of analysis. Four variables (three independent variables and one dependent variable) were coded for the de-identified database: month the physical restraint occurred in, time the physical restraint occurred, type of physical restraint used, and occurrence of injury to student or staff.

In order to code the month in which the physical restraint occurred, the number the month correlated to was recorded (January=1, February=2, March=3, April=4,
May=5, June=6, July=7, August=8, September=9, October=10, November=11, and December=12. Each of the 637 incident reports in the de-identified database listed the month the physical restraint occurred in under the section “date and time of incident.” With the study taking place over the 2004-2005 school year (September to August), each of the months could be coded as the number it correlated to without confusion.

The time the physical restraint occurred was coded according to the time recorded under the section “date and time of incident” in the de-identified database. This study only analyzed physical restraints occurring within the NPS, meaning only between the hours of 8:00am and 2:00pm. In analyzing data within a six hour timeframe (8:00am-2:00pm), no time was ever duplicated and therefore no differentiation between “AM” and “PM” was necessary.

The type of physical restraint used was coded according to the type of physical restraint recorded under the section “restraint type” in the de-identified database. Within this study there was a possibility of five different types of physical restraints to be coded for: physical escort=1, standing restraint=2, wall-assisted restraint=3, seated restraint=4 and team prone=5.

The occurrence of an injury to student or staff was coded according to what was recorded under the section “incident type.” If no injury occurred during a physical restraint, no comments regarding injury were recorded within the “incident type” section in the de-identified database. If an injury to a student occurred during a physical restraint, the words “injury to student” was recorded within the “incident type” section in the de-identified database. If an injury occurred to a staff during a physical restraint, the words
“injury to staff” was recorded within the “incident type” section in the de-identified database. If an injury occurred to both a student and a staff during a physical restraint, the words “injury to student” and “injury to staff” were recorded within the “incident type” section in the de-identified database. Within this study injuries could be coded four ways: no injury=0, injury to student=1, injury to staff=2 and injury to both student and staff=3.

Variables used in the Analysis

In order to complete this study and examine the use of physical restraints in a school setting to determine what, if any, relationship exists between restraint and subsequent injuries to students and staff, several variables were used.

Independent Variables

Month the physical restraint occurred in, refers to the month that the physical restraint occurred in. The month the physical restraint occurred in was measured according to the date that is recorded within the incident report database.

Time physical restraint occurred, refers to the time that the physical restraint was initiated. The time the physical restraint occurred was measured according to the time that is recorded within the incident report database.

Type of physical restraint used, refers to the type of physical restraint NPS staff used on a student. Within this study there was a possibility of five different types of physical restraint that could have been used by NPS staff on students. The five possible physical restraint types included:
• **Physical Escort:** The transport of a student against his will from one location to another with the application of physical force by two or more staff that reduces or restricts the ability of a student to move his arms, legs, or head freely.

• **Standing Restraint:** The student remains in a standing position with staff standing slightly behind and to the side of client with application of physical force by two or more staff that reduces or restricts the ability of a student to move his arms, legs, or head freely, for the purpose of preventing harm to self or others.

• **Wall-Assisted Restraint:** The student remains in a physical escort position and a safe wall is used to add stability to the restraint. With the student facing the wall, staff holds the arms and legs against the wall. The student’s toes, thighs, hips, shoulders, and backs of the hands touch the wall.

• **Seated Restraint:** The student is placed in a seated position, typically on the floor or in chair and application of physical force by two or more staff that reduces or restricts the ability of a student to move his arms, legs, or head freely, for the purpose of preventing harm to self or others.

• **Team Prone:** The student is placed in a “face-down” position on the floor with application of physical force by two or more staff that reduces or restricts the ability of a student to move his arms, legs, or head freely, for the purpose of preventing harm to self or others.

The type of physical restraint used was measured according to what type of physical restraint was recorded on the incident report found within the database.
Dependent Variable

*Injury to staff or student*, refers to any physical injury sustained to a student or staff during the process of a physical restraint. Injury to staff or student was measured by the presence of a recorded injury on the incident report found within the database.

Strengths and Limitations of Research Methodology Design and Approach

*Strengths*

There are many strengths within this study and its purpose of examining the use of physical restraints in a school setting to determine what, if any, relationship exists between use of restraint and subsequent injuries to students and staff. While there is extensive literature on the topic of physical restraint use on children throughout various fields and practices, there is a dearth of information about the use and outcome of physical restraint in school settings. With only five identifiable studies examining the use of physical restraint in educational settings existing, this study significantly adds to the literature and to the information that is known surrounding this topic.

The most important strength of this study, that sets it apart from any other, is its examination of injuries within an educational setting. Although there are five studies that examine the use of physical restraint in educational settings, none of the studies examine injury. With this study focusing on injury to staff and students as a cause of physical restraint within a school setting, new information, never examined before, will be contributed to the existing literature.

Another strength of this study is its examination of various physical restraint types in an educational setting. As one of the independent variables of this study, the type of
physical restraint used on a student by staff, is a variable that is not considered for examination in any of the existing studies taking place in an educational setting. Each type of physical restraint is based upon different techniques, allowing for a variation of outcomes depending on the type of physical restraint used. This study examines the use of five separate physical restraints types, and examines their relationship to injury of staff and students.

A reliable measure is one which measures data in a consistent manner. In collecting data from one NPS, in one school year and from one database the data being gathered will be consistent and reliable. The reliability of this study is further strengthened through the utilization of a single researcher. Using one individual to code the data makes the margin of error smaller than if this study were to utilize multiple researchers.

Limitations

While this study adds to the dearth of information about the use and outcome of physical restraint in school settings, there are limitations that must be acknowledged. The data used in this study comes from only one NPS in California, and therefore cannot be representative of all Non-Public Schools. Certain practices within the NPS included in this study may not be utilized by other Non-Public Schools. Specifically the NPS in this study used five different types of physical restraint methods, whereas other Non-Public Schools may utilize a greater or fewer number of methods. The size of the NPS in this study was limited in that it had an enrollment capacity of 72 students. Other Non-Public Schools may have much smaller or larger total student enrollments causing a fluctuation
Another important limitation of this study to be discussed is the absence of examination of gender differences. The NPS in this study is all male, and therefore no examination of gender differences took place. Had there been both female and male students enrolled in the NPS in this study, an examination of gender differences in relationship to physical restraint could have taken place.

While this study closely examines the use of physical restraints in a school setting to determine the relationship between using physical restraints and subsequent injuries in a school setting, much of the literature surrounding the use of physical restraint on children also examine the use of seclusion on children. Although the NPS in this study uses both physical restraint as well as seclusion, and analysis of both could have been possible, seclusion involves no use of physical restraint, therefore not allowing for the examination between its use and subsequent injuries. Because the focus of this study was to examine the relationship between physical restraint and subsequent injuries to students and staff, the examination of seclusion is beyond the scope of this research.

Using a descriptive research design for this study allowed a particular population of data to be closely examined, but also caused there to be some limitations. One such limitation created through the use of a descriptive research design is the use of cross sectional research. This study examines data from only one NPS within the United States, and within only one school year, excluding all information outside of the 2004-2005 school year at this particular NPS. While the purpose of descriptive research is to provide a description of a phenomenon from a single point in time, use of longitudinal research
could yield significantly different results, providing additional information not considered within this study (Anastas, 1999).

The validity of this study is weakened by its use of nonpublic agency records as the source of data. The validity in a study refers to the degree to which a measurement actually measures what it claims to measure. Measuring a variable according to a previously established method of measurement can help ensure reliability within a study. However when using nonpublic agency records it is seldom that a study’s conceptual and operational definitions of key concepts will be identical to actual measures maintained by the agency the data comes from (McShane & Williams, 2008). While the operational definitions in this study provide it with validity, the same definitions could not be applied to another study at a different NPS and maintain the same amount of validity.

Protection of Human Subjects

A Protection of Human Subjects application was completed and submitted to The Division of Criminal Justice Human Subjects Committee at California State University, Sacramento. Upon completion of the review process, The Division of Criminal Justice Human Subjects Committee approved the Human Subjects application, granting permission for this study to be conducted. The committee found this study to pose no risk to participants, and therefore no risk was associated with this study. While this study is based upon nonpublic agency records of Non-Public School, all precautionary measures were taken to ensure the anonymity of students and staff.
Chapter 4
DATA ANALYSIS

Introduction

Examination of the literature surrounding use of physical restraint with children resulted in the conclusion that little empirical evidence exists to show that it is being used effectively with this population, leaving the use of physical restraint with children in question. Although such practices with children remain in question, it is believed that the use of physical restraint is becoming a more common practice in schools working with behaviorally difficult students. In order to determine if the use of physical restraint in schools is effective, a basic knowledge surrounding its use must be understood and examined.

It is the aim of this study to provide a basic understanding of the use of physical restraint in a school setting, so as to contribute to the dearth of information surrounding this topic. In order to collect such data this study used descriptive research and utilized descriptive statistics to examine the relationship between using physical restraints and subsequent injuries in a school setting. While this chapter provides a general overview of the results, a detailed discussion of the results will take place in the next chapter.

Participants

This study was conducted in a Non-Public School (NPS) for students with a range of emotional and behavioral difficulties in California. Students were placed in the NPS from school districts throughout California on both a short term and long term basis. Most students enrolled in the NPS also reside at the Residential Treatment Facility on
campus grounds, although “day students” from surrounding school districts were also enrolled. The NPS had an average daily enrollment of 64 students during the course of this study, but provided educational services to a total of 87 students throughout the NPS’ 220-day academic calendar year. During the 2004-2005 school year the percentages of student enrollment by grade were: first grade 2%, second grade 2%, third grade 5%, fourth grade 2%, fifth grade 14%, sixth grade 23%, seventh grade 15%, eighth grade 21%, and ninth grade 15% (see Figure 1).

<table>
<thead>
<tr>
<th>Grade</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th Grade</td>
<td>15%</td>
</tr>
<tr>
<td>8th Grade</td>
<td>21%</td>
</tr>
<tr>
<td>7th Grade</td>
<td>15%</td>
</tr>
<tr>
<td>6th Grade</td>
<td>23%</td>
</tr>
<tr>
<td>5th Grade</td>
<td>14%</td>
</tr>
<tr>
<td>4th Grade</td>
<td>2%</td>
</tr>
<tr>
<td>3rd Grade</td>
<td>5%</td>
</tr>
<tr>
<td>2nd Grade</td>
<td>2%</td>
</tr>
<tr>
<td>1st Grade</td>
<td>2%</td>
</tr>
</tbody>
</table>

Students are placed in their grade level according to chronological age, level of education function and behavioral concerns. Of the 87 students enrolled in the NPS during the 2004-2005 school year, 53% were Caucasian, 22% African-American, 22% Hispanic, and 3% African-American/Caucasian (see Figure 2).
Academic, functional and social lessons are taught by a teacher and two classroom counselors (substitute teacher and teacher aide) in each of the eight classrooms, containing a maximum of nine students. Throughout the 2004-2005 school year there were a total of ten teachers, 15 substitute teachers, and 14 teacher aides, for a total of 39 staff. While both female and male staff work at the NPS, no information regarding number of female and male staff members could be provided. No information on staff ethnicity was available either. During the 2004-2005 school year all staff were required to be trained in Professional Assault Response Training (PART), a curriculum which includes a continuum of intervention strategies for the management of crisis situations. Such interventions were designed to provide staff with a range of tools from the least intrusive behavior management techniques to the use of physical restraint.

Results

**Physical Restraint by Month**

During the study period from September 2004 until August 2005 there were a
total of 220 academic days. Within those 220 academic days there were a total of 637 physical restraints. Figure 3 provides data on the occurrence of physical restraint by month. Data were collected from September 2004 through August 2005, for a total of 12 months. Of the 12 months, no two yielded the same number of physical restraints, causing only a slight difference between each month’s percentages of physical restraints.

Based on the data that was gathered in this study it was found that the number of physical restraints varied by month within the 2004-2005 school year. As indicated in Figure 3, the month of September yielded the highest number of physical restraints, with a total of 87 or 13.6%. Where the month of September yielded the highest number of physical restraints, the month of August yielded the lowest number, with a total of 31 or 4.8%.
While September and August produced the highest and lowest number of physical restraints throughout the school year, several of the other months produced similar numbers and percentages. Other months that yielded high numbers of physical restraint, similar to September were the months of October with a total of 83 or 13% and November with a total of 72 or 11.3%. Months that yielded low numbers of physical restraint, similar to the month of August were the months of April with a total of 36 or 5% and December with a total of 39 or 6%. The highest occurrence of physical restraints occurring in September, coupled with the lowest occurrence of physical restraints in August is likely the result of the school schedule.

*Physical Restraint by Time of Day*

Figure 4 provides data on the number of physical restraints according to time of day when a physical restraint occurred. In order to examine the relationship between use of physical restraint and subsequent injuries in a school setting, any physical restraint occurring within the NPS between the hours of 8:00am and 2:00pm were included in this study. The six-hour timeframe was separated into one hour increments, 8:00am-9:00am, 9:01am-10:00am, 10:01am-11:00am, 11:01am-12:00pm, 12:01pm-1:00pm, and 1:01pm-2:00pm, to allow a closer examination of the variation in times of physical restraints.

Based on the data that was gathered in this study, it was found that the number of physical restraints varied by time within the 2004-2005 school year. As indicated in Figure 4, the one-hour increment that yielded the highest number of physical restraints was the first the hour of school, 8:00am to 9:00am, with a total of 146 or 22.9%. While the highest number of physical restraints occurred from 8:00am to 9:00am, the lowest
number of physical restraints occurred in the second hour of school, 9:01am to 10:00am, with a total of 72 or 11%. While the one-hour time increments 8:00am to 9:00am and 9:01am to 10:00am produced the highest and lowest number of physical restraints throughout the school year, other one hour time increments produced similar numbers and percentages of physical restraint. Another one-hour time increment that produced high numbers of physical restraint was the last hour of school, 1:01pm to 2:00pm, with a total of 124 or 19%. No other one-hour time increment was similar in number or percentage to the low number of physical restraints that occurred from 9:01am to 10:00am.

<table>
<thead>
<tr>
<th>TIME OF DAY</th>
<th>NUMBER OF PHYSICAL RERAINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00am to 9:00am</td>
<td>146</td>
</tr>
<tr>
<td>9:01am to 10:00am</td>
<td>72</td>
</tr>
<tr>
<td>10:01am to 11:00am</td>
<td>104</td>
</tr>
<tr>
<td>11:01am to 12:00pm</td>
<td>96</td>
</tr>
<tr>
<td>12:01pm to 1:00pm</td>
<td>95</td>
</tr>
<tr>
<td>1:01pm to 2:00pm</td>
<td>124</td>
</tr>
</tbody>
</table>
The highest number of physical restraints occurring in the first hour of school (8:00am-9:00am) and the lowest number of physical restraints occurring in the second hour of school (9:01am-10:00am) is likely the result of the school schedule.

*Physical Restraint by Type*

![Figure 5-Physical Restraint by Type](chart)

Figure 5 provides data on the five different types of physical restraint utilized by the NPS in this study. Those types of physical restraint include: physical escort, standing restraint, wall-assisted restraint, seated restraint, and team prone restraint. Based on the data that was gathered in this study it was found that the number of physical restraints varied by type within the 2004-2005 school year at the NPS. As indicated in Figure 5, the type of physical restraint used most was the Physical Escort, with a total of 336 uses or 52.7% of all physical restraints used. While Physical Escort was used the most in the
2004-2005 school year, the type of physical restraint used the least was the Seated Restraint, with a total of 9 uses or 1.4% of all physical restraints used. With five options of physical restraint to utilize, findings show significant variations in the quantity that each type of physical restraint was used. The second most used type of physical restraint was the Team Prone, with a total of 206 uses or 32% of all physical restraints used. The third most used type of physical restraint was the Wall-Assisted Restraint with a total of 57 uses or 8.9% of all physical restraints used. The fourth most used type of physical restraint was the Standing Restraint, with a total of 29 uses or 4% of all physical restraints used. The high use of the physical escort restraint and significantly low use of the seated restraint is likely due to the positioning of each of these physical restraints as well as their ease of use when compared to the other types of physical restraint.

*Injury Type*

![Figure 6-Injury Type](image-url)
Figure 6 provides data on the four different types of injuries examined in this study. These types of injuries included: no injury, injury to a student, injury to a staff, and injury to both student and staff. In total there were 132 injuries to either students or staff. It should be noted that any physical restraint in which an injury occurred to both a student and a staff member counted as an injury to each individual, meaning that while seven physical restraints lead to an injury of both a student and a staff, a total of 14 injuries occurred (7 to students and 7 to staff). While raw numbers may not reflect significant differences in injury rates, percentages reveal the variation of injury rates.

Based on the data that was gathered in this study it was found that the majority of physical restraints during the 2004-2005 school year did not result in an injury to student or staff. As indicated in Figure 6, the majority of physical restraints resulted in no injury to students and no injury to staff, with a total of 512 or 80% physical restraints with no occurrence of injury. Although the majority of physical restraints did not result in an occurrence of injury to a student or staff, there were a total of 132 documented injuries to students and staff during the 2004-2005 school year. Of the total 132 documented injuries, 96 occurred to students (72%), and 36 occurred to staff (27%). In accounting for injuries to students, a total of 89 injuries occurred solely to students, while another 7 occurred to both student and staff, adding 7 more injuries to the total student injury count, making the total number of injury to students 96 (72%). Injuries that occurred to staff accounted for 29, while another 7 occurred to both student and staff, adding 7 more injuries to the total staff injury count, making the total injury count to staff 36 (27%). The 7 injuries where both a student and a staff were injured, as mentioned previously, were
included in the total injury counts for both students and staff and accounted for 5% of injuries.

The number of injuries during the 2004-2005 school year, as a result of physical restraint, could be interpreted in several ways. At first glance the results of this study could be seen as positive due to the high number of “no injuries” reported. On the other hand results of this study could be seen negatively with the use of physical restraint resulting in any number of injuries, regardless of how few actually occurred.

**Occurrence of Injury by Month**

Table 1 provides data on the number of injuries by month. Injuries examined included: no injury, injury to a student, and injury to a staff. In total there were 132 injuries between student and staff over the 12 month time period of this study.

Based on the data that was gathered in this study it was found that occurrence of injury, as a result of physical restraint, varied by month within the 2004-2005 school year. As indicated in Table 1, the month of September yielded the highest number of injuries with a total of 24 injuries to students and staff. While September was the month when the highest number of injuries occurred, several of the other months produced similar numbers of injuries. Another month that produced a high number of injuries, close in range to September was the month of November with a total of 18 injuries to students and staff. Where the month of September yielded the highest number of injuries, the month of June yielded the lowest number of injuries, with a total of 5 injuries to students and staff. Other months that yielded low numbers of injuries, close in range to
June were the month of March with a total of 6 injuries, April with a total of 7 injuries and February, May and August, all with a total of 8 injuries.

Table 1- Occurrence of Injury by Month

<table>
<thead>
<tr>
<th>TYPE OF INJURY</th>
<th>No Injury</th>
<th>Injury to Student</th>
<th>Injury to Staff</th>
<th>TOTAL INJURIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>MONTH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>September</td>
<td>63</td>
<td>20</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>October</td>
<td>69</td>
<td>10</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>November</td>
<td>55</td>
<td>13</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>December</td>
<td>28</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>January</td>
<td>35</td>
<td>7</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>February</td>
<td>49</td>
<td>6</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>March</td>
<td>44</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>April</td>
<td>30</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>May</td>
<td>43</td>
<td>6</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>June</td>
<td>41</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>July</td>
<td>38</td>
<td>8</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>August</td>
<td>23</td>
<td>6</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>TOTALS</td>
<td>512</td>
<td>96</td>
<td>36</td>
<td>132</td>
</tr>
</tbody>
</table>

Occurrence of Injury by Time of Day

Table 2 provides data on the number of injuries according to time of day. The three types of possible injuries were cross-tabulated with the six hour timeframe of the school day separated into one hour increments of, 8:00am-9:00am, 9:01am-10:00am, 10:01am-11:00am, 11:01am-12:00pm, 12:01pm-1:00pm, and 1:01pm-2:00pm. Examination of each one hour increment revealed patterns of injuries according to time of day.
Based on the data gathered in this study it was found that occurrence of injury as a result of physical restraint varied by time of day within the 2004-2005 school year. As indicated in Table 2, the one hour time increment 8:00am to 9:00am yielded the highest number of injuries, with a total of 31 injuries to students and staff. Specifically, 21 injuries to students and 10 injuries to staff occurred during this first hour of school. The one hour time increment that yielded the lowest number of injuries was the hour directly after the hour with the highest number of injuries, 9:01am to 10:00am. From 9:01am to 10:00am there were 9 total injuries throughout the entire school year, specifically 6 injuries to students and 3 injuries to staff. The highest percentage of injuries occurring between 11:01am and 12:00pm (26%) is likely the result of the school schedule.

**Table 2-Occurrence of Injury by Time of Day**

<table>
<thead>
<tr>
<th>TIME OF DAY</th>
<th>No Injury</th>
<th>Injury to Student</th>
<th>Injury to Staff</th>
<th>TOTAL INJURIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00am to 9:00am</td>
<td>117</td>
<td>21</td>
<td>10</td>
<td>31</td>
</tr>
<tr>
<td>9:01am to 10:00am</td>
<td>63</td>
<td>6</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>10:01am to 11:00am</td>
<td>80</td>
<td>19</td>
<td>7</td>
<td>26</td>
</tr>
<tr>
<td>11:01am to 12:00pm</td>
<td>73</td>
<td>20</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>12:01pm to 1:00pm</td>
<td>76</td>
<td>13</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td>1:01pm to 2:00pm</td>
<td>103</td>
<td>17</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>TOTALS</td>
<td>512</td>
<td>96</td>
<td>36</td>
<td>132</td>
</tr>
</tbody>
</table>

**Occurrence of Injury by Type of Physical Restraint**

Table 3 provides the number of injuries according to type of physical restraint. The two types of possible injuries were cross-tabulated with the five types of physical restraint used in the NPS in order to determine the number of injuries for each type of
physical restraint. Based on the data that was gathered in this study, it was found that occurrence of injury as a cause of use of physical restraint varied by type of physical restraint within the 2004-2005 school year. As indicated in Table 3, the type of physical restraint that yielded the highest number of injuries was the Team Prone, with a total of 60 injuries to students and staff. While the Team Prone restraint yielded the highest number of injuries to students and staff, the Standing Restraint yielded the lowest number of injuries to students and staff with a total of 3 injuries throughout the school year.

Due to the small number of reported Seated Restraint used throughout the 2004-2005 school year, variation between the numbers was not statistically meaningful and therefore was not included in the analysis.

*Table 3-Occurrence of Injury by Type of Physical Restraint*

<table>
<thead>
<tr>
<th>TYPE OF PHYSICAL RESTRAINT</th>
<th>No Injury</th>
<th>Injury to Student</th>
<th>Injury to Staff</th>
<th>TOTAL INJURIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Escort</td>
<td>290</td>
<td>33</td>
<td>16</td>
<td>49</td>
</tr>
<tr>
<td>Standing Restraint</td>
<td>26</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Wall-Assisted Restraint</td>
<td>42</td>
<td>13</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>Seated Restraint</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Team Prone</td>
<td>149</td>
<td>45</td>
<td>15</td>
<td>60</td>
</tr>
<tr>
<td>TOTALS</td>
<td>512</td>
<td>96</td>
<td>36</td>
<td>132</td>
</tr>
</tbody>
</table>
Chapter 5

CONCLUSIONS, FUTURE RESEARCH AND RECOMMENDATIONS

Conclusions

This study was undertaken in order to examine the relationship between the use of physical restraint and subsequent injuries to students and staff in a school setting. This chapter describes the findings of this study in detail, providing explanations for the outcomes that were presented in the figures and tables in the previous chapter. Also included is a discussion on future research surrounding this topic, as well as recommendations based on the findings of this study.

*Physical Restraint by Month*

The findings of this univariate analysis support Hypothesis 4, which states “The highest number of restraints will occur within the fall months, specifically September, October and November, when comparing numbers of physical restraints of all four seasons.” Data showed that the highest number of physical restraints occurred in the fall months of September, October and November, compared to any other seasons in the 2004-2005 school year.

In examining the number of physical restraints throughout the entire school year there are several indications as to the reason such results were produced. September, the month with the highest number of physical restraints, is the start of a new school year. For all students this means the return from summer vacation and for many students there is often a change of classroom, teacher and teacher aides. Essentially the start of a new school year means an abundance of changes. Such changes often produce new demands
for students and require adjustment to their routine. With students at the NPS having aange of emotional and behavioral difficulties, new demands and changes in routine’s
often leads to behavioral outbursts, which can lead to physical restraint. The high number
of physical restraints in the month of September is likely due to the demands and changes
that came with the start of the new school year.

As mentioned previously, October and November also produced a high number of
physical restraints. The likely causes for such results are the events, or holidays that occur
within these two months and the events, or holidays following these two months. October
is the start of the appealing holiday season, starting with Halloween, and followed by
Thanksgiving. While the “holiday season” has different meaning to each student, these
holidays mean one thing, an overall rise in anxiety. Whether it is looking forward to an
exciting event taking place on one of these holidays, a visit with family, a trip home, or
gifts, a surge of anxiety can be detected in most students. With increased anxiety often
comes an increase in behavioral outbursts, leading to higher numbers of physical
restraints. There is a significant decrease in number of physical restraints from November
to December. The likely cause for this significant decrease in two months following one
another is the amount of students on extended visits with family. December, while having
the most anticipated holiday, Christmas, is also the month with the most “home visits,”
meaning it is the month when the most students leave the residential treatment facility
and the NPS and go to stay at their family homes. With a large number of students
temporarily away from the residential facility and the NPS less physical restraints can
occur. The 39 total physical restraints that did occur within the month of December likely
occurred upon a student’s return to the residential treatment facility and NPS.

August, the month with the fewest number of physical restraints, is the month with the fewest academic days and the month where “summer camp” like summer school takes place. During the month of August the overall school environment is relaxed with several extracurricular activities incorporated into the limited number of school days. Out of the year-round NPS, August is the month with the least demand on students. With the fewest academic days out of any month, August is when the NPS structures its school days in the theme of “summer camp” by incorporating daily activities such as swimming, organized sporting events, and field trips. It is also the month the NPS holds its annual “Summer Olympics,” consisting of various sporting events from 8:00am to 2:00pm for two weeks. School days throughout the month of August are extracurricular activity-based, producing few demands for students. With fewer expectations there is a smaller chance for behavioral outbursts, causing there to be fewer physical restraints.

While December yielded a similar low number of physical restraints as August, so did the month of April. As mentioned above the likely cause of the low number of physical restraints in December is due to the amount of students temporarily away from the residential treatment facility and the NPS; without their presence the utilization of physical restraint does not occur. The month of April only produced a total of 36 physical restraints (5%). The likely cause for the low number of physical restraints within April is what could be referred to as a “gradual settling,” meaning an overall settling of anxiety from the holiday season. With time, students settle back into the routine they once were getting used to after the start of the new school year and prior to the start of the holiday
season. By April most students have settled into their classroom environments and on a
day to day basis know what is expected of them and how to interact with fellow
classmates and classroom staff. This adaptation can lead to fewer behavioral outbursts,
thereby causing fewer physical restraints.

Data on physical restraint by month found in this study are reflective of the
findings of Carter et al. (2008) who discovered seasonal variations of physical restraint
rates in a children’s mental health agency. In examining rates of physical restraint, Carter
et al. (2008) found that most restraints occurred in the fall, specifically September
through November, and the fewest restraints occurred in the summer, specifically in July
and August. Like Carter et al. (2008) this study found that most restraints occurred in the
fall, specifically September through November.

_Physical Restraint by Time of Day_

In examining the numbers of physical restraint through one hour time increments
throughout the school day there are several indications as to the reason such results were
produced. The first hour of school, 8:00am to 9:00am, the hour with the highest number
of physical restraints, is the start of the school day also when a significant amount of
transitioning takes place. Living in a group home approximately 100 yards from the NPS,
students are responsible for waking up, completing their morning routines and then
walking to school with staff and fellow students. During this time, there are
approximately 60 students and 25 staff all attempting to get to school on time, often
creating “chaos.” Once arriving to the NPS, students are dropped off in each of their
respective classrooms and start the first of many assignments. Aside from dropping
students off in their classrooms, staff are also orienting themselves in classrooms through assisting students in settling, taking questions and attempting to fulfill the needs of each student. The overall nature of the school could be described as “chaotic” as there are several demands on students as well as staff. During this very active transition period from 8:00am to 9:00am, there are many possibilities for behavioral outbursts, causing the likelihood of physical restraint to occur.

As mentioned previously, the last hour of school, 1:01pm to 2:00pm, also yielded a high number of physical restraints. The likely cause for such results parallels the reasoning for the high rate of physical restraints from 8:00am to 9:00am, the significant amount of transitioning for both student and staff. At the end of the day students and staff begin preparing for school to end. Students wrap up their last assignments, help clean up the classroom, and get ready to go back to their group home. Staff, while supervising the students, begin the daunting amount of paperwork involved in the end of a school day. Once it is 2:00pm NPS staff walk students back to their group home, where the students begin their residential program. Like the first hour of school, the last hour of school is similarly “chaotic,” causing an increase in behavioral outbursts, which often lead to physical restraint.

The second hour of school 9:01am to 10:00am, the one hour increment with the lowest number of physical restraints, directly follows the one hour increment with the highest number of physical restraints. During this second hour of school classrooms as well as students and staff are likely settled and have transitioned into their school or work day. With the morning “chaos” settled, teachers begin their lessons for the day, as most
students are able to engage in the lesson or not disrupt the classroom environment, should they refuse to participate. With a relatively calm environment, students are less likely to have behavioral outbursts, causing there to be fewer physical restraints. Data on physical restraint by time, found in this study is consistent with one of the three studies that examined physical restraints with children according to time. In Miller, Hunt and Georges’ (2006) study of a residential treatment center, data reveal that the last hours of school (2:00pm-3:00pm) and transition times tended to have the highest rates of physical restraint.

**Physical Restraint by Type**

In examining the numbers of physical restraint, based upon the type of restraint, there are several explanations as to why this study yielded such results. Physical Escort was the physical restraint used the most during the 2004-2005 school year. While a Physical Escort is considered to be a type of restraint, because it reduces or restricts the ability of a student to move his arms, legs, or head freely, it is considered to be the least restrictive restraint due to the student being free standing and in motion. Within “PART,” which is the required training, staff are taught to begin with the least intrusive behavior management techniques when working with students. Should a student being physically escorted continue unsafe behavior and place himself or staff in more eminent harm, staff may feel the need to transition to a more restrictive type of physical restraint. Transition to another type of physical restraint is simplest when transitioning from a Physical Escort into one of the other types. Physical Escort being employed the most often is likely due to this type of physical restraint being the least restrictive of the five types of restraint as
well as the simplest type of restraint to transition from.

The second most utilized physical restraint was the Team Prone. This type of physical restraint is most restrictive due to the student being placed “face-down” on the floor with application of physical force by staff. Such results are alarming as the most restrictive type of physical restraint is the second most employed type of physical restraint. There is no specific answer as to why such a large number of Team Prone Restraints occurred within the 2004-2005 school year. A likely cause surrounds the issue of safety. The utilization of a Team Prone Restraint is intended for the most extreme or dangerous situations, in order to protect a student or a staff member. Should a student place himself or another student or staff in danger through use of force, a Team Prone Restraint will likely be used, as it is the most restrictive, and can prevent assaultive behavior from occurring.

The third most utilized type of physical restraint was the Wall-Assisted Restraint, where the student remains in a physical escort position, and a safe wall is used to add stability to the containment with the staff holding the student’s arms and legs against the wall. The Wall-Assisted Restraint is the second most restrictive type of restraint, after the Team Prone, but was the third most used physical restraint in the 2004-2005 school year. Like the high use of the Team Prone restraint, there is no specific answer for why Wall-Assisted Restraints occurred at the third highest rate. A likely cause surrounds the need to restrict movement in order to provide safety. Beginning in the Physical Escort position, where a student has the ability to move the most compared to any other type of physical restraint, the Wall-Assisted Restraint makes use of a safe wall as a means to restrict
movement. The need to transition from the Physical Escort position into a Wall-Assisted Restraint is likely due to the student using his head or body movement as a mechanism to assault the staff physically restraining him. Transitioning the student into a Wall-Assisted Restraint from the Physical Escort position restricts the student’s movement and his ability to use his body to assault staff.

The fourth most utilized physical restraint during the 2004-2005 school year was the Standing Restraint, where the student remains in a standing position with staff standing slightly behind and to the side of student with application of physical force. The Standing Restraint is the second least restrictive restraint, but was also one of the least utilized types of physical restraints. Used only 29 times throughout the entire school year, it is likely that the low use of the Standing Restraint is due to the potential danger it poses to both student and staff. As the second least restrictive type of physical restraint, a student placed in this type of restraint has the ability to move his head and torso freely. With the ability to move his head and torso he is capable of hurting himself or the staff involved in the restraint. Students who are often in physical restraints can repeat behaviors or movements that may make use of certain types of physical restraint unsafe with a student. As a result, staff working with a student may choose not to utilize a particular type of restraint as to prevent injury or harm to themselves or the student. This is a possible explanation as to why Standing Restraint was employed so few times.

The type of physical restraint utilized the least during the 2004-2005 school year was the Seated Restraint. In this type of restraint a student is placed in a seated position, typically on the floor and application of physical force by staff is applied. The Seated
Restraint is one of the most restrictive types of physical restraint for the student as well as staff. The positioning of this restraint restricts the student’s arms, legs, and torso from freely moving. This type of restraint also inhibits staff from freely moving, as they are also in a seated position on each side of the student. The Seated Restraint could be considered one of the most difficult physical restraints to execute as it requires significant synchronization of staff. Aside from the difficulty of executing a Seated Restraint, another likely reason this type of physical restraint was utilized the least in the 2004-2005 school year is due to the inability to transition to any other type of physical restraint from a Seated Restraint. According to “PART,” once in a Seated Restraint staff are not allowed to transition to any other type of physical restraint. Should the student become assaultive and place himself or the staff involved in danger, the staff must release the student from the Seated Restraint, and if necessary initiate a new type of physical restraint.

Data on physical restraint numbers by type found in this study are consistent with the literature examining the types of physical restraint used with children. While only two studies examining the types of physical restraint used with children were identified, one of these studies similarly reflects the findings of this study. Henderson et al. (2005) examined the use of two types of physical restraint systems, “TCI” and “PCM”. The movements and positions of the “PCM” physical restraint system, while having different names, are defined the same as what is referred to as a “Physical Escort” in this study. In Henderson et al. (2005) the “PCM” physical restraint system was utilized significantly more than the comparing “TCI” physical restraint system. Like the findings of Henderson
et al. (2005) this study found Physical Escort to be the most used type of physical restraint.

**Injury Type**

The findings of this univariate analysis support Hypothesis 1, which states “Students will yield a higher number of injuries from physical restraints compared to staff. Data shows that there was a higher rate of documented injuries to students compared to staff as a result of physical restraint during the 2004-2005 school year.

Results of this study could be interpreted in two ways: of the 637 physical restraints that occurred within the 2004-2005 school year, there were only 132 documented injuries, or, of the 637 physical restraints that occurred within the 2004-2005 school year, 96 students and 36 staff were injured as a result. While majority of physical restraints during the 2004-2005 school year resulted in no injury to students or staff, results from this study show that both students and staff were injured as a direct result of the use of physical restraint. The likely reason for majority of physical restraints resulting in “no injury” is the mandatory “PART” training every staff member is required to complete. Such training provides staff with strategies for the management of crisis situations, and when and how to safely and effectively utilize physical restraints.

While “PART” is intended to provide staff the tools and knowledge on how to safely and effectively utilize physical restraint, staff inevitably encounter students in crisis situations not covered in training. Aside from exposure to new crisis situations, the actual implementation and process of physical restraint creates numerous possibilities for error, which have potential to result in injury. It is likely this large margin of error, in
using physical restraint, leads to the occurrences of injury to both students and staff in this study. The higher number of injuries to students 96 (72%) can likely be attributed to the role of the student within the physical restraint. Because it is the student that is being physically restrained, it is the student that is being placed in a more vulnerable, injury prone position and being restricted of movement, leading to the possibility of higher injury rates. While students are being placed into physical restraints, the staff members utilizing such procedures are often placed in dangerous and vulnerable situations and positions. Being responsible for an effective and safe implementation of a physical restraint can be extremely difficult, regardless of the training one has received. In attempting to prevent a crisis situation from occurring, staff must detain an often escalated and aggressive student, leading to the possibility of injury to those staff. Aside from the initiation of the physical restraint, staff are also responsible for restricting the movement of the student throughout the duration of the physical restraint. In many cases students resist the physical restraint and the restriction of movement, causing the possibility of injury of staff to increase.

While this study only examined physical injury as a result of physical restraint and did not include the possible mental trauma that could have occurred as a result of physical restraint, data on number of injuries found in this study are consistent with the children and youth literature surrounding use of physical restraint. Boyle (1999) discussed the increased risk of injury to children during the use of physical restraint as a result of size and weight ratio of children compared to adults. While this study can provide no specific reasoning as to the causes of injury rates, data show that students
(children) suffered more injuries compared to staff (adults).

**Occurrence of Injury by Month**

While examination of raw numbers provides information on which months produced the most and least injuries overall, in calculating the total number of injuries by the total number of physical restraints for each month, new findings were revealed. When calculating the percentage of injuries that occurred within each month, findings showed that the month of December yielded the highest percentage of injuries. Of the 39 physical restraints that occurred in the month of December, there were a total of 12 injuries to students and staff, resulting in a 30% injury rate. These findings show that while December had the second lowest number of physical restraints, it had the highest percentage of injuries. Similar to the month of December’s injury rate was the month of September. The month of September had a total of 87 physical restraints, with a total of 24 injuries to students and staff resulting in a 27% injury rate.

The month that yielded the lowest percentage of injuries was the month of June. With a total of 46 physical restraints in the month of June, and a total of 5 injuries to students and staff, June had an injury rate of 10%. Similar to the month of June’s injury rate was the month of March. With a total of 49 physical restraints throughout March, and a total of 6 injuries to students and staff, March had an injury rate of 12%.

The most alarming finding of these results is the injury rate of the month of December. As previously discussed the month of December is a month that had the second lowest number of physical restraints within the 2004-2005 school year. While anxiety is still increased, likely due to the surrounding holidays, a majority of students
spend longer periods of time away from the residential treatment facility and the NPS, causing the use of physical restraint to decrease. While such factors are considered, results show that the month of December had the highest rate of injury. There is no specific answer as to why this may have occurred, but such results point out an area in need of more examination. With no comparable data for injury rates by month in the literature surrounding use of physical restraint in educational settings, no comparison between the results from the NPS in this study and other schools could take place.

**Occurrence of Injury by Time of Day**

While examination of raw numbers provides information on which one hour time increments produced the most and least injuries overall, in calculating the total number of injuries by the total number of physical restraints for each one hour time increment, new findings were revealed. When calculating the percentage of injuries that occurred within each one hour time increment findings show that the hour of 11:01am to 12:00pm yielded the highest percentage of injuries. Of the 96 physical restraints that occurred during the hour of 11:01am to 12:00pm, there were a total of 25 injuries to students and staff resulting in an injury rate of 26%. Similarly during the hour of 10:01am to 11:00am there were 104 physical restraints and 26 injuries to students and staff, resulting in an injury rate of 25%. These findings show that while the one hour time increment of 11:01am to 12:00pm yielded the third lowest amount of physical restraints throughout the school year, it had the highest percentage of injuries.

The one hour time increment that yielded the lowest percentage of injuries was the hour of 9:01am to 10:00am. With a total of 72 physical restraints from 9:01am to
10:00am throughout the school year, and a total of 9 injuries to students and staff, the one hour time increment from 9:01am to 10:00am had an injury rate of 12%.

The findings of this bivariate analysis do not support Hypothesis 3, which states “The highest percentage of injuries will occur during the first hour of school, specifically 8:00am to 9:00am.” Data show that the highest percentage of documented injuries occurred during the one hour time increment of 11:01am to 12:00pm during the 2004-2005 school year.

While there is no specific answer as to why the highest percentage of injuries occurred between 11:01am and 12:00pm, possibilities for discussion exist. The 11:01am to 12:00pm hour coincides with the lunch schedule of the NPS. During this hour each of the eight classrooms transition to the lunchroom, where they eat lunch with several other classes at a time. Often the lunchroom is chaotic and loud, and can be a location for behavioral outbursts. While it is possible for the highest rate of injury to be linked to the lunch hour, it could easily be assumed that the characteristics of the lunch hour should have also increased the overall number of physical restraints within this one hour time increment, but that was not the case. In order to determine a more plausible answer as to why the highest rate of injury occurred from 11:01am to 12:00pm, several years of data should be examined in a longitudinal study.

The one hour time increment with the lowest percentage of injury rates, 9:01am to 10:00am reflects the data which also shows it to be the one hour time increment with the lowest number of physical restraints. As mentioned before this is likely due to the gradual settling that has taken place within the classrooms and throughout the NPS. Chaos from
the morning transition has settled and students have begun to engage in lessons. With no comparable data for injury rates by time of day in the literature surrounding use of physical restraint in educational settings no comparison between the results from the NPS in this study and other schools could take place.

Occurrence of Injury by Type of Physical Restraint

Although the Team Prone yielded the highest number of injuries, the Physical Escort yielded a similar number of injuries, with a total of 49 injuries to students and staff. September and June were the months when the highest number of injuries occurred, several of the other months produced similar numbers of injuries. Another type of physical restraint that yielded a low number of injuries similar to the Standing Restraint was the Seated Restraint, with a total of 5 injuries to students and staff.

While examination of raw numbers provides information on which type of physical restraint produced the most and least injuries overall, in calculating the total number of injuries by the total number of physical restraint types, new findings were revealed. When calculating the percentage of injuries that occurred from each type of physical restraint findings showed that the Seated Restraint yielded the highest percentage of injuries, with a 55% injury rate. However, due to the fact that only 9 Seated Restraints occurred throughout the entire school year, and yielded 5 total injuries, the variation between these numbers is statistically not meaningful and therefore not included as part of the analysis. With that, the Team Prone yielded the highest percentage of injuries. Of the 206 Team Prone restraints that occurred throughout the 2004-2005 school year, there were a total of 60 injuries to students and staff resulting in a 29% injury rate.
These findings show that while the Team Prone was the second most utilized type of physical restraint, it had the highest percentage of injury rates. Similar to the Team Prone injury rate was the injury rate of the Wall-Assisted Restraint. With a total of 57 Wall-Assisted Restraints and 15 injuries to students and staff the Wall-Assisted Restraint had an injury rate of 26%.

The type of physical restraint that yielded the lowest percentage of injuries was the Standing Restraint. With a total of 29 Standing Restraints throughout the 2004-2005 school year, yielding a total of only 3 injuries to students and staff, the Standing Restraint had an injury rate of 10%. Similar to the injury rate of the Standing Restraint was the injury rate of Physical Escort. With a total of 336 Physical Escorts used throughout the school year, and a total of 49 injuries to students and staff, Physical Escort had an injury rate of 14%.

The findings of this bivariate analysis support Hypothesis 2, which states “The use of the Team Prone Restraint will yield a higher number of injuries compared to the other four methods of physical restraint used.” Data show that the Team Prone Restraint yielded the highest number of injuries compared to any other type of physical restraint throughout the 2004-2005 school year.

As anticipated the Team Prone Restraint yielded the highest number of injuries, and while no definite reason as to why can be provided, possible reasoning can certainly be discussed. As mentioned earlier, the Team Prone Restraint is the most restrictive type of physical restraint. With the student in a “face-down” position on the floor and application of physical force by staff, that is reducing or restricting the ability of the
student to move his arms, legs, or head freely, both the student and the staff involved are in extremely vulnerable positions. With the Team Prone Restraint being the most restrictive type of physical restraint, the student being physically restrained is likely extremely escalated and displaying aggressive behavior towards himself or others. The more aggressive a student is, the more likely his movement or physical struggle, causing a greater potential for injury.

Aside from the overall vulnerability that both student and staff are placed in, due to the positioning of a Team Prone Restraint, is the general potential of risk surrounding the use of a Team Prone Restraint. The use of physical restraint requires training and knowledge on the potential outcomes of its use. Along with training and knowledge it also requires significant amounts of synchronization and communication on the part of the staff. Restricting a student from moving freely, especially while a student is in an escalated state, poses great risk to the student, as well as the individuals responsible for restricting the student.

Similar to the injury rate of the Team Prone Restraint was the injury rate of the Wall-Assisted Restraint. Being the second most restrictive type of physical restraint, the student remains in a physical escort position and a safe wall is used to add stability to the restraint by placing the student’s arms and legs against the wall. In using this type of physical restraint it is also likely that the student is displaying some type of aggressive behavior, where use of a safe wall is needed to provide safety and stability. The similarity between these two types of physical restraints with the highest injury rates is that each of them utilizes some type of surface in order to provide stability during the restraint. The
Team Prone Restraint uses the floor, and the Wall-Assisted uses a wall. While the use of these surfaces during the physical restraint is meant to provide safety and stability it likely also causes the student to become more escalated as the student’s body makes contact with each of these surfaces throughout the duration of the physical restraint. In utilizing these surfaces, both the Team Prone and the Wall-Assisted Restraint further restrict the student’s ability to move freely, possibly leading to further agitation or attempted aggressiveness.

Unlike the Team Prone and the Wall-Assisted Restraints, the two types of physical restraint with the lowest injury rates, Standing Restraint and Physical Escort, do not utilize any type of surface. These two types of physical restraint rely simply on the use of physical force from staff in order to restrict the free movement of the student. It should however be mentioned that if a student becomes escalated to the point of aggressive or violent behavior during either of these types of physical restraints, staff may transition into a more restrictive restraint, such as a Team Prone or a Wall-Assisted Restraint, in order to maintain safety.

While there are no data in the literature surrounding use of physical restraint in educational settings to compare these findings to, the findings of this study which show the Team Prone Restraint to yield the highest number of injuries is consistent with the literature surrounding the use of physical restraint with children and youth. Several findings in the literature report the dangers surrounding the use of the prone restraint, claiming it places the child at risk for asphyxia (Belviso, De, Vitale, & Introna, 2003; Chan, Nueman, Clausen, Eisele, & Vilke, 2004; O’Halloran & Frank, 2000). Nunno et al.
(2006) found 45 child or adolescent fatalities related to the use of physical restraints, with 25 a direct cause of asphyxia.

Future Research

Although it is evident that there is a strong need for additional research regarding the use of physical restraint across all educational settings and this study adds to the dearth of information surrounding the use of physical restraint in educational settings, this study only examines the use of physical restraint at one particular NPS. Therefore, the findings presented in this study are not reflective of the population of schools who utilize physical restraint. One area for future research is the extent to which several schools currently employ physical restraint, and if so, which of the restraint types are used. In using data compiled from states that require reporting the use of physical restraint, data will exist and can therefore help create basic knowledge on the use of physical restraint in schools.

The use of cross sectional research in this study allowed for examination of data from only one NPS, and within only one school year, excluding all information outside of the 2004-2005 school year at this particular NPS. While examining the 2004-2005 school year produced several findings, future research could conduct the same examination at this NPS, rather using a longitudinal study design in order to capture trends over several years.

Another area of future research is the examination of potential outcomes to students and staff, including injuries and fatalities, as a result of the use of physical restraint in schools. In using data compiled from states that require reporting on instances
of injury and fatality as a result of physical restraint use, a better understanding of how frequently these occurrences are happening will exist. In knowing how frequent injuries and fatalities as a result of the use of physical restraint in schools occur, action can take place in order to prevent such occurrences and ensure that it is used safely.

While this study examined injuries to students and staff as a result of the use of physical restraint in the NPS, this study did not examine the types of injuries that occurred. It would be beneficial for future research to investigate the type of injuries that are occurring to students and staff in order to address the issues surrounding use of physical restraint in schools, and ensure its being utilized “properly.”

Recommendations

The need for high-quality research has been widely established throughout the literature surrounding the use of physical restraint with children and youth. Literature on the use of physical restraint in educational settings is far too limited to establish scientific guidelines for its use. With the practice of physical restraint understudied and overused coordinated efforts to develop an empirical basis for the use of physical restraint are imperative.

In order for adequate records of physical restraint use in schools to exist, a standardized system of record keeping should be established in each school employing the use of physical restraint. In order to collect the data that is so desperately needed to help establish guidelines for the use of physical restraint in schools, a standardized method of record keeping must exist. Should a school, such as the NPS in this study, record data on their use of physical restraint, it should be discussed and shared with staff
employing the use of physical restraint. By sharing physical restraint data with staff discussion can take place and staff can be informed of the occurrences of physical restraint and their outcomes.

As several reports have indicated increased use of physical restraint throughout all school settings, school districts should be required to have standards, rules, and guidelines on the use of physical restraint. Should a school utilize physical restraint as a mechanism to control aggressive or violent behaviors of their students, standards and rules should be a guiding force. It is imperative that these standards, rules, and guidelines be followed, and if not followed, the appropriate party be sanctioned. While it is hoped that establishment of standards, rules and guidelines would work as a way to prevent injuries caused by the use of physical restraint in schools, should they not, something must be done. Without an appropriate sanction, a message of leniency is sent.

Due to the risk of student and staff injuries and the fatality rates associated with the use of physical restraint, immediate action is required to ensure that schools employing physical restraint take action to ensure the safety of their students and staff. Based on this study, injury to both student and staff occurs in schools as a result of use of physical restraint. Without action taken, headlines will continue to appear across our nation describing the preventable fatalities discussed.
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