DIFFERENCES IN AFFECT THROUGH MEDICAL PLAY

by

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ABSTRACT

Child life specialists use play as a central mechanism to teach and communicate with their patients. Play allows children to learn, engage in their surroundings, and express themselves. A variety of types of play, including pretend and medical play, can be seen within the work of child life specialists. Few studies have examined medical play outside of the hospital, with no studies examining the affect displayed in medical play.

The purpose of this research study is to examine the differences in affect expressed in children through non-medical themed pretend play and medical pretend play. Thirty-seven children, three to four years old, participated in the study. This study aimed to examine medical play outside of the hospital setting. Fantasy, positive expression, and additional pretend play qualities were analyzed to determine participants' affect during medical play. Participants also engaged in pretend play without a medical theme as a mode of comparison. During non-medical themed pretend play, participants' played the role of the pizza maker. During medical play, participants' played the role of the doctor. The play sessions lasted a maximum of 10 minutes each, and they were recorded. Videos were then coded to examine the affect displayed in each play session. Children were asked to self report their feelings during the play sessions.

The findings indicated that differences in affect do exist between non-medical themed pretend play and medical play. Children displayed more affect in the pizza play sessions than the medical play sessions. In addition, differences in affect were demonstrated between the quality of fantasy, comfort level, and frequency of play with children displaying more fantasy, comfort, and frequency of affect during play. Participants played longer with the pizza play items and

reported more positive feelings after non-medical themed pretend play than medical pretend play. Children who are feeling unpleasant emotions have been found to display less affect and engage in less play. Considering this, the current study may suggest that medical play is associated with unpleasant thoughts decreasing the expression of affect and length of play. Adults providing medical play to children, such as child life specialists, should be sensitive to the cues provided during such play, including affect, and provide support to increase normalization and positive feelings during medical play.

DEDICATION

This thesis project is dedicated to my father. For as long as I can remember, you have served as a role model for hard work and serving your fellow man. Through your actions I have learned that helping others in the community is a talent and gift that should not be wasted. You taught me many things throughout my life. For example, success is earned and not to be taken for granted. Your love for your family is endless, and, thus, your unwavering support has guided me through my career. It is a privilege to dedicate this project to you.

LISTS OF ABBREVIATIONS AND SYMBOLS

APS-P-BR	Affect in Play Scale-Preschool-Brief Report
APS-P	Affect in Play Scale-Preschool Version
CCLS	Certified Child Life Specialist
PSBS-T	Preschool Social Behavior Scale-Teacher Report
η	Variable quantity
p	Probability level
m	Mean score
SD	Standard deviation from the mean
t	Computed value of a t-test
F	Degrees of freedom
=	Equal to
<	Less than
>	Greater than

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CHAPTER 1

INTRODUCTION

Play is an activity that is voluntary, spontaneous, pleasurable, and meaningful in nature (Fromberg, 2002). For preschoolers, common types of play include pretend, sociodramatic, and constructive play. Examples of play include playing house, building with Legos, and playing a game with friends. For young children, play promotes social competence, cognitive development, and allows children the opportunity to practice behaviors, muscle coordination, and exhibit control (Fromberg, 2002; Henricks, 2014). Play is an outlet for self-expression and emotional regulation. It allows children to safely work out their feelings surrounding a certain situation, such as a trauma (Nabors et al., 2013). Because of its developmental influence, play is often used as a tool for promoting the psychosocial development of children undergoing stressful situations, such as a medical experience.

Benefits of Pretend Play

Recent research has examined pretend play, and its psychological effects on child development. According to Marcelo and Yates (2014), pretend play consists of fantasy and symbolism. Inanimate objects become an object of magic and desire (e.g. a stick become a sword). Marcelo and Yates (2014) examined pretend play, levels of adjustment, and coping strategies in 250 preschool children. Intelligence, play, coping behaviors, behavior issues, and stressful life events were all measured for each participant. Play was assessed for fantasy quality, organization, complexity, frequency of affect expression, positive affect, and negative affect.

Play sessions lasted five minutes and were videotaped and coded. Results suggested that preschool children who engage in aspects of pretend play exhibited more coping techniques just one year later in life. These children also expressed fewer internalizing problems suggesting better levels of behavior adjustment (Marcelo & Yates, 2014). Such findings suggest that pretend play promotes coping and the development of coping techniques.

Hoffmann and Russ (2012) conducted a study examining the association between pretend play, emotion regulation, and creativity. The study was comprised of 61 female participants, 5-10 years in age. Participants performed a variety of tasks to measure affect, emotion regulation, creativity, divergent thinking, vocabulary, and executive functioning. Participants played with two puppets and three blocks during a five minute videotaped play session. Participants were given instructions to "have the puppets do something together" and "make sure the puppets talk out loud". The scale measured organization, imagination, level of comfort, affect frequency, variety of affect displayed, positive affect, and negative affect. Results indicated that verbal emotional expression was related to affect expression during play. In fact, participants with higher positive affect expression also displayed better emotion regulation, according to their parents. Participants that displayed higher levels of positive affect during play were more creative and utilized imagination more. Thus pretend play is associated with creativity and emotion regulation (Hoffmann & Russ, 2012).

Wallace and Russ (2015) explored the relationship between pretend play, divergent thinking, and math achievement in a follow up study to Hoffman and Russ (2012). According to Wallace and Russ (2015), 50% of the original participants took part in the longitudinal study. Results illustrated that children who demonstrated higher levels of organization, positive affect, and imagination were better at establishing multiple uses for everyday objects. The amount of

affect in play and higher levels of positive affect in play were both predictors of math achievement (Wallace & Russ, 2015). This longitudinal study demonstrates the importance of pretend play as a developmental tool in preschool age children.

Pretend play serves as a catalyst for the development of many beneficial skill sets in children and is a good predictor of coping and achievement later in life (Marcelo & Yates, 2014; Hoffman & Russ, 2012; Wallace & Russ, 2015). Participants who engaged in more affect during the aforementioned studies had higher levels of imagination, organization, coping, and even math achievement (Marcelo & Yates, 2014; Hoffman & Russ, 2012; Wallace & Russ, 2015). Thus, pretend play provides a variety of benefits including promoting coping and emotion regulation skills in addition to eliciting creativity and organizational skills.

Pretend Play in Hospitalized Children

Fromberg (2002) explains that typical preschool play is in the form of dramatic play activities. Throughout the dramatic play activity, play participants may participate in role reversal, create stories or scripts, and interact with one another. This type of play illustrates the child's perception of the world, and their experiences within the world. Therefore, it is child directed (Fromberg, 2002). Because of these characteristics, it is common to see pretend play used by hospitalized children as a way to cope with their current experiences.

Few studies have examined pretend play in the hospitalized children population. Potasz, Varela, Carvalho, Prado, and Do Prado (2013) facilitated a study examining the effects of pretend play as a coping technique in hospitalized children, four to eleven years of age. In the study, participants randomly assigned to two experimental groups: a control group and a playgroup. The playgroup received two hours of pretend playtime with items such as plastic foods, kitchenware, dolls, cars, games, beauty items, and nurse/doctor items. All of the play in

this particular study was child directed. Stress was measured through cortisol levels in participants' urine output. Although individual differences did exist, results illustrated that both male and female participants who received time for pretend play produced lower cortisol levels than the control group suggesting pretend play may be an effective coping mechanism for hospitalized pediatric patients (Potasz, et al., 2013).

Bloch and Toker (2008) performed a study examining anxiety of hospitalization in young children, 3 to 6.5 years old. The intervention used to examine anxiety was the "Teddy Bear Hospital". The participants played the role of the parent to the teddy bear who was being hospitalized. The participants assigned the teddy bears a disease and participated in the teddy bears' examination, treatment, and "parent" follow up. Participants rated their feelings about being hospitalized utilizing facial expressions one day before the "Teddy Bear Hospital" and one week following the intervention. There was a significant difference in anxiety levels after the intervention. Those who attended the "Teddy Bear Hospital" expressed lower anxiety levels than participants in the control group (Bloch & Toker, 2008). This study exemplifies the power of role rehearsal, in conjunction with medical equipment, to decrease children's anxiety in regards to hospitalization.

Children communicate through pretend play, such as story telling; therefore, play serves as an outlet for individuals' expression. In this way children can process a traumatic event in their own way and at their own pace (Nabors et al., 2013). Nabors et al. (2013) performed a study examining children's stories through play. The participants included children experiencing treatment for current illnesses, siblings of children with diagnosed chronic illnesses, and healthy children. Participants received one of several prompts at the beginning of their play session (e.g. "tell me about the story you are playing"). Medical items were present during the interview and

play session. Results of participants with medical illnesses indicated that many play stories reverted back to an individual's personal medical experience. Themes of support and fear were also revealed throughout play. Many participants provided the doll or "patient" with support, which suggests positive coping techniques to coders. Fear was predominately seen during role reversal through play. Participants displayed fear of pain and needles as demonstrated by administering shots to their dolls and using words such as "hurt" and "big shot". Participants went as far to assign labels such as "mean" or "evil" to doctors during their play sessions. These results display the power of play in allowing children to process medical experiences safely, express themselves, and develop positive coping techniques (Nabors et al., 2013).

Previous research on pretend play suggests the positive impact it has on decreasing fear, anxiety, and stress in children undergoing medical procedures (Potasz et al., 2013; Bloch & Toker, 2008; Nabors et al., 2013). Children and caregivers reported lower levels of distress and anxiety following medical procedures whey pretend play was experienced prior to procedures (Potasz et al., 2013; Bloch & Toker, 2008; Nabors et al., 2013). Yet, the aforementioned studies reveal the presence of fear, anxiety, and stress in both caregivers and patients when children are undergoing medical procedures (Potasz et al., 2013; Bloch & Toker, 2008; Nabors et al., 2013). The control groups for Potasz et al. (2013) and Bloch and Toker (2008) demonstrated higher anxiety and stress levels. Children displayed more negative verbal expressions when medical items were present during Nabors et al. (2013) interview. These findings suggest that medical aspects can elicit a variety of emotions, such as increased coping during play or fear or negativity in the setting. There is a need to further understand the emotions that children have during medical experiences, including play with medical items.

Medical Play

Medical play is defined as play in which a medical theme prevails and an environment for exploration of medical items is cultivated (McCue, 1988). Four central themes comprise medical play. This type of play incorporates medical equipment or a medical theme. The play is child directed, but the adult can create the medical play opportunity. Medical play can often be an enjoyable experience. Lastly, medical play creates opportunities for exploration, mastery of concepts, emotional expression, and control (McCue, 1988). A child life specialist commonly conducts medical play in order to normalize medical settings and medical equipment to children (Burns-Nader, 2016).

McCue (1988) identifies four types of medical play. The first type is role rehearsal/role reversal medical play, and this type provides children an opportunity to explore medical equipment and play out medical events. During role rehearsal/role reversal, children often play the role of the physician and perform procedures on stuffed animals. The second type of medical play is medical fantasy play, and it also allows for role rehearsal. This play, however, does not require medical equipment. Medical equipment is often present, but many children may use more familiar objects, like blocks, in place of medical objects. A third type of medical play is indirect medical play during which role-play is not present. During indirect medical play, children can become familiarized and educated on various types of medical equipment and procedures. Children can put together a puzzle with a medical theme or use medical equipment in alternative ways. The fourth type of medical play is known as medical art. This particular type of play allows for freedom of expression and control through painting, drawing, or modeling using a medical theme or medical equipment (McCue, 1988).

Similarities between typical pretend play and medical play exist (McCue, 1988). Like pretend play, medical play can possess meaning and symbolism. Pretend play and medical play

are both voluntary meaning the child seizes the play opportunity. Both types of play can be a pleasurable experience for children. Yet, medical play is often more intentional than pretend play. Similar to pretend play, medical play familiarizes an individual with a variety of objects through exploration and manipulation (McCue, 1988).

Medical play can reduce anxiety, negative affect, and distress behaviors in children (Burns-Nader, 2016). Wee, Chan, Li, Liam, and Hong-Gu (2014) conducted a pilot study on play and its effect on the emotional states of pediatric preoperative patients. The intervention group engaged in play with medical items in addition to receiving standard medical care. The control group solely received standard medical care. Pretests and post-tests were facilitated in order to determine differences in emotion and anxiety. Results depicted a difference in preoperative anxiety between groups. Patients in the play intervention group reported 24% lower levels of anxiety than the control group. The intervention group expressed fewer negative emotions before the operation. In addition, participants in the control group reported higher levels of pain following the operation. These findings illustrate the effects medical play can have on anxiety, negative emotions, and pain in children (Wee et al., 2014).

Moore, Bennett, Dietrich, and Wells (2015) also examined children's medical play in a pilot study. Participants were children three to seven years of age undergoing their first burn care procedure. Directed medical play was introduced in the experimental group. During the medical play intervention, participants were allowed to play with and manipulate all of the medical materials that would be present during the procedure. Pediatric patients in the intervention group expressed overall lower distress behaviors during the burn wound care procedure, and they reported the same or lower pain scores after the procedure. Parents of participants in the intervention group reported less anxiety before the procedure and higher healthcare satisfaction.

These results indicate the advantages and effectiveness of medical play (Moore, Bennett, Dietrich, & Wells, 2015).

Duffin and Walker (2012) conducted a case study during which role reversal and medical art opportunities were provided to an adolescent pediatric patient. Through exposure to the medical supplies, the patient became more familiar with medical items like a syringe. The patient had the opportunity to practice procedures utilizing a syringe through role reversal during medical play. The familiarization allowed the patient to become desensitized to the item. This was seen through the decrease in display of fearful behaviors while using the syringe. The medical play built confidence and a sense of mastery for the patient during procedures, which, in turn, lead to less fear and anxiety (Duffin & Walker, 2012).

Medical play provides children with the opportunity to explore medical items, engage in medical situations, and express their feelings throughout the process. Studies conducted by Bloch and Toker (2008), Duffin and Walker (2012), Nabors et al. (2013), and Moore et al. (2015) indicate the relevance for medical play. As McCue (1988) points out, all medical play is not used for preparation. There is a gap in the research conducted on medical play outside of the hospital setting. Furthermore, there is a gap in the literature examining children's emotions and affect during medical play. More research on general medical play is needed to provide insight to children's existing medical knowledge, affect, and baseline emotions. Observation of play can provide relevant information on an individual's prior experiences (Thompson, 2008).

Present Investigation

The present investigation explored medical play outside of the hospital setting in order to provide insight into non-hospitalized children's affect regarding medical play and the use of pretend play qualities, such as elaboration of play, during medical play. In addition, affect

displayed in medical pretend play will be compared to a non-medical themed pretend play encounter to explore differences. Differences in feelings during play were examined. It was hypothesized that less positive affect will be observed and self-reported during the medical play sessions. The second hypothesis was that a larger variety of affect would be observed during the medical play sessions.

CHAPTER 2

METHODOLOGY

Participants

The participants for this study consisted of 37 preschool children, 3 to 4 years old. Participants were recruited from mixed aged classrooms at the University of Alabama Children's Program. The Children's Program serves children and families who are predominantly middle to upper middle in terms of socioeconomic status. Participants who were not physically able to participate were excluded from this study.

Descriptive statistics were run to determine the demographic characteristics of the sample. Eighteen female and 19 male children participated in the current investigation. Sixteen participants were three years of age, while 21 participants were four years of age (m = 3.57, SD = .502). As for race, 32 participants were white, two participants were black, and three participants were a race other than white or black.

Procedure

The researcher spent two hours in each mixed aged classroom at the Children's Program in order to familiarize potential participants with the researcher. Thirty-seven participants were recruited to participate. Guardian consent and participant assent was obtained. The study used a within subjects design with each participant participating in a non-medical themed pretend play session and a medical pretend play session. Play sessions lasted approximately 10 minutes and were videotaped. The non-medical themed pretend play and medical pretend play sessions were counterbalanced. The first 15 participants received the non-medical themed pretend play session,

and the medical pretend play session was conducted with these participants between 48-72 hours later. The next 15 participants received the medical pretend play session first, and the non-medical themed pretend play session was conducted between 48-72 hours later. The play sessions alternated between initial non-medical themed pretend play and initial medical pretend play for the next 7 participants.

The researcher presented the supplies needed for each play session and prompted the play at the beginning of each play session. Children's feelings were reported using a facial analog scale after the play session. The videotapes were coded for behaviors and affect displayed during the play sessions. The Principal Investigator and research assistants coded the videos to assess the affect displayed in pretend play sessions. The research assistant was trained on the coding scale and inner rater reliability was established.

Non-Medical Pretend Play Session

Each participant had access to props for pizza making including felt cut into different shapes for toppings, shredded paper for cheese, play dough for pizza dough, a pizza box, and an apron for the non-medical pretend play. This play session is also known as pizza play. The researcher started the pizza play session by saying, "Today we are going to play with these items. Do you know what these items make? I'll be the person coming to eat pizza, and you can be person making pizza. Which item should we play with first? Remember to talk out loud while you are making the pizza so I can follow along." This script was used in order to elicit expression from the participant. At the end of the pretend play session, the researcher thanked the participant for playing with her. The participant was escorted back to his or her classroom.

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Medical Pretend Play Session

Each participant had access to tongue depressors, gauze, Band-Aids, blood pressure cuff, mask, stethoscope, medical buddy, and a reflex hammer. This play session will begin with "Today we are going to play with these times. Do you know what these items do? Which object should we play with first? I'll be the patient and you can be the doctor. Which item should we play with first? Remember to talk out loud so I can follow along." The researcher assigned the participant the doctor role first in order to elicit expression from the participant. At the end of the play session, the researcher thanked the participant for playing with her. The participant was escorted back to his or her classroom.

The researcher presented the supplies needed for each play session and prompted the play at the beginning of each play session. Children's feelings were reported using a facial analog scale after the play session. The videotapes were coded for behaviors and affect displayed during the play sessions. The Principal Investigator and research assistants coded the videos to assess the affect displayed in pretend play sessions. The research assistant was trained on the coding scale and inner rater reliability was established.

Assessments

I. Parent Scale

1) Demographic Information

Each participant's parent or guardian provided demographic information about the participant. The demographic information included age and gender.

II. Child Assessment

1) Affect in Play Scale-Preschool (APS-P; Kaugars & Russ, 2009)

Participants' pizza and medical pretend play sessions were videotaped, and each participant's play was scored using the APS-P. The APS-P is a measure used to assess the affect displayed in pretend play sessions. The APS-P measures six main components of behavior. The first category is frequency of affect expression, measuring the number of times affect was expressed by the child. An example of affect may be a look of excitement or happiness. The second category is overall positive expression, and it measures the amount of positive affect expressed by the child. The third category is overall negative expression. It measures the amount of negative affect expressed by the child.

The fourth category is the variety of affect expression. This category examines the different types of affect expressed out of 10 types of affect during the 10-minute play session. The 10 types of affect included happiness/pleasure, anger/aggression, sadness/hurt, nurturance/affection, anxiety/fear, oral, oral aggression, sexual, competition, and frustration/disappointment/dislike. For this category, scores vary from 0 to 10 depending on the number of types of affect the child displayed during the play session. A score of 10 would suggest that all types of affect were displayed during the play session.

The fifth category measured by the APS-P is the quality of fantasy. The overall quality of fantasy score consisted of an average of sub scores for elaboration, imagination, and organization. Elaboration included the amount of details or sounds incorporated into the play.

Imagination included using real items as pretend items (i.e. play dough as pizza dough). Organization included the amount of planning or preparation that went into play (i.e. rolling out the pizza dough; placing toppings on dough; cooking pizza; cutting and eating pizza). Sub scores were given on a scale of 1-5. One represented the lowest number meaning no imagination took place during the play. Five represented the highest number meaning the participant used imagination throughout the play session. The numbers in between varied from low to high presence of elaboration, imagination, and organization. The final category of measurement was level of comfort throughout the 10-minute play session. Comfort also utilized the 1-5 scale described above. A score of 1 indicated the participant was not actively involved nor did he or she enjoy the play session. Also, a limited number of materials were utilized throughout play. A score of 5 indicated the participant showed visible signs of involvement and enjoyment, and at least 4 of the materials provided were used during throughout the play session (Kaugars & Russ, 2009; Wallace & Russ, 2015).

The APS-P version has been tested to ensure validity and reliability in children four to five years old. Fehr and Russ (2014) examined construct validity and reliability for the scale. This study compared scores from the APS-P to scores of the Affect in Play Scale-Preschool-Brief Rating (APS-P-BR) and the Preschool Social Behavior Scale-Teacher Report (PSBS-T). The APS-P-BR examines the same six categories of the APS-P but in real time. The PSBS-T is a questionnaire that assesses aggression and prosocial behaviors that children display in the classroom through teacher reports. Reliability was found due to the high correlation established between scores on the APS-P and the APS-P-BR on imagination, organization, comfort, total affect, positive affect, negative affect, and undefined affect, resulting from .80 to .92. Correlation

coefficients between the APS-P and the PSBS-T ranged from 0.25 (aggression behavior to .32 (physical aggression) providing evidence for validity (Fehr & Russ, 2014).

Two coders were trained on the APS-P and its scoring procedure. After the training, the two coders scored one video. Videos were scored in 20-second intervals. Scores and inconsistencies were discussed until agreement reached after each 20-second interval. Then, the two coders scored three additional videos on their own to examine reliability. Using Intra-Class Correlation, a high degree of reliability was found between the three measurements of the two coders. The average measure Intra-Class Correlation was .90 with a 95% confidence interval from 0.81 to 0.95, ($F(32) = 10.19$, $p < .001$). For reliability purposes, the primary coder, scored all videos, and the secondary coder scored 20% of the videos (n = 15). A high degree of reliability was found between the 15 measurements of the two coders on total affect. The average measure Intra-Class Correlation was .91 with a 95% confidence interval from 0.72 to 0.97, ($F(14) = 12.06$, $p <.001$).

2) Visual Analog Scale of Feeling

Visual analog scales have been shown to be reliable and valid for children ages 3-8 (Wong & Baker, 1988). The adapted scale was a visual analog scale of children's feelings. It was a self-reported facial scale with five facial expressions. After each play session, medical and pretend, child participants were asked to select a face that represented how they felt while they played. The first face depicted a very happy smiling face, while the last face was sad and tearful. The three faces in between represent varying degrees of sadness. The five faces denoted a number from one to five: one being the first face and five the last face. At the end of the play session, the researcher presented the participant with the card with the Visual Analog Scale of Feeling and asked the child, "Which face is how you felt while you played today? Were you very

happy? Were you a little happy? Were you not happy or sad? Were you a little sad? Were you very sad? Can you point to which face you were?" Once the participant selected his or her face, the researcher recorded the corresponding score.

CHAPTER 3

RESULTS

Affect in Play

A paired samples t-test was performed to examine the difference in total affect scores during non-medical themed pretend play compared to medical pretend play. A significant difference between the two means was found, $t(36) = 2.44$, $p = .02$, with more affect shown during the non-medical themed pretend play ($m = 88.57$, SD = 25.22) than the medical themed play ($m = 77.41$, SD = 23.90). Therefore, more expression occurred while playing with the non-medical themed items than the medical items.

A paired samples t-test was conducted in order to examine the differences between the frequency of positive affect displayed during non-medical themed pretend play compared to the frequency of positive affect during the medical pretend play. There was no significant difference, $t(36) = .99$, $p = .33$, between the means of the medical pretend play group ($m = 18.68$, SD = 13.58) and the means of the non-medical themed pretend play group ($m = 21.16$, SD = 17.71). Therefore, the first hypothesis is not supported, as there was not a difference in positive affect seen within the different types of play.

A paired samples t-test was conducted in order to examine the differences between the frequency of negative affect displayed in non-medical themed pretend play compared to during the medical pretend play. There was no significant difference, $t(36) = -.30$, $p = .76$, between the means of the medical pretend play group ($m = 2.41$, SD = 3.22) and the means of the non-medical themed pretend play group ($m = 2.62$, SD = 3.37). See Table 1.

Table 1.
Affect in Play Scale-Preschool (APS-P) Scores for Non-medical Themed Pretend Play and Medical Pretend Play.

Affect	**Non-Medical (SD)**	**Medical Play (SD)**	***p*-value**
Frequency of Affect	85.57 (25.22)	77.41 (23.89)	.020*
Frequency of Positive Expression	21.16 (17.71)	18.68 (13.58)	.328
Frequency of Negative Expression	2.41 (3.22)	2.62 (3.37)	.764
Mean Fantasy	3.68 (0.92)	2.83 (1.11)	.000*
Mean Imagination	3.76 (1.04)	3.14 (1.08)	.004*
Mean Organization	3.81 (0.91)	2.57 (1.19)	.000*
Mean Elaboration	3.46 (1.10)	2.78 (1.27)	.001*
Comfort	4.27 (0.77)	3.86 (1.00)	.005*
Frequency No Play	1.92 (2.03)	5.89 (3.89)	.000*
Frequency Functional Play	3.22 (3.21)	5.05 (4.73)	.072
Frequency Pretend Play	24.11 (4.79)	16.65 (6.21)	.000*
Length of Play	9.58 (0.86)	8.99 (1.67)	.012*

Fantasy Play

A paired samples t-test was conducted in order to examine the quality of fantasy displayed during the non-medical themed pretend play session compared to during the medical pretend play session. A significant difference between the two means was found ($t(36) = 5.54$, $p < .001$) with higher levels of fantasy displayed during the non-medical themed pretend play ($m = 3.68$, SD = 0.92) than the medical pretend play ($m = 2.83$, SD = 1.11).

Differences in the scores of the subscales of fantasy play category were explored. A paired samples t-test was performed in order to examine the differences between the type of elaboration displayed during non-medical themed pretend play compared to the elaboration displayed during medical pretend play. A significant difference between the two means was found, $t(36) = 3.80$, $p = .001$, with more elaboration being demonstrated during non-medical themed pretend play ($m = 3.46$, SD = 1.10) than during medical pretend play ($m = 2.78$, SD =

1.27). Thus, the non-medical themed pretend play was more detail oriented than the medical pretend play.

A paired samples t-test was conducted in order to examine the imagination expressed during the non-medical themed pretend play session compared to during the medical pretend play session. A significant difference between the two means was found ($t(36) = 3.13$, $p = .004$) with more elaboration expressed play during non-medical themed pretend play ($m = 3.76$, SD = 1.04) than the medical pretend play ($m = 3.14$, SD = 1.08). Therefore, more imagination was utilized with the non-medical themed pretend play.

A paired samples t-test was conducted in order to examine the organization displayed during the non-medical pretend play session compared to during the medical pretend play session. A significant difference between the two means was found ($t(36) = 7.01$, $p < .001$) with more organization demonstrated during non-medical themed pretend play ($m = 3.81$, SD = 0.91) than the medical pretend play ($m = 2.57$, SD = 1.91), suggesting that more organization was found in the non-medical pretend play.

Variety of Affect in Play

A paired samples t-test was utilized to examine the differences of the variety of affect in non-medical themed pretend play compared to the variety of affect in medical pretend play. There were not significant differences in the variety scores for non-medical pretend play, ($m = 2.82$, SD = 0.97) and the variety of scores for medical pretend play, ($m = 3.16$, SD = 1.14); $t(36) = 1.43$, $p = 0.16$.

Comfort During Play

A paired samples t-test was conducted to examine the differences in the amount of comfort displayed by the participants during non-medical pretend play as compared to the

comfort displayed during medical pretend play. A significant difference was found between the two means, $t(36) = 2.96$, $p = .005$, with higher levels of comfort displayed during non-medical themed pretend play ($m = 4.27$, SD = 0.77) than medical pretend play ($m = 3.86$, SD = 1.00).

Frequency of Play

A paired samples t-test was conducted in order to examine the differences of the amount of intervals without play during the non-medical themed pretend play session compared to during the medical pretend play session. A significant difference between the two means was found ($t(36) = -5.97$ $p < .001$) with more periods of no play during the medical pretend play sessions ($m = 5.89$, SD = 3.89) than the non-medical themed pretend play sessions ($m = 1.92$, SD = 2.03).

A paired samples t-test was conducted in order to examine the differences of the amount of intervals with functional play during the non-medical themed pretend play session compared to during the medical pretend play session. There was no significant difference, $t(36) = -1.85$ $p = .072$), between the means of non-medical themed pretend play group ($m = 3.22$, SD = 3.21) and the medical pretend play group ($m = 5.10$, SD = 4.73).

A paired samples t-test was conducted in order to examine the differences of the amount of intervals with pretend play during the non-medical pretend play session compared to during the medical pretend play session. A significant difference between the two means was found ($t(36) = 6.43$ $p < .001$) with more periods pretend play during the non-medical themed pretend play ($m = 24.11$, SD = 4.80) than the medical pretend play ($m = 16.65$, SD = 6.21).

Feelings During Play

A paired samples t-test was conducted in order to examine the differences of self-reported feelings during the non-medical themed pretend play session compared to during the

medical pretend play session. A significant difference between the two means was found ($t(32) = -3.26$, $p = .003$) with more negative emotions reported during medical pretend play ($m = 2.48$, SD = .28) than the non-medical themed pretend play ($m = 1.55$, SD = 1.00).

Length of Play

The length of each play session was recorded. A paired samples t-test was performed to examine the differences in the length of time spent playing by participants between the non-medical themed pretend play and medical pretend play sessions. A significant difference between the two means was found ($t(36) = -2.66$, $p = .012$) with longer play time utilized during non-medical themed pretend play ($m = .959$, SD = .86) than medical pretend play ($m = .899$, SD = 1.67).

CHAPTER 4

DISCUSSION

The purpose of this study was to examine the differences between non-medical themed pretend play and medical pretend play through affect. The current investigation provided children, 3 and 4 years of age, with two different play opportunities. One play opportunity was pretend play using the non-medical theme of a pizza parlor. The second play opportunity was playing doctor, and this was considered medical pretend play. Therefore, children's responses to medical themes could be assessed in comparison to their responses to more familiar themes commonly found in pretend play.

Overall, the findings did not support the first hypothesis and did not indicate any differences in expression of positive affect in non-medical themed pretend play and medical pretend play. McCue (1988) explains that medical play provides hospitalized children an opportunity for expression, control, and mastery. Similar to pretend play, medical play is also meant to be a voluntary and pleasurable experience (McCue, 1988). Play with a medical theme is meant to provide normalization and promote positivity. Future investigations in which fear of medical items is assessed before and after play could provide more insight into this finding.

Results from the current study support the difference in the total affect displayed between the non-medical themed pretend play and medical pretend play sessions. However, the difference indicated more affect displayed during non-medical themed pretend play than medical pretend play. The increased display of affect during non-medical themed pretend play does not support the original hypothesis in regard to the amount of affect displayed during medical pretend play.

Yet, children's decreased amount of affect expressed during medical play may be due to their association with medical objects. Henricks (2014) explains that the expression, or lack thereof, of affect is associated with an awareness of one's immediate surroundings with the use of the five senses. Children's sensory systems allow them to evaluate a situation as pleasant or less positive (Henricks, 2014). In this regard, participants may have evaluated the play scenario with medical objects as unpleasant or less positive than the pizza play. Thus, they expressed less affect due to their association of the objects with negative or unpleasant experience, such as feeling pain after a shot.

The level of comfort of the participants during non-medical themed pretend play and medical pretend play was also examined separately within this study. Results were consistent with Henricks (2014) insight, and higher levels of comfort were displayed during the non-medical themed pretend play. This means that children were more actively engaged in the pizza play and demonstrated more tangible signs of pleasure throughout this play session. Results also indicated that participants played longer with pizza items than medical items. Higher levels of comfort could have been due to children's positive association with non-medical themed pretend play items. The participants knew that these items would not hurt them. Previous positive experiences indicated that the objects were not threatening to participants, and, thus, increasing their efforts of play (Henricks, 2014). The increased level of comfort with these items could have been a contributing factor to the difference in duration of play exhibited between non-medical themed pretend play and medical pretend play sessions. The participants had a more enjoyable experience with the pizza play materials, and they wanted to play longer with them as compared to the medical play materials. This idea is further supported with the finding that participants displayed more positive feelings during pizza play.

Child life specialists engage patients in pretend play as a form of normalization to the novel hospital environment. This is a way child life specialists initially engage, build rapport, and begin communication with patients. The results from the current investigation imply that children feel more comfortable with pretend play items then medical play items, and the results reiterate the importance of pretend play in the hospital setting.

Imagination, elaboration, and organization comprised the element of quality of fantasy assessed in non-medical themed pretend play and medical themed pretend play sessions. The overall quality of fantasy was higher in non-medical themed pretend play than medical pretend play. This suggests the participants felt free to explore the non-medical themed pretend play items in a variety of capacities. The pizza and medical play objects served as tools of play, but they also served as toys to the participants. According to Smirnova (2011), a toy allows a child to go beyond physical limits to experience reality in a greater way. Children utilize toys as a mechanism to transform or explore their feelings as the toy transforms into something else (Smirnova, 2011). In the case of the current study, play dough became pizza dough; a cardboard box became a pizza oven. Smirnova's (2011) results found that 80% of the five to five and half year old participants selected a familiar toy when given the option. Considering this, the familiarity of the pizza play items may have allowed the participants to view these items as toys rather than tools of play. Smirvona (2011) also found interactive toys such as dolls with faces evoked more imagination and engagement during play sessions. In the present study, the children had the possibility to engage in play with a doll during the medical play session. However, the medical doll used contained medical components that are not found in other dolls. If children desire to play with more familiar toys, than the medical doll would not be considered familiar, potentially impacting the quality of fantasy during the play.

Child life specialists often use dolls as a teaching toy during medical play with patients. Often familiar dolls such as Barbie's or baby dolls are utilized with added medical components. For example, a baby doll may be given an ostomy bag or a Barbie may have lost her hair. Specialists utilize these familiar toys as a way of engaging patients and helping them learn about their diagnosis, medication side effect, or procedure through play. Smironva's (2011) findings and the findings from the current study indicate the importance of the use of familiar toys as a means to involve children and fantastical aspects during play.

Participants' feelings toward play were measured after each play session, both non-medical themed pretend and medical pretend. Results from the current investigation imply that the participants felt more negative emotions after the medical pretend play. This finding is consistent with previous research on emotion regulation conducted by Dixon-Gordon, Aldao, and De Los Reyes (2015). Research found that higher emotional intensity scenarios provoke greater emotion regulation behaviors in individuals. The feeling of sadness, in particular, prompts the need for an individual to engage in more emotion regulation behaviors. In scenarios with higher levels of sadness, participants became passive throughout the scenario and even avoidant of the scenario at times (Dixon-Gordon et al., 2015). Participants in the current study selected more negative feelings following medical pretend play, and they engaged in less play and less pretend play during medical pretend play sessions. Similar to Dixon-Gordon et al.'s (2015) findings, the participants in this study became more passive and avoidant of the medical pretend play than the non-medical themed pretend play.

Medical play can serve an excellent opportunity for child life specialists to learn more about a patient's feelings and understanding of his or her medical surroundings. A patient may be

avoidant of a particular piece of medical equipment or be fearful of a large medical item that does not inflict pain. Child life specialists work with patients to enhance their understanding and purpose of medical items in order to decrease the sadness and anxiety associated with them. Throughout this process of learning, patients begin to exhibit mastery of a medical concept or procedure. This can, in turn, increase coping and compliance during and after procedures.

Limitations

Although the appropriate sample size was met for the implementation of the APS-P scale, limitations to this component of the study do exist. It was a smaller sample for an experimental study of 37 participants. The sample was also homogenous in nature. All participants were recruited from the same preschool, and many participants were of similar socioeconomic status and race. Furthermore, this study explored medical themes with non-hospitalized children. These components of the recruited sample limit the generalizability of the results to a more diverse and hospitalized population.

In addition, the APS-P is a subjective measure in which affect can be studied for children 4-5 years of age. This study included children 3-4 years of age. Therefore, measurement validity was difficult to establish within the results of the current study. With a subjective measure, it is impossible to control for bias, and, therefore, it is important to note this as a limitation to the study. In addition, the APS-P did not measure fear, and the participants did not report their fear before or after each play session. Instead, they reported their feelings. Thus, the researcher did not know how much fear each participant had before each play session.

Basic demographic information was collected from the participants at the beginning of the study. However, information on medical history such as a chronic illness or previous hospitalizations was not collected from the participants. Results may have been affected by this

confounding information that was not accounted for from the participants. For example, participants with several previous hospitalizations may be more comfortable with medical pretend play items than children without prior hospital admissions. It is possible the participant's fear or previous medical history could have had an effect on his or her affect expression during the medical pretend play sessions.

Future Investigations

To date, no studies have examined the differences in affect between pretend play and medical play themes. The display of affect consists of many different emotions and thought processes. Similarly, many different details can be found in an individual's play. The length of play, emotional expression, and communication during play are all informative characteristics about an individuals thoughts and feelings. The use of play in regards to medical themes can be informative and therapeutic. More research is needed on play with medical themes to provide a greater understanding of children's baseline feelings toward medical themes.

Future research should take sample size, reports of fear, and the subjective nature of the APS-P into consideration. Further investigations should include a larger and more diverse sample for study. Participants from a variety of preschools should be recruited in order to ensure fewer demographic discrepancies such as race and SES. Also, a larger sample size could provide more reliable results or implications to the public population.

Further investigations should also include participants 5 years of age to increase validity of the APS-P scale. By including participants 5 years of age, a future study could also examine the differences in affect displayed by ages. Affect is a subjective variable, and, therefore, little research has examined it due to the difficulty of measuring such a variable. Yet, it is an important way children express their emotions and feelings. Additional research is needed to

learn more about the way children express themselves during play and their feelings toward medical themes. For example, it is unknown whether less affect is displayed in medical play for hospitalized children and non-hospitalized children. A future study should examine affect displayed in hospitalized children to further evaluate this.

Conclusions

The present investigation examined the differences in the expression of affect in children, 3 to 4 years of age, during non-medical themed pretend play and medical pretend play sessions. Results from this study indicated that children expressed more affect during pretend play sessions. Children were also more likely to exhibit qualities of fantasy such as imagination, organization, and elaboration during non-medical themed pretend play. Children engaged in more play, pretend play, and played longer during non-medical themed pretend play. They also displayed higher levels of comfort during non-medical themed pretend play as opposed to medical pretend play. Furthermore, participants reported more negative feelings following medical pretend play than non-medical themed pretend play. The reasons for less affect are unknown, but they could be related to concepts that play with medical items is associated with feelings of unpleasantness (i.e., association of medical items with feelings of pain). Participants may be engaging in emotion regulation by displaying less affect and withdrawing from medical pretend play. The findings suggest the importance of child life specialists and others utilizing medical play to be sensitive to the cues children display through affect and recognize the need to provide opportunities for medical play in hopes of increasing normalization, providing education, and enhancing coping to the medical environment.

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APPENDIX

July 17, 2015

Office for Research

Institutional Review Board for the
Protection of Human Subjects

THE UNIVERSITY OF
ALABAMA
RESEARCH

Fairfax Davis
College of Human Environmental Sciences
The University of Alabama
Box 870160

Re: IRB # 15-0R-225-ME, "Differences in Affect through Med ical Play"

Dear Ms. Davis:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given exped ited approval accord ing to 45 CFR part 46. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, humanfactors evaluation, or quality assurance methodologies.

Your application will expire on July 16, 2016. If your research will continue beyond this date, please complete the relevant portions of the IRB Renewal Appl ication. If you wish to modify the application, please complete the Modification of an Approved Protocol Form. Changes in this study cannot be i n itiated without I RB approval, except when necessary to el i m inate apparent immediate hazards to partici pants. When the study closes, please complete the Request for Study Closure Form.

Please use reproductions of the IRB approved stamped consent and assent forms.

Should you need to submit any further correspondence regard ing this proposal, please include the above application num ber.

Good luck with your research.

Sincerely,

[redacted]

Carpanta to T. Myles, MSM, CIM, CIP
Director & Research Compliance Officer
Office for Research Compliance
The Uni versity of Alabama

358 Rose Administration Building
Box 870127
Tuscaloo sa. Alabama 35487-01 27
(205) 348-8461
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TOLL FREE (877) 820-3066

IRB Project #:

UNIVERSITY OF ALABAMA
INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS
REQUEST FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS

I. Identifying information

	Principal Investigator	Second Investigator	Third Investigator
Names:	Fairfax Davis	Dr. Sherwood Bums-Nader	
Department:	HDFS	HDFS	
College:	HES	HES	
University:	UA	UA	
Address:			
Telephone:	(662)386-5904	(205)348-6269	
FAX:			
E-mail:	mfdavis2@crimson.ua.edu	ebums@ches.ua.edu	

Title of Research Project: Differences in Affect through Medical Play

Date Submitted: 06-05-2015
Funding Source: None

Type of Proposal	181 New	O Revision	O Renewal Please attach a renewal application	O Completed	O Exempt
			Please attach a continuing review of studies form		
		Please enter the original IRB # at the top of the page			

UA faculty or staff member signature: [redacted] /12)/1 n /\ _____

II. **NOTIFICATION OF IRB ACTION** (to be completed by IRB):
Type of Review:_____Full board _K_ Expedited

IRB Action:
___Rejected Date:_____
___Tabled Pending Revisions Date:_____
___Approved Pending Revisions Date:_____
A Approved-this proposal complies with University and federal regulations for the protection of human subjects.
Approval is effective until the following date: 7-16-16
Items approved: _b Research protocol (dated 7-17-15)
Informed consent (dated 7-17-15)
Recruitment materials (dated_____)
Other (dated_____)

Approval signatur[redacted] Date 7/17/2015

Informed Consent (Parent Form)

Differences in Affect Through Medical Play

Investigators: Fairfax Davis, Graduate Student, HDFS, UA
Dr. Sherwood Bums-Nader, Assistant Professor, HDFS, UA

Description: You and your child are being asked to participate in a research study at the University of Alabama. The study will include children between the ages of 3 and 5, and around 35 children will be asked to participate in this study. You will be asked to complete a demographic questionnaire with questions about your child's age, ethnicity, and gender and your occupation. The questionnaire should take a maximum of 5 minutes to complete. The study is anticipated to take approximately 20 minutes per child broken into 2 different 10 minute sessions. Each child will participate in 2 different play sessions. During one 10 minute session, a child will play with sociodramatic play supplies (play dough, shredded paper, pizza box, felt toppings, apron). The child will play the pizza maker. During a second 10 minute session, a child will play with medical supplies (blood pressure cough, syringe, stethoscope, gauze, band aids, medical buddy, lab coat). The child will play the doctor. All play sessions will be video recorded.

Purpose: The purpose of this study is to explore play with medical items outside of the hospital setting in order to learn what children know about medical experiences. In addition, we hope to explore the differences in emotions displayed during play with medical items compared to play with non-medical items.

Risks or Benefits: We do not anticipate any risks for the participants of this study. Engaging in play with medical items can cause an increase in anxiety in children. As this study looks at children utilizing medical items through play, the children may experience some anxiety. A child may become anxious while playing with a syringe or tongue depressor. At most, it would be a minimal risk. There are no direct benefits for participants. The overall benefit of this study is a better understanding of children's existing medical knowledge, and children's affect toward medical supplies.

Voluntary Participation: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with The University of Alabama or the child development center your child attends.

Confidentiality: All records of this study will be kept private. Once you agree to be in the study, you and your child will be given an ID number. That number will be used on all of your and your child's information. We will keep the consent form separate from the data collected and store all of the paperwork in a locked file cabinet that can only be accessed by members of the research personnel.

Right to Withdraw: Withdrawal from the study is optional at any time without prejudice or negative effects. If you decide to participate, you and your child can decide to stop participating at any time. All you have to say is that you or your child do not want to continue, and we will stop.

UNIVERSITY OF ALABAMA IRB
CONSENTFORM APPROVED: .:/':1-1 >
EXPIRATION DATE: 1:/1.../t.

Investigator/Contacts: If you have questions about this project, please contact the PI, Fairfax Davis by phone (205) 348-6269 or by email at mfdavis2@crimson.ua.edu. If you have additional questions, you may also contact my faculty advisor, Dr. Sherwood Burns-Nader, by phone (205) 348-6269 or by email at eburns@ches.ua.edu. If you have questions, concerns, or complaints about your rights as a participant in this research project, you may contact Ms. Tanta Myles , the Research Compliance Officer at UA at (205)348-8461 or toll-free at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO Welcome.html or email at participantoutreach@bama.ua.edu. After you participate, you are encouraged to complete the survey for research participants that is online at the outreach website or you may ask the investigator for a copy of it and mail it to the University Office for Research Compliance, Box 870127, 358 Rose Administration Building, Tuscaloosa, AL 35487-0127.

I, , have read the above information, including the description of the study, risks and benefits for participation, confidentiality, and my right to withdraw. The investigator has explained the study, and I have received answers to my questions. I understand what the study involves. My signature below provides permission for my child to participate in the study and be videotaped during study sessions.

Signature of parent/guardian: _____ Date: _____ School: _____

Child's Name: _____ Birthdate: _____ Gender: _____

UNIVERSIn'OF ALABAMA IRB
CONSENT FORM APPROVED: 7-11.../J
EXPIRATION DATE: 7 I ...-/ /.

Differences in Affect Through Medical Play
Child's Assent Form

Investigators: Fairfax Davis, Master's Student, HDFS, UA
Dr. Sherwood Burns-Nader, Assistant Professor, HDFS, UA

Hi (child's name). My name is (experimenter's name). We are asking children like you to spend some time playing with us. You will get to use different items to make a pizza while we play. You will get to use d ifferent items you see at the doctor's office while we play doctor. Would you like to play with us now?

Child's Response:_____ Yes_No

Date:_____

Person reading the assent to the child:_____