



Game Therapy Studies: A Review and Meta-Analysis Sample

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Gaming is a natural process for the child, and with the play therapy technique used in this process, opportunities are offered to the child to express their problems and emotions by playing. Play therapy is used in many studies with children. The number of studies conducted on the effectiveness of play therapy in Turkey is increasing with each passing day. In this study, experimental graduate studies related to the play therapy education program from the past to the present (1987-2020) were examined and the results were brought together. A total number of 38 master's and 8 doctoral studies were reached in the YÖK (Council of Higher Education) thesis center related to the subject, but only 7 studies in accordance with the inclusion criteria were analyzed with meta-analysis method. While examining the postgraduate studies, care was taken toward the existence of an experimental and control group in which play therapy was applied. The studies in which play therapy was applied to the experimental group but not the control group were included in this study. In order to calculate the effect sizes, average (\bar{X}), standard deviation (SS) and sample size (N) values from master's theses were processed in the Excel program. Later, CMA (Comprehensive Meta Analysis) statistical program was used for the analysis required for the study, "Hedges's g" was used to calculate the effect size and the Excel program was used for the collection-processing of the data. As a result of the research, it was found that the effect size of play therapy on children's behaviors has an excellent effect size. It was concluded that 5 of the studies included in the study were excellently effective, 1 was moderately effective, and 1 was broadly effective. These limited studies provide information that play therapy has a positive effect on children.

Introduction

Play is a natural process for children. When the literature was examined, it was seen that the play was defined in different ways. When defining the play, Turkish Language Association (2020) defines the play as an entertainment that improves talent and intelligence,

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has certain rules, and helps to have a good time. Yavuzer (2005), on the other hand, defined the play as an activity that is done for having fun without thinking about the results. Play is a liberating action that gives children pleasure by distracting them from their daily worries, while at the same time allowing them to overcome their daily worries by bringing them into their play. Play is generally expressed as fun activities that start after the birth of the child and last for a lifetime, and which can be done sometimes purposefully and sometimes without purpose (Halmatov, 2018; Karanlı, 2016; Öğretir, 2008; Sezen Dursun, 2018; Whitebread, 2012).

Play, which is of great importance in a child's life, is one of the most important and reliable ways to understand and get to know a child. Because the child is in purest state during play. Plato drew attention to the fact that one hour of participating in a child's plays is enough to get to know and understand a child rather than being with him/her for years and the power of the play. The play has many effects on the child. Especially the healer, instructive and developer aspects make the game powerful. Although play is a good tool that reflects the inner world of the child, it also plays an effective role in the child's gaining insight. The contribution of the game to the development of mental status, metacognitive skills, healthy mood, language skills, representation and self-regulation skills comes to the forefront in many studies, and the game allows the child to use their creativity. Öğretir (2008) stated that the play is a natural tool for the child, and it is a tool that contributes to the development of the child's social and cognitive skills. While playing contributes to a good childhood and development of the child, it also helps to increase the child's motivation for learning. Play is an important tool that contributes to a child's physical, emotional, and mental well-being. When children play; they gain experience about life skills, problem-solving skills, communication skills, social skills, thinking skills, research skills, and self-direction and self-administration (Önder, 2018; Sutton-Smith, 2008; Tuğrul, 2019; VanFleet et al, 2020, p.35). Play for children is what verbal expressions are to adults. Play is the most natural way of expressing oneself and also the language of the child. The game allows the child to speak to us without words (Kaduson, 2019, p.11). Research about play is important in understanding the child's experiences and creating suitable environments for the child's development. It is important for parents and individuals working with children to have knowledge about play and play therapy in terms of establishing constructive communication with the child and realizing that play is a door to the child's inner world (Öğretir, 2008).

Many experts use play therapy as a method in order to recognize many problems that occur in children and to help children overcome them. VanFleet et al. (2020), stated that play enables children to reveal their experiences and provides relief in the emotional field and that it is understandable to use it in therapy. They also stated that play itself is also a therapy. Play therapy was first proposed by child psychotherapists Anna Freud, Margaret Lowenfeld, and Melanie Klein. When the studies are examined; it is seen that play therapy studies have become more prominent in recent years although there is not much history of play therapy in our country. The Play Therapy Association defines play therapy as "a powerful therapy method that helps children express their emotions and cope with their mental problems, as well as change their maladaptive behaviors, develop their self-esteem and establish healthy relationships". Wilson and Ryan (2005) stated that play is the process of creating intense relationship experiences between the therapist and the child, and play therapy is a communication tool in this process. When the literature is examined, it is seen that there are many types of play therapy. These include psycho-analytical play therapy, cognitive behavioral play therapy, developmental play therapy, child-centered play therapy, filial play therapy, gestalt play therapy, theraplay, jungcu play therapy, Ericksonian play therapy,



Adlerist play therapy. Play therapy should be planned in accordance with the development and characteristics of each child and should be selected from the types of play therapy (British Association of Play Therapists, 2020; Deniz, 2019; Koç and Yumru, 2019; Temizel, 2019). VanFleet and Faa-Thompson (2010) stated that one of the advantages of play therapy is that it does not require language or verbal expression in children because they stated that this activates the natural tendency of children to play, that children express themselves, communicate and solve problems more readily than the speech-oriented and more cognitive methods designed for adults.

There are many studies in the literature that show that play therapy has a positive effect on children's behavior. In a study of Schottelkorb et al. (2020), It was concluded that child-centered play therapy has a therapeutic effect on the social sensitivity, externalization problems, attention problems and aggression of children with autism. In a study of Uysal (2020); it was concluded that Theraplay play therapy has a healing effect on the emotional and behavioral problems of Syrian refugee children. Ahbab (2019) concluded that play therapy has a healing effect on children's anger problems. In a study of Blanco et al. (2019), titled as the effect of child-centered play therapy on the academic success of at-risk kindergarten students, concluded that child-centered play therapy has a positive effect on academic achievement. In the study of Ray et al. (2009), it was concluded that child-centered play therapy has a curative effect on the behaviors of children with aggressive behavior. In their study, Kılınç and Saltık (2018) concluded that the problematic behaviors previously seen in children participating in play therapy decreased after the therapy. Kockaya and Siyez (2017) concluded in their research that play therapy has a significant effect on children's shyness behaviors. Montemayor (2014) concluded that child-centered play therapy positively affects children with behavioral problems in the preschool period. Chinesh et al. (2013), concluded that play therapy has a positive effect on improving the social-emotional skills of children. Looking at the results of the relevant research, it is seen that play therapy is effective on children's emotional and behavioral problems, social skills, and developmental problems. In this study, the effect size of play therapy was tried to be calculated in thesis studies on play therapy and an answer was sought for the following question:

- What is the effect size of play therapy on dependent variables?

Method

Literature Review

Research data include graduate thesis about play therapy in Turkey. Sample selection was made with purposeful sampling method. Purposeful sampling is to conduct in-depth research by selecting information-rich situations depending on the purpose of the research. Purposeful sampling is a preferred sampling method when it is desired to work in one or more special situations that meet certain criteria or have certain characteristics (Koç Basaran, 2017). During the research, the words "oyun terapisi" in Turkish and "playtherapy" in English were used as key words on the YÖK (Higher Education Council) thesis page. A total of 46 studies from 1987 to 2020 were determined as a result of the screening. However, 7 studies that met the inclusion criteria were included in this meta-analysis study.

Inclusion criteria

The aim of this study is to identify postgraduate studies on play therapy that have been made in Turkey and reveal the general profile of these studies. It is aimed that all of the studies examined in this study are directed to play therapy. In a meta-analysis study, it is important to formulate the inclusion criteria for the respective studies. If inclusion criteria is kept very broad, the quality of the studies included may get weakened which would ultimately reduce the reliability of the output. If the inclusion criteria are kept strict, the results may be based on limited number of studies and generalisation would be more difficult (Lam and Kenedy, 2005). In this study, following criteria applied to avoid above two scenarios:

- Access to postgraduate theses in full text in YÖK (Higher Education Council) thesis database,
- Including numerical data that will enable the calculation of the effect sizes of the studies,
- The scales used in the studies contain total score data other than sub-dimensions,
- The language of the studies is Turkish or English,
- Studies containing the following keywords "oyun terapi" and "play therapy",
- The studies were conducted with children between the ages of 0-18,

In the meta-analysis study, the effect size of 7 studies that met these criteria was calculated.

Including Sufficient quantitative Data

In order to calculate effect sizes in meta-analysis studies, quantitative data are needed for the experimental and control groups of the studies (Göçmen, 2004). For this purpose, studies with sample size (N), mean (X), standard deviation (SD) values of the experimental and control groups were included in the meta-analysis study.

Coding

The purpose of this study is to reveal a general review about postgraduate studies on play therapy and to obtain data on the effectiveness levels of play therapy education / program used in these postgraduate studies. First of all, demographic information, effect size calculations and qualitative summaries of the examined postgraduate theses were carried out in the study. The coding method used in the study was collected under 2 headings. The first part includes the demographic characteristics of the research (author names, the year of the study, the institute / department where the study was conducted, the language of the study, dependent and independent variables, the result of the research). In the second part, sample size (N), mean (X) and standard deviation (SS) obtained from experimental and control groups were included in order to calculate the effect size. Expert opinion was sought during the coding stage of this study and following that the necessary analyses has been performed.

Effect Size Calculation

Effect size forms the basis of the meta-analysis and expresses the incidence of the phenomenon (Kural, 2020). For effect size values based on arithmetic averages, effect sizes are grouped in six groups as insignificant, small, medium, large, very broad and excellent.

In this study, X, SS and N values from theses were processed in Excel program to calculate the effect sizes. Then, CMA (Comprehensive Meta Analysis) statistics program was used for



the analysis required for the study. "Hedges's g" was used in the calculation of the effect size and Excel 2010 programs were used in the collection-processing of data. Results are given in Table 4.

Heterogeneity Test and Meta-Analysis Model Application

It is crucial to evaluate heterogeneity in meta-analysis study. Output of the heterogeneity test is very important as it is being used to determine the model for general impact calculation. If the p value is less than 0,05 or Q value is greater than the value corresponding to the df value in the chi-square table, it can be concluded that meta-analysis application has a heterogenous structure following the inclusion of the individual studies. That is, these studies are not of a similar nature. In this circumstance, the analysis should be performed under the random effects model (Dincer, 2004). In this study, heterogeneity analysis has been performed to determine which meta-analysis model to be used for the interpretation of study impact.

Table.1 Heterogeneity Analysis

Model	Impact size and %95 confidence interval						Test of null(2-Tail)		Heterogeneity			
	Number Studies	Point estimate	Standard error	Variance	Lower limit	Upper limit	Z-value	P-value	Q-value	df (Q)	P-value	I-squared
Fixed	7	1,242	0,148	0,022	0,952	1,531	8,405	0,000	22,579	6	0,001	73,426
Random	7	1,558	0,322	0,104	0,927	2,189	4,838	0,000				

Table 1 shows $p < 0,05$ ($p = 0,001$) which implies significant difference between the groups. Since study suggests heterogenous structure overall impact should be considered under the Random Impact Model.

Interpretation of Effect Size

The effect sizes obtained as a result of the meta-analysis can be interpreted according to the coefficient classification. "Hedge's g" was used in calculating the effect size in this study. The following classification was used to interpret the effect sizes in the study (Thalheimer and Cook, 2002):

- -0.15-0.15 insignificant
- 0.15-0.40 low
- 0.40 -0.75 moderate
- 0.75 -1.10 broad
- 1.10 -1.45 very broad
- 1.45 – excellent

Results

46 studies were compiled as a result of the scanning. The number of those who met the selection criteria among these studies was limited to 7. While screening, care was taken to for the presence of an experiment and control group in which play therapy was applied. This therapy was applied to the experimental group, but not to the control group. It is concluded that play therapy has an effect when the difference between these two groups is significant. The theses used are shown in Table 2. and Table 3.

Demographic Information

Table 2. General Summary of the Study

Variables		T1	T2	T3	T4	T5	T6	T7	TOTAL
Thesis Type	Master's thesis	X	X	X		X			57,14%
	Doctorate thesis				X		X	X	42,86%
Year of the Thesis	2011-2015				X			X	28,57%
	2016-2020	X	X	X		X	X		71,43%
Language of the Thesis	Turkish	X	X	X	X	X		X	85,71%
	English						X		14,29%
Institute	Institute of Social Sciences	X	X			X			42,86%
	Health Sciences Institute			X	X		X	X	57,14%
Department	Psychology Department		X			X			28,57%
	Clinical Psychology Department	X							14,29%
	Child Health and Disease Nursing				X			X	28,57%
	Physical Education and Sports Department						X		14,29%
	Child Development and Education Department			X					14,29%
Sample Group	0-18 years old children	X		X	X			X	57,14%
	Disabled children		X			X	X		42,86%
Model of the Thesis	Experimental		X	X	X	X	X	X	85,71%
	Semi Experimental	X							14,29%
Method of the Thesis	Qualitative	X	X	X	X	X	X	X	100,00%
The type of problem being studied in conjunction with Play Therapy	Behavior problems / disorders			X					10,00%
	Behavior Management				X				10,00%
	Anxiety / Separation Anxiety / Social Anxiety		X						10,00%
	Social Skill			X		X			20,00%
	Social cohesion and emotion regulation				X			X	20,00%
	Anger Problem	X							10,00%
	Family attitudes and academic success		X						10,00%
	Motor function, balance, functional independence, physical fitness							X	10,00%
Play Therapy Type	Child-centered play therapy		X						14,29%
	Play Therapy	X		X	X		X	X	71,43%
	Developmental Play Therapy					X			14,29%

A total of 46 studies were found as a result of the searching process conducted at the YÖK thesis center. The number of studies meeting the inclusion criteria in these studies was limited to 7. It is seen that 57.14% of the studies are master's thesis and 42.86% are doctoral thesis. In the studies, it is seen that 57.14% of the sample groups are children in the 0-18 age group, while 42.86% are disabled individuals. It is seen that 28.57% of the studies were conducted between 2011-2015 and 71.43% between 2015-2020. It is seen that 85.71% of the studies are experimental and 14.29% are semi-experimental. It is seen that 42.86% of the studies were worked in the Institute of Social Sciences and 57.24% in the Institute of Health Sciences. It is seen that most of the studies were studied in the Department of Psychology and the Department of Child Health and Disease Nursing (28.57%). It is seen that all of the studies are qualitative and 85.71% of them are published in Turkish. It is seen that 20% of the emotional / behavioral problem types examined together with play therapy in studies are social skills, social adaptation, and emotion regulation. Other types of problems are seen to be

behavioral problem / disorder, behavior management, anxiety, anger problem, family attitudes and academic achievement, motor function, balance, functional independence, physical fitness. Among the types of play therapy in the studies; it is seen that only play therapy is used with a ratio of 71.43%, child-centered play therapy with a ratio of 14.29% and developmental play therapy with a ratio of 14.29%.

Table 3. General Summary of Studies

Year	Author	Independent variable	Dependent variable	Sample Group	Tool	Result
2019	Afra Ahabab	Game Therapy	Anger problem	50 children aged between 5-12 years	State-Trait Anger Expression Inventory (STAXI)	The results showed significant improvements in anger problem measures based on both self-report and parental reporting in the therapy group.
2019	Gülşah Aydın Yeşilyurt	Child-Centered Play Therapy	Immediate, continuous and social anxiety, perceived parental attitudes, academic achievements and cognitive assessment systems	14 children diagnosed with special learning difficulties, their families, and teachers	Social Anxiety Scale for Children-Revised, The Instant-Trait Anxiety Inventory for Children (STAI-CH), Cognitive Assessment System, Parent Attitude Scale	Child-centered play therapy was found to be effective on anxiety levels, attention, and planning skills, and not on perceived family attitudes and academic success in children with specific learning difficulties.
2018	Nalan Saltık	Game(play) Therapy	Social skills and problem behaviors	8 children aged between 3-6 years	Preschool and Kindergarten Behavior Scale (PKBS-2), Social Skills Scale	Play therapy has been found to be effective on social skills and problem behaviors of children aged between 3-6 years.
2018	Gülden Öztürk Serter	Psycho-Education Program Based on Structured Play Therapy	Children's compliance with divorce and depression levels	16 children aged between 9-12 years	Divorce Adjustment Scale for Children, Depression Scale for Children	It was concluded that the psychoeducational program developed based on structured play therapy was effective in increasing the level of divorce adjustment of 9-12-year-old children whose parents divorced and also reduced their depression levels.
2017	Ayşe Bayam	Developmental Play Therapy	Social Skills and Language Development	35 children aged between 2-6 years	Ankara Development Screening Inventory (AGTE)	It has been concluded that children with autistic spectrum disorder between the ages of 2 and 6 have an increase in their language development

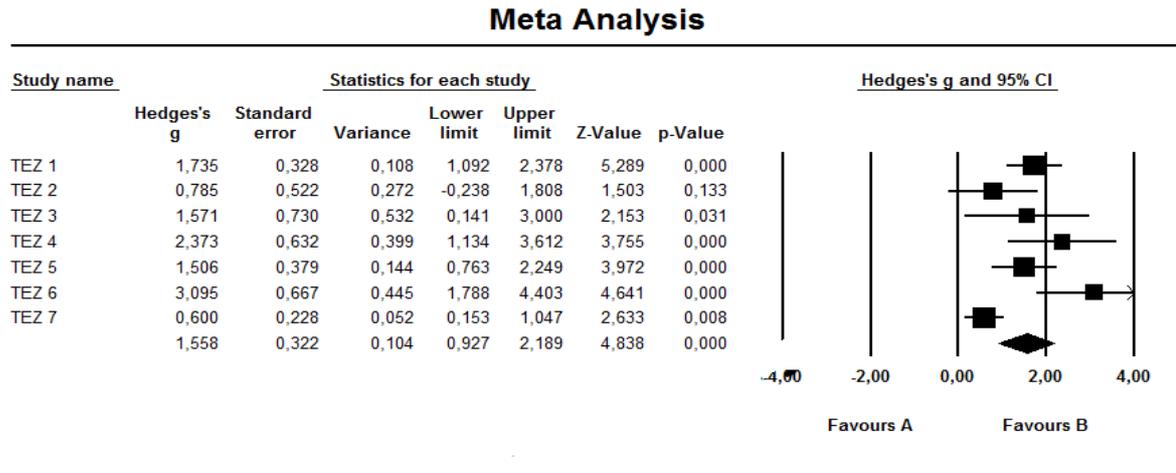
						and social skill levels as they receive play sessions.
2016	Ceylan Ece Ağlamış	Play Based Motor Activity Program	Physical therapy and rehabilitation programs	19 children aged between 6-10 years diagnosed with CP	Gross Motor Function Measurement (GMFM) Measuring Functional Independence Skills (WeeFIM) Presidential Physical Fitness Test	As a result, it is thought that the play-based motor activity program can be used in addition to physical therapy and rehabilitation programs in children with cerebral palsy.
2013	Emel Sezici	Play Therapy	Social, emotional, behavioral skills in preschool children	79 children aged between 4-5 years	Preschool Child and Family Identification Form, Social Competence and Behavior Evaluation Scale	It was concluded that play therapy increases social, emotional, and behavioral skills in preschool children.

The general summary of the master's theses examined within the scope of the research is given in Table 3 above.

Table 4. Effect Size Calculations

Number	Group	N	\bar{X}	SS	Hedges's g
1.	Experimental	25	13.40	2.16	1.735
	Control	25	10.52	0.82	
2.	Experimental	7	79.71	10.30	0.785
	Control	7	73.14	4.10	
3.	Experimental	4	91.66	7.30	1.571
	Control	4	68.50	16.6	
4.	Experimental	8	81.63	4.03	2.373
	Control	8	64.50	8.77	
5.	Experimental	20	6.00	2.47	1.506
	Control	15	2.47	2.02	
6.	Experimental	9	112.22	3.54	3.095
	Control	10	99.70	4.13	
7.	Experimental	39	48.948	5.78	0.600
	Control	40	44.85	7.60	
Total effect size:1,558 (Hedges's g)					

Table 5. Meta Analysis



Meta Analysis

It is aimed to obtain the average of effect size values obtained from each study used in meta-analysis. However, the mean value to be calculated in meta-analysis is not the arithmetic mean value. Since the sample size of each study used in meta-analysis is different, the contribution of each study to the general average is not the same. Weighted average is calculated in meta-analyzes considering the different sample sizes (Şen, 2019). When Table 4 is examined, it is seen that the effect size of play therapy is 1.558.

Table 6. Classification of Effect Sizes

Effect Size	F
-0.15-0.15 Insignificant	0
0.15-0.40 Low	0
0.40 -0.75 Moderate	1
0.75 -1.10 Broad	1
1.10 -1.45 Very Broad	0
≥1.45 - Excellent	5

When Table 6 is examined, it is seen that 5 studies have an excellent effect size, 1 study has a moderate effect size, and 1 study has a broad effect size.

Discussion

The number of studies conducted on the effectiveness of play therapy in Turkey is increasing every day. In this study, experimental graduate studies on play therapy education and program from the past to the present (1987-2020) were examined and the results were brought together. A total number of 38 master's thesis and 8 doctoral thesis studies were found in the YÖK (Higher Education Council) thesis center related to the subject, but 7 studies in accordance with the inclusion criteria were analyzed by meta-analysis method. As a result of the research, it was found that the effect size of play therapy on children's behaviors was 1.558 at excellent level. It was seen that 5 studies have an excellent effect size, 1 study has a moderate effect size, and 1 study has a broad effect size. These limited number of studies provide information that play therapy has a positive effect on children.

In the research of Blanco and Ray (2011), examining the effectiveness of child-centered play therapy in first year students with academic achievement risk, they stated that play therapy is



effective in increasing the academic success of children and the results of the research support the use of play therapy as an intervention program in academic success. In a study of Altun et al. (2019), it was concluded that developmental play therapy is effective in reducing post-traumatic stress symptoms of orphans and children in need of protection. In a study of Soniya et al. (2019), in which the effect of play therapy on anxiety was examined in hospitalized preschool children, it was concluded that play therapy is an inexpensive treatment used to reduce anxiety. In a study of Ray et al. (2009), it has been concluded that child-centered play therapy reduces children's aggressive behaviors. Schumann (2010) concluded that child-centered play therapy is effective in reducing children's aggressive behaviors. Swan and Ray (2014), after studying the effect of child-centered play therapy on the hyperactivity and nervousness behaviors of two children with mental disabilities, concluded that child-centered play therapy reduced the hyperactivity and irritability behaviors seen in children and improved their behavior. Hayati et al. (2014), in their study examining the effect of child-centered play therapy on the aggression level of children aged between 5-10 years, concluded that child-centered play therapy is effective in reducing children's aggression levels. As a result of their research, Iswinarti and Hidayah (2020) stated that group play therapy improves children's empathy skills and reduces aggressive behaviors. As a result of the research, it was concluded that play therapy has an excellent effect on children's behavior. When the literature is examined, studies show us that play therapy is effective in reducing aggression behavior, stress symptoms and anxiety seen in children, and also supports the result of our study.

When the literature is examined, meta-analysis studies on play therapy that support the results of the findings obtained within the scope of the study were encountered. In their meta-analysis study, LeBlanc and Ritchie (2001) examined 42 studies conducted between 1947 and 1996 and concluded that play therapy is as effective as non-play therapies in the treatment of children with emotional difficulties and reported the effect size as 0.66. Ray et al. (2015) examined 23 studies conducted between 1975 and 2011 in their meta-analysis study and concluded that school-based play therapy has small and medium statistically significant effect sizes on children's problem behaviors, internalizing and externalizing problem behaviors, self-efficacy, and academic achievement. Lin and Bratton (2015) examined 52 studies conducted between 1995 and 2010 in their meta-analytical study of child-centered play therapy approaches and concluded that the effect size of child-centered play therapy was moderate (0.47). Bratton et al. (2005) examined 93 studies conducted between 1953-2000 in their study on the effectiveness of behavioral play therapy and found the overall effect size as 0.80. Slade and Warne (2016) examined 10 studies that met the inclusion criteria in their meta-analytical study, where they examined the effectiveness of trauma-focused cognitive-behavioral therapy and play therapy to help victims of child abuse. As a result of their research, they concluded that play therapy is beneficial for child abuse victims, but cognitive-behavioral therapy is more effective throughout the study. They also stated that play therapy may be more effective in children with externalized behavioral problems.

Conclusion and Recommendations

When the results obtained within the scope of the study were examined, it was found that the effectiveness of play therapy studies was high. The results obtained in this meta-analysis study including master's thesis studies about play therapy that were registered in YÖK (Higher Education Council) thesis center in Turkey were found to be compatible with studies which were conducted abroad. This study is limited to the studies included in the analysis. This meta-analysis study, which has been conducted with very few studies, is thought to be a guide for further meta-analysis studies, especially on play therapy. In new



studies to be done, studies that will examine the effectiveness of play therapy studies in a more comprehensive way will be useful. Studies to reveal in which areas play therapy is more effective may be proactive for researchers. Studies to determine the factors that limit and increase the effect of play therapy in new studies will contribute to researchers and experts working on play therapy. Including statistical data in the play therapy studies will result more comprehensive meta-analysis work and more reliable results.

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