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COMPARISON OF FINE MOTOR SKILL LEVELS OF CHILDREN LIVING IN HOUSES OF LOVE AND CHILDREN LIVING WITH THEIR FAMILIES

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ABSTRACT

This study aims to evaluate the results of subtests in growth and development of children living in houses of love and to identify possible remedial measures for improved adaptation to the society in the future. The study group consisted of a total of 38 students attending primary and secondary schools affiliated to the Ministry of National Education in Trabzon city center (n:19) and residing in social services (n:19), selected by simple random method. This study is a causal comparative research. Firstly, a form consisting of questions related to the determination of demographic characteristics and then a hand function test including a series of subtests which are used to evaluate hand functions in daily life were implemented. Before the selection of the tests to be performed on the data obtained in the study, the Shapiro-Wilk normality test was conducted to check whether the error terms were normally distributed ($p>0.05$). For the scores obtained from the scale, the Independent samples t-test was utilized for pairwise comparisons, and the One-Way ANOVA and the Tukey HSD test were utilized for multiple comparisons. As a result, it was concluded that fine motor functions differed in boys and girls in this study and this difference was favorable for girls. It was also concluded that fine motor skills became strengthened with advancing age and that participants living with their families had higher fine motor skill scores. The idea that children living in houses of love may have difficulties in their independent lives in the future due to their inadequacies in hand skills has emerged.

Keywords: Psychomotor, orphan children, small muscle development.

INTRODUCTION

Although genetic factors play a role in child development, the results of studies indicate that the main variable that contributes is environmental factors. Lack of developmentally supportive experiences during this period may result in risk to the future developmental competencies of individuals (World Health Organization (WHO), 2012). Environmental risk refers to the conditions that prevent the child from maintaining a healthy development depending on the conditions of the environment in which the child lives. Environmental risk is characterized by features such as malnutrition, physical or psychological abuse, crowded family, lack of parents, frequent relocation, exposure to environmentally harmful substances, and lack of access to stimuli that support development (Wilson, 2003). In Türkiye, some of the children whose development is at risk due to environmental reasons are children in need of protection. The Ministry of Family, Labor and Social Policies provides accommodation for children who cannot stay with their families (Republic of Türkiye Ministry of Family, Labour and Social Services, 2023). One of these places, Sevgi Evleri (Houses of Love), is a type of social service organization established in Türkiye to provide care and protection for children aged 0-18.

The fact that a significant number of children are under protection in Türkiye highlights the importance of education for these children. Scientists have put forward the idea that it is important for human beings to be brought up in a family consisting of mother, father and siblings in order to have a healthy physical, mental and spiritual development (Yıldız, 2008). Children living in Houses of Love are usually from different backgrounds and have encountered various difficulties. These children experience various developmental and behavioral problems because they grow up in adverse conditions, especially at an early age. Problems that may arise in this process may affect the upcoming developmental periods and may result in health problems that are challenging to treat in inidviduals who are already in adulthood (Özlü et al., 2017). In the literature, being under institutional care is often equated with deprivation in terms of social and practical needs, and studies have demonstrated that children raised in institutions have developmental disorders and developmental delays in physical, cognitive, social and emotional domains (Smyke et al., 2007; MacLean, 2003). Living in institutional care has been characterized by a mixture of deprivations in social, perceptual, physical, mental and emotional domains (MacLean, 2003). Sloutsky (1997), when comparing children growing up in institutions with children growing up with their families, points out that developmental processes take place in completely different environments.

Compared to children living in institutional care, children living at home with their families have more opportunities to observe and explore a variety of objects both inside and outside the home. However, children living in institutions may not be able to have such an opportunity due to the insufficient number of staff and the possibility of self-harm. Restricting the exploration, play and social activities of children, especially in the early stages of development, or restricting them within firm limits and controlling them too tightly leads to the prevention of cognitive activities that are essential for development and learning (Sloutsky, 1997). Similarly, Morison, Ames, and Chisholm (1995 as cited in MacLean 2003) reported that 78% of orphanage children in Romania had developmental delays compared to their chronological age in the areas of personal-social

development, fine motor development, gross motor development and language development. There is also evidence that children living in institutional care display some delays in their physical development even after leaving the institution (MacLean, 2003).Therefore, there may be some differences in children's fine motor skills. Fine motor skills include activities that require hand-eye coordination using small muscle groups (Dehghan et al, 2017). Children's fine motor skills may develop depending on various factors. These include genetic predisposition, environmental factors, experiences in early childhood, and health status (Ayan, 2019; Gallahue and Ozmun, 2006). Factors such as past experiences, lack of care, traumatic experiences or neglect may affect the development of fine motor skills in children living in houses of love.

In addition, while children living with their parents usually grow up in an environment of constant care and interaction, children living in houses of love may interact with different caregivers. In this case, the development of children's fine motor skills may be affected. However, it is important to recognize that each child has individual differences and that generalizations do not cover all situations. It should be taken into account that each child develops and adapts at their own pace. Houses of Love offer a variety of programs and activities to support children's development and provide an environment that suits their needs. In this way, children are provided with opportunities to develop their fine motor skills and unleash their potential.

All these variables lead to differences in these two different populations of children in terms of individual, personal, skills and performance. Indeed, development is a whole with physical, social, emotional and social aspects. With this study, it is believed that it will contribute to the literature by increasing the recognition of houses of love, providing suggestions to the staff working with school-age children in houses of love for the development and support of children, and providing a guide for future research on the development of children living in houses of love in the field of school age and child development. Therefore, this study aims to evaluate the growth and development outcomes of children living in houses of love and to suggest possible remedial measures for improved adaptation to society in the future.

METHOD

Research Model

Quantitative research is a type of research that objectifies facts and events and presents them in an observable, measurable and numerically expressible way. Research in which observations and measurements can be repeated and made objectively is called quantitative (numerical) "Quantitative" research (Tremblay & Perrier, 2006). This study is a causal comparative research. Causal comparative research aims to determine the causes of an existing or naturally occurring situation or event and the variables influencing these causes, or the outcomes of an effect (Büyüköztürk et al., 2008). In causal comparative research, there are at least two groups affected in different ways by the same situation, or two groups affected and unaffected by the assumed situation, and these groups are examined in terms of certain variables to identify the possible causes and influencers of the current situation (Cohen and Manion, 1994). Causal comparative research is similar to experimental research in that it

attempts to explain cause-effect relationships. However, in these studies, unlike experimental research, the investigated situation arises without the researcher's manipulation. The researcher's aim is to identify the possible causes and influencers of this observed situation (Cohen and Manion, 1994; Büyüköztürk et al., 2008). Thus, as in experimental research, no designed environment or external intervention to manipulate variables is involved in determining cause-effect relationships. In line with this information, this research falls into a quantitative research type.

Population and Sampling

The study group consisted of 38 students in total. 19 students attended primary and secondary schools affiliated with the Ministry of National Education in Trabzon city center while living with their families (Group 1). The remaining 19 students resided in houses of love but also attended primary and secondary schools affiliated with the Ministry of National Education in Trabzon city center (Group 2). The selection of the group sizes was determined based on G-power statistics from a similar study conducted on similar groups. The selection of students for both groups was done using a simple random method. The data collection tool was applied on a voluntary basis. In addition, verbal consent was obtained from the children themselves and written consent was obtained from their parents.

Data Collection and Data Collection Tools

Firstly, a form consisting of questions about demographic characteristics and then the Jebsen Taylor hand function test, which includes a series of subtests used to evaluate hand function in daily life, was implemented (Jebsen et al., 1969). This test consists of tasks that involve commonly used conceptual types in daily life and assesses individuals' speed in these tasks (Sears & Chung, 2010). The Jebsen Taylor Hand Function Test is commonly used to assess hand functions in individuals aged between 18 and 65. However, it is recommended to use it with children, especially for the ability to perform the writing subtask, after the age of 6 (Reedman et al., 2016). The test was performed separately for both dominant and nondominate hand and the time to perform the function for each hand was recorded in seconds. Standardized measurement and recording methods were utilized during all measurements. Before starting the Jebson Hand Function Test, each subject was informed about the test. During the procedures, the participants were seated on a table with the hip knee at 90°. The test was initiated with the nondominant side. The subjects were instructed to complete each step of the test as quickly as possible. Firstly, the individuals were demonstrated how to perform the test and the first trial was performed by guiding the individual. Afterwards, the individuals were requested to perform the tests independently. An increase in the time to complete the test indicates a low level of fine motor skills.

A test board with a width of 1055 cm, a thickness of 2 cm and a height of 28 cm was utilized. There are seven subtests: writing, card turning, movement of small common objects, simulated feeding, checker stacking, moving light and heavy large objects. The first subtest is writing. The subject is given a black ball point pen and four 8-by-11-inch sheets of unruled white paper clipped to a clipboard. One of four possible 24 letter sentences is typed

on a 5-by-8-inch notecard that is flipped over and the subject writes (not prints) the sentence on the sheet of paper. The second subtest is card turning. In this test five 3-by-5-inch notecards are placed in a horizontal row in front of the subject at specified distances from the subject. When directed, the subject turns each of the cards over. Accuracy in card placement after it is flipped over is unimportant. The third subtest is movement of small common objects. An empty one pound coffee can is placed in front of the subject with two paper clips, bottle caps, and pennies evenly spaced in a horizontal row to one side of the can. When directed to start, the subject must pick up and place each object into the can in order. The fourth subtest is simulated feeding. Again, the coffee can is placed in front of the subject. Five kidney beans are spaced in front of a short vertical board. When directed, the subject must pick up the kidney beans using a spoon and drop them in the can one at a time. The fifth subtest is checker stacking. Four standard, wooden checkers are evenly spaced in front of the subject at the edge of a ¾-inch step up. When directed, the subject must stack the checkers on top of each other on the raised surface. The sixth and seventh subtests are moving light and heavy large objects. Five empty and full cans are placed in front of the ¾-inch raised surface. In each of the subtests, the cans must be taken from the lower surface and placed on the higher surface. For each of the tests, a stopwatch is used to time each task start to finish (Jebsen et al., 1969). The time spent to complete each subtest was measured and recorded with a stopwatch. The validity and reliability of the test have been demonstrated in various studies (Hackel et al., 1992; Sears & Chung, 2010). The results of the reliability analysis indicated a Cronbach's alpha value of 0.674, suggesting internal consistency among the questionnaire items.

In order to conduct the research, the Ethics Committee of Avrasya University was consulted. In accordance with the decision of the Ethics Committee Presidency dated 18/01/2023 and numbered 2023/84; it was decided to approve that the research was in accordance with the Directive of the Ethics Committee of our University and it was reported that there was no ethical drawback.

Data Analysis

Before the selection of the tests to be performed on the data obtained in the study, the Shapiro-Wilk normality test was performed to check whether the error terms were normally distributed ($p>0.05$). For the scores obtained from the scale, the Independent samples t-test was utilized for pairwise comparisons, and the One-Way ANOVA and Tukey HSD tests were utilized for multiple comparisons.

The findings of the research will be expressed as (%), mean and standard deviation, $p<0.05$ is considered significant at the level of significance. The high average scores indicate low levels of fine motor skills, while low average scores indicate high levels of fine motor skills. All statistical calculations were carried out in SPSS 22.0 V. statistical package program.

FINDINGS

Table 1. Frequency and Percentage Distributions of Demographic Characteristics of the Participants

		N	%
Gender	Girl	22	57,9
	Boy	16	42,1
Age	10-12 years old	11	28,9
	13-15 years old	18	47,4
	16 and above	9	23,7
Status of living with family	Houses of Love	19	50,0
	With family	19	50,0

Table 2. Comparison of Fine Motor Skills of the Participants According to Gender Status

Fine motor skills	Gender	n	x̄	S.D.	t	p
Writing (Nondominant)	Girl	22	29,60	9,07	3,08	**0,004***
	Boy	16	42,67	16,90		
Writing (Dominant)	Girl	22	12,50	3,64	3,43	**0,003***
	Boy	16	19,91	8,07		
Card turning (Nondominant)	Girl	22	4,73	1,45	0,127	0,904
	Boy	16	4,78	1,06		
Card turning (Dominant)	Girl	22	4,04	0,80	-,051	0,960
	Boy	16	4,02	0,99		
Movement of small common objects (Nondominant)	Girl	22	6,51	1,24	-,710	0,482
	Boy	16	6,24	1,03		
Movement of small common objects (Dominant)	Girl	22	6,22	1,71	-,514	0,610
	Boy	16	5,97	1,07		
Simulated feeding (Nondominant)	Girl	22	10,23	2,60	2,80	**0,008***
	Boy	16	13,80	5,19		
Simulated feeding (Dominant)	Girl	22	8,37	2,52	0,182	**0,024***
	Boy	16	10,62	3,37		
Checker stacking (Nondominant)	Girl	22	2,67	0,73	0,935	0,356
	Boy	16	2,92	0,86		
Checker stacking (Dominant)	Girl	22	2,54	0,78	-,373	0,711
	Boy	16	2,45	0,82		
Moving light large objects (Nondominant)	Girl	22	3,15	0,60	2,262	**0,030***
	Boy	16	3,76	1,05		
Moving light large objects (Dominant)	Girl	22	2,96	0,51	0,941	0,353
	Boy	16	3,18	0,88		
Moving heavy large objects (Nondominant)	Girl	22	3,42	0,59	0,265	0,792
	Boy	16	3,47	0,58		
Moving heavy large objects (Dominant)	Girl	22	3,30	0,59	-,027	0,979
	Boy	16	3,30	0,68		

*p<0.05

According to the table, the writing skills of the participants differed significantly in terms of both nondominant (p<0.004) and dominant hand (p<0.003). Again, in the simulated feeding subtest, a significant difference was detected in terms of both nondominant (p<0.008) and dominant hand (p<0.024). A significant difference was also detected for the nondominant hand in the moving light large objects subtest (p<0.030). In all three subtests, the fine motor skills of male participants were lower than those of female participants (Table 2).

Table 3. Comparison of Fine Motor Skills of Participants According to Age Status

Fine motor skills	Age	n	x̄	S.D.	F	p	The Difference
Writing (Nondominant)	10-12 years old	11	44,22	19,73	3,743	**0,034***	10-12 years and 16 and over
	13-15 years old	18	32,38	9,77			
	16 and above	9	29,42	9,62			
Writing (Dominant)	10-12 years old	11	21,29	9,19	7,315	**0,002***	Between 10-12 and 13-15 years old, 10-12 years and 16 and over
	13-15 years old	18	13,95	4,43			
	16 and above	9	12,02	2,84			
Card turning (Nondominant)	10-12 years old	11	5,23	1,20	1,177	0,320	-
	13-15 years old	18	4,49	1,23			
	16 and above	9	4,70	1,46			
Card turning (Dominant)	10-12 years old	11	4,17	1,07	0,791	0,462	-
	13-15 years old	18	4,11	0,86			
	16 and above	9	3,70	0,80			
Movement of small common objects (Nondominant)	10-12 years old	11	6,37	1,12	0,014	0,986	-
	13-15 years old	18	6,43	1,32			
	16 and above	9	6,37	0,89			
Movement of small common objects (Dominant)	10-12 years old	11	5,82	1,10	1,172	0,322	-
	13-15 years old	18	6,50	1,78			
	16 and above	9	5,73	1,02			
Simulated feeding (Nondominant)	10-12 years old	11	13,95	6,22	2,924	0,067	-
	13-15 years old	18	11,43	2,90			
	16 and above	9	9,64	2,23			
Simulated feeding (Dominant)	10-12 years old yaş	11	11,18	2,45	4,058	**0,026***	10-12 years and 16 and over
	13-15 years old	18	9,02	3,46			
	16 and above	9	7,61	1,62			
Checker stacking (Nondominant)	10-12 years old	11	2,94	1,10	1,227	0,306	-
	13-15 years old	18	2,85	0,73			
	16 and above	9	2,41	0,43			
Checker stacking (Dominant)	10-12 years old	11	2,51	0,83	0,007	0,993	-
	13-15 years old	18	2,49	0,78			
	16 and above	9	2,53	0,86			
Moving light large objects (Nondominant)	10-12 years old	11	3,46	0,51	0,229	0,797	-
	13-15 years old	18	3,46	0,96			
	16 and above	9	3,23	1,05			
Moving light large objects (Dominant)	10-12 years old	11	3,11	0,47	0,287	0,752	-
	13-15 years old yaş	18	3,10	0,62			
	16 and above	9	2,90	1,03			
Moving heavy large objects (Nondominant)	10-12 years old	11	3,46	0,49	0,149	0,862	
	13-15 years old	18	3,48	0,62			
	16 and above	9	3,35	0,65			
Moving heavy large objects (Dominant)	10-12 years old	11	3,20	0,55	1,392	0,262	
	13-15 years old	18	3,46	0,62			
	16 and above	9	3,07	0,66			

*p<0.05

According to Table 3, a significant difference was observed for both hands in the writing subtest in terms of age (p<0.034; 0.002). In the nondominant hand, the fine motor skills of the 16 and over age group were higher than those of the 10-12 age group. For the dominant hand, the 10-12 age group had lower fine motor skills than the 13-15 and 16 and over age groups. In addition, in the simulated feeding subtest, the 16 and over age group had significantly higher fine motor skill scores in the dominant hand than the 10-12 age group (p<0,026).

Table 4. Comparison of Fine Motor Skills of the Participants According to the Status of Living with Their Families

İnce motor	The status of living with their families	n	x̄	S.D.	t	p
Writing (Nondominant)	Houses of Love	19	35,29	13,05	0,078	0,938
	With family	19	34,92	15,86		
Writing (Dominant)	Houses of Love	19	15,14	7,80	0,891	0,676
	With family	19	16,10	1,39		
Card turning (Nondominant)	Houses of Love	19	4,74	1,48	-,072	0,943
	With family	19	4,77	1,10		
Card turning (Dominant)	Houses of Love	19	4,01	0,88	-,144	0,886
	With family	19	4,05	0,96		
Movement of small common objects (Nondominant)	Houses of Love	19	6,73	1,20	1,819	0,077
	With family	19	6,07	1,01		
Movement of small common objects (Dominant)	Houses of Love	19	6,47	1,78	1,517	0,141
	With family	19	5,76	0,97		
Simulated feeding (Nondominant)	Houses of Love	19	11,99	3,93	0,383	0,704
	With family	19	11,47	4,61		
Simulated feeding (Dominant)	Houses of Love	19	8,71	2,36	-1,213	0,234
	With family	19	9,92	3,63		
Checker stacking (Nondominant)	Houses of Love	19	2,38	0,61	-3,411	**0,002***
	With family	19	3,17	0,80		
Checker stacking (Dominant)	Houses of Love	19	2,03	0,58	-4,596	**<0,001***
	With family	19	2,98	0,68		
Moving light large objects (Nondominant)	Houses of Love	19	3,79	1,01	3,003	**0,006***
	With family	19	3,02	0,45		
Moving light large objects (Dominant)	Houses of Love	19	3,35	0,77	2,876	**0,007***
	With family	19	2,76	0,45		
Moving heavy large objects (Nondominant)	Houses of Love	19	3,71	0,55	3,272	**0,002***
	With family	19	3,17	0,47		
Moving heavy large objects (Dominant)	Houses of Love	19	3,55	0,65	2,829	**0,008***
	With family	19	3,03	0,46		

*p<0.05

In Table 4, a significant difference was determined for both hands in the stamp stacking subtest (p<0.002; 0.001). In both hands, the fine motor skills of children living in a loving home were higher than those of children living with their families. In the moving light large objects subtest, a significant difference was detected in both the nondominant and dominant hand (p<0.006; 0.007). The significant difference was in favor of children living with their parents. In the subtest of moving heavy large objects, a significant difference was observed for both hands (p<0.002; 0.008). This significant difference was in favor of children living with their parents.

CONCLUSION and DISCUSSION

Children develop their motor skills and accomplish their learning processes with the stimuli they receive from their physical and social environment. Delay in development negatively affects the achievement of activities in daily life (Gompel, 2003). Thus, in this study, the reflection of staying in houses of love on fine motor skill levels was examined.

In healthy individuals without any disability, various factors such as age, gender, hand dominance and cultural differences can affect hand performance during functional tasks (Takla et al., 2018). In this study, the writing and

simulated feeding skills of the participants differed significantly in terms of both nondominant and dominant hand according to gender (Table 2; $p<0.005$). A significant difference was also observed for the nondominant hand in the moving light large objects subtest ($p<0.030$). In all three subtests, the fine motor skills of male participants were lower than those of female participants. This may be due to the fact that girls have better fine motor skills than boys in this age group due to gender differences. The fact that the participants were at school age and actively practiced the writing activity many times during the day led to a significant difference in the writing subtest. Since writing is an activity that requires more attention and care compared to other activities, it is believed that girls take shorter time to complete this activity. The fact that girls had higher scores in the moving light large objects subtest may be due to the fact that girls enter puberty earlier in this age period. Jebsen et al. (1969) reported that females were faster than males in writing and movement of small common objects subtests compared to male participants. In this study, similar to the findings of Jebsen et al. (1969), female students were observed to be faster than boys in the writing subtest. Similarly, Yang et al. (2020), in their study examining neural connections during the writing activity of healthy individuals, demonstrated that female and male participants utilized different areas in the brain during writing at self-determined speeds. Reynolds et al. (2015) demonstrated that women are more skilled in writing activities than men. In another study, it was reported that 17-year-old females completed the writing activity faster than males (Dorfberger et al. 2009). We believe that the better test results of female participants in writing activities are due to neural and behavioral bases as indicated in the aforementioned studies.

While hand functional abilities depend on anatomical integrity, muscle strength, senses and dexterity (Jebsen, 1969), these abilities can be influenced by age, gender and hand preference (Shiffman, 1992). In terms of age, in the writing subtest, the fine motor skills of the participants aged 10-12 years were lower than the other age groups in both hands. Similarly, in the simulated feeding subtest, the 16 and over age group had significantly higher fine motor skill scores in the dominant hand than the 10-12 age group (Table 3; $p<0.05$). As a result of the comparisons, it is determined that the 10-12 age group is lower than the other age groups in terms of hand dexterity speed in all significant parameters. Işık (2016) reported that 6-12 age groups were lower than 13-18 age groups in terms of hand dexterity speed in all parameters of JTEFT. This result indicates that manual dexterity increases with age. In a study conducted by Özer and Özer (2001), it was concluded that at the end of the 6-12 age period, the development of the brain and nervous system is largely completed and the development of fine motor muscles is slower in boys than in girls. In a study involving 618 participants, 308 females and 310 males, it was determined that female participants had shorter test duration (Mathiowetz et al., 1985). Similarly, another study demonstrated that female participants were faster than male participants (Wang et al., 2015). In another study conducted in the Indian population, it was reported that female individuals completed the test faster with both dominant and non-dominant hands (John et al., 2017). Lin et al. (2015) examined the characterization of fine motor skill development of school-age children aged 6-12 years. According to the results of their study, they reported that age-related motor maturation had an effect on fine motor skills. They also stated that schooling also contributed to this situation.

When children living in a house of love and children living with their families were compared, children living in a house of love had higher fine motor skills for both hands in the checker stacking subtest ($p<0.05$). For the subtest of checker stacking, it was concluded that it did not replicate any daily life activity and was considered to be the least functional of all subtests by Jebsen et al. (1969 as cited in Govender, 2008). The experiences that children acquire by the use of their bodies are very significant in their perception and recognition of the world. Therefore, motor development, cognitive development and perceptual development are intertwined with each other. Especially the experiences gained in the first years of life form the substructure of motor development, social-emotional development and cognitive development (Bayhan & Artan, 2009). This information is of great importance in the planning, implementation and evaluation of services for children's development and education. In the moving light and heavy large objects subtest, the fine motor skills of children living with their families were higher ($p<0.01$). It was stated that the fact that this group did not have better results than the group living in houses of love may be related to the inability to consolidate the acquired skills, that time is required for an acquired skill to turn into a permanent skill in daily life, and that although the speed of acquired skills increases, the permanent utilization of this skill in daily life may not develop in the same direction (Brandäo, 2010). The tendency of these children to avoid mistakes may have caused a faster movement time. In addition, the limited range of motion of the group living in loving homes may also be considered effective. For example, Smyke et al. (2007) compared 20-month-old institutionalized children with children living with their families in terms of cognitive and physical development and competencies, examining the variables of age, ethnicity, gender, birth weight, and length of stay in the institution. Studies have unearthed that positive caregiving characteristics such as exhibiting sensitivity to the child's needs, stimulating development and establishing a certain bond with the child are directly linked to children's cognitive and physical development. Researchers have stated that children living with their families have more advanced development in these areas than institutionalized children. If a judgment is to be made; the communication of the child living in an institution with their surroundings may be disrupted, their social development may be adversely affected, and accordingly, disorders or developmental disruptions may be observed in the child's motor development. Another effect of the individual living in love homes is considered to be the lack of parental supervision, lack of family environment and lack of role models. In a study by Bejerot et al. (2013), the relationship between the child's self-sufficient ability and motor skills assessed by bullying behavior in childhood was examined. Children who were exposed to bullying were observed to have poor motor skills. There are similar findings in studies conducted in different countries. For example, developmental delay in one or more developmental domains is a common baseline finding in children adopted from Chinese or Eastern European institutional care. In a study of a group of Chinese children (188 girls and 4 boys) adopted from institutional care, 55% had gross motor delays, 49% had fine motor delays and 44% had global delays (Miller and Hendrie, 2000).

In conclusion, the study revealed that fine motor functions differed between boys and girls. The results of this study should be expanded to include a wider range of age groups and individuals with the disease. In this way, the possible difference in the assessment and treatment programs to be implemented in hand rehabilitation in

terms of genders can be revealed more precisely. The results suggest the necessity of appropriate long-term intervention and routine growth and development screening to improve child health in houses of love.

It was also concluded that fine motor skills improved with age and participants living with their families had higher fine motor skill scores. The idea that children living in loving homes may have difficulties in their independent lives in the future due to their inadequacies in manual skills has emerged.

SUGGESTIONS

It is believed that inadequacies in fine hand skills may be due to loss of coordination, attention and concentration. However, a definite interpretation cannot be reached due to the lack of comprehensive studies in the literature. In this direction, there is a necessity for researches addressing the topics mentioned above.

In order to enable them to work in jobs based on manual dexterity, it is believed that fine motor skills training during their institutionalization will shed light on the easier and more permanent integration of children into life. Finally, it is considered a necessity to implement comprehensive and systematic intervention programs in order to minimize the effects of environmental factors that create risks on the development of children in need of protection. It is believed that it is essential to increase the number of samples in future studies.

In addition, it is believed that the results of fine motor skills are affected by the cognitive and sociocultural levels of individuals. Although our study included people without communication problems, we observed that the ability of some participants to adapt to the tests and initiate the test was independent of their hand function. Therefore, when evaluating with hand function tests, the tasks in the tests should be explained to the participants in clear, short, clear and simple sentences and unnecessary information about the test should be refrained from.

ETHICAL TEXT

“In this article, the journal writing rules, publication principles, research and publication ethics, and journal ethical rules were followed. The responsibility belongs to the author (s) for any violations that may arise regarding the article."

In order to conduct the research, the Ethics Committee of Avrasya University was consulted. In accordance with the decision of the Ethics Committee Presidency dated 18/01/2023 and numbered 2023/84; it was decided to approve that the research was in accordance with the Directive of the Ethics Committee of our University and it was reported that there was no ethical drawback.

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