

# The Effect of Dynamic School Yards on Violence Control among Elementary School Boys: A Clinical Trial in Southern Iran.

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## Abstract

**Background:** Nowadays, violence is an important issue between students in schools that has many destructive effects on students wellbeing. One way that suggests to overcome violence in children is dynamic yard. Thus, this study was conducted with the aim of investigating the effect of dynamic school yards on the control of violence among male students in elementary schools in Kerman city in 2021.

**Methods:** This was a semi-experimental interventional study and the data collection tool was a student demographic information questionnaire and a violence scale questionnaire. 360 students from four schools that had suitable courtyards were selected by stratified random sampling in two stages. Descriptive statistics and Mann-Whitney U, Fisher and Chi-square tests were used by SPSS version 26 software.

**Results:** The differences of physical, verbal and emotional violence in the intervention and control groups were not significant before the intervention and the two groups were similar ( $P > 0.05$ ), and after the intervention the difference was not significant ( $P > 0.05$ ) either; but mean score of physical, verbal and emotional violence was less in both groups.

**Conclusion:** The findings showed dynamic yard does not effective on violence control. Also, violence control is related to multiple casual factors and change in the school environment is not sufficient to control the students' violence and more studies to investigate this issue are needed.

**Keywords:** Dynamic Yard, Physical Violence, Verbal Violence, Emotional Violence, Violence, school, Students.

## Introduction

Violence is defined as a behavior that aims to harm someone intentionally. Verbal, physical, and psychosocial abuse are all types of violence (Pandey AR, 2021). Physical violence is such as injuring a person by hitting, cutting, kicking, or slapping. Verbal violence consists of humiliation, insult, cursing, violating the rights of others, tagging, mocking and unfairness in speech (Yang Y., 2021), And psychological violence means any aggressive behavior that has destructive effects on of students' academic progress (Navarro JL, 2022). Violence in school is more a matter of concern compared to other places, because school violence has many negative effects on students including low academic performance, low self-esteem, school avoidance, depression, anxiety, sense of insecurity, and loneliness (Kian M., 2020). On the other hand, students are the future generation and these behaviors are very dangerous for students wellbeing (Foghara Ardestani Z., 2022). Some studies state that boys show more

violent behavior than girls, they sometimes abuse their power to solve problems, and are more susceptible to victimization (Romero R., 2018).

There are many ways to overcome violence in students. One of the effective methods in treating and preventing social injuries, including violence among children and students, is play therapy and the best place to play in schools is the yard (Samadpour M., 2019). In psychology, the school yard is considered to be the place of interaction and draining energy and acquiring skills. Diversification and revitalization of school yards which is presented in the form of a dynamic yard plan can provide a suitable basis for organizing students' activities (Duganie Aghchghloo M, 2018). Dynamic yards try to provide the necessary context for students to gain education through games and sports, by designing and constructing educational spaces using simple and easy-to-access methods, such as: painting, installing low-cost and safe equipment, drawing shapes and tables, and playing native and local games that increase students' physical activity, and fills students' recreation and leisure time (Izadpanah S., 2021). Previous studies have demonstrated that the dynamic yard has positive effects on students' behavior and development of basic skills, and rises vitality and physical activity (F., 2017; Makoundi N, 2020; Samadpour M., 2019). Therefore, the researchers decided to conducted a study to determine the impact of dynamic school courtyards on violence control among elementary school boys in Kerman, Iran.

### **Method and materials**

#### **Study design and setting**

This semi experimental study was performed on 360 students in Kerman, southeastern Iran, in 2021.

#### **Sample size and sampling**

In this study 4 public boys' elementary schools were chosen randomly, 2 from uptown schools and 2 from rundown schools. One school from each region was chosen as control. This was done because researchers thought there is a possibility that the type of violence is different, in students with high and low socioeconomic level. In total, 360 students from 4 schools, which means 90 students from each school were selected. In each school 30 students from each grade (the fourth, fifth and sixth grades) were selected randomly. Inclusion criteria consisted of presence at school on the days of the study and acquiring written consent of the parents of the students and the principals of the school for the student to participate in the study.

#### **Intervention & Measurement:**

A dynamic school courtyard is designed by drawing shapes and tables, such as stair snake, and performing games such as tug of war and pair jumping. These designs and games were performed in the 2 intervention schools with similar facilities.

Before starting the study, the first researcher obtained the necessary permits from the Kerman Department of Education. Then, necessary arrangements were made by presenting the permission letter of the department of education to school principals. The researcher explained the study objectives and methodology in detail for the principles.

The following tools were used for data collecting:

1- A demographic questionnaire including students' school grade, mother and fathers' educational level, mother and fathers' occupation and birth order.

2- The School Violence Questionnaire, which is a self-reported questionnaire used to assess violent behavior among students. This scale consists of 31 items that are scored on a 6-point Likert scale (zero = never to five = almost daily). According to Pishkin et al. (2014), Cronbach's alpha for the whole scale was 0.96 (Pişkin M, 2014).

In the presence of the first researcher and a teacher, these questionnaires were given to all students in a classroom at the same time. It took about 25 minutes for the students to complete the questionnaire. Each student was assigned a code and the students were asked to write their code on the questionnaire and keep the code for next time.

Then an assistant who had received the necessary training about the dynamic school yard by the researcher and actually had the role of a coach and leader for the dynamic school yard, worked with the students in the intervention schools. No intervention was done in the control schools. After twenty days, the violence questionnaire was completed again by the students of all four schools.

### Data analysis

Data was analyzed using SPSS 26. Descriptive statistics were used to determine the mean, standard deviation, frequency, and percent of categorical variables. According to the Kolmogorov-Smirnov test, students' violence scores were not normally distributed. Therefore, the Mann-Whitney U test was used. Significance level was considered 0.05.

### Ethical consideration

The study proposal received approval from the Ethics in Research Committee of Kerman University of Medical Sciences (Code of ethics: IR.KMU.REC.1399.409). All parents completed informed consent forms. Students were assured that their information would be kept confidential.

### Results:

The majority of the students who participated were from the sixth grade. Some students didn't participate because they were absent or their parents did not consent. Most fathers' educational level was Bachelor's degree or higher (32.6%) and mothers' educational level was mainly high school diploma (40.1%). The majority of students were the first child (50.6%). Most fathers were self-employed (44.9%) and most mothers were housewives (81.8%) (Table 1).

*Table1: frequency and frequency percentage of participants*

variable	group	Frequency of intervention (percentage)	witness frequency (percentage)	total frequency (percentage)	Pearson chi-square test
<b>Grade</b>	fourth grade	58 (31.9)	40 (23.5)	98 (27.8)	<b>P = 0.178</b>
	Fifth grade	57 (31.3)	65 (38.2)	122 (34.7)	
	6th grade	67 (36.8)	65 (38.2)	132 (37.5)	
	total	182 (100)	170 (100)	352 (100)	
<b>Father's education</b>	Basic reading and writing	23 (12.6)	19 (11.3)	42 (12)	<b>P = 0.580</b>
	Median school	39 (21.4)	42 (25)	81 (23.1)	
	Secondary school	64 (35.2)	49 (29.2)	113 (32.3)	
		56 (30.8)	58 (34.5)	114 (32.6)	
	total	182 (100)	168 (100)	350 (100)	
<b>mother's education</b>	Basic reading and writing	17 (9.3)	22 (12.9)	39 (11/1)	<b>P = 0.326</b>
	Median school	29 (15.9)	30 (17.6)	59 (16.8)	
	Secondary school	81 (44.5)	60 (35.3)	141 (40.1)	
	Bachelor's degree and higher	55 (30.2)	58 (34.1)	113 (32.1)	
	total	182 (100)	170 (100)	352 (100)	
<b>What is your birth order?</b>	First	96 (52.7)	82 (48.2)	178 (50.6)	<b>P = 0.120</b>
	Second	43 (23.6)	56 (32.9)	99 (28.1)	
	Third	28 (15.4)	17 (10)	45 (12.8)	
	Fourth and more	15(8.2)	15(8/8)	30 (8.5)	

	total	182 (100)	170 (100)	352 (100)	
<b>mother's job</b>	housewife	156 (85.7)	132 (77.6)	288 (81.8)	<b>P = 0.052</b>
	Employee	26 (14.3)	38 (22.4)	64 (18.2)	
	total	182 (100)	170 (100)	352 (100)	
<b>Father's job</b>	self-employment	89 (48.9)	68 (40.5)	157 (44.9)	<b>Fisher exact test P = 0.160</b>
	Employee	57 (31.3)	52 (31)	109 (31.1)	
	Unemployed	4 (2/2)	2 (1.2)	6 (1.7)	
	Retired	10 (5/5)	10 (6)	20 (5.7)	
	manual worker	22 (12.1)	36 (21.4)	58 (16.6)	
		182 (0/100)	168 (100)	350 (100)	

The mean and standard deviation of physical, verbal and emotional violence scores before and after the intervention are shown in Table 2. As can be seen, the results of the Mann-Whitney U test showed that the difference of physical, verbal and emotional violence in the intervention and control groups was not significant before the intervention and the two groups were similar ( $P = 0.073$ ,  $P = 0.059$  and  $P = 0.073$ ) but after the intervention the difference was significant ( $P < 0.0001$ ,  $P = 0.002$  and  $P = 0.006$  respectively) and physical, verbal and emotional violence was less in the control group.

*Table2. comparison of physical, verbal and emotional violence between control and intervention groups before and after intervention.*

Type Violence	of time group		before	after	Difference before and after
<b>physical</b>	control	Median	17	13	3
		Mean $\pm$ SD	18.06 $\pm$ 5.966	14.76 $\pm$ 4.525	3.3 $\pm$ 5.929
	intervention	Median	19	16	1.5
		Mean $\pm$ SD	18.99 $\pm$ 5.904	17.20 $\pm$ 6.049	1.79 $\pm$ 6.059
	Mann-Whitney U test		0.073 = P	0.0001 < P	0.030 = P
<b>Verbal</b>	control	Median	12	10	1
		Mean $\pm$ SD	13.17 $\pm$ 5.021	11.60 $\pm$ 4.469	1.57 $\pm$ 4.851
	intervention	Median	13	11.5	1
		Mean $\pm$ SD	14.02 $\pm$ 4.987	12.65 $\pm$ 4.359	1.37 $\pm$ 3.891
	Mann-Whitney U test		0.059 =P	0.002 =P	0.894 =P
<b>Emotional</b>	control	Median	16	14	1
		Mean $\pm$ SD	17.09 $\pm$ 5.063	15.10 $\pm$ 4.314	1.99 $\pm$ 4.529
	intervention	Median	17	15	2
		Mean $\pm$ SD	18.6 $\pm$ 6.656		1.96 $\pm$ 5.499
	Mann-Whitney U test		0.073 =P	0.006 =P	0.798 =P

The mean and standard deviation of physical, verbal and emotional violence before and after the intervention and separately for schools in uptown and rundown are presented in Table 3. As it can be seen, in uptown schools, the results of the Mann-Whitney U test showed that the difference in physical violence in both groups was not significant before the intervention ( $P = 0.220$ ) and after the intervention ( $P = 0.065$ ), the two groups were similar ( $P=0.681$ ).

And about rundown schools, the results of the Mann-Whitney U test showed that physical violence before the intervention was not significant and the two groups were similar ( $P = 0.267$ ), but the difference after the intervention was significant ( $P < 0.0001$ ) and was less in the control group ( $P=0.014$ ).

In uptown schools, the results of the Mann-Whitney U test showed that verbal violence before the intervention ( $P = 0.081$ ) and after the intervention ( $P = 0.126$ ) was not significant and the two groups were similar ( $P=0.248$ ).

And about rundown schools, the results of the Mann-Whitney U test showed that verbal violence was not significant different between control and intervention groups before the intervention ( $P = 0.460$ ), but it was significant after the intervention ( $P = 0.008$ ) and was less in the intervention group, but the difference between two groups was not significant ( $P=0.217$ ).

In uptown schools, the results of the Mann-Whitney U test showed that emotional violence was not significant before the intervention ( $P = 0.349$ ) and after the intervention ( $P = 0.059$ ) and the two groups were similar ( $P=0.644$ ).

About rundown schools, the results of the Mann-Whitney U test showed that the difference in emotional violence was not significant before the intervention and the two groups were similar ( $P = 0.103$ ), but the difference was significant after the intervention ( $P = 0.042$ ) and was more in the intervention group, but the difference between two groups before and after intervention is not significant totally ( $P=0.217$ ).

*Table3. Comparison of physical, verbal and emotional violence between control and intervention groups before and after the intervention by school type.*

Type of violence	Type of school	Time group		Before	After	Difference of before & after
Physical	Up Town Schools	control	Median	16.5	13.5	2.5
			Mean±SD	17.872 5.798±	14.965 4.674±	2.907 ±5.357
		intervention	Median	19	15	2
			Mean±SD	19.063 6.258±	16.570 5.462±	18.5± 2.492
		Mann-Whitney U test		P=0.220	=0.065 P	=0.681 P
	Run Down Schools	control	Median	17.5	13	3.5
			Mean±SD	18.262 6.161±	14.560 4.386±	3.702 ± 6.471
		intervention	Median	19	16	1
			Mean±SD	18.932 5.649±	17.680 6.448±	1.252 ±6.724
		Mann-Whitney U test		P=0.267	0.0001 < P	P=0.014
Verbal	Up Town Schools	control	Median	11.5	10	1
			Mean±SD	12.558 4.634±	11.628 4.541±	0.930 ± 3.690

Emotional	Run Down Schools	intervention	Median	13	11	1
			Mean±SD	14.038 5.476±	12.316 4.292±	1.722 ±3.853
		Mann-Whitney U test		P=0.081	P=0.126	P=0.248
	Up Town Schools	control	Median	13	10	1
			Mean±SD	13.798 ± 5.343	11.571 ±4.449	2.226 ±5.755
		intervention	Median	13	12	1
			Mean±SD	14.01 4.605±	12.913 4.413±	1.097 ± 3.917
		Mann-Whitney U test		P=0.460	P=0.008	P=0.217
	Run Down Schools	control	Median	16	13	1
			Mean±SD	17.244 5.124±	15.302 4.841±	1.942 ±3.894
		intervention	Median	17	15	1
			Mean±SD	18.848 7.286±	16.456 5.654±	2.392 ±4.863
		Mann-Whitney U test		P=0.349	P=0.059	P=0.644
	Up Town Schools	control	Median	16	14	1
			Mean±SD	16.929 5.025±	14.893 3.716±	2.036 ±5.121
		intervention	Median	16	15	2
			Mean±SD	18.417 6.160±	16.796 5.728±	1.621 ±5.943
		Mann-Whitney U test		P=0.103	P=0.042	P=0.217

#### Discussion:

The results of the present study showed that the mean score of violence in control and intervention group did not have significant differences, therefore dynamic yard did not have an effect on violence control. Many researchers believe that violence is a complex, dynamic and multi-causal phenomenon (Jiménez TI, 2021). According to Hughes's study, some environments are not suitable for the growth and upbringing of children. Poor and non-standard areas such as slums lead to many deviations (C., 2020). In these areas, following the low standards of living, poverty, and social instability, moral deviations can be seen more frequently among teenagers and young

people (B., 2021). Also, Samadpour's et al found that the environment around children can also act as a disincentive factor or a facilitating factor in their learning, growth and development. The amount of learning and growth of the child increases when they are connected with the open environment, and nature (Samadpour M., 2019). Therefore, it is necessary to increase the presence of children in the learning environment, by improving their environment considering their opinion (LesterS., 2017). Children may be happier if they create their own learning environment, rather than being placed in an environment where everything is determined for them in a short period of time (Scharpf F, 2021), which happened in this study. In this study, the games and decorations of the dynamic yard were designed without asking the opinions and interests of the students, and were designed according to the books about dynamic yards. (Makoundi N, 2020). The other reason for the intervention not being effective might have been its short duration, and the unfamiliarity of students with these games from before.

The results of researches showed that the existence of common spaces and the creation of green spaces, use of material appropriate for the climate and culture, the use of sound and thermal insulation in classroom environments, the introduction of green spaces into the classroom, the design of the school building facade according to the age group, the use of school spaces outside school hours, and creating suitable spaces for direct interaction of parents with students and school researcherities, are among the factors that improve the psychological atmosphere, increase the sense of belonging to the school environment and improve social behaviors among the students. (Izadpanah S., 2021). (Rerkswattavorn, 2019).

Therefore, it may be possible to reach the conclusion that dynamic yard intervention cannot have an effect on controlling violent behavior alone or in the short time. One of the most important social behaviors of humans is pursuing a suitable lifestyle for survival (Dehghan.S., 2016). Unfortunately, one of the new challenges in the way is the phenomenon of violence, which has destructive cultural and social effects on the lifestyle and culture of children, and as a crisis, it can cause an increase in harassment, aggression and all types of violence in children's future behavior (Cluver L, 2018). On the other hand, the results showed similar finding in uptown and rundown schools. Maybe this finding demonstrated that violence in children is not originated of socioeconomic variable and violence among students has many causes but, many researchers believe a person's understanding of the environment is independent of education, age and family conditions (Scharpf F, 2021).

### **Conclusion:**

Violence against children is a significant cause of physical and psychological problems. According to findings, the effectiveness of the yard depends on the social, cultural and economic level of the schools. The reason for this result can be stated that students are living and dynamic elements in school and play a role in realizing the goals of education. Students' participation in school affairs affects their self-confidence, distance from self-centeredness, tendency to collect and increase their activity and mental dynamics.

### **Limitation**

Fatigue and boredom of students in the school time is one of the most common limitations in current study; therefore, to overcome this problem, the researcher tried to attend before start of classes. Another limitation of current study was that it was short and it was better to continue the research for a longer time.

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### **Data availability statement**

All data generated or analyzed during this study are included in this published article. For further information, data is available to the corresponding researcher with reasonable requests.

### **Consent for publication**

Not applicable

### **Conflict of interests**

The authors declare no competing interests.

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