

The Effectiveness of a Recreational Program in Decreasing the Level of Anxiety at COVID-19 and Improving the Social Interaction of Children with Intellectual Disability

Mahmoud Mohamed Eltantawy¹

¹ Department of Special Education, Faculty of Education,
Imam Mohammad Ibn Saud Islamic University (IMSIU), Saudi Arabia,
and Department of Special Education, Faculty of Education, Ain-Shams University, Egypt

HOW TO CITE:

Eltantawy, M. M. (2022).

The Effectiveness of a Recreational Program in Decreasing the Level of Anxiety at COVID-19 and Improving the Social Interaction of Children with Intellectual Disability.

International Journal of Special Education, 37(2), 180-191.

CORRESPONDING AUTHOR:

Mahmoud Mohamed Eltantawy;
mmeltantawy@imamu.edu.sa

DOI:

<https://doi.org/10.52291/ijse.2022.37.51>

COPYRIGHT STATEMENT:

Copyright: © 2022 Authors.
Open access publication under
the terms and conditions
of the Creative Commons
Attribution (CC BY)
license (<http://creativecommons.org/licenses/by/4.0/>).

ABSTRACT:

The COVID-19 crisis has affected different life aspects; its greatest impact was perceived on the weakest social categories, including people with intellectual disabilities, as precautionary measures have imposed more restrictions upon them. This study, thus, aims at decreasing the anxiety level at COVID-19 as well as improving the social interaction of children with mild intellectual disabilities. The sample of the study consists of 10 intermediate children with intellectual disabilities, enrolled in the 1st to the 3rd intermediate stages in intellectual disability programs in Riyadh, ranging from 12 to 15 years old, with an age- average of 13.8. The study relied on the quasi-experimental method where the recreational program is the independent variable whereas anxiety and social interaction skills are the dependent ones. As such, the study depends on several tools that are prepared by the researcher, the COVID-19 anxiety scale, the social interaction scale of children with intellectual disabilities during the COVID-19 period, and the recreational program. The findings of the study disclosed the effectiveness of the program in decreasing the anxiety level and improving the social interaction level of children with intellectual disabilities. The study recommends carrying out more research about using recreational programs in decreasing some issues from which children with intellectual disabilities suffer due to COVID-19 as well as stressing the importance of practicing recreational and entertaining activities for children with mental disabilities in and outdoors, while following the precautionary measures, or virtually if this is not possible.

Keywords: recreational activities, anxiety, covid-19, social interaction, intellectual disability, program, children

INTRODUCTION

The COVID-19 pandemic has impacted all life areas, as it has induced several negative effects on people of different ages and categories; however, it showed a severe impact on people with intellectual disabilities as they are vulnerable to different risks; not only have their physical, corporeal, social, psychological and economic aspects been affected, but also their educational rehabilitation ones. The wide expansion of COVID-19 has led governments in different countries to issue restrictions to decrease infection, such as limiting participation in normal daily activities, traveling, closing gymnasiums, prohibiting assemblies, and imposing social distancing (Theis et al., 2021). As such, the Kingdom of Saudi Arabia has applied strict precautionary measures including suspending all air flights as well as educational activities that were held virtually and imposing a curfew nationwide by which prohibiting leaving homes, unless in emergencies or specific times, was applied, and all hospitals took precautionary measures (Al-Awaji et al., 2021). More Strict safeguards have been carried out by families whose children are intellectually disabled due to three essential threats against them: the increased risk of COVID-19 infection, the difficult access to health care and rehabilitation usual services, and the negative social effects caused by the efforts carried out to lessen the impacts of the epidemic. Several years ago, the international report of the World Health Organization pointed out the fact that persons with disabilities are more susceptible to disease (Shakespeare et al., 2021).

Precautionary measures taken due to COVID-19 have, undoubtedly, impacted people, including persons with disabilities; the findings of some studies, like that of Li and coauthors (2020) highlighted the impact of Corona pandemic showed that many negative implications occurred, as rates of depression and anxiety rose, in addition to the rise of the rates of social threats sensitivity and the decrease in feeling happiness. The results of the review written by Doody and Keenan (2021) to disclose the serious psychological and social consequences of the pandemic on people with intellectual disabilities have shown that COVID-19 has negative effects on them, exemplified in high death rates, serious health complications, the difficulty of face-to-face interaction to get services, the increase of psychological problems, like feeling loneliness, anxiety, and malaise, and in some cases a higher rate of challenging behaviors. The study results of Theis et al. (2021) showed that COVID-19 caused imposing unprecedented restrictions on the weakest social groups, including people with intellectual disabilities,

as 61% of the sample suffered from a decrease in their physical activity due to curfew, and the psychological health of 90% of the sample of people with intellectual disability was negatively affected. Additionally, Athbah's (2021) study that was carried out on a sample of children with intellectual disabilities proved a great influence of COVID-19 on them, as all rehabilitation processes stopped giving room for undesirable procedures of behavior modification, which led to a detrimental impact of the psychological aspects.

Anxiety at Coronavirus prevailed among children with intellectual disability and their families; Gacek and Krzywoszanski's (2021) study that was carried out on a sample of students with intellectual disabilities to measure their levels of anxiety and depression during the curfew period showed that a third of the number of the students have symptoms of anxiety and depression ranging from mild to major ones and those female students were more prone to anxiety and depression than males. The findings of Sideropoulos and coauthors (2021) study clarified that the anxiety rates of persons with disabilities during Corona pandemic were higher than normal people and that also their parents suffered from relative anxiety. The results of Su et al. (2021) study that aimed at measuring the level of anxiety of the parents of children with intellectual disabilities during the curfew period pointed out there suffering from high anxiety rates after the end of the pandemic's first wave, in addition to the psychological implications related to COVID-19 and their suffering from false information and the experience of fearing the spread of the malady (or Coronaphobia) as well as helplessness, loneliness, depression, generalized anxiety, and death anxiety. That is why Bruder, Lutz, and Ferreira's (2021) study recommended the urgency of familial support to these families during the pandemic to improve their performance and their quality of life, as well as reduce familial stress.

Social distancing, in addition, affected the social interaction of children with intellectual disabilities, especially since their rapprochement with caregivers is fundamental to bridging the gap and communicating actively with them; virtual communication in this case is an inappropriate alternative for these children and their qualities (Constantino et al., 2020). Social distancing procedures and quarantine led to the cessation of services, support, and official and non-official care delivered to children with disabilities; for instance, educational institutions and special education centers closed on all educational levels, which presented a challenge to families responsible for children with disabilities and negatively impact-

ed the social interaction of their children (Abdelfattah et al., 2021). In the same context, Morrisette (2021) has pointed out that schools' closure due to the coronavirus has led to children's and teenagers' social isolation and loneliness because schools provide favorable opportunities for social interaction. The results of Eusebio's (2020) study clarified that people with intellectual disabilities face several limitations inside their societies, related to unreachable areas as well as being subject to stigmatization. Corona pandemic has exposed them to disadvantageous social conditions; physical distancing has increased their feeling of social isolation as well as the deterioration of their psychological health, mood swings, and suffering from sleep disorders. The findings of Dobransky and Hargittai's (2020) study proved that persons with disabilities lack making use of social models due to the pandemic and that this has a huge impact on their personal lives as well as their social performance; the pandemic might lead to their being ignored by people or imposing parental rights when helping them using ways that are not needed by persons with disabilities.

Children with intellectual disabilities have suffered from a variety of challenges due to Coronavirus, which made them more anxious and less socially interactive. This has necessitated the practice of some useful activities to lessen this anxiety and ameliorate their social interaction; entertaining and recreational activities are one of the most important activities suitable for children with intellectual disabilities during this period. Melbøe and Ytterhus (2017) have pointed out that these are crucial for their content because they are a tool to develop relationships with peers and to improve their social interaction with them. However, children with intellectual disability share less in entertaining activities, and this experiences a decrease when they get older. In other words, entertaining activities take part in ameliorating the life quality of persons with intellectual disabilities. The United Nations have approved the importance of sharing entertaining activities in Section 30 of the rights of persons with disabilities (2006), which shed light on the necessity of sharing cultural, entertaining, and sports activities for persons with disabilities under the same conditions. According to Section 12 of The United Nations agreement (1990) regarding children's rights, the involvement of children and youth and their participation in the matters of their concern is not a mere model of making policies but a legal obligation; despite the importance of entertaining and recreational practices, people with intellectual disability appear to face more complex restrictions related to their leisure time, which

include lacking expenses, insufficiency of resources to include their interests, transportation challenges, and society directions (Melbøe & Ytterhus, 2017).

The participation of persons with intellectual disabilities in entertaining and physical activities is related to the extent of cultural awareness and psychological well-being. Despite the importance of entertaining activities for physical, cognitive, psychological, social, and communicational aspects, there are not enough chances to practice them; some specialists working in the field have clarified that persons with intellectual disabilities do not practice physical as well as entertainment activities for a suitable duration to get health benefits (Fatih & Catalin, 2020). Moreover, environmental and social aspects determine the participation of children with intellectual disabilities in different activities. Parents' educational standard plays a pivotal role in this area as well. These activities are also affected by the extent of the availability of resources as well as public and social services, in addition to parents' expectations and school context (Ullenhag et al., 2012). That is why it is necessary to highlight a set of considerations in recreational activities delivered to these children, including motivation strategies and positive reinforcement, the gradation of activities from mild to intermediates like the practice of walking, the necessity of the activity to be funny and to guarantee children's social interaction, children's participation in activity selection and decision making, the appropriateness of the activities to their age, carrying out the programs in places which provides the opportunity of social integration, the adjustability of the activities to absorb the different children's abilities, supervising their progress, and identifying the targets of each activity (Stanish & Frey, 2008).

Moreover, Buttimer and Tierney (2005) have pointed out that recreational activities of children with intellectual disabilities include watching TV, listening to music, eating outdoors, walking, listening to the radio, reading newspapers and magazines, making phone calls, visiting family, and playing computer games. This means that there is a variety of activities that suit children with intellectual disabilities, including physical, social, skill-based, and self-improvement activities. The findings of Fatih's (2020) study that was carried out on a sample of persons with intellectual disabilities whose ages range between 15 and 19 years old showed that 70.6 % of adolescents with intellectual disabilities spend their leisure time listening to music, 44.1% watching TV, 29.4 in familial or friendly gatherings, 17.6 % in sleeping, 14.7 in visiting relatives, 11.8% in playing a musical instrument, 67.6 % in

practicing physical sports weekly, 32.4 % do not practice any sports or physical activities, 58.8 % practice walking, 41.2 % practice running, 79.5 % use social communication means, and 85.3 % play computer/mobile/PlayStation games daily. As for their preference for recreational activities, Melbøe and Ytterhus's (2017) study results have shown that persons with intellectual disabilities whose ages range between 13-16 years old have the same recreational preferences as their normal peers and that they prefer sports and cultural activities. The study has also proved an inadequacy in entertainment services delivered to those with intellectual disabilities. Finally, recreational activities aimed at children with intellectual disabilities must target their encouragement and support to fulfill their complete potential, grant them the freedom of calculated risks, and help them live, learn, work, and play in environments of their own choice to be essential participants in all aspects of planning and implementation, as well as service and support evaluation (Bullock et al., 2017).

THE STUDY PROBLEM

The precautionary measures taken due to COVID-19 led to the exposure of children with intellectual disabilities to many pressures, as schools and rehabilitation centers were closed and shifted their activity to virtual ones. These children's families exaggerated when they embraced extra security procedures fearing their being infected by the virus, which prevented these children from having opportunities to interact and carry out different activities. In this regard, Navas and coauthors (2021) have pointed out the severity of the pandemic on everyone, but it showed its severest impact on children with intellectual disabilities who rely on specific daily routines as well as support offered by others to get through their day. The findings of some studies have referred to the increase in anxiety rates of persons with intellectual disabilities, which results from precautionary measures carried out as a result of COVID-19 (Gacek & Krzywoszanski, 2021; Sideropoulos et al., 2021). These children's social interaction has also been severely affected due to the same reason besides lacking practicing activities (Abdelfattah et al., 2021; Dobransky & Hargitai, 2020; Constantino et al., 2020); however, the 2021 review written by Doody and Keenan has shown the absence of various services offered to persons with intellectual disability during COVID-19 expansion period; these include public health services and their suffering from isolation and familial stresses. Eusebio (2020) has

shown that persons with intellectual disabilities suffer from a shortage in their independence skills, which prevents them from participating in usual activities. Curfew processes, in addition to the shift towards academic virtual services, led to people with intellectual disabilities spending more time at their homes, which in its turn has augmented their social isolation. The report issued by the Center on Victimization and Safety (2021) has pointed out that the pandemic obliged persons with intellectual disabilities to embrace limited social interaction, which put the survivors of maltreatment in conditions that accentuate it; limited social interaction caused domestic violence as well.

The findings of some studies have shown that recreational activities play a great role in decreasing anxiety during COVID-19 as well as improving the social interaction of children with intellectual disabilities. Ertuzun's (2015) findings showed that recreational activities have a positive impact on children with intellectual disabilities as they ameliorated the extent of their freedom and ability of choice, and they became more conscious about their leisure time and the available resources in their environment as well as improving friendship and social interaction skills, decision making and self-determination. Dorsch and coauthors' (2016) study results clarified the importance of recreational activities for children with intellectual disabilities. In the same line of thought, the findings of Merrells, Buchanan, and Waters's (2018) study showed that the participation of children with intellectual disabilities in recreational activities plays a great role in improving professional independence and positively modifying society's direction. Courtenay and Perera's (2020) study results showed that children's preferred activities can improve the psychological state and reduce the psychological effort of persons with intellectual disabilities. Doody and Keenan's (2021) review pointed out the importance of psychological assistance and practicing some activities which improve their psychological state during the pandemic. Gacek and Krzywoszanski (2021) recommended the necessity of providing psychiatric care for these children. The results of Navas with coauthors' (2021) study pointed out that activities, especially recreational ones, are mandatory to improve psychological health and that these should be offered along with safety measures. Based on the aforementioned, the problem of the study can be stated in the following question: What is the extent of effectiveness of a recreational program offered to children with intellectual disabilities in reducing their anxiety level and improving their social interaction?

THE HYPOTHESES

The study hypotheses can be formulated as follows:

1. There are statistically significant differences between the ranks of mean scores of children in the experimental group in both pre and post-measures on the anxiety scale of COVID-19 of children with intellectual disabilities in the direction of pre-measurement.
2. There are no statistically significant differences between the ranks of mean scores of children in the experimental group in both post and follow-up measures (after one month of applying for the program) on the anxiety scale of COVID-19 of children with intellectual disabilities.
3. There are statistically significant differences between the ranks of mean scores of children in the experimental group in both pre and post-measures on the social interaction scale of children with intellectual disabilities during the COVID-19 period.
4. There are no statistically significant differences between the ranks of mean scores of children in the experimental group in both post and follow-up measures (after one month of applying for the program) on the social interaction scale of children with intellectual disabilities during the COVID-19 period.

THE OBJECTIVES OF THE STUDY

The study aims at decreasing the level of anxiety at coronavirus of children with intellectual disabilities as well as improving their social interaction through a recreational program comprising a group of recreational activities suitable for children with intellectual disabilities.

METHOD

This study relied on the quasi-experimental method, as the recreational program is considered the independent variable whereas Coronavirus anxiety, as well as social interaction, are the dependent ones.

PARTICIPANTS

The participants of the study were all male children enrolled in intellectual disability programs in intermediate schools in Riyadh, who are in the 1st to the 3rd intermediate grades. The sample comprised 10 male children with mild intellectual disabilities. These were selected out of 24 students with intellectual disabilities, whose IQ score

ranges from 55 to 69, and are identified by The Ministry of Education as being mildly intellectually disabled and are enrolled in intellectual disability programs. Students are accepted in these programs according to the following criteria: The IQ score does not exceed 69 in the Stanford-Binet test 5th edition, and the low general intellectual ability must be accompanied by a shortage in at least two adaptive behavioral skills (Ministry of Education, 2016). Their ages range between 12 and 15 years old with an age average of 13.8. The anxiety scale and the social interaction scale against COVID-19 have been applied to children with intellectual disabilities during the COVID-19 period. Their suffering from COVID-19 anxiety as well as a deficiency in social interaction has been proven according to their scores on the two used scales of the study. The sample of the study has been chosen from two schools in Riyadh. The study is carried out in the second term of the school year 2020/2021 and the first term of 2021/2022.

INSTRUMENTS

COVID-19 Anxiety Scale in children with intellectual disabilities: this scale was customized by the researcher to measure the anxiety level of children with intellectual disabilities related to COVID-19, where estimation has been identified through parents. The scale was electronically prepared, per the nature of the study society and its culture, so that parents can respond freely. The scale has passed through many stages exemplified: by being acquainted with the theoretical traditions related to anxiety at COVID-19, getting access to the theoretical frameworks as well as the literature review to identify the concept of COVID-19 anxiety and its dimensions. Among the references that were consulted, the following studies can be listed: Raat et al. (2007), Jitlina et al. (2017), De Avila et al. (2020), and Kubb and Foran (2020). In its final version, the scale consisted of 20 items, and its scores ranged between 20 and 60, the answers fall into 3 alternatives (always, sometimes, never) graded with (1, 2, 3), respectively. The high mark expresses a high level of COVID-19 anxiety, and vice-versa. To verify the psychometric characteristics of the scale, the researcher resented it to a group of specialists in psychology and education to express their opinion about the scale items, which resulted in omitting two of them and modifying the structures of some of them. The scale was, then, applied to a group of 103 children with intellectual disabilities, and only one of the parents was required to respond to it. The scale item's internal consistency has been tested by

calculating the correlation coefficient among each item and the total score of the scale. Based on the statistical analysis using the SPSS program, it is clear that the values of coefficient correlation ranged between (0.497: 0.791) and that all the correlations between the score of each item and the total score of the scale revealed function values at the level of 0.01, which indicates the scale internal consistency. The scale stability coefficient has been calculated by using Cronbach's Alpha method, whereas the correction coefficient has been calculated by using the Spearman-Brown Coefficient. The scale stability coefficient reached (0.888), and its value at the correction coefficient was (0.941), which proves the scale stability as the values of Cronbach's coefficients were high, as such the used scale is stable.

Children with Intellectual Disability Social Interaction Scale during the COVID-19 Period: The researcher prepared this scale to measure the level of social interaction of children with intellectual disabilities, where the estimation is marked by their parents. The scale was electronically designed, under the nature of the society of the study and its culture as well as that of social interaction during the period of COVID-19, so that parents can respond freely. The scale has passed through many stages exemplified in: being acquainted with the theoretical traditions related to children's social interaction, getting access to the theoretical frameworks as well as the literature review to identify the nature and the dimensions of social interaction of these children. Among the studies that were consulted are Moore and Mello (2016), Chung (2012), and Jeon and Son (2021). In its last version, the scale consisted of 18 items with scores ranging 18-54; it is answered by choosing one of three alternatives 9always, sometimes, never) grade with (1, 2, 3) grades, respectively. The high mark expresses a high level of social interaction, and vice-versa. To verify the psychometric characteristics of the scale, the researcher presented it to a group of specialists in psychology and education to express their opinion about the scale items, which resulted in omitting four of them and modifying the structures of some of them. The scale was, then, applied to a group of 103 children with intellectual disabilities, and only one of the parents was required to respond to it. The scale item's internal consistency has been tested by calculating the correlation coefficient among each item and the total score of the scale. Based on the statistical analysis using

SPSS program, it is clear that the values of coefficient correlation ranged between (0.221: 0.745) and that all the correlations between the score of each item and the

total score of the scale revealed function values at the level of (0.01), except for the statement 18 as it has a function value at the level of (0.05), which indicates the scale internal consistency. The scale stability coefficient has been calculated by using Cronbach's Alpha method, whereas the correction coefficient has been calculated by using the Spearman-Brown Coefficient. The scale stability coefficient reached (0.829), and its value at the correction coefficient was (0.906), which proves the scale stability as the values of Cronbach's coefficients were high, as such the used scale is stable.

The Recreational Program: Recreation is defined as the process by which some needs are fulfilled, such as the need for rest, relaxation, recalling favorable behaviors, self-assessment, self-respect, status, confidence, social interaction, spending time with relatives and friends, being indulged in nostalgia, education, being indulged in curiosity, and the need for innovation (Nkwanyana, 2020). The researcher operationally defines the recreational program as being a group of practices, games, competitions, and activities that are applied with persons with intellectual disabilities, which are characterized by fun and happiness, and which aim at reducing the level of Coronavirus anxiety levels as well as improving social interaction. These are optional activities that happen during leisure time and are initially driven by the attendant feelings of fun and happiness caused by this activity.

This program was presented to children with intellectual disabilities to reduce COVID-19 anxiety levels and improve their social interaction. The program relied on several basics which facilitate reaching activities and participating in them for all children, as well as interacting with others. The program, thus, ensures a group of favorable activities which fits their age, in which the elements of joy and happiness, which in its turn provides them with the freedom of movement, playing, and participating freely in activities, and ensures a successful performance. The program includes some activities such as football, running competition, some sports, drawing, and painting, singing, storytelling, computer games, riddles, free play, watching TV, reading, playing with water and soap, playing with sand, and writing on it, shooting balloons, planting, etc. The program has also relied on reinforcing successful responses during the activities. The program consists of 16 sessions with two meetings held weekly for two months; the duration of each session is 90 minutes, and it is suitable for children due to their old chronological age and that the activities used are recreational and different from work. The program relied on

group sessions that allow children to cooperate and interact with each other. It was carried out in the first term of the school year 2021/2022 when children with intellectual disabilities were allowed to attend schools physically. It is also worth noting that the researcher has adhered to the precautionary measures against COVID-19 and that the program was evaluated after the end of the sessions by applying the tools of the study.

PROCEDURES

Literature reviews as well as educational and psychological ones related to the topic of the Coronavirus anxiety of children with intellectual disabilities as well as their social interaction were consulted; the main concepts were retrieved from them, then the tools of the study, exemplified in COVID-19 anxiety scale of children with intellectual disabilities, their social interaction during the pandemic and the recreational program, were prepared, the psychometric characteristics of these tools were validated through applying them on a sample of children with intellectual disability, then the main sample, of 10 students with intellectual disability in the intermediate stage, who suffer from a high level of Coronavirus anxiety and a low level of social interaction, was identified. Post-measurement and Premeasurement were applied using the tools

of the study, then the recreational program was applied to the sample of the study. After that, post-measurement has been done using the specified tools. One month after post-measurement, follow-up measurement was carried out using the specified tools to know the extent of the program's activities' impact durability; data has been statistically processed using suitable statistical methods, then findings were reached out and explained before offering some recommendations related to the field of the study.

RESULTS

In this section, the researcher presents the results of the study in light of the aforementioned hypotheses, then these are discussed in the theoretical background and the literature review. Presenting the results according to the hypotheses: The first hypothesis results, the researcher compared the children's ranks of mean scores levels in the experimental group before and after applying the program using Wilcoxon test to reveal the significant differences between both groups. Table 1 presents the results of this procedure.

The result shows statistically significant differences between the ranks of mean scores of children with intellectual disabilities on the COVID-19 anxiety scale in the

Table 1. The significant differences between the ranks of mean scores of children with intellectual disability on the COVID-19 anxiety scale in the experimental group before and after applying the program (n=10)

Scale Dimensions	The measurement results	N	Mean Ranks	Sum of Ranks	Z value	Significance
	Pre/Post					
Total score	Negative Ranks	10	5.50	55.00	-2.805	Significance (0.01)
	Positive Ranks	0	0.00	0.00		
	Ties	0				
	Total	10				

Table 2. The significant differences between the ranks of mean scores of children with intellectual disability on the COVID-19 anxiety scale in the experimental group before applying for the program and one-month follow-up after its application (n=10)

Scale Dimensions	The measurement results	N	Mean Ranks	Sum of Ranks	Z value	Significance
	Post/follow-up					
Total score	Negative Ranks	3	6.83	20.50	-0.714	Not Significance
	Positive Ranks	7	4.93	34.50		
	Ties	0				
	Total	10				

Table 3. The significant differences between the ranks of mean scores of children with intellectual disabilities on the social interaction scale during the period of COVID-19 in the experimental group before and after applying the program (n=10)

Scale Dimensions	The measurement results	N	Mean Ranks	Sum of Ranks	Z value	Significance
	Pre/Post					
Total score	Negative Ranks	0	0.00	0.00	-2.842	Significance (0.01)
	Positive Ranks	10	5.50	55.0		
	Ties	0				
	Total	10				

Table 4. The significant differences between the ranks of mean scores of children with intellectual disabilities on the social interaction scale during the period of COVID-19 in the experimental group before applying the program and one month follow up after its application (n=10)

Scale Dimensions	The measurement results	N	Mean Ranks	Sum of Ranks	Z value	Significance
	Post/follow-up					
Total score	Negative Ranks	4	5.00	20.00	-0.766	Not Significance
	Positive Ranks	6	5.83	35.00		
	Ties	0				
	Total	10				

experimental group before and after applying the program, which verifies the 1st hypothesis of the study.

To verify the second hypothesis, the researcher compared the children's ranks of mean scores levels in the experimental group before applying the program and one month after its application in the same group using the Wilcoxon test to reveal the significant differences between both groups. Table 2 shows the results of this procedure.

Based on this table, there are no statistically significant differences between the ranks of mean scores of children in the experimental group in both post and follow-up measures (after one month of applying for the program) on the anxiety scale of COVID-19 of children with intellectual disability, which verifies the 2nd hypothesis of the study.

The third hypothesis results: the researcher compared the children's ranks of mean scores levels in the experimental group before and after applying the program using the Wilcoxon test to reveal the significant differences between both groups. Table 3 shows the results of this procedure.

This table shows that there are statistically significant differences between the ranks of mean scores of children

in the experimental group in both pre and post-measures on the social interaction scale of children with intellectual disabilities during the COVID-19 period, which verifies the 3rd hypothesis of the study.

The fourth hypothesis results: the researcher compared the children's ranks of mean scores levels in the experimental group before applying the program and one month after its application on the same group using Wilcoxon test to reveal the significant differences between both groups. Table 4 shows the results of this procedure.

This table shows that, there are no statistically significant differences between the ranks of mean scores of children in the experimental group in both post and follow-up measures (after one month of applying for the program) on the social interaction scale of children with intellectual disability during COVID-19 period, which verifies the 4th hypothesis of the study.

DISCUSSION

COVID-19 persistent spread for long periods and the appearance of its several mutations have stressed the necessity of searching for methods to co-exist with it and

to reduce its negative implications. This has shown an urgency in searching for activities that reduce these negativities, especially for the weakest social groups, which highlights the importance of recreational activities to overcome the problems stemming from the length of the crisis period as well as the implied distancing procedures. The results of this study show the effectiveness of the recreational activities practiced by children with intellectual disabilities in reducing the anxiety at COVID-19 and improving their social interaction that was severely affected due to the imposed closure policies; COVID-19 pandemic has modified the nature of social interactions; security methods as well as distancing procedures have impacted the ability to understand the feelings of others and actively interacting with them (Calbi et al., 2021).

The positive impact of the used recreational program used to decrease anxiety at COVID-19 and to ameliorate the social interaction of children with an intellectual disability is explained by its consideration of a group of psychological and social essentials related to this category of people, as it facilitated their reach to the activities and their interaction with others. Freedom of movement, playing, and self-expression are also guaranteed to these children, which led to their success in carrying them out as they were characterized by simplicity, easiness, and suitability to their different characteristics and needs. Being suitable to the children's chronological ages, these activities were concrete and far from abstraction. Every single success of these children was followed by encouragement, which made them eager to continuously practice these activities, following the principle stating that success leads to more success. The program also included various activities such as football, a running competition, some sports, drawing and painting, singing, storytelling, computer games, riddles, free play, watching TV, reading, playing with water and soap, playing with sand and writing on it, shooting balloons, planting, etc., which are all favorable practices to the children, helping them to vent out their energy. Moreover, group activities play a significant role in improving social interaction and providing children with some personal and social skills, ameliorating their physical and psychological health, and bettering their life quality. These are also beneficial in stress management, keeping psychological balance and flexibility, and highlighting self-respect, which directly reduces anxiety and depression. These activities have also induced independence and self-discipline. Many studies have pointed out the importance of recreational programs for children with intellectual disabilities; the results of some studies have highlighted the importance

of practicing entertainment activities in reducing anxiety (Weng & Chiang 2014; Ibrahim, 2020). Ertuzun's (2015) results showed the importance of recreational activities for children with intellectual disabilities in improving their freedom as well as their freedom of choice, friendship skills, social interaction, decision-making, and self-determination. Melbøe and Ytterhu (2017) pointed out that entertaining activities are those in which persons freely participate because they find them funny; the positives of participating in recreational and entertaining activities have been proven, regardless of the age of the participants, as they provide opportunities for social interaction, strengthening friendships, learning, self-development, self-expression, and identity significance. For instance, participating in cultural activities allows a person with disabilities to present himself as an artist, not as a person with intellectual disabilities, physical activities provide chances for well-being, physical fitness improvement, and increasing self/social efficiency awareness. In the same context, Merrells and coauthors (2018) result clarified that the participation of children with intellectual disabilities in recreational activities improves their professional independence and changes society's standpoint towards them. Fatih's (2020) findings have also shown that recreational activities have many advantages for persons with intellectual disabilities. Chang, Wray and Lin (2014) proved that entertaining and recreational activities improve social interaction. This is also proven by Hajjar et al. (2018) that referred to the improvement of communication between participants as well as social interaction.

The program has played a great role in overcoming the restrictions imposed by Corona pandemic on children with intellectual disabilities, which shows itself in the absence of statistically significant differences between the ranks of mean scores of children in the experimental group in both posts and follow-up measures (after one month of applying for the program) both on the COVID-19 anxiety scale and the social interaction scale of children with intellectual disabilities during the COVID-19 period. This, in its turn, indicates an increase in the ability of children with intellectual disabilities to overcome anxiety and to better their social interaction due to practicing recreational activities.

Generally speaking, it could be reiterated that the activities of the recreational program play a significant role in reducing anxiety and improving the social interaction of children with intellectual disabilities, as they are suitable to their cognitive and behavioral characteristics being assisting activities that help them overcome shortcomings, such as

deficit in attention, cognition, and memory as well as practicing unfavorable behaviors, and acquiring favorable ones.

CONCLUSIONS AND RECOMMENDATIONS

This study presented a program depending on recreational activities as well as two new tools to measure the anxiety of Coronavirus and the social interaction of children with intellectual disabilities. It has shown that using recreational activities with these children during the period of Coronavirus is considered one of the pivotal procedures to reduce the implications of precautionary measures and distancing procedures which were heavily imposed on children with intellectual disabilities, as they are most at risk. Thus, this recreational program that could be used by parents at home, along with the variety of its activities, will help overcome the issues resulting from the pandemic. Also, this study is one of the rare Arabic studies, as far as the researcher knows, which depended on recreational programs that have a preferred impact on children with intellectual disabilities. It tackles a crucial subject, decreasing the anxiety level at Coronavirus and improving social interaction of children with intellectual disabilities during Corona pandemic. In addition, it highlights recreational programs and their role in providing children with intellectual disabilities with various skills. The findings of the study can be useful in applying the program to more samples of children to overcome some psychological and behavioral problems resulting from Coronavirus.

The study recommends children with intellectual disabilities practice entertainment and recreational ac-

tivities during the period of COVID-19 in different ways indoors or outdoors following the precautionary measures or virtually if this is not possible. Moreover, it recommends more studies be carried out on using recreational activities in different age groups and designing them according to the various chronological ages of children with intellectual disabilities. Schools are also advised to be more interested in entertaining and recreational activities. Parents and teachers of these children are also recommended to apply and incorporate recreational activities in individual educational plans, as they are rich and beneficial in strengthening their psychological health and improving their social interaction, assuring that persons with intellectual disabilities can use resources and entertaining activities like their normal peers. The study also recommends carrying out more research on the role of different recreational activities, physical, artistic, and cultural, in reducing some issues resulting from Coronavirus, such as social isolation, psychological loneliness, attention deficiency, hyperactivity, and sleep disorders.

ACKNOWLEDGMENTS:

None.

DISCLOSURE STATEMENT:

No potential conflict of interest was reported by the authors.

FUNDING:

This research was supported by the Deanship of Scientific Research, Imam Mohammad Ibn Saud Islamic University (IMSIU), Saudi Arabia, Grant No. (21-13-18-023)."

REFERENCES

- Abdelfattah, F., Rababah, A., Alqaryouti, I., Alsartawi, Z., Khlaifat, D., & Awamleh, A. (2021). Exploring Feelings of Worry and Sources of Stress during COVID-19 Pandemic among Parents of Children with Disability: A Sample from Arab Countries. *Education Sciences*, 11(5), 216. <https://doi.org/10.3390/educsci11050216>
- Al-Awaji, N., Aldhahi, M., Akil, S., Awad, S., & Mortada, E. (2021). Quality of Life, Needs and Fears of Mothers of Children with Disabilities in Saudi Arabia during the COVID-19 Lockdown. *International journal of environmental research and public health*, 18(21), 11442. <https://doi.org/10.3390/ijerph182111442>
- Athbah, S. Y. (2021). Covid-19 Impact on Children with Autism Spectrum Disorder and Intellectual Disability: Study in Saudi Arabia. *Journal of Educational and Social Research*, 11(6), 78. <https://doi.org/10.36941/jesr-2021-0130>
- Bruder, M. B., Lutz, T. M., & Ferreira, K. E. (2020). Parents of Children with Disabilities in the Early Months of COVID-19: Knowledge, Beliefs and Needs. *Developmental Disabilities Network Journal*, 1(2), 8. <https://doi.org/10.26077/e7d4-7c9b>
- Bullock, C. C., Mahon, M. J., & Killingsworth, C. L. (2017). *Introduction to recreation services for people with disabilities: a person-centered approach* (No. Ed. 3). Champaign: Sagamore -Venture publishing.

- Buttimer, J., & Tierney, E. (2005). Patterns of leisure participation among adolescents with a mild intellectual disability. *Journal of intellectual disabilities*, 9(1), 25-42 <https://doi.org/10.1177/1744629505049728>
- Calbi, M., Langiulli, N., Ferroni, F., Montalti, M., Kolesnikov, A., Gallese, V., & Umiltà, M. A. (2021). The consequences of COVID-19 on social interactions: an online study on face covering. *Scientific reports*, 11(1), 1-10. <https://doi.org/10.1038/s41598-021-81780-w>
- Center on Victimization and Safety. (2021). One Year Later: Reflections on sustaining services for survivors with disabilities during COVID-19. Retrieved from <https://www.endabusepwd.org/covid-19/> (access: 2021/03/23).
- Chung, W. W. S. (2012). *Development of the Social Interactions Behavior Inventory (SIBI) for Children with High-Functioning Autism/Asperger's Syndrome*. Doctoral dissertation, The Ohio State University.
- Chang, P. J., Wray, L., & Lin, Y. (2014). Social relationships, leisure activity, and health in older adults. *Health Psychology*, 33(6), 516. <https://doi.org/10.1037/hea0000051>
- Constantino, J. N., Sahin, M., Piven, J., Rodgers, R., & Tschida, J. (2020). The impact of COVID-19 on individuals with intellectual and developmental disabilities: Clinical and scientific priorities. *American Journal of Psychiatry*, 177(11), 1091-1093. <https://doi.org/10.1176/appi.ajp.2020.20060780>
- Courtenay, K. & Perera, B. (2020). COVID-19 and people with intellectual disability: impacts of a pandemic. *Irish Journal of Psychological Medicine*, 37(3), 231-236. <https://doi.org/10.1017/ipm.2020.45>
- De Avila, M. A. G., Filho, P. T. H., da Silva Jacob, F. L., Alcantara, L. R. S., Berghammer, M., Nolbris, M. J., Olaya-Contreras, P., & Nilsson, S. (2020). Children's anxiety and factors related to the covid-19 pandemic: An exploratory study using the children's anxiety questionnaire and the numerical rating scale. *International Journal of Environmental Research and Public Health*, 17(16), 1-13. <https://doi.org/10.3390/ijerph17165757>
- Dobransky, K. & Hargittai, E. (2020). People with disabilities during COVID-19. *Contexts*, 19(4), 46-49. <https://doi.org/10.1177/1536504220977935>
- Doody, O., & Keenan, P. M. (2021). The reported effects of the COVID-19 pandemic on people with intellectual disability and their carers: a scoping review. *Annals of Medicine*, 53(1), 786-804. <https://doi.org/10.1080/07853890.2021.1922743>
- Dorsch, T. E., Richards, K. A. R., Swain, J., & Maxey, M. (2016). The effect of an outdoor recreation program on individuals with disabilities and their family members: A case study. *Therapeutic Recreation Journal*, 50(2), 155. <https://doi.org/10.18666/TRJ-2016-V50-I2-6527>
- Ertuzun, E. (2015). Effects of Leisure Education Program Including Sportive Activities on Perceived Freedom in Leisure of Adolescents with Intellectual Disabilities. *Educational Research and Reviews*, 10(16), 2362-2369. <https://doi.org/10.5897/ERR2015.2395>
- Eusebio, K. (2020). "I hope he doesn't feel too lonely" – COVID-19 hits people with intellectual disabilities hard. Retrieved from <https://www.weforum.org/agenda/2020/04/covid19-coronavirus-intellectual-disabilities-loneliness/> (access: 2020/04/29).
- Fatih, H. (2020). Recreation activities in adolescents with intellectual disability. *Ovidius University Annals, Series Physical Education and Sport/Science, Movement and Health*, 20(2), 117-122.
- Fatih, H., & Catalin, G. (2020). Recreation and physical activity of young girls with intellectual disability. *Science, Movement and Health*, 20, 237-241.
- Gacek, M. & Krzywoszanski, L. (2021). Symptoms of Anxiety and Depression in Students With Developmental Disabilities During COVID-19 Lockdown in Poland. *Frontiers in Psychiatry*, 12, 319. <https://doi.org/10.3389/fpsy.2021.576867>
- Hajjar, D. J., McCarthy, J. W., Hajjar, M. L., Hajjar, D. J., McCarthy, J. W., & Hajjar, M. L. (2018). Supporting communication partners in a leisure setting to enhance social interaction and participation for individuals with complex communication needs. *Clinical Archives of Communication Disorders*, 3(3), 221-235. <https://doi.org/10.21849/cacd.2018.00437>
- Ibrahim, A. M. S. (2020). A Sports Recreational Program for Decreasing Separation Anxiety Among Children. *International Journal of Sports Science and Arts*, 16(016), 108-120.
- Jeon, B. J. & Son, S. M. (2021). Social interaction changes in people with intellectual disabilities through the application of equine-assisted intervention in Korea. *American Journal of Translational Research*, 13(4), 3573.
- Jitlina, K., Zumbo, B., Mirenda, P., Ford, L., Bennett, T., Georgiades, S., Waddell, C., Smith, I., Volden, J., Duku, E., Zwaigenbaum, L., Szatmari, P., Vaillancourt, T & Elsabbagh, M. (2017). Psychometric properties of the spence children's anxiety scale: Parent report in children with autism spectrum disorder. *Journal of autism and developmental disorders*, 47(12), 3847-3856. <https://doi.org/10.1007/s10803-017-3110-8>

- Kubb, C. & Foran, H. M. (2020). Measuring COVID-19 related anxiety in parents: Psychometric comparison of four different inventories. *JMIR mental health*, 7(12), 24507. <https://doi.org/10.2196/24507>
- Li, S., Wang, Y., Xue, J., Zhao, N., & Zhu, T. (2020). The impact of COVID-19 epidemic declaration on psychological consequences: a study on active Weibo users. *International journal of environmental research and public health*, 17(6), 2032. <https://doi.org/10.3390/ijerph17062032>
- Melbøe, L. & Ytterhus, B. (2017). Disability leisure: in what kind of activities, and when and how do youths with intellectual disabilities participate? *Scandinavian Journal of Disability Research*, 19(3), 245-255. <https://doi.org/10.1080/15017419.2016.1264467>
- Merrells, J., Buchanan, A., & Waters, R. (2018). The experience of social inclusion for people with intellectual disability within community recreational programs: A systematic review. *Journal of Intellectual & Developmental Disability*, 43(4), 381-391. <https://doi.org/10.3109/13668250.2017.1283684>
- Ministry of Education, (2016). *Regulations' Guide of Special Education Institutes in the Kingdom of Saudi Arabia* (1436-1437 AH). Kingdom of Saudi Arabia: Mistry of Education.
- Moore, K. A., & Mellor, D. J. (2016). The nature of children's social interactions at school. *School Psychology International*, 24(3), 329-339. <https://doi.org/10.1177/01430343030243005>
- Morrisette, M. (2021). School closures and social anxiety during the COVID-19 pandemic. *Journal of the American Academy of Child and Adolescent Psychiatry*, 60(1), 6. <https://doi.org/10.1016/j.jaac.2020.08.436>
- Navas, P., Amor, A. M., Crespo, M., Wolowiec, Z., & Verdugo, M. Á. (2021). Supports for people with intellectual and developmental disabilities during the COVID-19 pandemic from their own perspective. *Research in Developmental Disabilities*, 108, 103813. <https://doi.org/10.1016/j.ridd.2020.103813>
- Nkwanyana, S. (2020). Recreation and leisure in promoting social inclusion: A reflection of documented theory. *African Journal of Hospitality, Tourism and Leisure*, 9(2), 1-9.
- Raat, H., Mangunkusumo, R. T., Landgraf, J. M., Kloek, G., & Brug, J. (2007). Feasibility, reliability, and validity of adolescent health status measurement by the Child Health Questionnaire Child Form (CHQ-CF): internet administration compared with the standard paper version. *Quality of Life Research*, 16(4), 675-685. <https://doi.org/10.1007/s11136-006-9157-1>
- Shakespeare, T., Ndagire, F., & Seketi, Q. E. (2021). *Triple jeopardy: disabled people and the COVID-19 pandemic*. London: Lancet.
- Sideropoulos, V., Dukes, D., Hanley, M., Palikara, O., Rhodes, S., Riby, D. M., Samson, A. C., & Van Herwegen, J. (2021). The impact of COVID-19 on anxiety and worries for families of individuals with special education needs and disabilities in the UK. *Journal of autism and developmental disorders*, 1-14. <https://doi.org/10.1007/s10803-021-05168-5>
- Stanish, H. I. & Frey, G. C. (2008). Promotion of physical activity in individuals with intellectual disability. *salud pública de méxico*, 50, 178-184. <https://doi.org/10.1590/s0036-36342008000800011>
- Su, X., Cai, R. Y., Uljarević, M., Van Herwegen, J., Dukes, D., Yang, Y., Peng, X., & Samson, A. C. (2021). Brief Report: A Cross-Sectional Study of Anxiety Levels and Concerns of Chinese Families of Children With Special Educational Needs and Disabilities Post-first-wave of COVID-19. *Frontiers in Psychiatry*, 1614. <https://doi.org/10.3389/fpsy.2021.708465>
- Theis, N., Campbell, N., De Leeuw, J., Owen, M., & Schenke, K. C. (2021). The effects of COVID-19 restrictions on physical activity and mental health of children and young adults with physical and/or intellectual disabilities. *Disability and health journal*, 101064. <https://doi.org/10.1016/j.dhjo.2021.101064>
- Ullenhag, A., Bult, M. K., Nyquist, A., Ketelaar, M., Jahnsen, R., Krumlinde-Sundholm, L., Almqvist, L., & Granlund, M. (2012). An international comparison of patterns of participation in leisure activities for children with and without disabilities in Sweden, Norway and the Netherlands. *Developmental neurorehabilitation*, 15(5), 369-385. <https://doi.org/10.3109/17518423.2012.694915>
- United Nations. (1990) Convention on the Rights of the Child.
- United Nations. (2006) Rights and Dignity of Persons with Disabilities.
- Weng, P. Y., & Chiang, Y. C. (2014). Psychological restoration through indoor and outdoor leisure activities. *Journal of Leisure Research*, 46(2), 203-217. <https://doi.org/10.1080/00222216.2014.11950320>