

Effectiveness of an Instructional Program on Behaviors of Parents Toward Children with Attention Deficit Hyperactivity Disorder in Autism Centers at Baghdad City

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ABSTRACT

Objective: To find out the effectiveness of instructional program on behaviors of parents toward children with Attention Deficit Hyperactivity Disorder.

Methodology: A quasi-experimental study was conducted that included (120) deliberate samples of parents selected from eight autism centers according to the study criteria (60) parents in the centers (Al-Safa, Al-Marwa, Basmat Amal, Al-Tahadi), and (60) parents in the centers (Al-Rami, Al-Rahman, Al-Takhasusi, Al-Saeeda Family). The samples were divided into two groups (60) parents (study group) who participated in the instructional program and (60) parents (control group) who did not participate in the program. The groups are almost identical in their properties. The instructional program was implemented in four steps, the first step (pre-test) is to assess parents' behaviors towards children with ADHD before implementing the program, and the second step is to implement the program and then two tests and the time period between the first and second test is two weeks. The validity and reliability of the questionnaire were determined by a group of experts and through a pilot study of ten parents. Descriptive and inferential statistics were used to analyze the data.

Results: The results of the study indicated that the general evaluation of the parents' behaviors about ADHD for the study sample before implementing the program was a lack of basic behaviors about ADHD, but after implementing the program the result was: The study indicated a high effectiveness in the behaviors of the parents Matters between the study group as indicated by the high significance associated with the "Greenhouse-Geisser" correction at p-value = 0.001. A significant difference was found for the study group on the first and second pretest and posttest over time, compared with the control group.

Keywords: Effectiveness, Instructional Program, Behaviors, Parents, Attention Deficit Hyperactivity Disorder, Autism Centers.

INTRODUCTION

The child is the most precious possession of society because it is the future of mankind and the source of its strength and progress. Parents are directly responsible for the health of the child in order to be successful in the future. On the other hand, schools also play an important role in building the child personality and developing the cognitive style. The role of the teacher is more important because he/she is in direct contact with the child (Bartolome; Mamat & Masnan, 2017).

Attention-deficit/hyperactivity disorder stands for attention deficit hyperactivity disorder. It is a medical condition. A person with ADHD has differences in brain development and brain activity that affect attention, the ability to sit still, and self-control. Attention-deficit/hyperactivity disorder can affect a child at school, at home, and in friendships (Shirin Hasan, 2020).

Children need care that promotes positive emotional health and well-being and that supports their overall mental health, including a positive sense of self, as well as the ability to cope with stressful situations, temper emotional arousal, overcome fears, and accept disappointments and frustrations. Parents and other caregivers are essential resources for children in managing emotional arousal, coping, and managing behavior. They serve in this role by providing positive affirmations, conveying love and respect and engendering a sense of security. Provision of support by parents helps minimize the risk of internalizing behaviors, such as those associated with anxiety and depression, which can impair children's adjustment and ability to function well at home, at school, and in the community (Breiner H, Ford M, Gadsden VL, (2016).

Social and emotional difficulties are common especially in children with attention-deficit/hyperactivity disorder, social difficulties exist in a variety of forms and can lead to conflicts with the family and problems with peers; emotional difficulties often include poor emotional self-regulation, aggression, and reduced empathy; these difficulties can contribute to overt, physician-diagnosed, comorbid mental health disorders, including depression, anxiety, and conduct disorder (Al-Amarei, 2020).

METHODOLOGY

The study was carried-out in eight autism centers at Baghdad City (four in Al-Rusafa and four in Al-Karkh). Al- Rusafa autism centers includes; Al-Safa autism center, Al – Marwa autism center, Al-Basmat Amal autism center and Al-Tahady autism center. Al-Karkh autism centers includes; Al-Ramy autism center, Al-Rahman autism center, Al-Takhasosy autism center and Al- Happy Family autism center. The study conducted in Baghdad City, which includes two sectors (Al-Rusafa sector and Al-Karkh sector). Al-Rusafa sector contains ten autism centers and also, Al-Karkh sector contains ten autism centers. The study was conducted in four autism centers, out of ten schools for both sectors. Filling of the questionnaire and presentation of program was carried on in the computer lab and hall, which contain screen for viewing videos and presentation of the program. Non- probability sampling (purposive sample) of (120) parents (60) parent from (Al-Safa, Al – Marwa, Al-Basmat Amal, and Al-Tahady), and (60) parents from (Al-Ramy, Al-Rahman, Al-Takhasosy, and Al- Happy Family), were selected from eight autism centers and in accordance with the study criteria. The samples were divided into two groups (60) parents (study group) who participated in the instructional program and (60) parents (control group) who didn't participate in the program. The groups are almost matched relative to their characteristics.

RESULTS

Table 1: Distribution of the Sample According to their Personal Characteristics

| No. | Characteristics | Study group | | Control group | | |
|-----|-----------------|--------------|----|---------------|----|------|
| | | f | % | f | % | |
| 1 | Age (year) | 20 – 24 | 8 | 13.3 | 20 | 33.3 |
| | | 25 – 29 | 16 | 26.7 | 11 | 18.3 |
| | | 30 – 34 | 15 | 25 | 12 | 20 |
| | | 35 – 39 | 12 | 20 | 10 | 16.7 |
| | | 40 – 44 | 9 | 15 | 7 | 11.7 |
| | | Total | 60 | 100 | 60 | 100 |
| | M±SD | 31.17 ± 6.32 | | 29.62 ± 6.52 | | |
| 2 | Gender | Male | 35 | 58.3 | 33 | 55 |
| | | Female | 25 | 41.7 | 27 | 45 |

| | | | | | | |
|---|---------------------------|-------------|-------------|-------------|----|------|
| 3 | Residency | Total | 60 | 100 | 60 | 100 |
| | | Urban | 60 | 100 | 60 | 100 |
| | | Rural | 0 | 0 | 0 | 0 |
| 4 | Age of inflicted child | Total | 60 | 100 | 60 | 100 |
| | | ≤ 3 years | 9 | 15 | 11 | 18.3 |
| | | 4 – 6 years | 38 | 63.3 | 34 | 56.7 |
| | | 7 ≤ years | 13 | 21.7 | 15 | 25 |
| | | M±SD | 5.28 ± 1.75 | 5.22 ± 1.79 | | |
| 5 | Gender of inflicted child | Male | 36 | 60 | 42 | 70 |
| | | Female | 24 | 40 | 18 | 30 |
| | | Total | 60 | 100 | 60 | 100 |

No: Number, f: Frequency, %: Percentage, M: Mean, SD: Standard deviation

Table 2: Distribution of the Sample According to their Socio-demographic Characteristics

| No | Characteristics | Study group | | Control group | | |
|----|------------------------------|----------------------|----|---------------|----|------|
| | | f | % | f | % | |
| 1 | Marital status | Married | 48 | 80 | 47 | 78.3 |
| | | Divorced | 9 | 15 | 10 | 16.7 |
| | | Widowed/er | 3 | 5 | 3 | 5 |
| | | Separated | 0 | 0 | 0 | 0 |
| | | Total | 60 | 100 | 60 | 100 |
| 2 | Monthly income (Iraqi dinar) | < 200000 | 1 | 1.7 | 1 | 1.7 |
| | | 201000 - 400000 | 20 | 33.4 | 20 | 33.4 |
| | | 401000-600000 | 18 | 30 | 18 | 30 |
| | | 601000-800000 | 14 | 23.3 | 14 | 23.3 |
| | | 801000-1000000 | 5 | 8.3 | 5 | 8.3 |
| | | 1000000 < | 2 | 3.3 | 2 | 3.3 |
| 3 | Perceived monthly income | Total | 60 | 100 | 60 | 100 |
| | | Insufficient | 10 | 16.7 | 11 | 18.3 |
| | | Barely sufficient | 20 | 33.3 | 19 | 31.7 |
| | | Sufficient | 30 | 50 | 30 | 50 |
| 4 | Education | Doesn't read & write | 0 | 0 | 0 | 0 |
| | | Read & write | 2 | 3.3 | 2 | 3.3 |
| | | Primary school | 9 | 15 | 15 | 25 |
| | | Intermediate school | 22 | 36.7 | 15 | 25 |

| | | | | | | |
|---|------------------|-------------------|----|------|----|------|
| | Secondary school | 6 | 10 | 12 | 20 | |
| | | Institute | 6 | 10 | 5 | 8.3 |
| | | College or above | 15 | 25 | 11 | 18.4 |
| | | Total | 60 | 100 | 60 | 100 |
| 5 | Occupation | Employee | 13 | 21.7 | 12 | 20 |
| | | Free work | 30 | 50 | 28 | 46.7 |
| | | Retired | 0 | 0 | 2 | 3.3 |
| | | Jobless/housewife | 17 | 28.3 | 18 | 30 |
| | | Total | 60 | 100 | 60 | 100 |

No: Number, f: Frequency, %: Percentage

Table 3: Distribution of the Sample According to their Sources of Information about ADHD

| No. | Source | Study group | | Control group | | |
|-----|--|--------------|----|---------------|----|------|
| | | f | % | f | % | |
| 1 | Do you have information about ADHD? | No | 42 | 70 | 42 | 70 |
| | | Yes | 18 | 30 | 18 | 30 |
| | | Total | 60 | 100 | 60 | 100 |
| 2 | Do you heard about ADHD? | No | 49 | 81.7 | 49 | 81.7 |
| | | Yes | 11 | 18.3 | 11 | 18.3 |
| | | Total | 60 | 100 | 60 | 100 |
| 3 | Have you dealt with ADHD child previously? | No | 50 | 83.3 | 51 | 85 |
| | | Yes | 10 | 16.7 | 9 | 15 |
| | | Total | 60 | 100 | 60 | 100 |
| 4 | Do you read about ADHD? | No | 33 | 55 | 34 | 56.7 |
| | | Yes | 27 | 45 | 26 | 43.3 |
| | | Total | 60 | 100 | 60 | 100 |
| 5 | Sources of reading | None | 2 | 3.3 | 2 | 3.3 |
| | | Internet | 26 | 43.3 | 26 | 43.3 |
| | | Social media | 23 | 38.3 | 22 | 36.7 |
| | | Television | 1 | 1.7 | 1 | 1.7 |
| | | Books | 5 | 8.3 | 6 | 10 |
| | | Journal | 3 | 5 | 3 | 5 |
| | | Total | 60 | 100 | 60 | 100 |

No: Number, f: Frequency, %: Percentage

Table 4: Overall Assessment of Parents' Behaviors about Attention Deficit Hyperactivity Disorder among Study and Control Group

| Levels of Behaviors | Study Group (N= 60) | | | | | | | | | | Control Group (N=60) | | | | | | | | | | | | | |
|---------------------|---------------------|------|----|------|-------------|------|-------|--------------|----|-----|----------------------|-------|----|------|-------------|-------|----|--------------|-------|-------|----|-----|-------|-------|
| | Pre-test | | | | Post-test I | | | Post-test II | | | Pre-test | | | | Post-test I | | | Post-test II | | | | | | |
| | f | % | M | S.D | f | % | M | S.D | f | % | M | S.D | f | % | M | S.D | f | % | M | S.D | | | | |
| Poor | 46 | 76.7 | | | 0 | 0 | | | 0 | 0 | | | 47 | 78.3 | | | 48 | 80 | | | 54 | 90 | | |
| Fair | 14 | 23.3 | 33 | 8.81 | 4 | 6.7 | | | 6 | 10 | | | 13 | 21.7 | | | 12 | 20 | | | 6 | 10 | | |
| Good | 0 | 0 | 08 | 3 | 56 | 93.3 | 65.70 | 4.893 | 54 | 90 | 65.62 | 5.453 | 0 | 0 | 32.80 | 8.495 | 0 | 0 | 32.60 | 8.273 | 0 | 0 | 30.37 | 6.717 |
| Total | 60 | 100 | | | 60 | 100 | | | 60 | 100 | | | 60 | 100 | | | 60 | 100 | | | 60 | 100 | | |

f: Frequency, %: Percentage, M: Mean of total score, SD Standard deviation of total score

Table 5: Repeated Measure Analysis of Variance (RM-ANOVA) Test for Effectiveness of Instructional Program on Parents' Behaviors about Attention Deficit Hyperactivity Disorder among Study Group (N=60)

| Descriptive | Behaviors | Mean (S.D) | Within-Subjects Effect | | | | | | | | | |
|---|---|------------|------------------------|-------------------------|-----------|-------------|-----------|---------|------|---------------------|------|--|
| | | | Source | Type III Sum of Squares | df | Mean Square | F | P-value | Sig. | Partial Eta Squared | | |
| Pre-test Post-test I Post-test II | 33.08 (8.813) 65.70 (4.893) 65.62 (5.453) | | Time | Sphericity Assumed | 42445.433 | 2 | 21222.717 | 464.223 | .001 | H.S | .887 | |
| | | | | Greenhouse-Geisser | 42445.433 | 1.234 | 34404.447 | 464.223 | .001 | H.S | .887 | |
| | | | | Huynh-Feldt | 42445.433 | 1.247 | 34043.420 | 464.223 | .001 | H.S | .887 | |
| | | | | Lower-bound | 42445.433 | 1.000 | 42445.433 | 464.223 | .001 | H.S | .887 | |
| | | | Error(Time) | Sphericity Assumed | 5394.567 | 118 | 45.717 | | | | | |
| | | | | Greenhouse-Geisser | 5394.567 | 72.789 | 74.112 | | | | | |
| | | | | Huynh-Feldt | 5394.567 | 73.561 | 73.334 | | | | | |
| | | | | Lower-bound | 5394.567 | 59.000 | 91.433 | | | | | |
| | | | | Greenhouse-Geisser | 10184.656 | 74.308 | 137.061 | | | | | |
| | | | | Huynh-Feldt | 10184.656 | 75.172 | 135.485 | | | | | |
| | | | | Lower-bound | 10184.656 | 59.000 | 172.621 | | | | | |

S.D: Standard Deviation, df: Degree of Freedom, f: F-statistics, P-value: probability value, Sig: Significance, H.S: High Significant

DISCUSSIONS

Results revealed most of parents in the study group are with age (31.17±6.32) years in which the highest percentage seen with age group 25-29 years (26.7%). This finding reflect important approach, young parents' has been found to be challenging for the attention and meta cognitive capacities of most children with ADHD. This is

similar to the results done by Mikkelsen et al., (2017) entitled "Parental age and attention-deficit/hyperactivity disorder (ADHD)" mention that children born by parents aged 20 years or younger had more than twice the risk of being diagnosed with ADHD compared with children with parents between 26 and 30 years of age. When comparing full siblings the associations were

attenuated, but we found a trend of increased risk of ADHD with decreasing maternal age, which was not seen for paternal age. Also, the result of the study done by Henriquez-Henriquez et al., (2020) mention that the average age of the women in the case group was 40.63 ± 5.03 SD in a range of 28 to 54 years, and in men 43.20 ± 5.96 SD in a range of 30 to 65 years. The women in the control group had an average age of 42.48 ± 4.33 SD years, with ages ranging from 32 to 55 years; that of men in the control group was 44.05 ± 5.47 SD with an age range of 30 to 65 years. Statistically significant differences were found between groups in the average age of mothers ($p = .03$), which was lower in the group of mothers of children with ADHD. No significant differences were found in the ages of fathers between the two groups ($p = .42$).

The age of inflicted children with ADHD is refers to 4-6 years among parents in the study group (63.3%) with mean age (5.28 ± 1.75) years. Kim et al., (2017) mention Attention deficit hyperactivity disorder (ADHD) is 1 of the most common mental disorders in children between the ages of 5 and 15 years and affects approximately (8%–12%) of children worldwide. The gender of inflicted children was refers they are males among (60%) in the study group. The findings of this study are slightly different than done by Kim et al., (2017) entitled "Prevalence of Attention-Deficit/Hyperactivity Disorder and its Comorbidity among Korean Children in a Community Population", who found that the most ages of inflicted children with ADHD was (11.7%) in boys and (5.2%) in girls, with an overall prevalence of (8.5%). The findings of this study are agree with study done by Young et al., (2020) entitled "Females with ADHD: An expert consensus statement taking a lifespan approach providing guidance for the identification and treatment of attention-deficit/ hyperactivity disorder in girls and women", who found that ADHD is diagnosed approximately 3 times more often in boys than in girls. The gender ratio in this study was similar with the previous reports. It is reported that this difference between genders may reflect either a difference in susceptibility or that females with ADHD are less likely to be diagnosed than males. However, the underlying physiological mechanism that causes ADHD is still not thoroughly understood and remains under investigation.

Amel A., Amel S., and Erfan, (2018) "Effectiveness of Parents-Focused Cognitive-Behavioral Therapy on Attention Deficit Hyperactivity Disorder Symptoms, Obesity and Self-Esteem of Overweight Children with Attention Deficient Hyperactivity Disorder" mention that the results of this study, the average age of the children was 8.4 ± 1.8 years; nearly 67.5% of the children were male and 32.5% were female; the average age of children in the experimental group was 8.2 ± 1.8 years and of children in the control group was 8.6 ± 1.7 years ($P = 0.43$); there were 13 (65%) boys and 7 (35%) girls in the experimental.

The descriptive analysis of socio-demographic variables for parents shows that more of parents are still married as in the study group (8%) and control group (78.3%). The result of this study disagree with the study done by Azazy et al., (2018) mention that a significantly higher prevalence of ADHD was found among children whose parents were separated or divorced. This can be interpreted by the fact that children whose parents are separated or divorced do not receive proper attention and care from parents, and this leads to a greater incidence of ADHD symptoms. This was not the case in children being raised by a single parent in bereavement.

Finally, Attention deficit hyperactivity disorder (ADHD) its impact on society is enormous in terms of financial cost, stress to families, interference with academic and vocational activities, as well as negative effects on self-esteem. Due to the substantial burden of this disease, an accurate should provide information about ADHD for improving the quality of public health mental services for evaluation and treatment of ADHD.

The result of the study (30%) of parents in the study group and (30%) in the control group are having information about ADHD. Only (18.3%) of parents in the study group and (18.3%) in

the control group are heard about ADHD. Only (45%) in the study group and (43.3%) in the control group are read about ADHD. The sources of reading information show that the highest percentages were distributed for internet and social media as seen among parents in the study group (43.3% and 38.3%) and parents in the control group (43.3% and 36.7%). The result of the study agree with the study done by Climie and Henley, (2018) mention that parents of children with ADHD report using a wider range of information sources than their children to obtain ADHD knowledge; as such, 49% of parents and 51% of children reported the internet to be their preferred source of information over a medical professional. Also, the study done by Bussing et al., (2012) mention that parents used a wide range of ADHD information sources while adolescents relied on social network members and teachers/school. However, parents and adolescents expressed similar strong preferences for the Internet (49% and 51%) and doctor (40% and 27%) as ADHD information sources.

Also, the study done by Dodangi, Vameghi, and Habibi, (2017) reveals to the most common source of parent's information about ADHD was TV. The parent's knowledge about the symptoms of the disorder was relatively good. But in regard to diagnosis, treatment and prognosis of the disorder, they have very low knowledge and even incorrect beliefs. The parent's knowledge significantly correlated with their educational level ($p=0.01$).

The overall evaluation of the study and control groups' behaviors about domains over time for the study group noticeably increase by time for the study group (Pretest =10.54, Posttest I =13.98, Posttest II =14.43). For the control group, such values slightly decrease by time (Pretest =9.92, Posttest I =9.85, Posttest II =9.86). The study done by Hosseinnia, Mazaheri, and Heidar, (2020) "Knowledge, attitude, and behavior of elementary teachers regarding attention deficit hyperactivity disorder" mention that revealed the effect of behavioral parent training on reducing attention-deficit / hyperactivity disorder in this age group. The parents, who do not have enough knowledge about dealing with a hyperactive child, use negative behaviors towards children, which make them ineffective in controlling the child's hyperactivity. Inadequate knowledge of parents would lead to a decrease in the quality of the parent-child relationship. In addition, parents' knowledge about ADHD makes them behave accurately towards the child and adjust their behavior according to the specific circumstances of the ADHD child with a positive attitude.

REFERENCES

1. Ahmed MM, Younis NM, Hussein AA. Violence towards nurses staff at teaching hospitals in Mosul City. *Indian J. Forensic Med. Toxicol* 2020;14(3):2598-603.
2. Al-Amarei Hassam Muttashar Zan, (2020). "Effectiveness of an Educational Program on Primary School Teachers' Knowledge and Attitudes Toward Attention Deficit Hyperactivity Disorder in Al-Najaf", College of Nursing, University of Babylon.
3. Altszuler Amy R., Timothy F. Page, Elizabeth M. Gnagy, Stefany Cox, Alejandro Arrieta, Brooke S. G. Molina, and William E. Pelham Jr., (2016). "Financial Dependence of Young Adults with Childhood ADHD", *Abnorm Child Psychol Journal*, 2016 Aug; 44(6): 1217–1229. doi: 10.1007/s10802-015-0093.
4. Amel Afsaneh Karbasi, Amel Saeed Karbasi, and Erfan Arefeh, (2018). "Effectiveness of Parents-Focused Cognitive-Behavioral Therapy on Attention Deficit Hyperactivity Disorder Symptoms, Obesity and Self-Esteem of Overweight Children with Attention Deficient Hyperactivity Disorder", *Adv Biomed Res. Journal*, Apr 25. doi: 10.4103/abr.abr_170_17, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5952537/>
5. Anastopoulos A., Beal K., Reid Rachel J., and Reid Robert, "Impact of Child and Informant Gender on Parent and Teacher Ratings of Attention-Deficit/Hyperactivity Disorder", *Psychological Assessment Journal*, June, 30(10), DOI:10.1037/pas0000627, https://www.researchgate.net/publication/325984922_Impact_of_Child_and_Informant_Gender_on_Parent_and_Teacher_Ratings_of_Attention-DeficitHyperactivity_Disorder.
7. Azazy S., Nour-Eldein H., Salama H., and Ismail M., "Quality of life and family function of parents of children with attention deficit hyperactivity disorder", *EMHJ*, Vol. 24 No. 6 – 2018,

- https://applications.emro.who.int/emhj/fulltext/emhj_24_6_2018.pdf#page=81.
8. Bartolome, M. T., Mamat, N., & Masnan, A. H. (2017). "Parental Involvement in the Philippines: A Review of Literatures". *J International of Early Childhood Education and care* (6):41-50.
 9. Breiner H, Ford M, and Gadsden VL, (2016), "Parenting Matters: Supporting Parents of Children Ages 0-8", National Academies of Sciences, Engineering, and Medicine, National Academies Press (US); 2016 Nov 21.
 10. Bussing Regina, (2012). "ADHD Knowledge, Perceptions and Information Sources: Perspectives from a Community Sample of Adolescents and their Parents", *Journal Adolesc Health*, Apr 51(6): 593–600, doi: 10.1016/j.jadohealth.2012.03.004., <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3505280/>
 11. Cervantes-Henriquez M.L., Acosta-López J. E., and Martínez-Banfi M. L., (2018)."ADHD Endophenotypes in Caribbean Families", *Journal Attention Disorder*, Vol 24, Issue 14, <https://journals.sagepub.com/doi/abs/10.1177/1087054718763741>.
 12. Climie Emma A. and Henley Laura (2018)."Canadian parents and children's knowledge of ADHD", *Vulnerable Children and Youth Studies Journal*, June 13(3):1-10, DOI:10.1080/17450128.2018.1484975.
 13. Dekkers Tycho J., Huizenga Hilde M., Bult Jente, Popma Arne and Boyer Bianca E., 2020. " The importance of parental knowledge in the association between ADHD symptomatology and related domains of impairment", *European Child & Adolescent Psychiatry* volume 30, pages657–669.
 14. Dodangi N., Vameghi R., and Habibi N., (2017). "Evaluation of Knowledge and Attitude of Parents of Attention Deficit/Hyperactivity Disorder Children towards Attention Deficit/Hyperactivity Disorder in Clinical Samples", *Iran J Psychiatry*. 2017 Jan; 12(1): 42–48.
 15. Henriquez-Henriquez M., Maria T. , Ariel F. Martínez, Jorge I. Vélez, Lopera F., Pineda D., Juan D., Quiroga T., Tilla S., Richard J., Mastronardi C., Brooke S., (2020), "Mutations in sphingolipid metabolism genes are associated with ADHD", *Translational Psychiatry Journal* (2020) 10:231, <https://doi.org/10.1038/s41398-020-00881-8>.
 16. Hosseinnia Maede, Mazaheri Maryam Amidi, Heidari Zahra, (2020). "Knowledge, attitude, and behavior of elementary teachers regarding attention deficit hyperactivity disorder", *Journal Edu Health Promot*, 2020, 9:120, <https://jehp.net/article.asp?issn=22779531;year=2020;volume=9;issue=1;spage=120;epage=120;aulast=Hosseinnia>.<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4887412/>.
 17. Kim J., Kim S., Choi J. , Kim K., Hannah Nam S., Min K., Lee Y. and Young Choi T., (2017). "Differences in Resting-state Quantitative Electroencephalography Patterns in Attention Deficit/Hyperactivity Disorder with or without Comorbid Symptoms", *Clin Psychopharmacol Neurosci Jurnal*, May; 15(2): 138–145, doi: 10.9758/cpn.2017.15.2.138.<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5426496/>
 18. Mahmood Mohammed Ahmed, Nasir Muwfaq Younis, Nawaf Mohammed Dahir, Kareem Nasir Hussain. Acceptance of Covid-19 vaccine among nursing students of Mosul University, Iraq. *Rawal Medical Journal*: Apr-Jun 2022. Vol. 47, No. 2,pp:254_258.
 19. Mahmoud Mohammed Ahmed, Nasir Muwfaq Younis and Ahmed Ali Hussein. Prevalence of Tobacco use among Health Care Workers at Primary Health care Centers in Mosul City. *Pakistan Journal of Medical and Health Sciences*, 2021, 15(1), pp. 421–424
 20. Mikkelsen S., Olsen J., Hammer Bech B., Obel C., (2017), "Parental age and attention-deficit/hyperactivity disorder (ADHD)", *Int J Epidemiol*, Apr 1; 46(2):409-420., doi: 10.1093/ije/dyw073. <https://pubmed.ncbi.nlm.nih.gov/27170763/>
 21. Muwfaq YN, Ahmed MM, Abdulsalam RR. Assessing Quality of Life in Palliative Care. *Bahrain Medical Bulletin* 2021;43(3):594-6.
 22. Muwfaq Younis N , Efficacy of Health Beliefs Model-Based Intervention in Changing Substance Use Beliefs among Mosul University Students: A Randomized Controlled Trial. *Revis Bionatura* 2022;7(2) 35. <http://dx.doi.org/10.21931/RB/2022.07.02.35>
 23. Najj AB, Ahmed MM, Younis NM. Adherence the Preventive Measure Against for COVID-19among Teachers at University of Mosul. In *J Med Tox Leg Med* 2021;24(3&4).pp:273_277.
 24. Nasir Muwfaq Younis ,Mahmoud Mohammed Ahmed, and Ahmed Ali Hussein.Nurses' knowledge, attitude and practice towards preparedness of disaster management in emergency of mosul teaching hospitals. *Medico-Legal Update*, 2020, 20(3), pp. 775–779.
 25. Nasir Muwfaq Younis,Mahmoud Mohammed Ahmed and Nawaf Mohammed Dahir. Prevalence of Covoravirus among Healthcare Workers. *International Journal of Medical Toxicology&Legal Medicine*.Volume 24,Nos.1-2,jan-jaune 2021.pp:267-269.
 26. ShahRuchita,AkhileshSharma,SandeepGrover,DikshaSachdeva,Sub hChakrabarti Ajit Avasthi, (2021). "Development and effectiveness of parent skills training intervention for Indian families having children with attention-deficit/hyperactivity disorder (ADHD)", *Asian Journal of Psychiatry*, Vol 64, October 2021, 102762, <https://doi.org/10.1016/j.ajp.2021.102762>.
 27. Shatha Abdul Rahman H. Al-Ghurairi, Nasir Muwfaq Younis , Mahmoud Mohammed Ahmed.Prevalence of weight gain among students of Mosul University, Iraq during quarantine 2020. *Rawal Medical Journal*: 2022. Vol. 47, No. 3.
 28. Shirin Hasan, (2020). "ADHD", *Psychology (Behavioral Health) at Nemours Children's Health KidsHealth*. Org., <https://kidshealth.org/en/parents/adhd.html>.
 29. Young S., Adamo N., Ásgeirsdóttir B., Branney P, Beckett M., Colley W., Sally Cubbin S., Deeley Q., Farrag E., Gudjonsson G., Hill P., Hollingdale J., Kilic O., Lloyd T., Mason P.,Paliokosta E.,Perecherla S., Jane Sedgwick O., Skirrow C., Tierney K., Rensburg K., and Woodhouse E., (2020)."Females with ADHD: An expert consensus statement taking a lifespan approach providing guidance for the identification and treatment of attention-deficit/hyperactivity disorder in girls and women", *BMC Psychiatry Journal*, (2020) 20:404, <https://doi.org/10.1186/s12888-020-02707-9>.
 30. Younis NM, Mahmoud M, Ahmed A, et al. University Students' Attitude Towards E-Learning. *Bahrain Medical Bulletin* 2021;43(2):460-2.