DEPRESSION AND SELF-ESTEEM IN PRIMARY SCHOOL STUDENTS FROM KENITRA PROVINCE, MOROCCO

Imane Jaghror ^{1*}, Miloud Chakit ², Hafida Jaghror ³, Hala Harrifi ⁴, Mohammed El Aameri ⁵ and Leila Bikjdaouene ⁶

^{1,2,3,4,5,6} Biology and Health Laboratory, Faculty of Sciences, Ibn Tofail University, Kenitra, Morocco. *Corresponding Author Email: jaghror.imane@uit.ac.ma

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Abstract

Depression is a complex mental disorder that affects millions of people around the world. Characterized by prolonged periods of sadness, hopelessness and loss of interest in usual activities, depression also causes significant impairment in social, professional and personal functioning. This work aims to assess the impact of depressive state on self-esteem on primary school students from the province of kenitra, Morocco. 205 students, aged between 8 and 14 years with an average age of 10.37 years, enrolled at the Charrif El Idrissi School in Kenitra. To achieve this goal, we used the Toulouse Self-Esteem Scale (E.T.E.S) to assess self-esteem and the Children's Depression Inventory (CDI) from KOVACS and BECK to assess depression. As a first step, we studied these dimensions according to the sex and age of the students. The results show that depression is positively correlated with age with a P value equal to 0.014 (and F=1.709), the depression increases with age of the students. Low self-esteem is associated with depression (p<0.05). In summary, self-esteem is correlated with depression in primary students of Charif El Idrissi School, Kenitra.

Keywords: Self-Esteem - School Performance - Child - Academic Success - Morocco.

1. INTRODUCTION

Depression is a complex mental disorder that affects millions of people around the world. Characterized by prolonged periods of sadness, hopelessness, and loss of interest in usual activities, depression also causes significant impairment in social, occupational, and personal functioning. Beyond emotional symptoms, depression is often accompanied by low self-esteem, thus contributing to the psychological distress experienced by affected individuals [1-4].

This study focuses on exploring the impact of depression on self-esteem. By reviewing the existing literature, we seek to better understand the complex relationship between these two dimensions of mental health. We also address age variations in the manifestation of depressive symptoms and self-esteem, as well as the underlying mechanisms that might explain this association [5, 6].

Our analysis draws on established psychological theories and recent empirical research, allowing for in-depth exploration of this crucial area of study. By better understanding the dynamics between depression and self-esteem, we could develop more effective interventions to help those who struggle with these mental disorders [7, 8].

Depression is a complex mental disorder characterized by prolonged episodes of sadness and marked disinterest in usual activities. In addition to emotional symptoms, it also manifests through vegetative signs such as sleep disturbances and major psychological symptoms, including feelings of guilt, unworthiness, and low self-esteem [9-11] theorized the existence of two types of depression: endogenous, caused primarily by biological dysfunctions, and exogenous, resulting from external stresses.

However, recent research suggests instead a continuum between these two types of depression, where only the intensity of the symptoms differs [12, 13].

In the DSM-V, the diagnostic criteria for a major depressive episode have been modified compared to the DSM-IV-TR, in particular by the removal of the exclusion criterion of bereavement (American Psychiatric Association, 2013). Current criteria require the presence of at least five of the following symptoms within a two-week period, including depressed mood, loss of interest or pleasure, significant changes in weight, sleep disturbances, psychomotor disturbances, fatigue, feelings of worthlessness or guilt, difficulty concentrating, and recurrent suicidal thoughts [14,15].

The depression is characterized by three manifestations: emotional, cognitive and physical and vegetative. The term emotional manifestation refers to changes in the patient's feelings or changes in their behavior directly attributable to their emotional state. Emotional manifestations include depressed mood, self-hatred, loss of gratification, loss of attachment, crying spells, and loss of the pleasure response. Physical and vegetative manifestations of depression include loss of appetite, sleep disturbances, loss of libido and severe fatigue. Finally, the cognitive manifestations of depression refer to low self-esteem, indecision, distorted self-image, loss of motivation and suicidal ideation [16, 17].

The symptoms of a major depressive episode are the same for children, adults, and older adults, except that the predominance of characteristic symptoms may change with age. Thus, certain symptoms such as somatic complaints, irritability, crying and social withdrawal are more particularly common to children while psychomotor slowing, hypersomnia and disillusionment are more often found in adolescence and middle age. Adult [18, 19].

We have not always accepted that depression is a pathology applicable to children. Indeed, the oldest school of thought suggests that depression, as a disorder similar to that experienced in adults, does not exist in children. In psychoanalytic thought of the time, it was believed that depression could not occur before adolescence, a time when the superego is more developed. The second period of thought says that the child may develop depression but, in addition to the symptomatology, Ultimately, we find symptoms unique to the child [20, 21]. The third point of view is very similar to the previous one. He argues that depression in children presents a very different picture from that in adults. This is called masked depression. Finally, over the last 20 years, we have observed the emergence of a fourth point of view which accepts depression in children. This theory makes it possible to use basic criteria in adults to diagnose depression in children and adolescents [22-25].

Children often face stressful situations that can have a significant impact on their psychosocial development. Some children respond to these situations with persistence and motivation, actively seeking solutions to their problems, while others adopt what he called "learned resignation." These resigned children become passive, lose motivation and enthusiasm to take on new challenges, and express pessimism about their abilities to accomplish tasks [26, 27].

Furthermore, recent advances in genetics have highlighted the importance of genetic factors in the predisposition to depression in children. Recent studies identified several genetic variants associated with an increased risk of developing depressive symptoms in children, reinforcing the idea of a genetic contribution to vulnerability to depression from a young age [28,29].

Contemporary research highlights the complexity of the determinants of depression in children, emphasizing the importance of psychological and social factors in addition to biological influences. Several theories of depression posit that low self-esteem plays a central role in this disorder and recent studies have supported the links between low self-esteem and depression. However, the direction of this relationship remains debated: does low self-esteem predispose to depression, or is it rather depression that contributes to the development of low self-esteem? It is also possible that these two phenomena are interdependent or share common causes [30-33].

This study aims to assess the impact of depressive state on self-esteem on primary school students from the province of kenitra, Morocco.

2. MATERIALS AND METHODS

2.1 Participants

A sample of 205 pupils includes 108 boys and 97 girls (figure 1) continuing their studies at different levels from the 3rd to the 6th year of primary school, from the Charrif El Idrissi primary school in Kenitra, aged 8 to 14 years with an average of age of 10.37.

2.2 Instruments

We have chosen to use Nathalie OUBRAYRIE's Toulouse Self-Esteem Scale (ETES) to measure self-esteem, and the general average obtained at the end of the 2017/2018 school year to assess performance school.

To implement this project, we first had to translate the test used into Arabic so that it was compatible with the Moroccan context and to assess its reliability since it was its first use in Morocco.

2.2.1 The Toulouse Scale of Self-Esteem

We selected the Toulouse Self-Esteem Scale (E.T.E.S) for children and adolescents developed by OUBRAYRIE, SAFONT and al. (1991) [18]; OUBRAYRIE, DE LEONARDIS and SAFONT (1994) [19].

The E.T.E.S was chosen because it is easy to use and analyze, but also for its practicality during examinations with children, especially in schools.

This test consists of a questionnaire of 60 statements that the child validates or invalidates according to a scale ranging from 1 to 5 ("1 = completely disagree; 5 = "completely agree").

These statements correspond to 5 domains: the EMOTIONAL SELF, the SOCIAL SELF, the SCHOOL SELF, the PHYSICAL SELF and the FUTURE or PROJECTIVE SELF.

These components are tested by 12 items each arranged randomly (they are presented mixed for the child who completes the questionnaire). For example, the Items corresponding to the EMOTIONAL SELF = 1, 6, 11, 16, 18, 21, 31, 35, 40, 44, 49, and 54.

It is the sum of the scores obtained for each of the items that makes it possible to calculate the General Self-Esteem Score. This can therefore be analyzed in 5 partial scores according to the totals obtained for the emotional self, the social self, the physical self, the school self and the projective self. These scores are an indication of

the value or devaluation of the subject's self-image. Each sub-dimension is counted out of 60 and the General Score is given out of 300.

In the items, a distinction is made between those formulated positively and those formulated negatively. For example, item 6 "I feel good about myself" is positive. And item 1 "I get angry easily" is negative. When the item is positive, the answer is reported directly. For example, to item 6, if the subject answers 1, we score 1 and if he answers 5, we score 5. When the item is negative, it is an inverted item, so it is necessary to report the inverse response. For example, to item 1, if the subject answers 1, we score his answer 5, if he answered 2, we score 4 ... if he answers 5, we score his answer 1.

2.2.2 Depression Assessment

The Children's Depression Inventory (CDI) from KOVACS and BECK was used to assess depression state in primary school students.

2.3 Procedure

One day was allocated to each level where we carried out the test in seven classes: one from 3rd year of primary education (3rd YPE), two from 4rd YPE, two 5rd YPE and two 6rd YPE. The execution time is half an hour and the process was collective.

We distributed the papers; we asked the students to write their names (to facilitate the task of taking notes) then we explained the subject of the test as well as its instructions. The privacy and the rights of participants were also discussed.

We read the questions one by one to maintain consistency and ensure that the students answer the questions with the help of the class teacher.

After completing the course of the test for all classes we sorted out the invalid papers (those that ticks several boxes of the same question), then we moved on to the stage of taking data using the Excel program.

We waited until the end of the 2017/2018 school year to obtain the general grades of the students who will serve as school performance. Finally, we arrived at the stage of analysis of the results which was done using the SPSS software.

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3. RESULTS

3.1 Distribution of Students by Gender

As shown in figure 1, we see that the study population is made up of 205 students, of whom 53% (n=108) are male and are in the majority compared to the female sex, which represents 47% (n=97). The sex ratio is therefore unbalanced, it is equal to 1.11 in favor of the male sex.

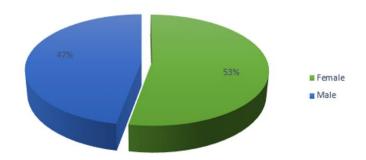


Figure 1: Breakdown of Students Surveyed by Gender

3.2 Descriptive Analysis

Descriptive analyzes (mean, median and standard deviation, etc.) were carried out on the overall scores relating to the different areas of the Toulouse self-esteem scale to describe the general trends of our population. Similarly, the normality of the distributions of the different variables was verified through Skewness asymmetry constants and Kurtosis. An empirical distribution approaches that of the normal law when the skewness coefficient is between -1 and 1 while the kurtosis coefficient is between -3 and 3.

Table 1: Descriptive Analysis of the Average Scores of the different Dimensions of the E.T.E.S of our population.

	N	Avg	Er sd	Med	Mini	Maxi	Asy	Kurt	E-type
School self	205	41.54	0,53	42,0	20	60	-0,247	-0,17	7,63
Physical self	205	41.31	0,49	41,0	20	56	-0,411	-0,212	7,09
Project self	205	41.06	0,41	42,0	24	56	-0,228	-0,12	5,95
Social self	205	40.69	0,40	41,0	24	55	-0,411	0,050	5,86
Emotional self	205	42.02	0,46	43,0	16	58	-0,450	0,64	6,77

Avg: Average; Er sd: Standard Error; Med: Median; Min: Minimum value; Max: Maximum value; Asy: Asymmetry; Kurt: Kurtosis; E-standard: Standard deviation; N: total.

According to the data in Table 1, for the five dimensions of the E.T.E.S. We have a Skewness coefficient between -1 and 1 and a Kurtosis coefficient between -3 and 3, which qualifies our distribution as a Gaussian distribution.

Table 1 summarizes the different scores obtained for the main dimensions of self-esteem. We note an average score of the school self of 41.54 (Standard deviation=7.63) with a minimum of 20 and a maximum of 60. Concerning the physical self, the average is 41.1 (standard deviation = 7.09).

For the projective self, the average is 41.06 (standard deviation = 5.95), with a minimum of 24, a maximum of 56.

For the social self, the average score is 40.69 (standard deviation = 5.68) with a minimum of 24, a maximum of 55.

For the emotional self, the average score is 42.02 (standard deviation = 6.77) with a minimum of 16, a maximum of 58.

Following the descriptive analysis, it is possible to declare that all the variables from the (E.T.E.S.) meet the conditions of the normal distribution.

3.3 Depressive Assessment

3.3.1 Depressive State According to Age

Table 2 shows the correlation between depression scores and age. According to this Table, the ANOVA correlation reveals that depression is positively correlated with age with a P value equal to 0.014 (and F=1.709), we observe when the age of the students increases the depression score increase.

Table 2: Correlation between the CDI Score and the Age of the Students

	Sum of squares	F	Signification
Intergroups	104,883	1,709	,014
Intra-groups	306,819		
Total	411,702		

3.3.2 Depressive State According to Sex

The comparison of the average CDI score and gender according to the ANOVA test is represented by Table 5

Table 3: Correlation between the CDI Score and the Sex of the Students

	Score total de dépression				
		Mean	F	p-value	
Sex	Female	17.08	8.082	0.05	
Sex	Male	16.91	0.002	0,05	

3.3.3 Correlational between Depression and Self-esteem

The table 4 shows the correlational analysis of the relation between depression and self-esteem.

Figure 4: Box-plot Representation of the two Sexes according to the Five Dimensions of the E.T.E.S. (2= male gender ,1= female gender)

		DCI	Score Total
School self	Pearson correlation	-,379**	,824**
	Sig.	,000	,000
	N	205	205
	Pearson correlation	-,335**	,783**
Physical self	Sig.	,000	,000
	N	205	205
	Pearson correlation	-,275**	,641**
Projective self	Sig.	,000	,000
	N	205	205
	Pearson correlation	-,263**	,540 ^{**}
Soi social	Sig.	,000	,000
	N	205	205
	Pearson correlation	-,470 ^{**}	,632**
Emotional self	Sig.	,000	,000
	N	205	205
	Pearson correlation	1	-,441**
DCI	Sig.		,000
	N	205	205
Score Total	Pearson correlation	-,441**	1
	Sig.	,000	
	N	205	205

4. DISCUSSION

With regard to the variation of the self-concept according to age, we observe a decrease in the scores of global self-esteem as well as of its five components emotional self, academic self, physical self, social self and projective self. During the years of schooling, in other words the more the children get older the more their self-esteem scores decrease. This is consistent with a study done to explore the relationship between age and the development of self-concept in children aged 5, 6, 7 and 8 years, which indicated a positive increase in self-concept during the first three years and then a decrease in the fourth year [20].

On the other hand, as we have noticed in other studies, the empirical data report varied results, such as: little change, a decrease or an increase in the level of self-esteem. The tendency to vary self-concept scores with age, especially in young children, can be explained according to WYLIE (1979) [21] by several factors, including the influence of an increasing ability to understand questions and to make different responses. Indeed, she suggests, among other possible explanations, that self-perception becomes more and more accurate as intellectual abilities develop.

Our results show that girls have lower self-esteem than boys, this is consistent with all studies on the issue of self-esteem in different countries, which have shown that girls present in childhood and in adolescence) lower self-esteem than boys, if we focus on overall self-esteem [22-26].

However, if these differences between girls and boys are obvious when we focus specifically on overall self-esteem, HARTER (1988) [2] showed that these results could be relativized when we consider attaching to the different areas of adolescent life, suggesting that the "superiority" of boys is not expressed at all levels [25].

For example, we find a better self-evaluation of boys in terms of athletic skills and in terms of physical appearance [27-29].

Several studies [30-35] have shown that students who fail at school, placed in specialized classes, paradoxically tend to overestimate their abilities, especially academically, while those who have remained in the normal cycle are strongly devalued academically [36-40]. On the other hand, the situation of failure of students in specialized classes being institutionally recognized, their general self-esteem is greatly depreciated [41-44].

In terms of gender identity, other research also shows the tendency of adolescent girls to devalue themselves, compared to boys, regardless of their level of academic achievement [23, 45]. A study emphasizes the link between depression and self-esteem. According to the results obtained, self-esteem will be all the more positive if in the educational style, negotiation, relationship, communication and encouragement in decision-making are perceived. On the other hand, negative self-esteem will be characteristic of an educational style where control, constraint, weak communication between parents and child, and the encouragement of accommodation will be predominant [46-51].

This study has several limitations. Only cross-sectional data were used, self-esteem assessments were based exclusively on self-reports, and academic achievement was estimated retrospectively. This was not at the time when opinions on self-esteem were asked, but mainly on the basis of the scores of the diagnostic assessment which takes place at the beginning of the year [52-54].

5. CONCLUSION

In summary, self-esteem is a determining factor in school performance of the students of Charif El Idrissi School, Kenitra, Morocco. Furthermore, the moderating role of the learning environment was not considered and no evidence was presented to what extent the collected data is generalizable to other countries. Further efforts must be taking by the education personal director, supervisor, teacher) in order to improve the self-esteem in students

References

- Meskini N, Chakit M, Lamtai M, Ftih Z, El aameri M, Sfendla A, Ouahidi ML. Relationship Between Academic Achievement And Depressive Syndrome Among Middle School Students In Kenitra. Community Practitioner. 2024;21(3):308-318
- 2) EL-Hamaoui A, Chakit M, Saidi H, Fitah I, Khadmaoui A. Psychological assessment of quality of life in a Moroccan population with chronic disease. International Journal of Chemical and Biochemical Sciences. 2023; 24 (6):121–129.
- Fitah I, Chakit M, El Kadiri M, Brikat S, El Hessni A, Mesfioui A. (2023). The evaluation of the social functioning of schizophrenia patients followed up in the health center My El Hassan of Kenitra, Morocco. Egypt J Neurol Psychiatry Neurosurg. 59 (1):125. https://doi.org/10.1186/s41983-023-00714-7.
- 4) ROSENBERG, M., 1965. Society and the adolescent self-image. Princeton University Press, New Jersey. Rosenberg, M., 1979. Conceiving the self. Basic Books, New York.
- 5) El-Hamaoui A, Chakit M, Saidi H, Fitah I, Khadmaoui A. Evaluation Of Social Support Among Persistent Chronic Disease Patients Followed Up At Provincial Hospital Of Kenitra, Morocco. Community Practitioner. 2024; 21(4):255-263.
- 6) WYLIE RC. The Self Concept: Theory and Research on Selected Topics. 1979; 2, Lincoln: University of Nebraska Press.
- 7) Block J, Robins RW. A longitudinal study of consistency and change in self-esteem from early adolescence to early adulthood. Child Development. 1993; 64, 903-923.
- 8) Alsaker FD, Olwens D. Global self-evaluations and perceived instability of self in early adolescence: A cohort longitudinal study. Scandinavian Journal of Psychology. 1993; 2:123-145.
- 9) DA Fonseca D, Cury F, Fakra E, Rufo M, Poinso F, Bounoua L, Huguet P. Implicit theories of intelligence and IQ test performance in adolescents with generalized anxiety disorder. Journal of Behaviour Therapy and Research. 2008; 46:529-536.
- 10) Rodriguez-Tomé H, Bariaud F, Cohen-zardi MF, Delmas C, Jeanvoine B, Szylagi P. The effects of pubertal changes on body image during adolescence. Journal of Early Adolescence. 1993; 10: 159-175.
- Goodenow C, Grady KE. The Relationship of School Belonging and Friends' Values to Academic Motivation among Urban Adolescent Students. Journal of Experimental Education. 1993; 62(1), 60-71
- 12) Ryan AM, Patrick H. The classroom social environment and changes in adolescents' motivation and engagement during middle school. American Educational Research Journal. 2001; 38, 437–460.
- 13) Ruble DN, Martin C. Gender development. In N. Eisenberg (Ed.), Handbook of Child Psychology: Vol. 3, Personality and Social Development. New York, NY: John Wiley & Sons, Inc. 1998.
- 14) Brikat S, Lamtai M, Chakit M, Ibouzine-Dine L, Fitah I, Abouyaala O, Mesfioui A, El-Hessni A. Curcuma Longa Methanolic Extract and Losartan Improves Memory Impairment and Oxidative Stress induced by a High Caloric Diet in Wistar Rats. Adv. Anim. Vet. Sci. 2024; 12(4):614-623.

- 15) Nassiri A, Lamtai M, Berkiks I, Benmhammed H, Coulibaly M, Chakit M, Mesfioui A, El Hessni A. Age and Sex-Specific Effects of Maternal Deprivation on Memory and Oxidative Stress in the Hippocampus of Rats. International Journal of Chemical and Biochemical Sciences. 2023; 24 (6):121–129.
- 16) Nassiri A, Chakit M, Berkiks I, benmehammed H, Lamtai M, Chana L, Mesfioui A, El Hessni A. Sex Dimorphism of Memory Response to Long-term Effect Lipopolysaccharide Administration in Wistar Rats. International Journal of Chemical and Biochemical Sciences. 2023; 24 (5): 685–692.
- 17) Brikat S, Chakit M, Lamtai M, Fitah I, Abouyaala O, Mesfioui A, El-Hessni A. Effects of Curcuma longa methanolic extract and losartan on anxiety- and depression-like behaviors induced by a high caloric diet in adult female Wistar rats. International Journal of Chemical and Biochemical Sciences. 2023:24(6):886–895.
- 18) Nassiri A, Lamtai M, Berkiks I, Benmhammed H, Coulibaly SM, Chakit M, Ibouzine-Dine L, Mesfioui A, El-Hessni A. Age and sex dependent effects of maternal deprivation on anxiety-like and depressive-like behaviors and oxidative stress in the prefrontal cortex of rats. Adv. Anim. Vet. Sci. 2024; 12(3):457-466.
- 19) Kherrab I, Chakit M, Brikat S, Ibouzine-dine L, Mesfioui A, Elhessni A. Thyme Honey Supplementation Improves Memory Ability In High Fructose Treated Rats During Prepuberty And Adolescence. Community Practitioner. 2024; 21(4):264-274.
- 20) Bouffard T, Marcoux MF, Vezeau C, Bordeleau L. Changes in self-perceptions of competence and intrinsic motivation among elementary school children. British Journal of Educational Psychology. 2003; 73, 171-186.
- 21) Baataoui S, Chakit M, Boudhan M, Ouhssine M. Assessment of Vitamin D, Calcium, Cholesterol, and Phosphorus status in Obese and Overweight patients in Kenitra city (Morocco). Res J Pharm Technol. 2023; 16(7):3405–3409. https://doi.org/10.52711/0974-360X.2023.00563.
- 22) Baataoui S, Chakit M, Boudhan M, Ouhssine M. Effect of Vitamin D Supplementation on the Response of Phosphocalcic Metabolism in Moroccan Population. Int J Chem Biochem Sci. 2023; 24(5):770–775.
- 23) Lotfi S, Chakit M, Belghyti D. Correlation between VO2max, Weight status, physical exercise and academic achievement in Moroccan high school students. International Journal of Chemical and Biochemical Sciences. 2024; 25(13):373–378.
- 24) Chakit M, Zahir RA, Mesfioui A. Giant pyonephrosis related to nephrolithiasis in diabetes woman: A case report. Radiology Case Reports. 2024; 19(7):2625-2628.
- 25) HARPER JF, MARSHALL E. Adolescents Problems and their Relationship to Self-Esteem. Journal of Adolescence. 1991; 55(4), 64-70.
- 26) Chakit M, Aqira A, El Hessni A, Mesfioui A. Place of extracorporeal shockwave lithotripsy in the treatment of urolithiasis in the region of Gharb Chrarda Bni Hssen (Morocco). Urolithiasis. 2023; 51 (33). doi: 10.1007/s00240-023-01407-9
- 27) Benchelha H, Chakit M, Ahami AOT, Bikjdaouene L. Aerobic capacity, Attention and Well-Being in Obese and Normal Adolescents. Radiologia i Onkolojia. 2023; 17 (12):859–865.
- 28) Frey KS, Ruble DN. What children say about classroom performance: sex and grade differences in perceived competence. Child Development. 1987; 58(4):1066-1078.
- 29) Harter S. The perceived competence scale for children, Child Development. 1982; 53:87-97.
- 30) Chakit M, Aqira A, Mesfioui A. A case report of a giant bladder stone (12 x 8 cm, 610g). Radiology Case Reports. 2024; 19(3):970-973.
- 31) Kherrab I, Chakit M, Mesfioui A, Elhessni A. The effect of Euphorbia resinifera propolis on obesity induced by High Fructose diet in rats during prepuberty and adolescence. International Journal of Chemical and Biochemical Sciences 2024. 25(14):23–29
- 32) Kherrab I, Chakit M, Mesfioui A, Elhessni A. Thyme honey supplementation effects on weight status and biochemical blood parameters in High Fructose treated rats during prepuberty and adolescence. International Journal of Chemical and Biochemical Sciences. 2024; 25(13):393–398.

- 33) Benchelha H, Chakit M, Lotfi S, Ahami AOT, Bikjdaouene L. Perceptual and Cardiorespiratory Response to Progressive Running Test in Relation with Puberty and Weight Status. International Journal of Chemical and Biochemical Sciences. 2023; 24 (5):664–673.
- 34) Benchelha H, Chakit M, Mouilly M, Nadir K, Barkaoui M, Moustaine A, Elkhatir A, Ahami OTA, Bikjdaouene L. Gender and Body Mass Index Difference in Aerobic Capacity: A Study in Moroccan High School Students. International Tinnitus Journal. 2023; 27 (2):198–202. https://doi.org/10.5935/0946-5448.20230030.
- 35) Elkhatir A, Chakit M, Ahami AOT. Factors influencing violent behavior in football stadiums in Kenitra city (Morocco). Central European Management Journal. 2023;31 (2):795–801. https://doi.org/10.57030/23364890.cemj.31.2.85.
- 36) Elkhatir A, Chakit M, Ahami AOT, Riyahi J. Spectator Violence In Moroccan Football Stadium: Prevalence And Reasons. Community Practitioner. 2024; 21(1):233-240.
- 37) Elkhatir A, Chakit M, Lotfi S, Ahami AOT, Riyahi J. Psychopharmacological relationship between psychoactive substances and violent behavior in Moroccan spectators: a cross sectional study. International Journal of Chemical and Biochemical Sciences. 2024; 25(16):67–74.
- 38) Ait Messaad S, Chakit M, Lotfi S, Belghyti D. Epidemiological investigation of intestinal parasites in children of Sale city (Morocco). Egyptian Journal of Aquatic Biology and Fisheries. 2022; 26 (6):433-438.
- 39) Lotfi S, Chakit M, Elkhatir A, Belghyti D. Psychoactive substances and sport performance in adolescent and young adults from Meknes city, Morocco. International Journal of Chemical and Biochemical Sciences. 2024; 25(17):1–8.
- 40) Chakit M, Boussekkour R, El Hessni A, Bahbiti Y, Nakache R, Mustaphi HE, Mesfioui A. Antiurolithiatic Activity of Aqueous Extract of Ziziphus lotus on Ethylene Glycol-Induced Lithiasis in Rats. Pharmacognosy Journal. 2022; 14(5):596–602. doi: 10.5530/pj.2022.14.141.
- 41) Chakit M, El Hessni A, Mesfioui A. Ethnobotanical Study of Plants Used for the Treatment of Urolithiasis in Morocco. Pharmacognosy Journal. 2022; 14(5):542–547. doi: 10.5530/pj.2022.14.133.
- 42) El Hasnaoui A, Mesfioui A, Berkiks I, Chakit M, Kribii A, Ali O, El Hessni A. Effects of the peroxisome proliferator-activated receptors alpha agonist and Cinnamon oil on obesity induced by high fructose diet. World J Pharm Res. 2015; 4(5):23–38.
- 43) Aiboud A, Moussaif A, El Abbadi N, Ettabia A, El Hessni A, Ouichou A, Chakit M, Mesfioui A (2014) In vitro antidermatophytic activity of Allium sativum L, Nicotiana tabacum and Cade Oil against Trichophyton rubrum. World J Pharm Res 4(1):414–423.
- 44) Zhang Y, Wu C, Ma J, Liu F, Shen C, Sun J, Ma Z, Hu W, Lang H. Relationship between depression and burnout among nurses in Intensive Care units at the late stage of COVID-19: a network analysis. BMC Nurs. 2024; 23(1):224.
- 45) Stefanova V, Farrell L, Latu I. Gender and the pandemic: Associations between caregiving, working from home, personal and career outcomes for women and men. Curr Psychol. 2023; 42, 17395–17411.
- 46) Eagly AH, Wood W. The origins of sex differences in human behavior: Evolved dispositions versus social roles. American Psychologist. 1999; 54(6), 408–423.
- 47) Baataoui S, Chakit M, Afqir H, Boudhan M, Ouhssine M. Effect Of Vitamin D And Argan Oil Supplementation On Phosphocalcic Profile In Obese And Normal Weight Moroccan Subjects. Community Practitioner. 2024; 21:1606–1614. https://doi.org/10.5281/ZENODO.11184941.
- 48) El Aski N, Ouasmani F, Chakit M, Atfaoui K, Erahioui R, Mesfioui A. Complementary Medicine As A Predictor Of Anemia Among Pregnant Women. Community Practitioner 2024; 21:2237–48. https://doi.org/10.5281/ZENODO.11631897.
- 49) Marrakchi A, Chakit M, Elmorabit N, El Kababri M, Elhessni A, Mesfioui A. Psychological Distress In Parents And Guardians Of Moroccan Children With Cancer: A Cross-Sectional Study. Community Practitioner 2024:2249–57. https://doi.org/10.5281/ZENODO.11632687.

- 50) El Aameri M, Chakit M, Meskini N, Jaghror I, Tabouz Y. Effetcs of Anxiety and Depressive Disorders on Type 2 Diabetes in Moroccan Population from the Province of Kenitra. Community Practitioner 2024; 21:2223–36. https://doi.org/10.5281/ZENODO.11632402.
- 51) Meskini N, Lamtai M, Chakit M, El Aameri M, Sfendla A, Loukili N, et al. Link between Prevalence of Excessive Smartphone Use, Insomnia, and Academic Performance among Middle School Adolescents in Kenitra, Morocco: A Cross-Sectional Survey. Community Practitioner 2024; 21:2213–22. https://doi.org/10.5281/ZENODO.11632541.
- 52) Nadir K, Chakit M, Benchelha H, et al (2024) Correlation Between Motivation And Sociodemographic Characteristics In Middle School Students From Morocco. Community Pract 21:1596–1605. https://doi.org/10.5281/ZENODO.11184177.
- 53) Jaghror I, Chakit M, Jaghror H, et al (2024) Influence Of Self-Esteem In Academic Success In Moroccan Elementary School Students. Community Pract 21:1582–1595. https://doi.org/10.5281/ZENODO.11184010.
- 54) Saidi H, Chakit M, Abdessamad El-Hamaoui, Abidli Z, Bouzaboul M, Soulaymani A, et al. Exhaustion And Stress Levels Among Nurses In Contagious Disease Services: Case Of Meningitis. Community Practitioner 2024; 21:1572–81. https://doi.org/10.5281/ZENODO.11184048.