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THE BIOLOGICAL CLOCK AMONG SOCIAL MEDIA ADDICTS AMONG MIDDLE SCHOOL STUDENTS

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ABSTRACT
The aim of the research was to find out about the biological aspects of middle school students addicted to social media, as well as whether differences based on gender in the biological clock scale are statistically significant. The sample for the study comprised 565 students of both genders. A biological clock scale designed for the study sample was created by the researcher, and it showed satisfactory validity and reliability.
The researcher employed various statistical methods, including Chi-square, Pearson correlation coefficient, one-sample t-test, and independent-sample t-test, to analyze the study data.The results indicated the following:Students in the research sample do not adhere to a biological clock across three categories: cognitive, social, and spontaneous motor functions. The findings also showed that female students experience disruption in their biological clock and are less consistent.

Keywords: biological clock , social media addiction**,** circadian disruption

INTRODUCTION

The psychophysiological literature suggests that the biological clock is an internal system in living organisms that controls the daily cycles of vital functions, such as sleep, wakefulness, hunger and thirst, movement and relaxation. This internal system plays an important role in maintaining overall health and well-being. According to a study published in the journal Nature in 2017, the biological clock controls more than 80% of genes in the human body. affecting many vital functions including sleep, metabolism and hormones (1628Sas et al. 2010 :)
And that spreading the culture of awareness towards it by organizing the necessities of life and other appointments that control all its daily requirements is very important for self-control and the activity of the individual during the day (Al-Baik 2009: 15), and the quality of the biological clock plays an important role in influencing the mental and emotional aspects, perception and general ability to learn, as the study (Golombek & Diego & Cardinali & Daniel 2018)) indicates a high positive relationship between the biological clock and education. The educational process is an integrated whole that includes all physical, skill, psychological and physiological aspects in one framework, and therefore students can reach the highest levels of performance and behavior, it works to adjust the mechanism of work of the body systems and in the alert to carry out daily activities, and there is a defect in the control of work for that hour, which causes a defect in the physiological timing within the body reflected on the social timing of man, It suggests a positive correlation between mental alertness and healthy behaviors such as sleeping, eating, exercising and physical health (Murphy 2012:22).
From this, the importance of the biological clock is evident through the organization of sleep and wakefulness schedules associated with his emotional state and the nature of his daily life, perhaps by reminder and memory, as well as taking duties and other appointments that control the rhythm of daily life, which are very important for public health, individual activity and achievement**,** as God deposited in the human body the so-called vital energy, and this energy is subject to normal daily biological control (day and night, and wakefulness and sleep) (Al-Beik 2009: 15) Therefore, all functional variables coincide, and the individual, including the degree of body activity, internal temperature, heartbeat, blood pressure and the concentration of hormones in his body. This means that it adjusts all the vital functions of the body and endocrine secretions of various hormones, and scientists believe that there are specific times of the day during which the individual is at his best, and that many biological functions in the body do not work at the same pace, and have periods of peak and periods of decline. (Melhem 2014:129)
Therefore, the role of the biological clock highlights an important impact on the mental and emotional aspects, perception and activity of the individual during the day, and the general ability to learn among students, as studies have indicated a positive relationship between the biological clock and education, the educational process

is an integrated whole that includes all physical, psychological, skill and physiological aspects in one framework, and thus can reach the highest level of performance. (Golombek & Diego & cardinali&Daniel 2008:166)
When the biological clock is properly and balanced, it will promote healthy performance, in addition to many other daily activities, but when disturbance occurs, it can lead to major problems during sleep, including insomnia and various other aspects related to physical and mental health. These clocks are present in all neighborhoods to help them survive the right to perform behaviors and bodily processes more efficiently (May 21, 2019:21 Katie L.Birchard, Deborah M.leigh,) The disruption of the daily cycle will lead to disruption of the vital activity of the body, as this appears in the decrease in the ability to work and sleep disorder and increase nervous disorders, and this is reflected in the physical capabilities as well as the physical competencies of the human being vary throughout the day, the curve of the ability to work increases during the morning hours and reaches its highest levels between nine in the morning to one in the afternoon, Then it begins to decrease between two o'clock to four o'clock in the afternoon, then rises again from four o'clock to eight o'clock in the evening and then begins to decrease again. (age 2018) As the condition of the human body and all its members up to the level of one cell is subjected to continuous changes throughout the time and these changes are repeated with different stages of life, meaning that the vital and organic functions of the human body at various levels are subject to a specific system, and the organization of timing fixed measured in seconds, minutes and hours, including to the succession of days, weeks, months and years, all of which is clearly and clearly evident in the biological clock (Jihan 2006: 29.

CHAPTER ONE: DEFINITION OF RESEARCH

FIRST: THE RESEARCH PROBLEM

The issue addressed by the current study arises in response to the following questions:

1- How developed is the biological clock in middle school students addicted to social media?

2- To what extent does the biological clock level differ between social media addicts and middle school students, considering the gender variable (male and female students)?

Second: The importance of research

The importance of research in its theoretical and applied dimensions, as follows:

– **Theoretical importance:**

1- The significance of the present research is clear from the importance of the topic being examined; it may help enhance understanding of the concept and nature of the biological clock among students, particularly those in middle school.

2- The theoretical enrichment of the variable is highly scientific, and thus contributes more to the understanding of the nature of the biological clock, which adds dimensions to a contemporary and useful theory.

– **Applied importance:**

1- The current research will contribute to the psychological literature by highlighting key findings, as the researcher is not aware of any Arab studies examining the biological clock in social media addicts among middle school students.

2- The current research will provide a new tool to measure the biological clock of middle school students, which can be used in the educational reality in terms of benefit and university in terms of scientific knowledge development together.

Third: Research Objective: The current research aims to:

– The inner timekeeper of social media addicts in middle school.

- According to the gender variable (males, females), there are statistically significant differences in the biological clock among social communication addicts from the preparatory stage.

Fourth: Research Limits: The present study is constrained by the following limits:

– Objective limit: The biological clock is part of the current research variable.

– Human limit: The study focuses on a sample of middle school students, specifically their gender (male and female students).

- Spatial limit: The research focused on male and female students within their respective schools located within the boundaries of Najaf's city center.

– Deadline: for the (2024–2025) academic year.

Fifth: Search Terms:

The biological clock has been defined by:

•**(Moslehi 2016)** that: a natural part inside the body has two functions, the first is internal, as it alerts the body's systems to work in order to maintain the survival and safety of the body, and the second is external that alerts the human being not satisfying his natural desires, as well as alerting him to exercise his social roles and communicate with others through work and communication via phone, and the use of computers, the Internet and family communication. Moslehi 2016:79)

• **(Al-Zayat 2017)** as: a behavior based on the clock system that is biologically linked to a periodic system and the temporal design of behavior is relatively constant. (Zayat 2017: 74)

On this scientific basis, the researcher determines the theoretical and procedural definition of the variable as follows:

• **Theoretical definition:** The researcher adopted **the definition of (Al-Zayat 2016**) for the following justifications:

1.Concepts linked scientific theory to the biological clock and temporal design of behavior.

2.Consider the biological clock as a system-based behavior associated with the educational process of learners.

• **Procedural definition (Operation Defintion):** It is what students have of a daily system to perform their duties and daily activities in the cognitive, emotional, social and motor field, and it is measured by answering the paragraphs (items) of the scale that will be built by the current research and the cumulative degree of measurement is adopted.

CHAPTER TWO: THEORETICAL FRAMEWORK AND PREVIOUS STUDIES

FIRST: THEORETICAL FRAMEWORK:

1- Biological Clock:

• **The concept of biological clock:**

The biological clock is a biological clock for many living organisms to regulate the level of hormones and temperature in the body, and the biological and psychological changes that follow the vital clock cycle in (24) hours are known as periodic behavioral patterns Rhythmic cycles occur at regular intervals, often consistent with the day and night cycle or the succession of seasons, or with the tidal cycle (Mallah 2015: 180)

This is why the biological clock in humans works according to schedules necessary for life and health, and humans have daily vital impressions, weekly, monthly, and yearly, and the level of hormones and other chemicals in the blood varies over these time periods, and many of the body's vital processes are carried out regularly every (24) hours and the activities of cells, physiological systems and nervous system are consistent with each other, and with the nature of day and night in the environment (Al-Mallah 2015: 118)

•**Literature explaining the biological clock:**

Due to the lack of a specific theoretical framework to explain the concept of the biological clock - according to the researcher's knowledge and knowledge - which necessitated the procedures of theoretical approaches between many of the relevant theoretical trends to benefit from them in formulating a logical framework or reference that supports and enhances the interpretation of this phenomenon, that is, the researcher relied in describing the biological clock on the logical approach that is based on theoretical trends with specific goals to refer to the experience or facts derived from it and as follows:

Biorhythm is an indicator of the biological clock:

The scientific view of biorhythm has tended towards two main trends, the first is the theory (prevailing trend), which appeared since the late eighteenth century, and the second trend is (scientific theory based on scientific research), which appeared during the fifties of the twentieth century, and the difference between the two theories is due to the method used to determine the biological clock (Khion 2002: 139), as the prevailing trends are based on determining the human biorhythm according to the date of birth, While the scientific theory depends on the use of a modern set of biological analyzes and the researcher details it in a more accurate manner in the following:

The prevailing theory presented by Fleiss and Soboda based on the date of birth in determining the biological rhythm, as the human being goes through three forces are physical, emotional, mental, and repeated rhythmically and regularly throughout his life, and these forces vary in the length of their period of time, they rarely converge at a certain point, so it does not happen that the individual has completely wonderful days, and completely bad days, Each of these days can be interpreted in light of the sum of the three complex rhythms (physical, emotional, mental) (Bzig: 2017 51)

While scientific trends have become dependent on the fact that each human being or living organism has certain patterns of unequal biological rhythms that form its biological clocks, and each of them is characterized by a certain period and the length of the cycle varies from one phenomenon to another, which is not determined by calculation since the date of birth, but depends on the analysis of the biology of time by collecting data for a certain period of time for each individual, Through continuous monitoring of individuals, it is possible to determine the length of biological influences, which varies from one individual to another, because each individual has its own rhythm and pattern of biological clocks (Ibrahim 2000: 414-419).

Among them (Yarub 2002) pointed out that there are pathways that the biological rhythm passes through, determined in:

A- Positive biological (regular biological clock): It is the one in which the biological trend rises to reach the upper top curve, above the zero start line, in which the physical and psychological strength of the individual increases and his confidence in himself increases, and his love of achievement and work and the ability to resist and skin in difficult tasks increases and his emotional and mental ability increases, which leads to a rise in his perceptions, and his ability to perform educational probability relatively easily, Positive results are therefore expected. (Abu Jinnah 2018: 21)

B- The negative biological (biological clock wearing): It is the one in which any curve of biological rhythm curves goes down to reach the bottom bottom, below the start line or zero line, and in which the physical and psychological strength of the individual decreases or subsides, and his self-confidence decreases, and his desire to accomplish and work decreases, and his ability to resist and work decreases, and his ability to resist and work hard decreases, and his emotional and mental ability is disturbed, which leads to atrophy of the level of perception, His ability to perform difficult educational prospects is impaired (Abu Jinnah 2018:22).

Based on this, I specify a description of the biological clock in studies, which are:

- Cognitive biological clock: It means a relatively stable biological focus based on mental perceptions and thinking, which a person organizes in managing daily life continuously.
- Affective biological clock : It is concerned with the biological focus based on emotional and emotional reactions that cause a person to significantly perform behavioral actions.
- Social biological clock: It is the biological focus based on relationships with others and self-affirmation between the group that makes a person always affected by it.
- Spontaneous motor biological clock: Biological behavior that flows in a self-inflicted way without managing the prior action resulting from a person's subjective states.

On this scientific basis, the researcher adopted these four directions for the following reasons:

- Represents a comprehensive description based on scientific theory based on scientific research
- Explain in minute detail the nature of the biological clock
- Match the definition of (Al-Zayat 2016), where the theoretical description of it was based on these scientific trends.

2- Social Media Addiction

- **The concept of addiction to social networking sites:** The term Internet addiction first surfaced in 1995 when O'Neill published an article: The magic and addiction of life on the Internet which appeared in the New York Times, as well as an article published in USA Today, in the same year that Evan Goldberg suggested that it was a really distinctive disorder, it was not generally accepted until U.S. psychologist Kimberly Young presented (in 1996) the findings of her study entitled: Internet Addiction: The Emergence of a New Clinical Disorder. At the American Psychological Association's annual meeting. Thus, she was the originator of the term AILogN, and then the modifier of a term she termed the use of the Internet pathology, due to the excessive use of social networking sites as much as addiction even if it does not reach the drug addiction until, as in both an expression of a subjective experience, and associated with the mood changes and the social withdrawal and conflict, and a feeling of despair, distress and loneliness, and shows in the symptoms when users stop using this communication. There is a distinction between users of social media willingly. And this who uses without a justified or real need and without a real use for it, and how uses it because his work requires the use of social communication excessively, the first is an addict, the second is not an addict. Terms used for addiction in use include: Social media addiction disorders Psychological mobile overuse. Pathological use of social communication. Internet dependence, compulsive technology use, technological addiction (Nubian 2010: 55).

- **Symptoms of social media addiction:** Young tracked the symptoms of social media addiction and came up with a set of indicators, noting that some addicts here feel depressed, frustrated, and isolated, in addition to losing many recreational and social hobbies, and problems with family, work, relationships, and school (Spring 2003: 12). Among the criteria that Young adjusted compared to the criteria for pathological gambling to suit addiction. include:

- The individual's thinking is very preoccupied with social communication.
- Feeling the need to increase the time on social media to reach the degree of satisfaction.
- The disappearance of the individual from others for long periods spent on social communication (Hamad 2012: 111)
- An individual's attempt to control the use of social media without success (Shaheen 2015: 361).
- Use to escape the problems of everyday life, or to get rid of mood acuity or feelings of hopelessness and guilt (Abraeem 2020: 28)

Trends explaining social media addiction: Many attempts to explain behavior have come in the use of social communication. The researcher defines them as follows:

Jennifer & Ferris assert that stressful life events, psychological and inherited predispositions, can lead to social media addiction. :P

Cognitive trend: Low self-efficacy and negative self-esteem, and cognitive distortions about oneself, are cognitive distortions and negative perceptions adopted by individuals with psychological problems about themselves and their personality, making them prefer to integrate and interact in the activities and services provided by the Internet as less threatening than interaction with others.

Behavioral trend: According to the behavioral trend, the practice and repetition of behavior is what led to addiction, whatever the age, social or cultural class, or educational level of the individual, and addiction behavior is not limited to the presence of motivation or goal, but this behavior must be practiced many times, to be supported and enhanced by the inner feeling that is achieved for the individual, so that this feeling changes in intensity to become in the degree of expectation of the individual prey to many psychological, behavioral and emotional disorders (Ben Jadidi 2016: 152.

Medical direction: "Griver" believes that social media addiction is one of the types of addiction that have nothing to do with drugs, but it has the same symptoms of this addiction, which is associated with several manifestations of withdrawal symptoms close to the withdrawal symptoms of traditional addiction, and these types of addiction is such as compulsive immersion in gambling and continuous behind wealth, where the individual with these different types of addiction shows mood swings, intense longing and urgent eagerness to practice addictive behavior, and the addict also shows manifestations Tolerability and dependence tend to increase the addictive substance dose.

Socio-cultural trend: In Su's view, addiction varies according to gender, age, economic and social level and ethnic affiliation, for example, alcoholism is more prevalent among the middle class economically and socially, and therefore the owners of this trend believe that social communication addiction is due to the culture of society, and therefore society is the one that feeds this addiction.Spring 2003: 557).

Second: Previous Studies

1- Abdel Nasser and Mishal (2019): The research: The research aimed to reveal the quality of the biological clock as a predictor of mental alertness, a sense of happiness and emotional creativity of university students, and to search for differences in the quality of the biological clock according to difference in gender (males – females), the study sample consisted of (220) students male students, and the study detected a positive statistical significant relationship between the quality of the biological clock, mental alertness, a sense of happiness and emotional creativity **(Misehal 2019: a).**

2- Interview et al. (2022): The research purposed to Highlight Statement of problem ‹Aim of the study ‹The effects of biological clock on some physical and skill abilities of football players ‹The study sample of (25) players football where randomized seleected ‹The results of the study for physical abilities eppeared that ‹There were not statistically significant differences in the tests (bending the body from long sitting ‹the bent running ‹ the starred running)accordin to the mesure time ‹BUT ‹There were statistically significant diffreences in the (flip - seated test ‹the bending arm test from diagonally prone in favor of the noon time ‹and the jump on the test in favor of the morning time)**. (Interview et al. 2022: 11)**

CHAPTER THREE: RESEARCH METHODOLOGY AND PROCEDURES

First: Research Methodology: The researcher employed a descriptive field approach to meet the research objectives. This method involves interpreting the current situation of a phenomenon or problem by identifying its conditions and dimensions, describing the relationships among them, and ultimately concluding an accurate and comprehensive practical description based on related facts.

Second: Study Population: According to Odeh and Malkawi (1992: 159), the research community in psychology is defined as the total group of elements to which the researcher aims to generalize results pertaining to the problem at hand. As the present research community consists of (middle school students). A community, therefore, included middle school students by gender. This is shown in Table (1), with the original community comprising (565) teachers and schools.

Table (1) Sample for basic research distributed based on the sex of middle school students (grade 5)

	Fifth Literary student s		Fifth Scientific students		Total Gender of Students
	Male	Female	Male	Female	
Total	32	21	247	265	565

Third: Research sample: The research sample consisted of (565) male and female students, as per the percentage established by the researcher. From (279) male and (286) female students. This size is suitable for the

construction of psychological scales. It reflects how large the community itself is. The basic sample that the researcher will use to verify the results is shown in Table (1).

Fourth: Search Tool:

Circadian scale: The researcher adopted sequential steps in building the biological clock scale. In the following:

1- Theoretical premises: Due to the multiplicity of approaches used in building psychological scales, the researcher may rely on one or more according to need and circumstances, and the most prominent of these approaches is (Rational approach), which is based on logical reasoning and scientific theorization, and (Experience approach), which is based on data and realistic practical experiences, and this approach is one of the commonly used approaches in the construction of measurement instruments because it depends on the observations and experiences of experts; it also involves an inquiring approach that is premised on a revisit to sources of experience or true events in order to achieve specific theoretical objectives (Al-Kubaisi 2010: 47-50). The researcher also adopted the method of self-report in self-writing of inter-paricipant writing, the papers of the current with different levels or different school year in order to write the paragraphs of the current scale because it is one of the methods of movement of man to situations similar to the true situation and that the procedures of the method of self-report clear answers understandable when correction or analysis, and can be used the scale that adopts this method for large group of individuals simultaneously and these virtues are not found in projective or performance tests in addition to standard with drawbacks, and low validity, small stability (Al-Ajili 2002: 79). The Scale for Mass-Movement attitudes To develop scale the researcher based this on psychometric cyclometer where it relies upon individual differences and comparing the individual's score with the group of whom others belong of the same social perception level (Al-Sharqawi 1996: 62). So the traditional characteristics of the scale and its items are rescored in the terms of classical measurement theory.

2- **Below is an evaluation of the measures carried out by the researcher: A- Clarifying what is meant by "biological clock":** The researcher examined previous studies and literature pertaining to the biological clock concept.and the researcher adopted the definition (Al-Zayat 2016: 74) of the concept of the biological clock as: behavior based on the clock system biologically linked to the cyclical rhythm and the temporal design of the behavior relatively constantly. Accordingly, the components that suit it were determined. As follows:

- **Determining the components of the biological clock scale**: Once the theoretical definition of the biological clock was established, informed by literature and prior research addressing the concept, and following consultations with experts and specialists, four basic components included in the concept of the biological clock were identified, with a detailed definition of each component as follows:

The first component: Cognitive Biological Clock: It means the relatively stable biological focus based on mental perceptions and thinking, which a person organizes in the management of daily life continuously.

The second component: affective biological clock: It is concerned with the biological focus based on emotional and emotional reactions that cause a person to significantly perform behavioral actions.

The third component: the social biological clock: It is the biological focus based on relationships with others and self-affirmation between the group that makes the person always affected by it.

Component Four: Spontaneous Motor Biological Clock

Biological behavior flowing in a subjective way without management of the prior action resulting from the subjective states of the person.

2- Formulation of scale paragraphs: Once the biological clock has been theoretically defined and its components identified. To ensure consistency with the component's definition, while considering the nature and characteristics of the sample to which the scale will be applied (students in fifth-grade preparation). Upon examination of the pertinent literature and prior research, the researcher composed several paragraphs.

3- The relative significance of the elements of the biological clock scale: to ascertain how many paragraphs are necessary for a component. After the researcher identified (38) items for the scale as a whole, they presented a separate questionnaire to demonstrate the relative importance of the scale's components. The proposal was submitted to 30 arbitrators with expertise in psychological and educational sciences. These arbitrators proposed the validity of the components and identified the relative significance of each one. And extract the count of paragraphs for each component and their order. Based on the ratio established by the specialists and utilizing the weighted mean. This is shown in table (2).

Table (2) Relative importance, weighted mean of circadian components and number of specific paragraphs

No.	Components of the Biological Clock	Relative Importance According to Experts	Weighted Average for the Component	Number of Items Based on Weighted Average	Item Sequence

1	Cognitive Biological Clock	28%	10.7	11	1–11
2	Affective (Emotional) Biological Clock	26%	9.9	10	12–21
3	Social Biological Clock	24%	9.1	9	22–30
4	Spontaneous Motor Biological Clock	22%	8.3	8	31–38
	Total Distribution of Items Based on Weighted Average by Experts				**38**

4- Validity and validity of the scale: This process involves a logical examination of the scale's content or an assessment of how well it represents the intended measurement (67: 1979 Alen & Yen). The scale aims to show the degree to which its items reflect the aspects of the attribute it is designed to measure (Abdul Rahman 1998: 158). The indicator of validity here pertains to the overall appearance of the scale or its external representation, including the nature of its items, their formulation, and clarity (Chalabi 2005: 92). In order to ascertain the truthfulness of the Clarets(Heroic Jeremiade). The researcher showed the paragraphs of the scale to a committee of judges and experts in psychology, psychological counseling, measurement and evaluation. The researcher took (percentage and chi-square) as an basis for validity and acceptability of the paragraph, which is to gain its percentage -wise (80 %) or more from the arbitrator estimates and to get higher than the chi-square tabular value (3.84) at (0.05) level of significance. After measuring (the degree of freedom equal one) and removing the one that has < (80%) of the opinion for arbitrators and fear that less than the value of chi-square table that equal (5) paragraphs were the following: the paragraph (11) in the first component, the paragraphs (17, 21) in the second component, the paragraph (29) in the third component and the paragraph (36) in the fourth component as clarified in the Table (3).**Table (3) Opinions of arbitrators and specialists on the validity of the paragraphs of the biological clock scale according to the statistical test (chi-square)**

Table (3): Experts' and Evaluators' Opinions on the Validity of Chronobiological Scale Items According to the Chi-Square Statistical Test

Biological clock Scale Component		Item Numbers	Agree	Arbitrators and specialists will respond		Chi-Square Value	Significance Level (0.05)
				Disagree	Approval Rate (%)		
1	**Cognitive Chronobiological Scale**	1–10	28	2	93.33%	22.52	Static. Sig. (with adjustment)
		11	14	16	26.66%	0.12	Not Static. Sig.
2	**Emotional Chronobiological Scale**	12–16, 18–20	25	5	83.33%	13.32	Static. Sig. (with adjustment)
		17, 21	10	20	33.3%	3.32	Not Static. Sig.
3	**Social Chronobiological Scale**	22–28, 30	27	3	90%	19.2	Static. Sig. (no adjustment)
		29	19	27	11%	2.12	Not Static. Sig.
4	**Spontaneous Motor Chronobiological Scale**	31–35, 37–38	26	4	86.66%	6	Static. Sig. (with adjustment)
		36	17	13	13.33%	0.4	Static. Non-Sig.

5- Preparation of response alternatives (scale correction): Once the paragraphs of the scale were prepared, the Likert method was used to construct the scale. Its stability is considered good because of the wide range of responses permitted for respondents (Stanley & Hopkin 1972; 288). This includes positioning a triple runway

before each paragraph and assigning the appropriate degree to each paragraph based on the respondent's answer, with weights distributed among the three answer alternatives as follows: {Gilt für genau (3) Grad, gilt für mich in gewissem Maße (2) Graden, gilt nicht für (1) Graden.

6- Setting scale instructions: The instructions for the scale act as a guide for the respondent. Consequently, the researcher aimed to ensure that the scale instructions were clear and precise. Respondents were asked to mark their answer with a check (□) under one of three options: "applies to me completely," "applies to me to some extent," or "does not apply to me." They were encouraged to respond openly and honestly for the sake of scientific research, emphasizing that there are no right or wrong answers—only expressions of their opinions. The answer is not visible. To reassure the respondent about the confidentiality of their response, it is unnecessary to mention the name (Al-Nabhan 2004: 85).

7- Sample clarity of paragraphs and instructions: To guarantee the clarity of the scale's instructions and paragraphs, as well as the response options, to identify difficulties the respondents may encounter so as to avoid them, and to ensure that response time was appropriate, the complete scale was administered to 40 randomly selected male and female students from the previously mentioned survey sample. The results indicated that the sample members found both the scale's paragraphs and its instructions clear. The duration of their responses on the scale was between 25 and 30 minutes. Featuring a span of (28) minutes.

8- Statistical analysis of scale items: As the aim of this procedure is to identify psychometric properties that are largely determined by the characteristics of the scale's paragraphs, as well as to differentiate between individuals based on the trait being measured (Anastasi 1988: 192; Imam et al. 1990: 114), statistical analysis of these paragraphs is fundamental to the creation of scientific measures. The verification processes are as follows:

A- The aim of paragraph analysis (PA) is to simply keep the good paragraphs after insuring their strength to let the scale discriminate between persons to be measured, as one of the prerequisites for paragraphs of psychological scales to that paragraphs have discriminating power for individuals with high grades and those with low grades in the characteristic of interest or the trait to be measured (Groniund 1981: (253), Ghisell et al. (Ghisell et al. (1981) argue that paragraphs of high discriminatory strength are to be selected and added to a final image of the scale, whereas those of low discriminatory strength must be deleted (Ghisell et at 1981: 434). As the quality of the scales is related to the discriminative power of its items (Nunnally 1976: 262). The discriminating power of the paragraphs was assured by using the two extreme groups method, as the paragraphs of the scale were applied to the statistical treatment sample (400) males and females students, the degree of each of the interviewed forms was computed and arranged the forms according to the total degree from the highest to the lowest, and the (27%) of the forms was obtained the highest degree, and (27%) was obtained the lowest degree, and all the upper and lower party groups members reached (216) male and female students. The T-test for two independent samples(was used for the purpose of determining the significance of the differences between the higher and the lower groups of scores obtained on each paragraph of the scale. All the paragraphs of the scale were differentiated through comparison with the tabular T-value of (1.96) at the level of significance (0.05) and a (214) degree of freedom except for paragraph (8). The number of paragraphs were (32) paragraphs using this process. Table (4) illustrates this.

Table (4) Effect of the discriminating power for the paragraphs of the biological clock scaling table according to that of Method of two terminal groups

#	Item No.	Minimum group 27% n=108		High Group 27% n=108		Calculated T-value	Significance level (0.05)
		Standard deviation	Arithmetic mean	Standard deviation	Arithmetic mean		
1.	1	0.833	1.92	499.0	2.65	7.829	Sig.
2.	2	0.815	1.99	0.504	2.63	6.931	Sig.
3.	3	0.753	1.89	0.466	2.73	9.890	Sig.
4.	4	0.789	1.94	0.483	2.64	7.910	Sig.
5.	5	0.773	1.90	0.550	2.57	7.405	Sig.
6.	6	0.740	1.78	0.520	2.64	9.891	Sig.
7.	7	0.839	1.93	0.522	2.63	7.397	Sig.
8.	8	0.775	2.89	0.485	2.21	1.207	Non-Sig.
9.	9	0.798	1.87	0.552	2.56	7.438	Sig.
10.	10	0.734	1.82	0.486	2.69	10.164	Sig.
11.	12	0.770	1.80	0.474	2.67	10.001	Sig.
12.	13	0.669	1.90	0.553	1.90	7.759	Sig.
13.	14	0.848	2.03	0.483	2.69	7.102	Sig.

14.	**15**	**0.768**	**1.91**	**0.512**	**2.59**	**7.715**	**Sig.**
15.	**16**	**0.854**	**2.02**	**0.479**	**2.70**	**7.276**	**Sig.**
16.	**18**	**0.823**	**1.94**	**0.499**	**2.56**	**6.695**	**Sig.**
17.	**19**	**0.826**	**1.99**	**0.499**	**2.65**	**7.081**	**Sig.**
18.	**20**	**0.767**	**1.83**	**0.508**	**2.61**	**8.781**	**Sig.**
19.	**22**	**0.762**	**1.71**	**0.498**	**2.56**	**9.726**	**Sig.**
20.	**23**	**0.802**	**1.95**	**0.522**	**2.63**	**7.342**	**Sig.**
21.	**24**	**0.795**	**1.94**	**0.435**	**2.75**	**9.236**	**Sig.**
22.	**25**	**0.734**	**2.06**	**0.488**	**2.62**	**6.660**	**Sig.**
23.	**26**	**0.726**	**2.16**	**0.483**	**2.69**	**6.405**	**Sig.**
24.	**27**	**0.715**	**2.05**	**0.493**	**2.67**	**7.421**	**Sig.**
25.	**28**	**0.815**	**1.83**	**0.485**	**2.63**	**8.728**	**Sig.**
26.	**30**	**0.770**	**2.07**	**0.493**	**2.67**	**6.737**	**Sig.**
27.	**31**	**0.774**	**1.79**	**0.502**	**2.64**	**9.598**	**Sig.**
28.	**32**	**0.769**	**1.73**	**0.518**	**2.56**	**9.242**	**Sig.**
29.	**33**	**0.791**	**1.83**	**0.522**	**2.63**	**8.728**	**Sig.**
30.	**34**	**0.668**	**1.76**	**0.514**	**2.58**	**10.162**	**Sig.**
31.	**35**	**0.848**	**1.99**	**0.459**	**2.70**	**7.683**	**Sig.**
32.	**37**	**0.729**	**1.97**	**0.490**	**2.68**	**8.325**	**Sig.**
33.	**38**	**0.779**	**2.03**	**0.467**	**2.69**	**7.524**	**Sig.**

The tabular T-value is equal to (1.96) at the level of significance (0.05) and with a degree of freedom (214).

B-The relationship of the score of the paragraph to the total score of the scale: The objective here is to determine the correlation between performance on each test and the total test (Kaplan & saccuzzo 1982: 147). The finest quality paragraphs are those that are most highly correlated with the total and some of the best that are relevant for making inferences are among that prompted high [S.sup.2] (Nunnally 1967: 261), and this method is one of the most accurate typically used to estimate the scale s internal consistency as a measure of construct validity (Al-Kubaisi 2010: 1, (46), Guilford (1954) says in: if the paragraph does not correlate at all, it is time to doubt the homogeneity or r 428); always a yes if the paragraph correlates sufficiently the test and is always a no if the paragraph more closely measures the construct under measurement that measures it and other items must eliminate it (Guilford 1954: 415), and the degree of relationship between the score of each paragraph and the total score of the scale was calculated using Pearson Correlation' s correlation coefficient on the answers of the statistical sample, above was the statistical analysis indicated answers and found that all the paragraphs achieved a statistically significant correlation when compared with the critical value of the significance of the correlation coefficient (0.098) at a significance level (0.05) and the freedom degree (398).

C- Relationship between the degree of the paragraph of the paragraph and the total degree of the component to which it belongs: The researcher extracted the amount of the relation with the total degree of field of the degree of the paragraph of each paragraph by using Pearson Correlation Coefficient, and it was found that the opposite of the correlation coefficients of paragraph with the total degree of the field is significant for all columns as compared to the tabulated value (0.098) the level of (0.05) and the degree of freedom (398).

D- The correspondence of component's degree to the scale's total degree (internal correlation matrix) The researcher also extracted the matrix of the internal correlations between the components of the biological clock scale through Pearson Correlation coefficient. It emerges that, with- in each set, correlations are present either among the components or from components to the overtotal of the scale. it appears that it is a statistical distribution addressed to critical value of the correlation coefficients of (0.098) in level of significance (0.05) and degree freedom (398) respectively in above. 45 Table 7.), the fact that all indicators tap the underlying concept of the biological clock, and hence the theoretical deduction and empirical validation both converge in the construction, suggesting that the measure is valid (Farag, 1980: 315).

A- **Psychometric properties of the biological clock scale:** The psychometric properties (standard of the scale) demonstrate its capability to assess what it was designed to measure, ensuring that it does so with acceptable accuracy and minimal error (Odeh 1998: 335). For a psychological or educational measurement tool to effectively measure the psychological or educational phenomenon and provide a quantitative description of it, it must possess certain standard characteristics, with honesty and stability being the most crucial (Imam et al. 1990: 241). The following verification has been performed for these two traits of the circadian scale:

A- Honesty: Honesty is known to be one of the crucial psychometric properties that would ideally be present in the psychological or measurement scale due to its relevance with a scale's ability to measure, with

precision, that which should be measured (Harrison 1983: 11) The psychometric properties of the present scale have been established on the basis of different types of its truthfulness.

-Face Validity – The scale that appears to be honest is preferable in the sense that several expert judges estimate that the paragraph is supposed to measure (555 : 1972 Ebel).. This is done via the measures suggested in the subsection of the validity of the paragraphs of the scale in Table (2-3).

-Construct validity : It is the examination of scores on a scale on the basis of the psychological construction of the feature to be measured, i.e., the extent to which the scale represents a certain theoretical structure or a certain trait (111 (Stanley & Hopkin 1972: or it is the extent to which we can determine that the scale measures a particular theoretical structure or a particular feature (Anastasi 1988: 151)) meaning the scale's capability to approve the validity of hypothesis based on derived from the theoretical framework of scale and previous studies (Abu al- Hatab 2008: 116). And sincerity of construction looks into the things or the Struktur-Merkmale that realise (verwirklichen) the phenomenon and we have several names for this, for example, sincerity of the construction or sincerity of the concept or sincerity of the hypothetical construction (Anastasi & Urbina 1997: 127-129), The sincerity of the construction of the present scale has been established by the indicators which have been referred to in the above statistical analysis of the items of the scale. Which was represented in**:**

The relationship of the degree of paragraphs to the total degree of the scale

- The relationship of the degree of the paragraph to the total degree of the component to which it belongs .
- The relationship of the degree of the component to the total degree of the scale of the internal correlations matrix .

B- **Reliability Scale:** Reliability means the extent of consistency, and repeatability in the measurements of the phenomenon itself and high measurements of stability include a smaller amount of measurement error (Goodwin 1995: 455) To extract the stability of the current scale, the following was used:

Retest Method: Test – Retest Method To extract the stability coefficient by the method of retesting the Biological clock scale has been applied on a sample of (40) male and female students in the preparatory stage were chosen randomly where the scale was re-applied to the same sample two weeks after the original application, and taken from Adams(Adams 1964). That the duration of this period should be no less than a few days and no more than a couple of weeks (Adams 1964): 34). A correlation between the first and second application was then made with Pearson Correlation coefficient. The value ranges for the correlation coefficients of each component of the biological clock were (0.79-0.83) and for the whole scale (0.85). Table (5) illustrates this.

Table (5) Stability coefficient values by retest of biologic clock scale method

#	Component	Coefficient of stability
1	Cognitive biological clock	0.81
2	Affective biological clock	0,83
3	Social biological clock	0.80
4	Spontaneous motor biological clock	0.79
	Total scale	0.85

Cranbach Alpha: The Cronbach alpha may be used to estimate the consistency of an individual's performance from one paragraph to the next, and the degree to which all paragraphs on the scale are measuring the same dimension on an individual (Thorndike and Higen 1980 79:). It is found that the result of the researcher by applying the min-12 allergen of the highest five dimensions and keep communicating with each other within the same figure, we find that this effect makes proportionality determination is internal (Consistency of the dimensions proportions) In other words, it (Attribute of the figure is homogeneity attribute) That is why it is considered the homogeneity coefficient (Allam 2000: 165) Internal consistency of the scale structure and determined by the stability of this scale The researcher has used cronbach Alfa Cronbach Formula, where the coefficient indicates scale stability of (0.89) and this figure is an excellent indicator of stability scale, In he confirmed that the scale (Which come to its high value of stability coefficient) is an measure accuracy. (Cronbach 1964:63) And, to verify the validity of the scale. The blowhole examiner examinated his blowhole.

Standard error of measurement: The standard error of measurement is also an index of the reliability of the scale because it indicates how close to the true score on the scale an individual's score is (Ebel 1972: 421). The error standard of the scale is discussed in terms of a stability coefficient. The higher the scale coefficient stability, the lower the standard the error, and the opposite is also true (Mehrens & Lehmann, 1969).Post the measurement standard equation as follows: 936 n when the coefficient of stability that was extracted from retest method is (0.85). The value declined to (0.531) when stability coefficient obtained by Cronbach alpha was (0.89), and Table (6) shows this.

Table (6) Standard Error Values of the Biological Clock Scale in the Stability Coefficient

Stability method	Coefficient of stability	Standard deviation	Standard error
Re-test	0,85	12,553	1.155
Alpha Cronbach	0,89	9.051	0.531

9- Statistical indicators of the biological clock scale: The psychological phenomena are distributed moderately among community members, and the extraction of statistical indicators helps clarify how closely the distribution of scores from sample members approximates a normal distribution. This serves as a criterion for assessing the representativeness of the sample within the studied community, enabling result generalization (Mansi and Sharif 2014: 182). Upon extracting the statistical indicators for the degrees of responses of the basic research sample. The analysis showed that the distribution on the circadian scale was more similar to the Normal Distribution. This is shown in Table (7).

Table (7) Statistical Indicators of the Biological Clock Scale Sure, Ibrahim! Here's an academic translation of your descriptive statistical indicators table concerning the chronobiological scale components:

Table: Descriptive Statistical Indicators of Chronobiological Scale Components

Indicator	Cognitive Chronobiology	Emotional Chronobiology	Social Chronobiology	Spontaneous Motor Chronobiology	Total
Mean	23.4625	21.1550	21.1225	18.5675	69.3725
Median	24.0000	22.0000	22.0000	19.0000	70.0000
Mode	26.00	23.00	23.00	23.00	71.00
Standard Deviation	3.33112	3.20260	3.22933	2.84793	9.05116
Variance	11.096	10.257	10.429	8.111	81.924
Skewness	–0.438	–0.324	–0.447	–0.338	0.026
Kurtosis	0.386	0.498	0.410	0.478	–0.407
Range	20.00	18.00	18.00	16.00	43.00
Minimum	10.00	9.00	9.00	8.00	48.00
Maximum	30.00	27.00	27.00	24.00	91.00

Would you like help interpreting these values or incorporating them into the results or discussion section of your research? I'd be happy to walk through what the skewness and kurtosis tell us about the distribution if that's useful.

11- Description of the biological clock scale in its final form: After confirming the norms of the elements of the true indicators and stability -riteriam and the statistical of the scale, the final form of clock biological scale consists of (32) items sum the group divided to (cognitive biological clock, emotional biological clock, social biological clock, spontaneous motor biological clock) according to the triple response table is (this applies to me, this applies to me to someone, this is not applies to me). Given when correcting the grade from grade one (lowest) so extracted score (3) the highest score, as the (96) the highest score can be the respondent for his reply to the paragraphs of the scale, and (32) at least the score can be Iterated points. And an assumed average size of (64) degrees, so that the scale is ready to be used to the basic research sample.

Fourth: Final Application of Scales: In order to achieve the objectives of the current research, the final image of the previously mentioned research tool (biological clock scale) was applied, and the results of the study were presented to the sample members during the period from 16/4/2025 to 4/5/2025. The researcher has taken into account in general that the application is collective, in classes and during the vacant classes of schools, After officially asking permission from the responsible administrative authorities, and the researcher herself conducted the application on all members of the sample, she began the application each time by introducing herself to the respondents with an explanation to them of the general importance of this research without mentioning its variable, objectives or address, and asked them to read the instructions and then answer accurately and frankly to make this research successful. After the statistical procedures on the results, I reached a number of them, which will be explained in the next chapter in detail.

Fifth: Statistical Means: **Logical methods and statistical means were used by the Statistical Portfolio for Social Sciences** SPSS, in research. They are as follows:

▪Percentage. As a logical tool.

▪**Auxiliary statistics:**

− Mean

−Median Broker
−Mode
− Std. Deviation
−Variance Contrast
−Sprain Skewness
−Kurtosis hypertension
−Range Range

▪ **Chi-Square Test**: Utilize to ascertain the importance of the discrepancy between the counts of approvers and disagreers regarding the behavioral components of the research metrics, as well as concerning the validity of the scale items.
▪ T-test for two independent samples: t-test For Two Independent Samples: Utilized to determine the discriminating power of research scale paragraphs by employing the two extreme groups.
▪ Der Zusammenhang mithilfe des Pearson-Korrelationskoeffizienten ermitteln zwischen:
-The total degree includes the paragraph's degree.
-The connection of the paragraph's degree to the component.
▪ – the component's correlation with the other component and its correlation with the overall scale.To know the nature of the relationship between the biological clock and emotional memory
▪ **Exploratory Factor Analysis**: To extract the build validity of current research metrics.
▪**Cronbach Alpha Cronbach Formula:** Used to calculate the stability coefficient of the two search scales.
▪ **Standard error formula:** To extract the standard error of the two search scales
▪**T-test for one sample : t-test For One Sample**: I use to find out the significance of the difference between the average response scores of the research sample on the research scale and the hypothetical average of it, through which the emotional memory of the members of the research sample is identified.

CHAPTER FOUR: PRESENTATION AND INTERPRETATION OF RESEARCH RESULTS

First: Presentation of results: The results were presented according to the objectives of the research as follows:
1- **The first goal:** the biological clock among social communication addicts among middle school students: 1- To bring about this end. Upon application of the biological clock scale to the research sample (565 male and female students) the arithmetic mean (58.0807), the standard deviation (11.21674) degrees and the hypothetical mean (64) degree were obtained and by comparing the arithmetic mean with hypothetical mean and using the T test for one sample. T Value = (0.6238) Less than T tabulated ((1.96)), where no statistical significant differences were found at (0.05) level and (564) degree of freedom, which point out that the research sample of the middle schools students is (biological clock) to which they should adhere, and that the difference is not real existed between the members of the sample, as shown in table (8): Table (8): The biological clock to be adhered at the time of falling asleep in each stage School level Item The sequence in biological clock to be adhered at the time of falling asleep Middle schools 5.26 2.

Table (8) The value of the T-test for one sample to indicate the difference between the arithmetic mean and the hypothetical mean
For the degrees of the biological clock scale

Biological clock	Sample size	Arithmetic mean	Standard deviation	Degree of freedom	Hypothetical mean	T-value at significance level (0.05)	
						Tabular	Calculated
	565	58.0807	11.21674	564	64	1.96	0.6238

The result in Table (8) above indicates a decrease in the biological clock among middle school students, the researcher attributes the reason to this that the biological clock is a mechanism that acquires and controls the daily cycles of behavior such as sleep, wakefulness, attention and concentration. And the feeling of hunger and patience for it, and the motivation of energy levels. Therefore, this watch is affected by external factors such as organization and resistance that may be lacking in middle school students. Hence, it can be said that external influences can affect the internal factors of the individual The researcher believes that the control of the biological clock among middle school students. It can help improve their academic performance and their mental and physical health. This understanding can lead to the development of educational and health strategies that align with students' biological rhythms, enhancing their effectiveness in school and everyday life. My conclusion agrees with some studies and disagrees with others. The result of this research differs with the results of a study (Mishal 2019) which indicated that circadian quality (internal factors of the individual) is associated with improved mental alertness and the reason for this is that both studies linked circadian regularity and enhanced daily function.

Until the researcher recognizes this weakness in any of the components of the biological clock. Deliberately to: Apply the T test for one sample to each category (component). To find any of the parts in which the "biological clock" has slackened. When the biological clock cognitive and its paragraphs number was (9) T value was (8.461) which is greater than the tabular T value (1.96), at the level of significance (0.05) and degree of freedom (564), while the arithmetic mean of it was referred to, it was manifested in the mean of (20.8140), also is greater than the hypothetical mean (10.5). The bio-social clock and its paragraphs number (8) were the calculated T value (8.461), which is more than tabular T value (1.96), at level of significance (0.05), and LOF (564), and according the arithmetic mean of it has been showed by value (20.8140), which is more than hypothetical mean was (16). Its length in age (8) and the Biological clock, Its calculated T value was (6.035), which is higher then the tabular T value (1.96), at the level of significance (0.05), with a degree of freedom (564), by comparing with its mean it was obtained with a value of (18.6877) which is greater than its hypothetical mean (16).
The biological emotional clock and its paragraphs.7) The calculated t- value was (1.838) which is less than the tabulated t-value at (0.05) in (564) degrees of freedom, By referring to its arithmetic mean we found it is equaled (14.6368) that is also smaller than the hypothetical mean (16). As shown in Table (9).
Table (9).The (Ttest) value for on sample to show the difference between the mean & Hypothetical Mean Gradations and Categories of the Circadian Scale (Compilers)

One-Sample Statistics										
Variable	Components	Item No.	Sample	T value at significance level (0.05)		Degree freedom	Hypothetical mean	Standard error	Standard deviation	Arithmetic mean
Biological clock	Cognitive biological clock	9	565	Tabular	Calculated	564	10.5	11995.	2.86371	20.8140
				1.96	8.461					
	Affective biological clock	8			1.838		16	09472.	2.26140	14.6368
	Social biological clock	8			7.460		16	11556.	2.75894	22.9421
	Spontaneous motor biological clock	7			6.035		14	10323.	2.46466	18.6877

According to the results obtained from Table (9). The researcher found that the failure in the biological clock was manifested in three categories: the biological clock (cognitive, social and motor spontaneity). caused by addiction to social media. While not shown in the biological clock affective. This means that the various daily activities of social media addiction for middle school students affect their biological clocks. Academic pressures also push students to overwork their time better organization. Which disperses cognitive circadian activity. Interactions in electronic communication affect their biosocial clocks. And prolonged addiction reduces the spontaneity and mobility of the biological clock.
Accordingly, the researcher is asked to identify any of the students (male students or female students). They are prone to this failure of the biological clock (cognitive, social, motor spontaneity). Therefore, the researcher deliberately answered the second hypothesis.
Second Objective: Determine statistically significant differences in the biological clock among middle school students addicted to social media based on the gender variable (male and female students) Middle school: until this goal is achieved by the researcher. I employed the T-test for two independent samples. The first group consisted of 279 male students. as well as female students (286). The calculated T value (4.871) exceeds the tabular T value (1.96) at the significance level of (0.05).) with a degree of freedom (563), the arithmetic mean of students was (73.662) degrees, which exceeded the arithmetic mean of applications at (62.550). It serves to benefit female students. As shown in Table (10**),**meaning that the student has a biological clock failure. They are less regular, and the reason, according to the researcher, may be related to environmental or behavioral differences that affect the biological clock due to cyber addiction.
Table (10) Significance of Differences in the Biological Clock According to the Gender Variable of Students (Male and Female)

	T-value				Number	Sex

Significance level	Tabular	Calculated	Degree of freedom	Standard deviation	Arithmetic mean		
(0.05)	1.96	4.871	563	4.521	73.662	279	Students Male
				3.987	62.550	286	Students Female

CONCLUSIONS, PROPOSALS AND RECOMMENDATIONS

First: Conclusions: Through the results of the current research, the following conclusions were reached:
1- The research sample of middle school students do not have a biological clock that they adhere to in three categories, namely the biological clock (cognitive, social and motor spontaneity).
2- The student has a biological clock failure. They are less regular.
Second: Recommendations: Based on the findings of the current research, the researcher recommends the following:

1−Promote circadian awareness: Students and parents should be made aware of the importance of the biological clock and how to regulate it to improve academic performance and mental and physical health. This can be achieved through workshops and educational lessons.

2−Develop learning strategies compatible with biological rhythms: Schools should design study schedules that take into account students' biological rhythms, such as providing adequate breaks and avoiding classes too early.

3−Encourage regular sleep: Students should be encouraged to maintain a regular sleep pattern, especially in adolescence, when hormonal changes are significant. This can be achieved by providing a school environment that supports quality sleep.

Third: Proposals : Based on the recommendations reached by the current research, the researcher proposes the following:
1- Study the impact of technology on the biological clock**: Research can be conducted to examine the impact of the use of electronic devices (such as smartphones and tablets) on students' biological clocks, and how this affects their academic performance and mental health.
2- Analysis of the effect of diet on the biological clock: It can be studied how different dietary patterns (such as eating junk food or healthy foods) affect circadian regularity and its relationship to emotional memory.

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