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USE OF CELL PHONES AND ITS RELATIONSHIP WITH PSYCHOMOTOR DELAY IN CHILDREN AGED 1 TO 4 YEARS

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BACKGROUND

Psychomotor development is a process that each child follows from the moment of conception to maturity, it is characterized by being similar; however, this has a variable rhythm in each child¹, which means that, although development follows the same pattern, it can be acquired at different times in each individual.

Guxens et al., evaluated the relationship between exposure to radiofrequency electromagnetic fields from telephone base stations, use of personal telephones with the cognitive function of children 5-6 years of age, through a cross-sectional study in which exposure to These waves in the residence were estimated with 3D geospatial radio wave propagation, data provided by the mother on the child's use of cell phones, and the child's assessment with the Amsterdam Neuropsychological Tasks; finding that there is better information processing, inhibitory control and cognitive flexibility due to residential exposure to electromagnetic fields but there is less inhibitory control and cognitive flexibility if children use the telephone.

In 2019, the ENDUTIH -National Survey on Availability and Use of Information Technologies in Homes- recorded that at least 86.5 million people in our country had a cell phone, 92.5% of homes had at least one television and 43% of the population aged 6 or over used a computer⁶; It is estimated that 63% of children between the ages of 4 and 8 handle cell phones without any problem, while in 2-year-old children there is an annual increase of 38% in the use of cell phones.

THEORETICAL FRAMEWORK

Psychomotor development is the evolutionary phenomenon of continuous and progressive acquisition of skills throughout childhood^{2,8}. Although it is also defined as a gradual and continuous process in which

it is possible to identify stages or stages of increasing level of complexity, which begins at conception and ends at maturity, with a similar sequence in all children, but with a rhythm variable².

There is a need to promote, to stimulate development, from the initial moments of life, when even the biophysiological and psychic structures are still much more immature and unconformed than in the middle of the preschool stage, although it as such is a period of formation, maturation and organization of these structures throughout their duration as a stage of psychomotor development. (p.102). cited through Flores Aguilar (2013).

In addition, Ramírez (2014) cited through Fujimoto (2002), Myers (2000), Peralta (2005) and Peralta and Fujimoto (1998) recognize the importance of the first cycle from 0 to 3 years: It is admitted that boys and girls learn from the moment of conception and that, therefore, human development is stimulated and enhanced in the womb and, later, accompanied by mediators in said development. For this reason, it is considered fundamental to recognize the importance of the stage from 0 to 3 years of age, an age for which there are few curricular guidelines in relation to the teaching process (p.69).

The RM number 292-2006/MINSA (2005) states that: the Health Sector cares for children 0-3 years of age with the comprehensive care package, however, there is no record, and in practice, early stimulation is given in boys and girls under 1 year of age and only when there is a problem in their psychomotor development. Regarding care coverage for children under 3 years of age, it is recognized as the lowest among the age groups. (p.102)

Psychomotor development results from the interaction of individual factors (biological) and those linked to determinants of the psychosocial context (family, living conditions, among others).

Psychomotor development depends mainly on 3 factors: genetic potential, generally related to the phenotype that is expressed in each individual from the genes that they inherit from their parents. Environmental conditions, food, hygiene, parental care, diseases may or may not lead to deficiencies in development. The love of parents, since the lack of attention and care can cause delays in development and psychological problems in the future⁹.

The development of the child depends to a large extent on the maturation of his nervous system, both the central (brain, cerebellum, brain stem and spinal cord), as well as the peripheral nervous system.

Normal psychomotor development refers to the process in which the infant achieves the acquisition of skills according to his age, which gives him the ability to respond to his own and external needs depending on his life context.

This means that when the child presents deviations from what is considered normal, it may be due to development problems. The origin of this may be due to damage to the structures of the nervous system. Although, in addition to this, the social relationships in the child's environment can provide risk factors.

To evaluate the development of the child, the manual for the application of the child development assessment test (EDI) and the neurological examination manual for children under five years of age in the first and second level of care can be used, each one covers certain areas of child development as well as offering an excellent complement to one another.

CELL PHONE

It is a mobile, wireless and electronic device that allows access to a cellular telephone network. Its main feature is its portability, which allows communication from almost

anywhere. At present it has become an indispensable element in life due to the multiple utilities it offers.

The American Academy of Pediatrics and the Canadian Pediatric Society revealed in a study 10 reasons why children under 12 years of age must not use these devices without control. According to his study, babies from 0 to 2 years old must not have any contact with technology.

The excessive use of technologies, according to the study, can accelerate brain growth in babies between 0 and 2 years of age. This could be associated with attention deficit, cognitive delays, learning problems, increased impulsivity and a lack of self-control (tantrums).

The excessive use of technologies can limit movement, as a consequence, it can affect academic performance, literacy and attention. This sedentary lifestyle can lead to an increase in childhood obesity and vascular or cardiac health problems and even diabetes.

Children who use these devices in their bedrooms at night tend to have more difficulty falling asleep. Parents often do not supervise the use of technology in their rooms. That lack of sleep affects your academic performance.

Some studies show that the excessive use of new technologies is increasing the rates of childhood depression and anxiety, attachment disorders, attention deficit, bipolar disorder, psychosis and other childhood behavior problems.

The World Health Organization, classifies cell phones as a risk due to radiation emission. Children are more sensitive to these agents and there is a risk of contracting diseases such as cancer.

OBJECTIVES

GENERAL

To determine the impact of delayed

psychomotor development and the use of cell phones in children from 1 to 4 years of age.

SPECIFICS

- To identify the relationship of delayed psychomotor development with the use of cell phones in children from 1 to 4 years old according to their gender.
- To determine the relationship of the delay in psychomotor development with the use of cell phones in children from 1 to 4 years old according to the time of use.
- Recognize the age with the greatest number of delays in psychomotor development due to the use of cell phones in children from 1 to 4 years of age.

INVESTIGATION METHODOLOGY

An observational, cross-sectional, descriptive study was carried out in children from 1 to 4 years of age from the Ranchería Paso de Cupilco located in the municipality of Comalcalco in the state of Tabasco in the period between September and November 2022.

PLACE OF STUDY

R/a Passage of Cupilco Comalcalco Tabasco.

STUDY SUBJECTS

POPULATION

The study population was 40 individuals and was made up of all those children from 1 to 4 years of age from the municipality of Comalcalco in the Ranchería Paso de Cupilco, which is made up of approximately 2,916 inhabitants.

Inclusion criteria

Children from 1 to 4 years old who play

with the cell phone

Children residing in the Ranchería Paso de Cupilco

Exclusion criteria

- ✓ Children with Down syndrome
- ✓ Children who have had childbirth complications
- ✓ Children who have been premature
- ✓ Children whose mother was under 16 years of age at the time of delivery
- ✓ Children under 1 year
- ✓ Children older than 4 years.

Sample

A non-probabilistic sampling by quotas was carried out in which 40 individuals between the ages of 1 and 4 years living in the Ranchería Paso de Cupilco located in the municipality of Comalcalco were evaluated.

Variables

Independent

Use of cell phones.

Dependent

Delayed psychomotor development

The following data were evaluated for the sample obtained that met the inclusion criteria:

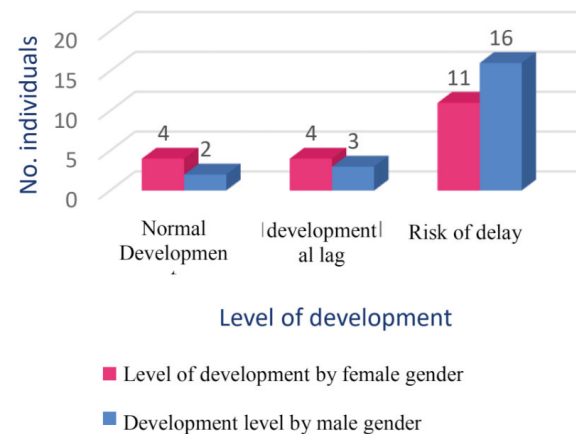
- ✓ The age through the application of a questionnaire.
- ✓ Gender by applying a questionnaire.
- ✓ Weight using a digital scale
- ✓ Height using a tape measure
 - The level of psychomotor development through the application of the EDI Test.

- The time of use of the electronic device through the application of a questionnaire.

RESULTS

The sample obtained in this study consisted of 40 individuals who were divided into 4 groups according to their age; group “A” corresponds to all 1-year-old infants, group “B” made up of all 2-year-old infants, group “C” for those who were 3 years old, and group “D” for those who were 4 years.

The baseline characteristics of the sample are shown in Table 1. The total sample consisted of 40 individuals, of which 19 were female and 21 male, the group with the most individuals was “D” with 17 children and the group with the most individuals was “D” with 17 children. group with fewer individuals was “A” with 5 children.



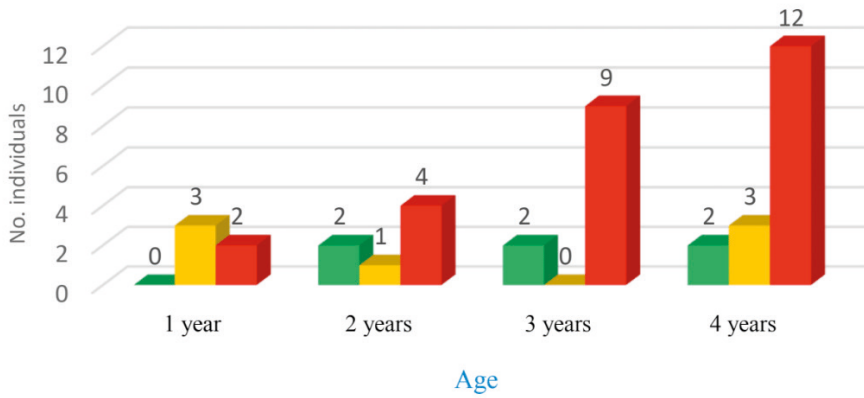
Graph 1: Level Of Psychomotor Development According To Gender.

Graph 1 shows the level of psychomotor development by gender, finding that the male gender presents a higher risk of delayed psychomotor development while the female gender has a higher rate of normal development and lag.

Graph 2 shows the level of psychomotor development according to age; predominating greater probability of delay in the population

of 1 year, lower probability of delay at 3 and greater risk of delay in development from 2 to 4 years.

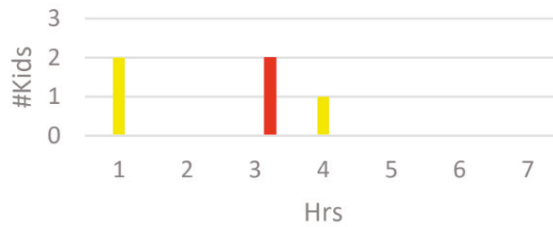
Graphs 3, 4, 5 and 6 show the level of psychomotor development in relation to time of use of the electronic device according to whether they are individuals of 1, 2, 3 and 4 years respectively. It was observed that at the age of 1 year, cell phone use is associated with a delay if it is used for 1 or 4 hours, while those who used it for 3 hours were at risk of developmental delay. In 2-year-old children, the use of a cell phone for 1 hour did not present major complications, since most of them had normal development; but after 2 hours the use of cell phones was associated with risks of delayed psychomotor development. A ratio of 2:1 was observed in two-year-olds who use 1 hour of cell phone use; since for every two children with normal development there is one with a delay in development. 3-year-old children who used a cell phone for one or two hours still have normal development, but after 3 hours of interaction with this device, it was observed that the children were at risk of delayed psychomotor development. Finally, it was observed that in 4-year-old children using a cell phone for 2 hours is related to normal development but also to a delay in psychomotor development; using it for 3 hours is more associated with delays in development and risk of developmental delay after 3 hours. It was observed that in 4-year-old children using a cell phone for 2 hours is related to normal development but also to a delay in psychomotor development. using it for 3 hours is more associated with delays in development and risk of developmental delay after 3 hours. It was observed that in 4-year-old children using a cell phone for 2 hours is related to normal development but also to a delay in psychomotor development. using it for 3 hours is more associated with delays in development and risk of developmental delay



■ Normal Development ■ developmental lag ■ Risk of delay

Graph 2: Levels Of Psychomotor Development According To Age.

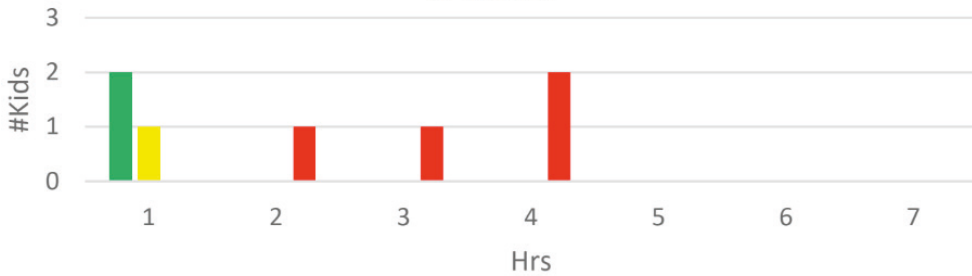
1 year



■ Normal development
 ■ Developmental lag
 ■ Risk of developmental delay

Graph 3: Hours Of Cell Phone Use In 1-Year-Old Children

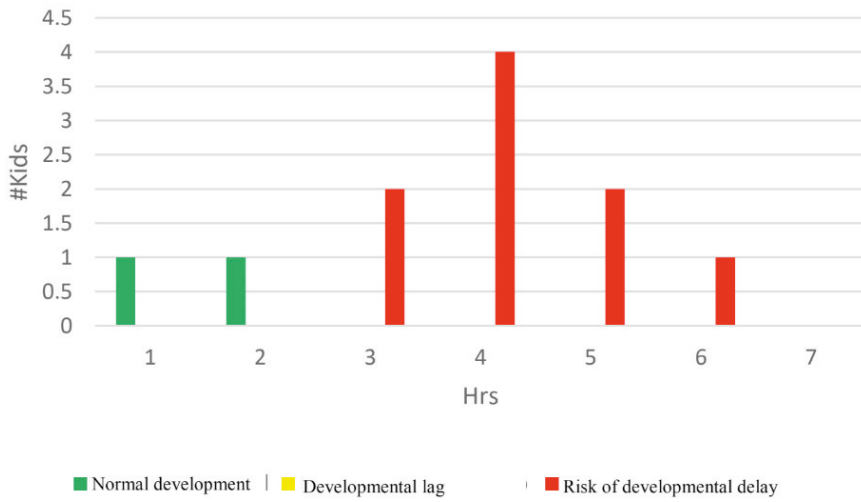
2 Years



■ Normal development ■ Developmental lag ■ Risk of developmental delay

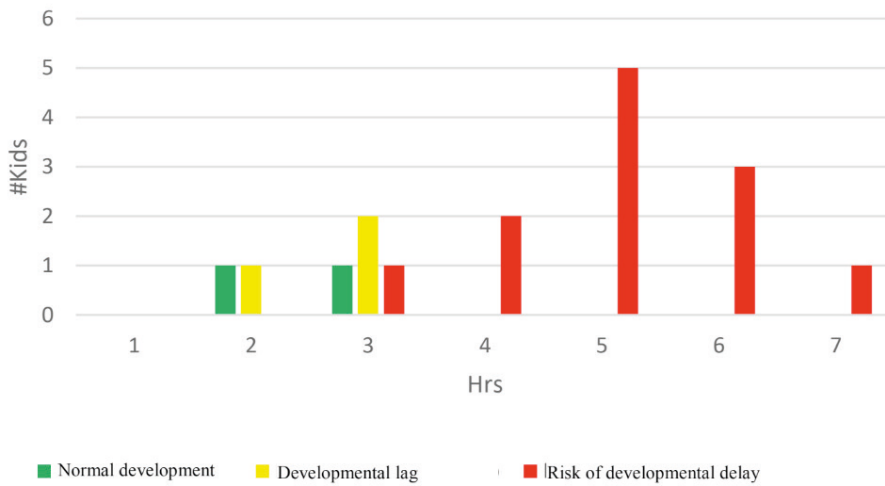
Graph 4: Hours Of Cell Phone Use In 2-Year-Old Children

3 Years



Graph 5: Hours Of Cell Phone Use By 3-Year-Old Children.

4 Years



Graph 5: Hours Of Cell Phone Use By 4-Year-Old Children.

after 3 hours.

The Chi-square hypothesis contrast test was used to compare the results of normal development, developmental delay and risk of developmental delay according to the hours, finding that the use of cell phones is associated with the risk of delay in psychomotor development ($p= 0.0087$).

CONCLUSION

The use of cell phones in children from 1 to 4 years of age in the municipality of Comalcalco in Ranchería Paso de Cupilco generates a significant delay in development according to the time of use, age and gender. The older the child using this device, the fewer consequences are observed; At the age of 1 year, consequences for its use are observed after 1 hour, at the age of 2 years they are observed from the use of 2 hours of cell phone

while at the age of 3 years at 1 hour or 2 they are not observed. observe developmental complications; however, for children 3 and 4 years of age, there is a risk of developmental delay after 3 hours of use. Therefore, it is not recommended that children ages 1 and 2 use cell phones; while children of 3 and 4 years must not exceed its use for more than 2 hours.

Regarding gender, the male gender is the most affected; although this could be more related to the fact that just over half of our chosen sample was made up of men.

However; Even with the aforementioned results, the authors believe that more studies are needed that include a greater number of individuals or a similar number in each group in order to corroborate the above.