



**SHORT COMMUNICATION**

## Statistical analysis of social networks as a means of communication for children in educational institutions in Riohacha, La Guajira, Colombia

### Análisis estadístico de las redes sociales como medio de comunicación infantil en las instituciones educativas en Riohacha, La Guajira, Colombia

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#### ABSTRACT

Technological advancements have impacted human life in various magnitudes, influencing the social, cultural, and educational aspects, particularly among children. The study aimed to examine the influence and impact of social networks concerning issues such as cyberbullying, sexting, grooming, and vamping, among others. Furthermore, different indicators of social network incidence in the school population were explored. According to the conclusions drawn, it was found that the use of social networks negatively affects the academic performance of children in Riohacha, generating social isolation, fear, and both visual and mental fatigue. It was also observed that most children in Riohacha spend between 3 to 4 hours a day on social networks and generally do not use them to carry out inappropriate behaviors. In most cases, they also do not exchange messages or videos not suitable for their age; when this occurs, those involved are removed from their contact lists.

**Keywords:** Social Networks; Statistics; Indicators; Society; Education; Interaction.

#### RESUMEN

Los avances tecnológicos han impactado, en diversas magnitudes, la vida social, cultural y educativa de los seres humanos, en particular la de los niños. El objetivo del estudio fue examinar la influencia y el impacto de las redes sociales en relación con problemas tales como el ciberbullying, el sexting, el grooming y el vamping, entre otros. Además, se exploraron diferentes indicadores de incidencia de las redes sociales en la población escolar. De acuerdo con las conclusiones obtenidas, se constató que el uso de las redes sociales influye de manera negativa en el rendimiento académico de los niños en Riohacha, generando situaciones de aislamiento social, miedo y cansancio tanto visual como cerebral. Se constató también que la mayoría de los niños en Riohacha pasan entre 3 a 4 horas al día en las redes sociales y, por lo general, no las utilizan para realizar conductas inapropiadas. En la mayoría de los casos, tampoco se realiza intercambio de mensajes o videos no adecuados para su edad; cuando esto ocurre, los involucrados son eliminados de las listas de contactos.

**Palabras claves:** Redes Sociales; Estadísticas; Indicadores; Sociedad; Educación; Interacción.

## INTRODUCTION

Over time, humans have undergone transformations that range from simple aspects to considerable complexities. We live in an era of constant exchange of ideas, opinions, inventions, and constructs. Currently, with just a single click on a computer or mobile phone, we are capable of communicating with individuals, be they family, friends, or strangers, over vast distances. This reality is made possible thanks to information and communication technologies.<sup>(1,2,3,4)</sup>

In an increasingly interconnected world, instant communication has driven dynamism in business, financial, and scientific operations, as well as promoting cultural exchanges and trainings that contribute to the global development of countries, including Colombia. These technological advancements have impacted human life at different scales, socially, culturally, and educationally, particularly in children.<sup>(5,6,7)</sup>

Social networks, readily accessible to society and especially to children, serve a dual function. On one hand, they facilitate the exchange of ideas among relatives, friends, teachers, and unknown individuals, influencing social and educational growth, as well as the development of mental and social competencies in various aspects of children's lives. On the other hand, social networks present the risk of exposing children to topics that can negatively affect them. In this sense, children may become the object of abuse from adults or individuals with harmful intentions for their personal development and physical integrity. Currently, governments seek to protect children from these risks through legal and technological strategies.<sup>(8,9,10)</sup>

### *Research Background*

The analysis of social networks is an important source of information about individual behavior, their relationships, and the dynamics of different social groups. Several authors have conducted works related to social networks. Molina<sup>(11)</sup> carried out a research titled "Overview of Social Network Research," which focused on personal networks. Molina argued that social networks allow a new approach to the micro-macro and qualitative-quantitative duality and concluded that the Internet and social networks have brought about positive changes for users.

In their turn, Sabater Fernández et al.<sup>(12)</sup> (2015) conducted research on risk factors in cyberbullying and the frequency and exposure of personal data on the Internet. Their study analyzed the relationship between being a victim and perpetrator of cyberbullying with variables such as demographic profile, frequency, intensity, and type of use of technological media among youth, particularly the Internet and social networks.

Dorantes Carrión<sup>(13)</sup> studied cyberbullying among university students through social networks at Veracruzana University. Her objective was to highlight how violent actions such as offense, intimidation, and exhibition develop in the university environment due to the misuse of social networks.

Torres et al.<sup>(14)</sup> analyzed digital risk and its impact on the learning of children and adolescents in the Ate Vitarte district in 2020 in their case study. They concluded that the use of digital media is noticeably affecting the lives, relationships, communication, and learning of children and adolescents.

Finally, Castillo Alcántara<sup>(15)</sup> investigated the relationship between addiction to social networks and depressive symptomatology in high school students of Ofelia Velásquez Educational Institution. Their results showed that addiction in the students presented a medium prevalence of 84,1 %, with absent depressive symptomatology in 62,1 % of cases, a mild level in 37 %, and a severe level only in 0,9 %.

### *Problems derived from the misuse of social networks*

Having highlighted the advantages inherent to social networks, the need emerges to delve into the transversal problems that these can generate, regardless of the technological medium. Among these problems are:<sup>(16,17,18,19,20,21,22,23)</sup>

- Cyber harassment: this refers to the use of technology to threaten, embarrass, intimidate, or criticize another person. It includes online threats, offensive text messages, derogatory comments sent via Twitter, and internet posts aimed at harming or embarrassing someone. It also comprises those images, messages, or online pages that cannot be removed, even after a request for their deletion. In summary, anything posted on the internet with the intention of harming another individual.
- Cyberbullying: this consists of psychological harassment carried out between minors in their new and relevant socialization environment: cyberspace. This type of harassment takes various forms, stimulated by constant technological innovations and the limitless imagination of minors. There's no need to be stronger, be in the same place as the victim, or even personally know them. Additionally, the absence of witnessing the suffering can enhance its intensity.
- Grooming: this refers to the tactic of empathy and seduction used by sexual predators to gain a minor's trust, eventually obtaining, through emotional blackmail or other means, gratifications of a sexual nature. These can range from the reception of images or videos to the proposal of physical encounters. The fight is very unequal, as it is an adult specialized in the hunting of minors versus a child or adolescent who suddenly finds themselves in a situation they can neither handle nor share.

- **Sexting:** this practice involves the sending of images or videos of erotic or pornographic content by minors or young people via mobile phone (Sexting = Sex + Texting). It is related to child pornography. The problem arises when these images leave the private sphere and become public, undermining the individual's privacy and honor, and in many cases, leading to cruel cyberbullying campaigns. Teenagers view sexting as a form of flirtation and fun, which makes it difficult to counteract.

- **Vamping:** this is a new trend that involves young people spending a large part of the night in front of a screen through a tablet, computer, or mobile phone. The devices through which they can connect to the internet and communicate with friends are varied. Vamping is defined as the habit of being absorbed in the screen until the early hours of the morning.

This research proposes to analyze from a statistical point of view the use of social networks by children and young people in the Touristic and Cultural District of Riohacha, the capital of the Department of La Guajira. The objective is to detect possible problems in children and preadolescents caused by the excessive use of information and communication technologies, especially social networks. These problems could include impacts on mental health, inadequate academic formation, cyberbullying, social isolation, neglect of school commitments, exchange of pornographic images, videos, and texts with adults or among young people without the knowledge of their parents, and even sexual violations.

## METHODS

This research was conducted based on the positivist paradigm, at the descriptive level, and was cross-sectional. Also, this research was developed according to the prevalence design. Instruments: Surveys with closed questions of single choice and multiple choice were used. For the validity of the measuring instruments, they were evaluated and endorsed by experts and scientists from the University of La Guajira, and another university.

Content validity was taken into account, but construct and criterion validity were added, even though they were not necessary as the instrument was well defined by the content validity.<sup>(24)</sup>

For this, the concepts registered in books, magazines, and research mentioned in the bibliography of the present investigation were taken into account (content validity); some teachers were consulted about terms and meanings used in the use of social networks for child communication (construct validity); other experts were consulted (validity by experts) on the topic who gave their favorable judgment to the constructed instruments, despite this, once satisfied with the results, a comparison with other similar instruments was made, even though it was not necessary (criterion validity).<sup>(24)</sup>

In the reliability test of the survey, a Pearson correlation coefficient  $r$  of 0,8 was obtained. The test was carried out with a test and re-test trial on two children from Riohacha schools.

The population of students in Riohacha is approximately 44 000 projected, from which a sample of 120 children aged 7 to 12 was chosen, divided into the ages of 7 to 8, 9 to 10, and 11 to 12, with random sampling, with a margin of error of 8 % and a confidence level of 92 %.

## RESULTS AND DISCUSSION

Social networks fascinate children for various reasons: they allow the exchange of knowledge (21 %), strengthen friendships (12 %), facilitate the dissemination of news (13 %), promote the exchange of tasks (18 %), provide a means of rest (13 %), and provide fun (16 %) and joy (7 %) (table 1).

Options	N	%
Knowledge exchange	29	21
Allows to ratify friendship	16	12
Exchange of news	18	13
Exchange of tasks	24	18
Rest	16	12
Fun	22	16
Cheerful mood	10	7
Total	135	100

### Children's Message Exchange

#### A) Exchange of messages with people in general on social networks

In Riohacha, children primarily use social networks to exchange academic topics with their teachers (38 %),

friends (32 %), parents (17 %), non-family acquaintances (8 %), and other relatives (7 %) (table 2).

**Table 2.** People with whom children exchange academic topics

You exchange academic topics with	N	%
Your friends	38	32
Your teachers	45	38
Your parents	20	17
Strangers	0	0
Unfamiliar acquaintances	9	8
Other relatives	8	7
No one	0	0
Total	120	100

Most children exchange messages with adults through social networks (69 %), while (31 %) do not (table 3).

**Table 3.** Exchange of messages with adults in general through social networks by children in Riohacha

Exchange of messages with adults	N	%
Yes	83	69
No	37	31
Total	120	100

Most children in Riohacha interact with adult relatives (66 %), adult friends (25 %), known adults (11 %) through social networks. No child interacts with unknown adults (table 4).

**Table 4.** Types of adults with whom children have relationships on social networks

Are these adults?	N	%
Relatives	89	66
Friends	34	25
Acquaintances	11	8
Strangers	0	0
Total	134	100

#### *B) Children's message exchanges with relatives in Riohacha on social networks*

It was found that children exchange topics with their relatives about jokes and greetings (50 %), academic training topics (27 %), news (16 %), none of the above (7 %) through social networks (table 5).

**Table 5.** Types of topics that children in Riohacha exchange with relatives on social networks

Types of messages exchanged between children and adults	N	%
Jokes and greetings	69	50
Educational topics	37	27
News	22	16
Sex	0	0
Love	0	0
None of the above	9	7
All of the above	0	0
Total	137	100

The majority of children in Riohacha (88 %) do exchange messages with other children through social networks. 13 % of children do not exchange messages with other children.

Table 6 presents the distribution of relationships that children in Riohacha have through social networks. Out of all the children (N=120), the majority (83 %) have relationships with relatives, followed by 13 % who interact with friends. A small percentage (5 %) interact with acquaintances through these platforms, while none of them reported having interactions with unknowns.

Table 6. Types of children with whom children in Riohacha have a relationship through social networks		
Are these children?	N	%
Relatives	99	83
Friends	15	13
Acquaintances	6	5
Strangers	0	0
Total	120	100

## CONCLUSIONS

In the present prevalence study of descriptive and cross-sectional nature, the following conclusions have been reached: the use of social networks in children of Riohacha is associated with negative consequences such as deterioration of academic performance, social isolation, fear, and both visual and cerebral fatigue. These children tend to spend between 3 and 4 hours daily on these platforms. It is important to highlight that minors in Riohacha rarely use social networks to interact with unknown adults on topics of sex or love. Although the majority do not receive messages, videos or photographs of amorous or sexual content, those who do usually react by deleting them, blocking their contacts or, in some cases, forwarding them.

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#### **CONFLICT OF INTEREST**

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