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RINOE Journal-Health Education and Welfare

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Presentation of the content

In the first article we present, *Emotions perceived by Mayan women during the perinatal period*, by Rodríguez-Angulo, Elsa María, Erosa-Arcique, Paulina, Cambranes-Puc, Luis Humberto and Ojeda-Rodríguez, Ricardo, with affiliation in the Tecnológico Nacional de México-Instituto Tecnológico de Villahermosa, as next article we present, *Analysis of the productivity of services in the mental health area of a high specialty Hospital in the State of Tabasco, for a proposal for improvement*, by García-Jerónimo, Irma, Meneses-Hernández, José Luis, García-Jerónimo, Beatriz and Notario-Priego, Roger with affiliation in the Tecnológico Nacional de México-Instituto Tecnológico de Villahermosa, as next article we present, *Strategies to analyze technical efficiency in medical care for patients with a traffic accident involving an uninsured or unidentified vehicle in Colombia, 2018-2022*, by Ruiz, Myriam, López, Guerly and Ortiz-Gil, Miguel Ángel., with affiliation in Universidad de Guanajuato, Fundación Universitaria Iberoamericana, as next article we present, *The shortage of medicines as a violation of the human right to health* by Martínez-Lares, Marco Antonio with adscription in the University of Guadalajara.





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Emotions perceived by Mayan women during the perinatal period





Emociones percibidas por mujeres Mayas durante el periodo perinatal

Rodríguez-Angulo, Elsa María^{*a}, Erosa-Arcique, Paulina^b, Cambranes-Puc, Luis Humberto^c and Ojeda-Rodríguez, Ricardo^d

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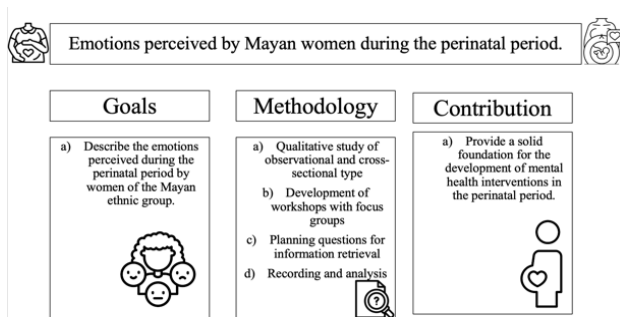


Abstract

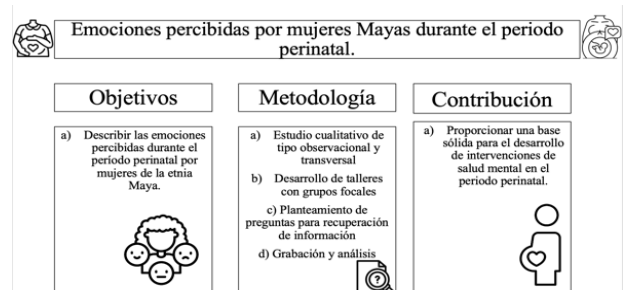
Attention to emotional disorders during the perinatal stage is a crucial aspect; during this period, the mother experiences a series of significant changes that can influence her well-being and, therefore, that of the newborn. Appropriate detection and treatment of emotional disorders, such as perinatal depression and anxiety, are essential to ensure a healthy environment. The objective of this study was to describe the emotions perceived during the perinatal period by women of the Mayan ethnic group. This analysis is essential to better understand emotional experiences and provide a solid foundation for the development of mental health interventions. We sought to identify the predominant feelings, when faced with questions related to their emotions and actions in certain situations. Finally, it was possible to obtain proposals from the Mayan community, which reflected their main needs for the well-being of their mental health.

Resumen

La atención de los trastornos emocionales durante la etapa perinatal es un aspecto crucial, durante este período la madre experimenta una serie de cambios significativos que pueden influir en su bienestar y, por ende, en el del recién nacido. La detección y el tratamiento adecuados de los trastornos emocionales, tales como la depresión y la ansiedad perinatal, son fundamentales para garantizar un ambiente saludable. El presente estudio tuvo como objetivo describir las emociones percibidas durante el período perinatal por mujeres de la etnia Maya. Este análisis es fundamental para comprender mejor las experiencias emocionales y proporcionar una base sólida para el desarrollo de intervenciones de salud mental. Se buscó identificar los sentimientos predominantes, ante preguntas relacionadas con sus emociones y acciones en ciertas situaciones. Finalmente se logró obtener propuestas por parte de la comunidad maya, en donde reflejaban sus principales necesidades para el bienestar de su salud mental.



Perinatal, Psychological, Detection



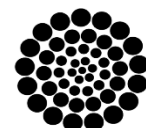
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Introduction

Pregnancy is one of the most momentous and enriching experiences in a woman's life. During this period, a woman faces a series of profound and complex changes, including physiological modifications, psychological adjustments and changes in her social environment, making her particularly vulnerable and requiring comprehensive care. Depressive and anxiety disorders are approximately 50% more common among women than among men throughout the lifespan. According to the World Health Organization (WHO), in approximately 2019, one in eight people in the world (equivalent to 970 million people) had a mental disorder (WHO, 2022).

Pregnancy is a time of mixed interests, between family needs, individual aspirations and inherent responsibility. On this path, doubts may arise about personal capacity to provide the necessary care for the newborn, which predisposes new mothers to psychological stress, making it a period of greater vulnerability and therefore more likely to develop a mental disorder. On the other hand, in Australia it was found that 21% of women reported not always answering honestly about their mental health in the perinatal period, citing concerns related to stigma and fear of adverse consequences, including social services involvement, as reasons for not being honest. Notably, women who were most likely to report perinatal mental health problems were also the least likely to be open about their mental health (Forder et al., 2020).

Perinatal mental health is an often-neglected aspect of the health system, given that its assessment is just as important as the performance of blood pressure screening, screening obstetric ultrasounds or screening for gestational diabetes. On the other hand, it is uncommon for health personnel to ask the mother if she has experienced any depressive episodes previously or during the current pregnancy, or how she is feeling at the time of the consultation, as well as concerns related to her pregnancy or future motherhood (Contreras et al., 2022). This situation makes the problem invisible, which delays its assessment and negatively affects diagnosis, treatment and clinical follow-up.

Mental health plays a crucial role in the development of pregnancy, influencing the overall wellbeing of mother and child, and thus ensuring a healthier and more positive gestational experience. In the context of Mexico, similar to other developing nations, public policies do not encompass a comprehensive approach that includes multidisciplinary mental health care. Likewise, prenatal care is based on what the National Centre of Technological Excellence in Health (CENETEC) mentions in the guide Prevention, diagnosis and management of prenatal and postpartum depression in the first and second levels of care, which integrates the physical evaluation of the pregnant woman and the baby, but does not specify any emotional intervention in the prenatal stage, let alone in the puerperium (CENETEC, 2021). Unfortunately, its usefulness for resource planning and implementation of the strategies necessary for comprehensive coverage is still limited. Access to perinatal health in our country contrasts with that of other countries, such as the United States of America, France, Germany or Belgium, where coverage is over 70 % (De Castro et al., 2016).

During the annual congress of the American College of Obstetrics and Gynecology (ACOG) 2018, at the conference on Mood Disorders of the Perinatal Period, Moore Simas, M.D., M.P.H., University of Massachusetts Medical School, stated that "maternal suicide exceeds hypertensive and haemorrhagic disorders as a cause of maternal mortality", suggesting the opportunity for prolonged and regular contact with different health professionals during the perinatal period, it is necessary to investigate maternal mood symptoms (Krauskopf et al., 2020).

On the other hand, in a quantitative and cross-sectional study conducted in Yucatan, the prevalence of prenatal depression was 16.66%. This study highlighted that adolescent age (RM = 3.351), difficulties with partners (RM = 4.552), lack of emotional support (RM = 2.791), living in union (RM = 2.980) and adverse events such as separation (RM = 8.952), sexual difficulties (RM = 6.212) and dietary changes (RM = 2.063) were found to be some risk factors for prenatal depression (RM = 2.79, 95 % CI 1.053-7.394) assessed with the Medical Outcomes Study-Social Support Survey (MOS-SSS) instrument (Rodríguez et al., 2017).

Postpartum depression is a multifaceted problem, influenced by various forces in society. As such, it is important to elucidate facilitators and barriers to help-seeking at multiple societal levels so that a multifaceted, multi-pronged approach to prevention, detection and treatment can be advanced (Place et al., 2024).

The aim of this study was to describe the main emotions perceived during the perinatal period by Mayan women.

Methodology

A qualitative, observational, cross-sectional study was conducted, approved by the Ethics and Research Committees of the Centro de Investigaciones Regionales "Dr. Hideyo Noguchi" of the Universidad Autónoma de Yucatán, with the collaboration of personnel from the community obstetrics and gynecology hospital in the municipality of Ticul, Yucatán. The hospital is attended by pregnant women from this municipality and several others in the same area. The sample consisted of pregnant women who came for prenatal consultation or ultrasound. Through two focus group workshops, information was collected on perceived emotions in which the following questions were asked: what emotions do women feel during pregnancy that make them feel bad, what do pregnant women do when they perceive these emotions, and who supports women when they perceive emotions that make them feel bad during pregnancy? The information was recorded and transcribed with the permission of the participants. After obtaining the information related to emotions, participants were invited to propose strategies they considered necessary to address the health of pregnant women in their community. Through the method of explicit analysis of the content of the transcribed text and the latent meaning of what was written, codes and categories were selected that corresponded to the emotions that were mentioned by the participants, as well as the strategies proposed (Hernandez et al., 2010). Tables were drawn up to describe the results.

Results

Two participatory workshops were held with a total of 30 participants, of which 10 (33%) gave comments on emotions. Results are presented for 10 workshop participants, of which 9 (90%) were female and one male (10%). The age of the participants ranged from 18 to 38 years. Perceived emotions were despair, anger, anxiety, euphoria, sadness, fear, frustration, distress and happiness. Some participants did not respond to the questions what they do and who supports them when they feel emotionally unwell in pregnancy (Table 1).

Box 1

Table 1

Content analysis of emotions perceived by Mayan women during pregnancy.

Answers to the questions 1. what emotions do pregnant women feel in pregnancy that make them feel bad, 2. what do pregnant women do when they perceive these emotions, and 3. who supports women when they perceive emotions that make them feel bad during pregnancy?

n=9 women and 1 man

Participants	What emotions do they feel?1	What do they do?2	Who supports it? 3	Perceived emotion
1. Blanca 36 years old	"In my case I despair".	"You don't know who to tell, and you keep thinking and thinking, locked up and not solving anything".	-	Despair
2. Ana 38 years old	"I despair too".	"In my case, what I do is cry, it helps me to get it all out, and that's it. In my case I play music, it helps to calm you down".	"The mother	Despair
3. Erika 22 years old	"I despair too".	"Going for a walk, to distract the mind for a while".	-	Despair
4. Silvia 34 years old	"I feel bad and you don't want anyone to talk to you".	"In my case I can't say that I feel bad because everything is a doctor. Well, sometimes they take me to the nearest doctor, like the private doctor, and then it's done".	"The couple	Despair
5. Maricela 26 años	"Anger sometimes there is anxiety".	"Going to the psychologist".	"Psychologist"	Anger and anxiety
6* (Participante hombre) 20 years old	"Sometimes I think they go through the process of bipolarity".	"You talk about it with your partner but they don't understand each other".	"It's better if she goes to someone who will listen to her".	Euphoria and sadness
7. Rubí 30 years old	"Sometimes we are afraid of how to hold him, how to bathe him in the first days".	"Well, it is the same intuition that leads us to how to take care of him, of course we have the help of our husband but it is not the same as the love of mum and how she feels."	"We have our husband's help but it's not the same as mum's love and how she feels".	Miedo
8. Viviana 18 years old	"Fear, of the first baby, how you are going to take care of it, something that might happen to it because we don't know how it will react."	-	-	Miedo
9. Marta 34 years old	"Fear and frustration"	-	-	Fear and frustration.
10. Gretty 23 years old	"Anguish, despair, Happiness"	-	-	Anguish, despair, happiness.

Among the participants' proposals were the implementation of health promotion actions, meetings with the family nucleus and specialized attention to emotional disorders in pregnant women (Table 2).

Box 2

Table 2

Community proposals for emotional care in Mayan pregnant women

Proposal	Comment
Health promotion	"it would be good to have talks, local visits, in family circle."
Meetings	"It's the first time I've known that my sister has had these talks and it's very good that you do them for those who are new mothers, how to deal with pregnancy, it's good that you do this type of meeting."
Specialized care	"Well, more than anything, what you said, the truth is that I am attended to in the psychiatric hospital, but after the birth I get postpartum depression, rather than in the health center where there is a psychologist, I go and ask for an appointment, I will have an appointment in a month or a month and a half, but if it is more advanced it has to be in Mérida, There should be a psychologist and psychiatrist, because when the baby is born they feel a rejection towards the baby, for example I reject my baby and I can even kill it so that I feel at ease" "I have heard cases of pregnant women, with so many emotions and they don't seek help, I have heard of pregnant women who even kill themselves, how do we see the pump and realize it? How can we know that if we are already too much affected??"

Conclusions

In this study, it was possible to reflect with the women participants on the emotions they may have during pregnancy, which are not always positive. The emotions perceived by the women were mainly related to those that make them feel desperate, afraid, because they do not know what will happen during labor and with the baby. This also makes them anxious, but they try to distract themselves with other activities such as talking to their partner or mother. These same emotions have been reported by other authors, who mention that in pregnant women, these types of emotions are triggered mainly because the woman is unaware of many aspects of the development of her pregnancy and the care she should give to her newborn, due to lack of access to information on these topics.

It has been shown that this type of previous history of increased exposure during pregnancy to stressful life events, specifically negative ones such as unplanned and/or unwanted pregnancy, economic difficulties, marital problems, domestic violence, poor family support, as well as a history of emotional problems, anxiety, stress and depression, are associated to a lesser or greater extent with the development of depression during the gestational stage (Krauskopf et al., 2020).

Also, only one of them mentioned that she went to a psychologist, which reflects the lack of such personnel in the community, because the hospital does not have this professional and she had to go to the psychologist privately for her care. It has also been reported that although people are aware that they should seek professional help for emotional disorders, the problem is stigmatized in the community. For example, barriers at the individual level, such as harmful beliefs about seeking help, may be intensified by the views of family and friends about postpartum depression or health care providers who are not trained to provide competent and compassionate care. Organizational-level barriers, such as lack of time and/or privacy with a provider, may be intensified by community norms of shame and stigma around mental health (Place et al., 2024). In the community of Ticul, despite the existence of an addiction care center where psychologists are available, people do not go to the center for fear of being "branded" as mentally ill.

In our country, public policies do not encompass a comprehensive approach that includes multidisciplinary health care for pregnant women. This means that not all the dimensions necessary to guarantee complete and effective care during pregnancy are considered. Mental health plays a crucial role in the course of pregnancy, as it has a determining influence on the mother's overall well-being. A mother with good mental health is better able to manage stress and worries that may arise during pregnancy, which in turn has a positive impact on the baby's development. Ensuring a healthier and more positive gestational experience not only benefits the mother in terms of her physical and emotional well-being, but also lays the foundation for a healthier start in life for the baby.

In addition, comprehensive care that includes the mental aspect can help prevent complications that could affect both mother and baby, thus ensuring a smoother transition to motherhood and a better quality of life for both in the long term.

The degree of risk of disturbances in children is directly related to the severity and duration of the mother's postpartum depression. For example, adverse effects of maternal depression have been documented in older children, such as difficulties at school and with their peer group, low self-esteem and increased behavioral problems (Krauskopf et al., 2020).

It is therefore imperative that public policy evolves to incorporate a truly holistic approach to pregnant women's health care, recognizing the importance of mental health and providing the necessary resources to support women at all stages of their pregnancy and beyond.

The proposals mentioned by the participants address several issues related to mental health during pregnancy and postpartum, especially in the cultural and religious context, which hinder access to adequate treatment. The importance of breaking taboos and promoting education and family support for pregnant women is highlighted. Personal experiences with psychiatric care were mentioned and underline the need for psychologists and psychiatrists in maternal hospitals for the detection and care of emotional disorders in this vulnerable group. In addition, concerns were expressed about the identification and management of crisis situations in pregnant women and new mothers. Although all pregnant women experience the same hormonal imbalance and may have similar experiences, not all are affected in the same way. Major depression during pregnancy is associated with different risk factors and, although it is a frequent cause of psychiatric disorders and is well identified as a health problem, it is not sufficiently well diagnosed, let alone treated (Ruíz, 2017).

Finally, time management was observed to be a barrier at the institutional level, as waits of up to months in the allocation of a psychological or psychiatric appointment were reported.

Lack of emotionally warm and empathetic support can also be detrimental to seeking mental health treatment, which is why health care providers, such as physicians, midwives and nurses, are in key positions to make personal connections with women, offer emotional support and make recommendations and referrals to psychological resources to help women enjoy the postpartum experience.

During pregnancy, emotional well-being is affected by emotional difficulties, mainly due to expectations related to both birth and postpartum, physical change and mental exhaustion, so it is pertinent to implement strategies that comprehensively address the health of pregnant women, including mental health.

In addition, it is important to provide pregnant women with the necessary and relevant information about postpartum changes and baby care so that they feel more prepared for their new role and lifestyle, as well as for the difficulties that may arise as a result. Programmed and events aimed at promoting the prevention of postpartum depression are important to empower women to seek early care and receive the support they need.

Declarations

Original contributions to this study are included in the article; any queries may be directed to the corresponding author.

Conflict of interest

The authors declare that the research was conducted without any commercial or financial relationship that could be considered a potential conflict of interest.

Author Contribution

Rodríguez-Angulo, Elsa: Conceptualization of the project, writing of the original article, workshop techniques, analysis and discussion.

Erosa-Arcique, Paulina: Article writing, database capture and design of results tables, article writing.

Cambranes-Puc, Luis: Database design and software management.

Article

Ojeda-Rodríguez, Ricardo: Project conceptualization, workshop methods and techniques.

Availability of data and materials

Data and materials are available upon request to the first author.

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Abbreviations

ACOG: American College of Obstetrics and Gynecology

CENETEC: Centro Nacional de Excelencia Tecnológica en Salud (National Centre of Technological Excellence in Health)

MOS-SSS: Medical Outcomes Study- Social Support Survey

WHO: World Health Organization

RM: Ratio of Momios

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Antecedents

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Analysis of the productivity of services in the mental health area of a high specialty Hospital in the State of Tabasco, for a proposal for improvement

Análisis de la productividad de los servicios en el área de salud mental de un Hospital de alta especialidad del Estado de Tabasco, para una propuesta de mejora

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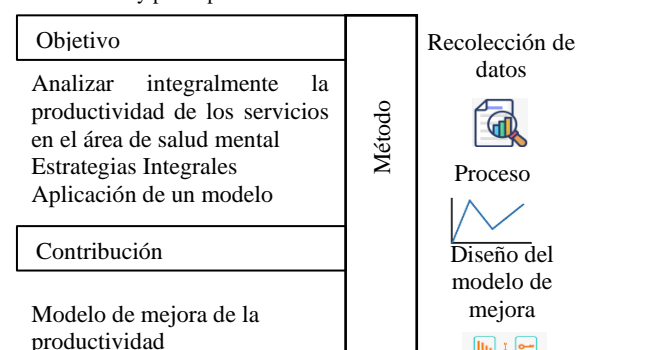
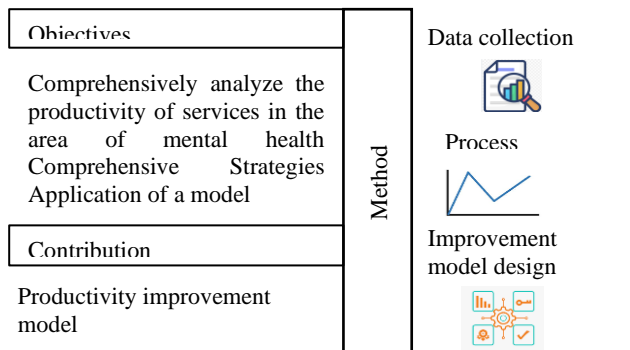


Abstract

This research aims to address the issue of productivity in the mental health service area of a health department in Tabasco, with a specific focus on evaluating the efficiency and effectiveness of the services. Through a rigorous analysis, it seeks to identify the factors that influence productivity. The instrument used, named by the acronym TIEP (Integral Productivity Measurement Technique), was specifically designed to study organizations with a systemic and integral approach, that is, the tangible and intangible elements that make up the organization. This instrument consists of 10 elements considered important for the evaluator to know the external and internal context that exists in the organization. The comprehensive improvement model proposed for the mental health area in the Health Department in Tabasco is based on a combination of continuous staff training, increased managerial participation, innovation in processes and technologies, and community communication and participation strategies.

Resumen

Esta investigación tiene como objetivo abordar el tema de la productividad en el área de servicios de salud mental de un departamento de salud de Tabasco, con un enfoque específico en evaluar la eficiencia y eficacia de los servicios. A través de un análisis riguroso se busca identificar los factores que influyen en la productividad. El instrumento utilizado, denominado por las siglas TIEP (Técnica de Medición Integral de la Productividad), fue diseñado específicamente para estudiar las organizaciones con un enfoque sistémico e integral, es decir, los elementos tangibles e intangibles que conforman la organización. Este instrumento consta de 10 elementos considerados importantes para que el evaluador conozca el contexto externo e interno que existe en la organización. El modelo de mejora integral propuesto para el área de salud mental en el Departamento de Salud en Tabasco se basa en una combinación de capacitación continua del personal, mayor participación gerencial, innovación en procesos y tecnologías, y estrategias de comunicación y participación comunitaria.



Productivity, Integral. Health

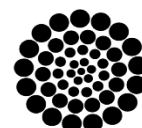
Productividad, Integral, Salud

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Introduction

Mental health is an essential component of human well-being and plays a fundamental role in the quality of people's lives and the prosperity of societies. Mental disorders affect millions of people worldwide, with a significant burden both for individuals and for public health in general. Given this reality, the provision of efficient and effective mental health services becomes a major challenge for health systems.

In this context, the analysis of service productivity in the area of mental health takes on critical relevance. Productivity in mental health involves optimal utilization of resources to deliver quality care, focusing not only on the quantity of services provided, but also on the effectiveness and impact of therapeutic and supportive interventions in a holistic manner.

Hospitals, as key healthcare institutions, play a key role in the provision of mental health services. However, they often face significant challenges, such as resource constraints, high demand for care, variability in the quality of services and complexities associated with outcome evaluation in this sensitive area, i.e. different contextual variables.

This research addresses the issue of productivity in the mental health service area of a high specialty hospital in the State of Tabasco, with a specific focus on the evaluation of the efficiency and effectiveness of services. Through a rigorous analysis, the aim is to identify the factors that influence productivity, both positively and negatively, and to propose strategies to improve the quality and accessibility of services.

Background

Analyses of service productivity in the area of mental health are rooted in the need to understand and improve the efficiency of mental health services, given their crucial impact on individual well-being and public health. In terms of importance, mental disorders are a significant public health burden worldwide. The World Health Organization (WHO et al.,2022) has highlighted the importance of adequately addressing mental health because of its incidence and the impact it has on people's quality of life and on work and social productivity.

In terms of the complexity of mental health services, the provision of mental health services involves a variety of health professionals, such as psychiatrists, psychologists, social workers and nurses, working together to provide comprehensive care to patients.

This creates a complex environment in which measuring productivity can be challenging. Some research is related to methodologies, tools or instruments to improve service techniques in the area of mental health, where a new instrument to describe and measure the structure of community mental health services, and to submit it to a feasibility study, is a method that is not based on the classification of devices as it has been done so far, Finally, the proposed instrument allows the organization of information on the structure of mental health services in the different territories in a way that enables comparison with other territories and with other moments in the development of the network, thus providing a useful instrument for the evaluation of mental health policies.

The basic structure of community-oriented mental health services is made up of four types of devices: mental health units in general hospitals, day hospitals, mental health centers and psychosocial rehabilitation centers, complemented by the social support provided by specialized social services.

Its implementation benefits from the articulation of an application that allows the introduction of information in online questionnaires and automatically provides comparisons with other territories that have previously introduced theirs or allows the evaluation of the development of mental health plans or programmers, in the Journal of the Spanish Association of Neuropsychiatry, at the present time we have several instruments for measuring and classifying services to facilitate their evaluation, but none of them has managed to become popular (Gómez Beneyto et al., 2019).

Problem statement

The mental health problems arising from the global pandemic, makes necessary an introspection in the area of mental health in the Hospital of high specialty in the State of Tabasco.

In order to self-evaluate and recognize the importance of the interrelation of variables or factors such as social, cultural, economic, environmental, political and even technological in the different processes and procedures of the services offered in the area of mental health, with the sole purpose of making known to users that they have more productive health entities (efficient and effective), but above all that they can identify them; It is therefore of utmost importance to analyse the productive performance of the services in a comprehensive manner.

In the state of Tabasco there are hospitals and clinics at the service of society, although not all of them are highly specialized and not all of them offer specialized services for children.

Therefore, it is necessary to know the level of productivity of the services in the mental health area of the highly specialized hospital in the state of Tabasco.

Methodology

The instrument used for the measurement in the organization is named by the acronym TIEP (Technique for Integral Measurement of Productivity) was specially designed to study with a systemic and integral approach to organizations, i.e. the tangible and intangible elements that make up the organization (Hortensia Eliseo et al., 2022).

This instrument consists of 10 elements that are considered important for the evaluator to have knowledge of the external and internal context that exists in the organization. These elements are described below.

1. Conceptual approach of the company. This refers to how the organization is viewed, whether it is seen in a partial or systemic way, as this is the principle that indicates whether the person who is the source of information will have an appropriate response for the required evaluation of productivity.
2. Process knowledge. Here we establish the determining complement to understand the contexts, since the person being evaluated may have the techniques or instruments.

But if he/she does not understand the processes into which the unit being measured is divided, due to the absence of knowledge, a series of errors will be triggered by not being able to interrelate with the sources of information and therefore not carry out the comprehensive evaluation that is required. This will help the unit at a given moment to determine these processes.

3. Social environment of the organization. This element considers the organizational environment as a result of the relationship between the different elements that make it up. For example, management-middle management, trade union-management, etc.
4. Planning management. Here the management of all the elements involved in strategic planning are considered. The focus is on how objectives, goals, strategies, tactics, policies, stated values, business philosophy, programmers and projects are realized. And the results that are being achieved.
5. Management involvement. It is important to evaluate the participation of the general management in the integral development of the tangible and intangible elements of the unit, since without this impulse it would be impossible to consider positive and quality results in any organization.
6. Organizational creativity and innovation. Always and with greater emphasis in the current times, of greater requirements from customers or demanders, it is crucial that there is creativity and therefore innovation by the people who make up the system, this is at all levels, since the increase in productivity and competitiveness will depend on it.
7. Knowledge of customers. It is crucial that the people in the unit know who their internal and external clients are, as on many occasions there is no idea that within the company, due to the relationship that is established, there are also clients, and on the other hand, the mistake is also made of considering that only certain elements of the organization should know the external clients.

8. Technological development. It is another decisive element in the current era, since the circumstances in the context have forced all organizations, whether they are small, medium or large, to invest or innovate through creativity.
9. Macroeconomic knowledge. The organization and above all its top management must be very well informed about economic and political changes at the macro level, as many aspects that can significantly impact the company and generate a setback or stagnation depend on it.
10. Comprehensive human resource development.

Nowadays, the organization must be very clear that the development of human resources is not limited exclusively to training, but must evolve integrally, that is, in attitudes, skills and abilities. It is therefore very important to work on both the tangible and intangible aspects of the same, so that the corresponding stages can emerge in the people who make up the unit, until they reach intellectual capital.

When applying the instrument, the result of all the aforementioned elements integrated in the technique used is considered, and from there the corresponding analysis will be carried out, in order to know the impact that each variable has for the unit, as well as the level of productivity.

In the high specialty hospital in the State of Tabasco, the instruments were applied in the departments of General Headquarters, Outpatient, Emergency and Hospitalization for a total of 4 instruments. In order to select the sample, the four departments were taken into account for their application, since those in charge have extensive knowledge of what is carried out in the department.

Short interviews were conducted with the managers of each department, which were based on questions that are closely related to the 10 elements that make up the TIEP instrument, and then the instrument was filled in, placing a weighting on each of the elements and a score based on the knowledge that was perceived with each of the people interviewed.

Results

The TIEP tool was applied in the General Management, considering that all decisions and authorization of projects carried out in the organization are carried out in this department, which is managed by one person, which was considered for applying the TIEP instrument (Integral Technique for Measuring Productivity). While in the departments of the high specialty general hospital in the State of Tabasco, a meeting was held with the General Director to discuss the different processes carried out in the hospital and her knowledge of each department.

On the other hand, there was a dialogue about the problems that influence the fulfilment of the projects that are carried out in the agency and how they face such challenges.

Box 1

Table 1

Measurement instrument TIEP (Integrated Productivity Evaluation Technique)

TIEP (Integrated Productivity Evaluation Technique).													
Element	Economic Variable		Political Variable		Variable Ambiental		Variable Cultural		Technological Variable		Variable Social		
	P	E	P	E	P	E	P	E	P	E	P	E	
1. Conceptual approach to business	P	E	P	E	P	E	P	E	P	E	P	E	
2c. Knowledge of the processes	P	E	P	E	P	E	P	E	P	E	P	E	
3. Social scope of the organization	P	E	P	E	P	E	P	E	P	E	P	E	
4. Planning management	P	E	P	E	P	E	P	E	P	E	P	E	
5. Management participation	P	E	P	E	P	E	P	E	P	E	P	E	
6. Organizational creativity and innovation	P	E	P	E	P	E	P	E	P	E	P	E	
7. Knowledge of the client(s)	P	E	P	E	P	E	P	E	P	E	P	E	
8. Technological development	P	E	P	E	P	E	P	E	P	E	P	E	
9. Macroeconomic knowledge	P	E	P	E	P	E	P	E	P	E	P	E	
10. Comprehensive human resource development	P	E	P	E	P	E	P	E	P	E	P	E	
P: Weighting							ΣP= 1						
E: Quantitative evaluation							Rango E= 1-10						

Source: Taken from the anthology *Measuring and Improving Productivity* by Dr. Hortensia Eliseo Dantés p. 33

Questions were asked such as whether there are instruments that can measure productivity in the unit and how they keep the feedback of what happens in the external part of the company, as well as the context variables that influence and relate to the unit. The results obtained are shown below

Box 2

Table 2

TIEP (Technique Integral de Evaluation de la Productivité) General Headquarters

TIEP (Technique Integral de Evaluation de la Productivité) General Headquarters													AVERAGE
Element	Economic Variable		Political Variable		Variable Ambiental		Variable Cultural		Technological Variable		Variable Social		
	P	E	P	E	P	E	P	E	P	E	P	E	
1. Conceptual approach to the company	2.4		1.8		0.56		1.12		0.56		1.6		8.04
	0.3	0.8	0.2	0.9	0.0	0.7	0.1	0.8	0.0	0.7	0.2	0.8	
2. Knowledge of processes	1.6		1.2		0.8		1.2		1.8		1.6		8.8
	0.2	0.8	0.1	0.8	0.1	0.8	0.1	0.8	0.2	0.9	0.2	0.8	
3. Social scope of the organization	0.9		2.25		1.2		0.7		0.7		2.4		8.15
	0.1	0.9	0.2	0.9	0.1	0.8	0.1	0.7	0.1	0.7	0.3	0.8	
4. Planning management	1.28		1.05		0.56		1.44		2		1.44		7.77
	0.1	0.8	0.1	0.7	0.0	0.7	0.1	0.8	0.25	0.8	0.1	0.8	
5. Management participation	0.96		1.52		1.08		2.25		0.8		1.98		8.59
	0.1	0.8	0.1	0.8	0.1	0.9	0.1	0.9	0.1	0.8	0.1	0.9	
6. Organizational creativity and innovation	2.7		0.35		0.8		0.8		2.7		1.35		8.7
	0.3	0.9	0.0	0.7	0.1	0.8	0.1	0.8	0.3	0.9	0.1	0.9	
7. Knowledge of the client(s)	1.8		0.8		0.9		1.6		0.7		2.7		8.5
	0.2	0.9	0.1	0.8	0.1	0.9	0.1	0.8	0.1	0.7	0.3	0.9	
8. Technological development	2.7		0.56		0.21		1.05		2.4		1.2		8.12
	0.3	0.9	0.0	0.8	0.0	0.7	0.1	0.7	0.3	0.8	0.1	0.8	
9. Macroeconomic knowledge	2.7		1.8		0.8		1.6		0.8		0.8		8.5
	0.3	0.9	0.2	0.9	0.1	0.8	0.2	0.8	0.1	0.8	0.1	0.8	
10. Comprehensive human resource development	1.35		1.2		0.8		2.7		0.7		1.6		8.35
	0.1	0.9	0.1	0.8	0.1	0.8	0.3	0.9	0.1	0.7	0.2	0.8	

Source: Own 2024

The results obtained in the table above as an example of a single department of the 4 evaluated, determine that the criterion 4 Planning administration in relation to the questionnaire and the variables of the context, requires a greater economic budget and investment in equipment with better technology and medical technological equipment, as well as establishing strategies for the fulfilment of the objectives and purposes of the unit.

After having studied each of the results of the 4 departments, a comprehensive table of the evaluated departments was obtained, establishing an average for each evaluated element.

Box 3

Table 3

TIEP (Técnica Integral de Evaluación de la Productividad) Jefatura General

No	Elements assessed	Comprehensive profile of the mental health area of a high specialty general hospital.					Average
		GENERAL HEADQUARTERS	OUTPATIENT CLINIC	URGENCY	HOSPITALIZATION		
1	Conceptual approach to business	7.62	8.2	7.9	8.15		8.0
2	Process knowledge	8.25	7.45	8.15	7.7		7.9
3	Social scope of the organization	7.15	7.3	7.15	7.55		7.3
4	Planning management	7.56	7.55	7.65	7.55		7.6
5	Management participation	7.1	7.66	8.59	6.9		7.6
6	Organizational creativity and innovation	7.8	8	8.7	7.75		8.1
7	Knowledge of the client(s)	8	6.95	7.9	7.3		7.5
8	Technological development	7.82	7.9	7.82	7.3		7.7
9	Macroeconomic knowledge	8.5	8.55	8.2	7.35		8.2
10	Comprehensive human resource development	7.95	8.1	7.95	8		8.0

Box 4

Comprehensive Profile of the Children's Hospital

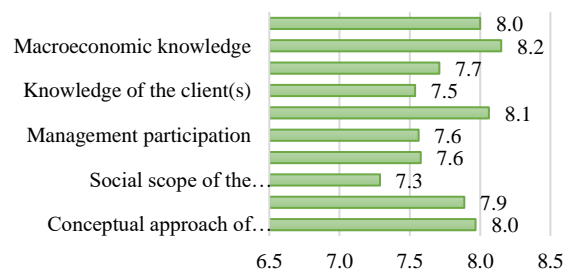


Figure 1

Comprehensive profile of the mental health area of a high specialty general hospital in the state of Tabasco

Source: Own 2024

Through this graph it is possible to identify the elements where areas of opportunity can be generated to strengthen them, therefore, the lowest ranking elements are mentioned, such as the social scope of the organization, Knowledge of clients, Management participation and Planning management, with representative values of 7.3, 7.5, 7.6 and 7.7 respectively.

The results of the incidences of the context variables for each element in the evaluated departments were also analysed, resulting in an integrating table and its average.:

Box 5

Table 4

Integral profile of the variables that affect each element of a high specialty general hospital in the State of Tabasco

N o.	Elements assessed in the General Management Department	Context variables						T otal
		Eco nom ic	Pol itic s	Enviro nmenta l	Cul tura l	Techn ologica l	So cia l	
1	Conceptual approach to business	1.28	1.4	0.64	1.6	1.12	1.6	7.64
2	Process knowledge	1.6	1.2	0.8	1.2	1.8	1.6	8.2
3	Social scope of the organization	0.8	0.7	1.2	1.75	0.7	2.4	7.55
4	Planning management	2.4	1.05	0.8	0.8	1.75	0.8	7.6
5	Management participation	1.08	1.52	0.96	2.25	0.8	1.98	8.59
6	Organizational creativity and innovation	2.25	0.45	0.8	1.2	2.1	1.2	8
7	Knowledge of the client(s)	1.8	0.8	1.35	1.6	0.7	2	8.25
8	Technological development	2.1	0.49	0.64	1.2	2.1	0.8	7.33
9	Macroeconomic knowledge	1.8	1.2	1.6	1.2	1.2	1.2	8.2
10	Comprehensive human resource development	1.92	0.96	0.96	1.6	0.84	1.4	7.68

Source: Own 2024

The integral profile of the relationship that exists between the context variables and the elements that were evaluated in the Children's Hospital is shown, which indicates that the economic context variable has a significant influence on technological development, as well as on creativity and organizational innovation and knowledge of the client.

On the other hand, it was identified that the cultural context variable has a significant influence on managerial participation and integral development of human resources; consequently, the technological variable has an impact on knowledge of processes, organizational creativity and innovation and technological development.

The following is a graphical representation:

Box 6

Comprehensive Behavior of Context Variables

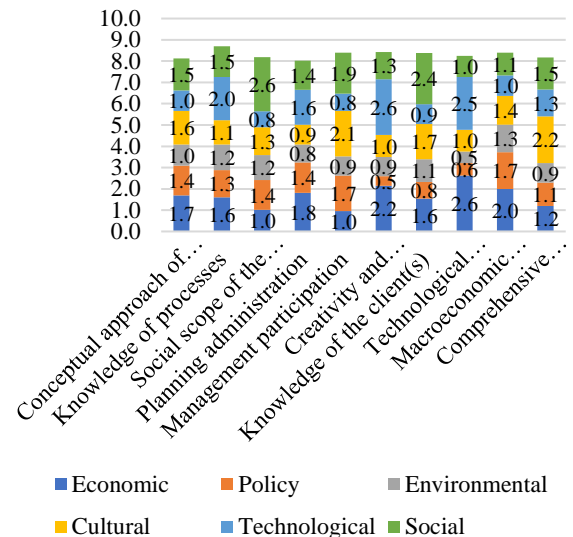


Figure 2

Comprehensive profile of the mental health area of a high specialty general hospital in the state of Tabasco

Source: Own 2024

The above graph shows the relationship that exists between the elements and variables, positive incidences, where work is done properly and all the strategies to achieve the purposes of the unit are fulfilled, and the indicators with the lowest limits, which translate into needs for improvement or areas of opportunity where strategies and concrete actions should be strengthened.

Proposal

Based on the results obtained in the integral profile of the dependency, it can be said that mental health constitutes a fundamental pillar of the integral wellbeing and quality of life of people. Mental disorders represent a significant burden for both individuals and societies, affecting productivity, personal relationships and the ability to lead a full and satisfying life. In this context, public hospitals play a crucial role in the provision of mental health services, offering a range of therapeutic and supportive interventions that are essential for the recovery and well-being of patients.

The analysis of the productivity of mental health services in public hospitals is an area of growing interest and relevance.

Productivity in this context is not only measured by the quantity of services provided, but also by the quality and effectiveness of interventions, as well as the efficiency in the use of available resources. Assessing and improving productivity in mental health services is essential to ensure that hospitals can meet the increasing demand for care and provide high quality services in a sustainable way. In a sustainable manner. Therefore, a comprehensive model is proposed, which can be used either area by area or holistically as its name suggests:

Box 7

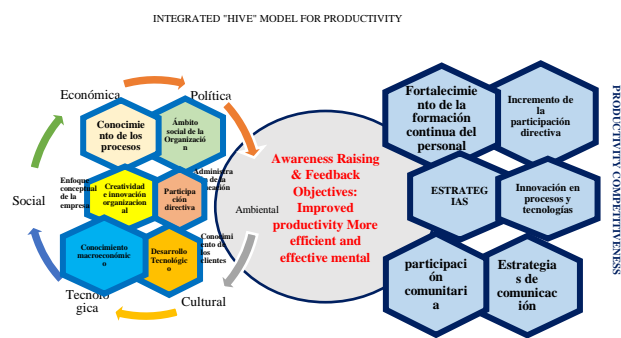


Figure 3
COLMENA: Integral Model for Productivity Improvement

Source: Own 2024

Based on the analysis of the results obtained, a comprehensive model for improvement is proposed, focusing on four key areas: continuous staff training, management participation, innovation in processes and technologies, and communication strategies and community participation.

Strengthening Continuing Staff Development

Objective: To ensure that all levels of staff are up to date and well equipped to provide the best possible care.

Actions:

- Implement regular training programmes: Establish an ongoing training calendar that includes workshops, courses and seminars on the latest practices and developments in mental health.
- Interpersonal skills development: Train staff in communication skills, crisis management and empathy to improve interaction with patients and their families.

- Performance and needs assessment: Conduct regular staff performance evaluations to identify areas for improvement and design targeted training programmes.

Increasing Managerial Involvement in All Areas of Care

Objective: Increase managerial involvement in oversight and decision-making in all areas of the hospital.

Actions:

- Regular management rounds: Establish a programmed in which managers make regular visits to different areas of the hospital to directly supervise and support day-to-day operations.
- Feedback sessions: Organize regular meetings between managers and staff from different areas to discuss challenges, suggestions and opportunities for improvement.
- Delegation and empowerment: Foster a culture of distributed leadership where responsibilities are delegated to intermediate levels, promoting informed and agile decision-making.

Innovation in Processes and Technologies to Optimize Care and Reduce Waiting Times

Objective: Modernize and streamline operational processes to improve efficiency and quality of care.

Actions:

- Digitization of records: Implement an electronic clinical information management system to reduce paperwork and improve access to patient data.
- Process automation: Use technologies such as artificial intelligence and machine learning to optimize appointment scheduling, resource management and treatment monitoring.

Article

- Continuous monitoring and evaluation: Establish a real-time monitoring system of operational processes to identify bottlenecks and implement improvements on an ongoing basis.

Implementation of Communication and Community Engagement Strategies

Objective: To improve the hospital's relationship with the community and increase the participation of patients and their families in the care process.

Actions:

- Education and awareness programmes: Develop community mental health education campaigns to reduce stigma and increase awareness of the importance of treatment.
- Forums and support groups: Create forums and support groups for patients and their families, facilitating the exchange of experiences and mutual support.
- Feedback and continuous improvement: Establish effective communication channels to collect feedback from patients and their families, using this information to continuously improve services.

Conclusions

The holistic model of improvement proposed for the mental health area of the Hospital del Niño is based on a combination of continuous staff training, increased managerial involvement, innovation in processes and technologies, and communication and community involvement strategies.

This holistic approach seeks not only to improve operational efficiency and quality of care, but also to foster an environment in which patients and their families feel supported and understood. By implementing these strategies, the hospital will be better positioned to respond to the complex and evolving needs of child and adolescent mental health.

Declarations

Conflict of interest

The authors declare that they have no conflicts of interest. They have no known competing financial interests or personal relationships that might have appeared to influence the article reported in this paper.

Authors' contribution

The contribution of each researcher in each of the points developed in this research was defined on the basis of:

García-Jerónimo, Irma: Contributed with the project idea, method and research technique. She carried out the data analysis and systematisation of results, as well as writing the article.

Meneses-Hernández, José Luis: Supported the design of the field instrument. He also contributed to the writing of the article.

García-Jerónimo, Beatriz: Contributed to the research design, the type of research, the approach, the method and the writing of the article.

Availability of data and materials

The images, tables and graphs were produced in Word, Excel and other free-use tools, without violating any agreement or policy in the State of Tabasco.

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Abbreviations

TIEP	Integrated Productivity Measurement Technique
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Basics

La Organización Mundial de la Salud (OMS et al.,2022). [Define la OMS la ausencia de afecciones o enfermedades.](#)

Article

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Supports



Hortensia Eliseo Dantés. 2022. Medición y Mejoramiento de la Productividad. Pag.30-47. Libro físico





Strategies to analyze technical efficiency in medical care for patients with a traffic accident involving an uninsured or unidentified vehicle in Colombia, 2018-2022

Estrategias para analizar la eficiencia técnica en la atención médica para los pacientes con accidente de tránsito por vehículo no asegurado o no identificado en Colombia, 2018-2022

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Abstract







Means of transportation are a necessity for the economic and social development of a country, but when traffic accidents occur, they generate disability and premature deaths, resulting in reconstructed families that are sometimes dysfunctional due to the grief they are facing, economic losses in the home and the community and expenses to the health and labor system that represent patrimonial detriments; But since it is an acute and unexpected event, one way to remedy it is to have timely, relevant and efficient care that prevents mortality and reduces disability. The objective of this research is to analyze the technical efficiency in the medical care of patients due to traffic accidents involving an uninsured or unidentified vehicle in Colombia during the period 2018-2022 (Salinas-Martínez et al., 2009)(Romano & Choi, 2016) It is an economic evaluation study (Rubio Cebrián y Rubio González, 2012) and it was made through an enveloping analysis of data of the services and technologies provided in the different Health Providing Institutions-IPS (Schuschny, 2007).

Resumen

Los medios de transporte son una necesidad para el desarrollo económico y social de un país, pero cuando se presentan accidentes de tránsito, generan discapacidad y muertes prematuras trayendo como consecuencia familias reconstruidas que en ocasiones son disfuncionales por el duelo que están enfrentando, pérdidas económicas en el hogar y la comunidad y gastos al sistema de salud y laboral que representan en detrimientos patrimoniales; pero al ser un evento agudo e inesperado, una manera de subsanar es contar con atención oportuna, pertinente y eficiente que evite la mortalidad y disminuya la discapacidad. El objetivo de esta investigación, es plantear estrategias para analizar la eficiencia técnica en la atención médica de pacientes por accidentes de tránsito de vehículo no asegurado o no identificado en Colombia durante el periodo 2018-2022 (Salinas-Martínez et al., 2009) (Romano & Choi, 2016). Es un estudio de evaluación económica (Rubio Cebrián y Rubio González, 2012) fue hecho a través de un análisis envolvente de datos de los servicios y tecnologías prestadas en los diferentes Instituciones Prestadoras de Salud-IPS (Schuschny, 2007).

Objective	Methodology	Contributions
 In this investigation we pretend learn about strategies for evaluate technical efficiency of medical care for traffic accidents involving uninsured or unidentified vehicles in Colombia during period 2018-2022. 	 The research was realized by an Analytical Observational Study of Cost-Effectiveness, which through Data Envelopment Analysis Method (DEA). 	 The purpose of this research is to lead major investigation into the measurement of efficiency medical care and what can be achieved to analyze, raise awareness and sensitize regarding correct use and reasonable payment of health resources. 

Accidents, Costs, Risks

Objetivo	Metodología	Contribuciones
 Estrategias para evaluar la eficiencia técnica de la atención médica para accidentes de tránsito en vehículos no asegurado o no identificado en Colombia durante el periodo 2018-2022. 	 Estudio Observacional Analítico de Costo-Eficiencia, que a través del Método de Análisis por Envoltura de Datos (DEA). 	 Medición de la eficiencia de atención médica y que puede lograr para analizar, concientizar y sensibilizar en cuanto al uso correcto y el pago razonable de los recursos en salud. 

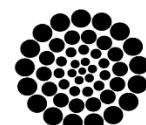
Accidentes, Costos, Riesgos

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Introduction

The aim of efficient medical care is to achieve comprehensive care, with an interdisciplinary team of professionals, infrastructure, services and health technology necessary to meet the comprehensive needs of patients. In this aspect, when establishing interdisciplinary teams, it is important to have health professionals who are sensitized and aware of the need to be trained, updated and experienced in order to write a truthful, chronological, consistent and consistent medical history, thereby using technologies and performing procedures of high sensitivity and specificity, which allow for agility and effectiveness in the diagnosis, treatment and rehabilitation of road traffic accident patients.

Consequently, epidemiologists should be available to carry out surveillance, monitoring and follow-up of quality indicators, mortality, morbidity, survival analysis, complications and adverse events in patients.

Public health professionals must be aware of the supply of services and appropriate technologies, have equitable access to health services, have human resources available, and have medical practice guidelines and care protocols that reduce the impact on the quality of life of patients. The administrative team has the responsibility to know the needs and functions of the areas, so that patients have the necessary medical equipment for timely and relevant care and economists who integrate the work teams, who carry out together with the financial team the cost analysis of care to thereby achieve maximum production of health services and technology with optimal resources and this is reflected in the reduction of mortality and patient disability (George Quintero et al., 2017).

Having a team of professionals as described above allows the infrastructure and medical equipment to be adequate and suitable for the comprehensive care of road traffic accident patients. It is therefore important that this efficiency in in-hospital medical care is accompanied by a timely activation of the health system with a reduction in response times, timely and relevant pre-hospital care and effective referral to the health service provider institution, which has the level of complexity necessary for comprehensive and quality care for patients who have suffered traffic accidents (Benzaquén et al., 2022).

Traffic accidents are events of public health interest worldwide due to their prevalence and mortality.

To control this problem, economic resources and time are required, and to work on the four pillars of road safety proposed by the World Health Organization (WHO), such as: safe users, safe vehicles, safe roads and effective post-crash response (Makkar N. et al., 2019).

In this regard, Colombia proposes the National Road Safety Plan (PNSV), which includes attention to road crash victims (Operativo et al., 2022).

Colombia is a developing country, so in order to comply with the road safety plan, long-term planning is required for 10 to 30 years and with changes of government every 4 years. Agreements are needed for the continuity of the projects, and, on the other hand, to comply with the care of road accident victims, the General System of Social Security in Health (SGSSS).

Currently, this nation is facing a transition of growth in demographic and epidemiological matters, which have repercussions on covering the health needs of long-lasting and high-cost pathologies, resulting in an increase in the demand process to generate public health services to cover the needs of the population, which in the present time, due to the lack of resources, makes the health system unsustainable.

Therefore, in Colombia, one way to cover the health needs of patients with traffic accidents is through the Compulsory Traffic Accident Insurance (SOAT), and for uninsured or unidentified vehicles, the payment is covered by the Administrator of the Resources of the General System of Social Security in Health (ADRES) through the Catastrophic Events and Traffic Accidents (ECAT) sub-account.

These medical expenses, by regulation, cover 800 Minimum Daily Wages in Force (SMDV) (Ministry of Health and Social Protection, 2016), and once this amount is exhausted, the patient continues with medical care with his or her Health Promoting Company (EPS).

The administrative process for this procedure is lengthy and exhausting for patients and family members, who must make the relevant requests and authorizations, which ends up with stagnation of the patient's recovery and rehabilitation, generating greater disability, incapacity and complications in the patient's health.

A road traffic accident is an acute event, which occurs at any time during the life course, causing temporary or permanent physical damage. According to epidemiological studies, it occurs in a higher proportion in men, being the first cause of mortality, in the age group of 15 to 44 years old and economically active. Accidents are more frequent in pedestrians, cyclists and motorcyclists, with an injury severity score (ISS) of 4-8 and 41.7% head injuries, and their causes are: speeding, recklessness of the pedestrian or driver, technical-mechanical failures of the vehicle, alcohol and/or drug consumption by the driver or pedestrian, disobedience to traffic regulations and road deficiencies.

In these causes analyzed in cost, economic losses are observed such as alcohol consumption USD \$ 68.9 billion, distraction USD \$ 98.2 billion, non-use of seat belts USD \$ 11 billion and speeding USD \$ 46 billion (Arroyave López et al., 2021).

In the analysis of the costs of road crashes, it can be seen that the greatest value is found in the productivity costs due to work incapacity, disability and premature death, for which the governments of the different countries in the road accident care guide propose, in addition to medical care, psychosocial support and legal guidance.

The cost analysis of medical care shows that Nepal spent USD 1.50 million, the Netherlands USD 8,386.95 million and Colombia USD 896,637.60 million, of which USD 398,505.60 was paid through ADRES.

In a breakdown of who are the patients with the highest cost for this item, it is determined that they are women, the elderly, associated comorbidities, pedestrians, those who die, accidents that occur on suburban or rural roads, patients with head, neck, hand and finger injuries.

In terms of consumption, there are expenses for medicines of \$680.10 USD, hospital stays of \$298.04 USD, fees of \$269.72 USD, diagnostic aids of \$233.27 USD and in terms of clinical condition serious injuries in the amount of \$610.10 USD.

It is worth noting that in a similar study in South Korea, where it was identified that patients covered by automobile insurance have longer hospital stays and hospitals with more than 2 neurosurgeons or orthopaedists and more than 833 beds have shorter stays.

In the case of Colombia, it is necessary to have a health system that can be profitable, sustainable, equitable, safe and have an impact on the disease burden of people, for this, it is relevant to carry out various economic analyses that allow for profitable and sustainable investments, where good health practices are verified and the good use of available services and technologies is carried out correctly.

With these aspects it is possible to achieve timely, relevant, efficient and effective medical care that has an impact on premature mortality, disability, complications and incapacity of patients.

Based on the above, patients and Health Service Providing Institutions (IPS) consider that 800 SMDV is insufficient to cover the health needs of road traffic accident patients, since due to the severity of the injuries, appropriate and constant services and technologies are required to monitor and analyses the prognosis and define the patient's state of health, in addition to the need for support for prolonged stay.

On the other hand, the state, through the SGSSS, claims that health professionals misuse health services and technologies.

However, for this work we want to know the strategies to evaluate the technical efficiency of medical care for traffic accidents in uninsured or unidentified vehicles in Colombia during the period 2018-2022 and according to the studies already raised analyses socio-demographic factors and type of injury that increase the cost, given that the technical efficiency depends on the decisions made by the hospital management, analyses this efficiency by IPS.

It is therefore appropriate to investigate data showing that the higher the cost, the greater the technical efficiency of medical care, and the socio-demographic characteristics and type of injury that influence the costs of medical care and the efficiency of medical care.

Methodology

This research was carried out by means of a Cost-Efficiency Analytical Observational Study, which through the Data Envelopment Analysis (DEA) method, analyzed the relative efficiency of medical care for patients with uninsured or unidentified vehicle traffic accidents in Colombia.

For this aspect, the information available in the databases was used to examine the performance of the productive units that correspond to the Health Provider Institutions-IPS, among which, homogeneous productive units were identified to compare the IPSs, and which obtained the same Inputs and Outputs (Schuschny, 2007) (Amor, 2020).

Through the DEA Method of correlation between inputs and outputs, the Inputs were reviewed for this study as the financial resource that are the explanatory variables of the cost (costs of medicines, procedures, inputs, etc.) and the Outputs that are described as the number of benefits obtained with those resources (laboratory tests, diagnostic images, medicines, etc.), which quantity will depend on the level of decision that each Productive Unit-DMU (Health Provider Institutions-IPS) takes. (Amor, 2020) (Romano & Choi, 2016).

For the development of this analysis, the inputs and outputs were segmented into three models: by the level of complexity of the claims, by traffic accident by uninsured or unidentified vehicle in Colombia, and in this way the units of analysis (IPSs) were homogenised (Schuschny, 2007).

This is shown in the following table:

Box 1

Table 1

Models by level of complexity of the Road Traffic Accident Claim

Complexity	Criteria	Entrances	Exits
<i>Model 1: High Complexity</i>	Operating room fees (operating theatres), by surgical group 09 to 23	Costs Medicines	Quantity of medicines supplied or quantity of medicines ordered
	Intensive care unit	Cost Procedures	Number of procedures performed in the IPS
	Intermediate care unit	Input costs	Quantity of inputs supplied
	Burn Unit	Cost Diagnostic imaging	Number of diagnostic images performed in the IPS
	Basic neonatal care unit - incubator	Laboratory Costs	Number of laboratories performed in the IPS
	Isolation unit	Cost of the stay	Amount of stay in the IPS
<i>Model 2: Medium Complexity</i>	Operating room fees (operating theatres), by surgical group 04 to 08	Costs Medicines	Quantity of medicines supplied or quantity of medicines ordered
	Top-level institutions	Cost Procedures	Number of procedures performed in the IPS
	Second-tier institutions	Input costs	Quantity of inputs supplied
	Third level institutions	Cost Diagnostic imaging	Number of diagnostic images performed in the IPS
	Palliative care unit - somatic chronic stay	Laboratory Costs	Number of laboratories performed in the IPS
	Psychiatric Unit	Cost of the stay	Amount of stay in the IPS
<i>Model3: Low Complexity</i>	Observation room (ER)	Costs Medicines	Quantity of medicines supplied or quantity of medicines ordered
	Emergencies	Cost Procedures	Number of procedures performed in the IPS
	Ambulance patient transfer (transport) services	Input costs	Quantity of inputs supplied
	Pre-hospital service and therapeutic support in mobile units	Cost Diagnostic imaging	Number of diagnostic images performed in the IPS
	Fees for operating theatres (operating theatres), by surgical group 02 to 03	Laboratory Costs	Number of laboratories performed in the IPS
	Other claims	Cost of the stay	Amount of stay in the IPS

This analysis was carried out during 5 years of study (2018-2022), period in which it was possible to inquire about the trend in the effectiveness of medical care, detailing gender, age group (under 18 years and over or equal to 18 years) and region of the country (Caribbean, Andean, Pacific, Orinoco and Amazon); then it was modelled by types of trauma (head and face trauma, chest trauma, abdominal trauma, spinal trauma, limb trauma) and finally it was analysed by productive units. (Salinas-Martinez et al., 2009)

The data were obtained from the SIECAT database, which is the software that contains all traffic accident claims for uninsured or unidentified vehicles in Colombia, from which information was requested on traffic accidents with a date of service provision with a time period from 2018 to 2022. During this period there were 524 IPS, which provided care for road traffic accidents in the 5 regions of Colombia and charged ADRES.

These institutions, both public and private, have their own administrative team, which are autonomous in decision-making, both for the use of resources and with health professionals, and are also independent in defining medical conduct. In the event that the hospital does not have the resources to perform the examinations, the IPS can outsource the processes and charge ADRES, or if the IPS does not have an Intensive Care Unit (ICU) or availability of surgery rooms, the patient can be referred and both institutions can charge ADRES. (Administradora de los Recursos del Sistema General de Seguridad Social en Salud, 2021).

We studied 1,374,740 claims corresponding to 524 IPS, which provide care for traffic accidents in the 5 regions of Colombia and charge ADRES for uninsured or unidentified vehicles in Colombia between 2018 and 2022. Inclusion criteria included age, sex and all IPSs that have provided care for traffic accidents involving uninsured or unidentified vehicles and new claims (*claims that enter for the first time into the information system for traffic accident claims involving uninsured or unidentified vehicles in Colombia for care during the period 2018-2022* (Administradora de los Recursos del Sistema General de Seguridad Social en Salud, 2021)).

The exclusion criteria applied for this research were traffic accidents treated by the Compulsory Traffic Accident Insurance (SOAT), traffic accidents treated by the Occupational Risk Management Agency (ARL), and patients treated for catastrophic events of natural origin, injuries of external cause, general illness or public health events, and claims for primary and secondary transport services, and claims for claims response to glosses or claims by exceptional mechanism. (Administradora de los Recursos del Sistema General de Seguridad Social en Salud, 2021).

Statistical Analysis

In this section, for the nominal and ordinal qualitative variables, the research team carried out the analysis of frequency, relative frequency and measures of association with the Mantel-Hansel Chi-square and the quantitative variables ratio and interval analysis of dispersion, central tendency and Pearson or Spearman correlation analysis. The statistical methodology of multivariate regression was used to determine and evaluate the efficiency of medical care in patients with traffic accidents involving uninsured or unidentified vehicles in Colombia, using the statistical method of multivariate regression, which for the research study relates the efficiency (amount used) by level of complexity in medical care (high, medium and low) and which has an endogenous or dependent characteristic, explained through exogenous or dependent characteristics: sociodemographic (sex, age group, geographic region of the event), economic (costs of medical care in inputs, drugs, diagnostic imaging procedures, laboratories, among others), was mathematically formulated using the following equation:

$$Efficiency_{2018-2022} = \beta_0 \pm \beta_1 X_1 \dots \pm \beta_k X_{k\pm} e_t \quad (1)$$

In the case of the DEA method, 3 models were organised according to the levels of complexity of the claims, the productive units (IPSs) were homogenised and each model will have the same inputs and outputs (Romano & Choi, 2016), as shown in table 1. Likewise, in the section where the productivity of each IPS is concentrated, the weighted sum of outputs was divided over the weighted sum of inputs, and the analysis of the efficiency of medical care began; in addition, the IPS with the best productivity was selected and compared with the other productive units to obtain the relative efficiency expressed as follows:

$$Efficiencyj = \frac{\frac{\sum_{k=1}^S V_{kj}Y_{kj}}{\sum_{i=1}^S u_{ij}x_{ij}} - \frac{\sum_{k=1}^S V_{kj}Y_{kj}}{\sum_{i=1}^S u_{ij}x_{ij}}}{\frac{\sum_{k=1}^S V_{kj}Y_{kj}}{\sum_{i=1}^S u_{ij}x_{ij}} - 1} \quad (2)$$

Results

It is necessary that by means of the methodology that was applied for this article, it was intended to carry out the study so that in the future a future investigation could be published where the sociodemographic and clinical characteristics of the victims of traffic accidents are described, and with this it was possible to elaborate an investigation by means of the table of which the association and correlations were analyzed that allowed to deepen the tendencies and the causality and later the multivariate regression was examined, relating it with the efficiency explained through the sociodemographic and economic characteristics. In the same sense, the aim was to organize the information according to the levels of complexity of the claims homogenized by the DEA method, and with this to obtain the level of technical efficiency of medical care in Colombia, and with this to know the level of technical efficiency of medical care according to its socio-demographic and clinical characteristics. It is also relevant that it was possible to observe that there were characteristics that influence the levels of efficiency; finally, the technical efficiency of medical care by IPS was analyzed and to find out if it correlates with costs and according to these results.

Conclusions

The aim of the research team's analysis strategy is to produce a forthcoming publication showing evidence of the efficiency of health care in Colombia over a five-year period, which will allow us to observe the trend and thus consider new studies that allow us to associate cost-benefit with changes in government.

The authors of this research hope that this project will provide scientific evidence to raise awareness and sensitize the government in office in the future so that it can make the necessary changes in public policies, through the formulation of strategies or programmers, by means of an analysis that will have an impact on the degree of satisfaction or acceptance perceived by the Colombian population.

A future proposal is to be able to analyse the problems in terms of the payment methods used to pay for traffic accidents in Colombia, which may be due to the use of services and technologies, such as the mobile devices currently in use (Reale et al., 1998).

We intend to describe what factors influence the efficiency of medical care, not only in terms of costs, as other countries report that the demographic characteristics of patients influence the costs of patients, but also in identifying when a traffic accident occurs in rural or urban areas, and that this generates greater use of services and technologies or injuries are more serious. Reflection is made on the definition of strategies to extend access, availability and timeliness for the provision of health care services and to work on strengthening the intersectorality of the Integrated Network for the provision of health services. On the other hand, it is important to investigate whether gender and age have an impact on the efficiency of medical care or whether they present more serious injuries, so that policies of greater restriction and care can be focused on the population vulnerable to road accidents, and also to raise awareness and sensitize to improve the timeliness and comprehensiveness of care in these populations, thus reducing the rates of inequity in medical care.

Reflecting on the complexity of the accident, or the severity of the injury, helps to measure the linkage of costs by verifying and relating to injuries independent of the anatomical area, which range from mild to severe. An example of this could be a head injury where a number of health services and technologies are required, and where the influence of a traffic accident and the efficiency with which it is handled can be investigated. It may be a future success to carry out a study in which the cost of medical care is known, where research is required in which the trend in the level of technical efficiency in care is segmented in a prominent way, in addition to investigating the factors that may influence the level of efficiency in traffic accidents involving unidentified or uninsured vehicles in Colombia, and which may later mean a great proposal that will result in a policy that is of benefit to Colombian society that will eradicate the root of problems in the area of health (Banstola et. Al. 2020)

The purpose of this research is to derive a great research on the measurement of health care efficiency and what it can achieve to analyze, raise awareness and sensitize about the correct use and reasonable payment of health resources. The South American country can create correct public policies if these parameters are used, as they will guarantee the future wellbeing, this through interaction and joint work between academia-society-public-private sector can become a new way of generating projects to solve the problems that occur in terms of accident prevention in today's world, and that will probably have a positive impact and help to improve the quality of life of the Colombian population that needs it so much for future generations in today's world.

Declarations

Conflict of interest

In this project the authors declare that there is no conflict of interest for the realization of this article.

Authors' contribution

Myriam, Ruiz: provided the research topic for the article, collected data from SIECAT of Colombia and the Administradora de los Recursos del Sistema General de Seguridad Social en Salud de Colombia, structured and performed the analysis of data and results,

Guerly López: Supported the author in the orientation of the process, management of the database on the research topic and continuous review of the progress of the article.

Ortiz-Gil, Miguel Ángel: Collaborated in the organization of the article and corrections, as well as the final revision of the article.

Availability of data and materials

The data were obtained by obtaining data through the SIECAT platform, which is the software that contains all traffic accident claims for uninsured or unidentified vehicles in Colombia, in addition to other databases such as Health Provider Institutions-IPS in conjunction with data from the General Social Security Health System Resources Administrator.

It was analyzed of 5 years data (2017-2022) through the Data Envelopment Analysis Method (DEA), and also through the Multivariate Regression Statistical Methodology, it was determined and evaluated the efficiency of medical care in patients with traffic accidents by uninsured or unidentified vehicle in Colombia.

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Abbreviations

ADRES:	Administradora de los Recursos del Sistema General de Seguridad Social en Salud (Administrator of the Resources of the General System of Social Security in Health)
ARL:	Administradora de Riesgos Laborales
DEA:	Data Envelopment Analysis Method
DMU	Productive Unit
EPS:	Health Promoting Company
IPS:	Health Care Providers Institutions
WHO:	World Health Organisation
PNSV:	National Road Safety Plan
SGSSS:	Sistema General de Seguridad Social en Salud (General System of Social Security in Health)
SIECAT:	Expert System for the Diagnosis of Cancer in the Thyroid Gland
SMDV:	Minimum Daily Wages in force
SOAT:	Compulsory Traffic Accident Insurance
ICU:	Intensive Care Unit

Article

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The shortage of medicines as a violation of the human right to health

El Desabasto de medicamentos como violación al derecho humano a la salud

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Abstract

It is unquestionable that during the last decades the importance of Human Rights has been reaffirmed, as prerogatives responsible for recognizing and protecting the dignity of human beings; Notwithstanding the above, in the case of Mexico there are multiple cases of complaints filed due to constant violations thereof. In this sense, the objective of this investigation is to demonstrate the violation of the human right to health, through the shortage of medicines. The approach used was quantitative, the deductive method, with a descriptive scope of the study and as data collection and analysis techniques, a closed survey was applied and the data obtained was graphed. The results show a high incidence of chronic diseases among those surveyed, exacerbated by the low availability of essential medicines, which is why it is essential to implement policies that ensure the adequate and timely supply of medicines to users of the state health system and, consequently, respect for this fundamental human right.

Resumen

Es incuestionable que durante las últimas décadas se ha reaffirmado la importancia que tienen los Derechos Humanos, en tanto prerrogativas encargadas de reconocer y proteger la dignidad de los seres humanos; no obstante lo anterior, en el caso de México son múltiples los casos de denuncias presentadas por las constantes violaciones a los mismos. En este sentido, el objetivo de la presente investigación es evidenciar la violación al derecho humano a la salud, a través del desabasto de medicamentos. El enfoque utilizado fue cuantitativo, el método deductivo, con un alcance del estudio descriptivo y como técnicas de recolección y análisis de datos se aplicó una encuesta cerrada y se hizo la graficación de los datos obtenidos. Los resultados evidencian una alta incidencia de enfermedades crónicas entre los encuestados, exacerbadas por la poca disponibilidad de medicamentos esenciales, por lo que es indispensable la implementación de políticas que aseguren el suministro adecuado y oportuno de medicamentos a los usuarios del sistema estatal de salud y, consecuentemente, el respeto a este derecho humano fundamental.



Law, Human Rights, Health, Medicine shortage



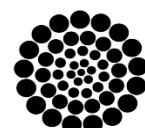
Derecho, Derechos Humanos, Salud, Desabasto de medicamentos

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Introduction

During the last decades, the importance of human rights in society has been reaffirmed, understood as the prerogatives that are responsible for recognizing and protecting the dignity of human beings; they are also the presuppositions that govern the State's obligations towards its citizens and promote the culture of peace in the world. It is also well known that these rights are inherent to all people without distinction of nationality, sex, origin, color, religion or language and are universal, interdependent, indivisible and progressive.

However, despite the fact that Human Rights have been recognized by all countries' legislation, as a product of different social struggles and political processes that have been taking place since the beginning of the last century, in recent years the issue of the constant violations of these rights in all social spheres has gained relevance, Mexico has been no exception. Unfortunately, when talking about these prerogatives, reference is made to the fact that they are not respected, causing a crisis that affects society. A clear example of this is the violation of one of the most important human rights, which is the right to health, where the State's obligation is to guarantee its citizens the possibility of having a decent health system, including a sufficient hospital infrastructure, trained doctors and a supply of medicines, a situation that unfortunately does not occur at present.

In this sense, this paper addresses the problem of the violation of the human right to health as a consequence of the shortage of medicines in Mexico, which has intensified in recent years and has been caused by different factors such as the deficiency in the acquisition of medicines by the government, The situation was aggravated by the pandemic caused by the SARS-CoV-2 virus, which made the lack of medicines more notorious, which was reflected in the increase in deaths from chronic degenerative diseases.

Background

To speak of Human Rights, according to the United Nations (UN; 2022), is to speak of the inherent rights of all human beings, regardless of their nationality, place of residence, gender, ethnic origin, religion or other personal characteristics.

These rights are universal, inalienable, indivisible and interdependent, which means that they apply to all people at all times and everywhere and cannot be separated or selectively chosen.

Human rights are the result of multiple social struggles that have taken place throughout history in different countries, forcing governments to gradually recognize them; however, it was not until 1948, when the Universal Declaration of Human Rights (UDHR) was proclaimed, understood as a document that serves as a global plan of action that seeks freedom and equality of human beings. It was the first time that countries agreed on the freedoms and rights that deserve universal protection for all people to live in dignity. According to the UN (2023):

The UDHR was adopted by the United Nations, which had just been established on 10 December 1948 as a response to the barbaric acts outrageous to the conscience of mankind committed during World War II. Its adoption recognized that human rights are the foundation of freedom, justice and peace.

The Declaration contains 30 rights and freedoms that belong to all people and that no one can take away from us. The rights that were included remain the basis of international human rights law. Today, the Declaration remains a living document.' (UN; 2023)

However, it is important to mention that once the UDHR was promulgated, as part of its evolution and in what is known as a second generation, three types of rights appeared: economic, social and cultural rights, about which the Inter-American Court of Human Rights has pointed out that: 'Their recognition in the history of human rights was subsequent to that of civil and political rights, hence they are also called second generation rights' (IACHR; 2023.)

The main objective of these rights is to guarantee well-being in all the aspects they encompass, such as, for example, the economy, access to employment, education, health and also everything related to culture in any society. In short, the *raison d'être* of these rights is based on respect for the dignity of the human being and that at all times everything possible is done to provide better conditions for citizens and to guarantee them a more suitable development.

According to the Council of Europe Portal (2023) social, economic and cultural rights can be defined as:

‘Social rights are those necessary for full participation in the life of society. They include at least the right to education and the right to found and maintain a family, but also many of those often considered as ‘civil’ rights: for example, the right to recreation, health care, privacy and non-discrimination’.

In this order of ideas, Mexico is no stranger to the recognition of human rights, nor to their evolution. The most important events include the promulgation of the Law of the Attorney General of the Poor, which was passed in 1847 in the State of San Luis Potosí, the creation of the Federal Attorney General of the Consumer in 1975, the beginning of the General Directorate of Human Rights, the creation of the Federal Attorney General of the Consumer, the creation of the Federal Attorney General of the Consumer, and the creation of the General Directorate of Human Rights, the beginning of the General Directorate of Human Rights in 1989 and finally the birth of the National Commission of Human Rights on February 13, 1989, which defines them as (2023) ‘the set of prerogatives based on human dignity, whose effective realization is indispensable for the integral development of the person’.

In addition to the above, the first section of the Political Constitution of the country is called Human Rights and their Guarantees, and contains each of the prerogatives that have been recognized for human beings in the international sphere, especially article 4 establishes the following:

Everyone has the right to health protection. The Law shall define the bases and modalities for access to health services and shall establish the concurrence of the Federation and the federative entities in matters of general health, in accordance with the provisions of section XVI of Article 73 of this Constitution. The Law shall define a health system for well-being, with the aim of guaranteeing the progressive, quantitative and qualitative extension of health services for the comprehensive and free care of persons who do not have social security.

Problems detected

Despite the fact that Mexico has extensive legislation and institutions in charge of protecting human rights, it has not gone unnoticed at the international level that it is going through a severe human rights crisis, caused by both bad actions and omissions on the part of the authorities.

According to data from the National Human Rights Commission (CNDH), presented by the Senate of the Republic, between 2000 and 2018 a total of 130,318 complaint files were registered for alleged human rights violations, where 88% point to civilian authorities as responsible (Senado de la República; 2019).

One of the most heartfelt complaints of the Mexican population in recent years has been the lack of medicines in the State-run health sector, to the extent that it has become a public health problem, caused by poor administration, inefficiency in procurement and distribution chains, poor planning and corruption, as evidenced by the statistics and reports presented by various research programmes and patient testimonies, which show the long road ahead to make this fundamental right to health effective.

An example of this is a report in the newspaper *El País*, dated November 2021, which refers to the acceptance by the president of the republic, Andrés Manuel López Obrador, of the problem of the shortage of medicines in the country, all this after some parents of children with cancer blocked access to the airport in Mexico City for the umpteenth time, demanding that the government find a solution to the problem.

The report adds that this situation should frustrate the president, since the data speak of an evident shortage that has been increasing during his six-year term, who is seeking to put an end to corruption by changing the model for purchasing medicines, centralising it in the Ministry of Finance and cancelling the previous distribution scheme, as well as entrusting the acquisition to UNOPS, has caused delays in deliveries, resulting in 49% of medicines remaining unallocated, including chemotherapies, making the problem and the violation of the human right to health even more acute (El País; 2021).

Likewise, Frida Romay Hidalgo, head of the Health and Wellbeing area of the Zero Organization, mentions that 2021 was the year in which there was the greatest shortage of medicines since 2017, where people with cancer and diabetes were the most affected, in the same way, this organization offers more data resulting from its report ‘Mapping the shortage of medicines in Mexico’ (2021), where it mentions that in the IMSS alone, more than 22 million prescriptions were not filled in 2020, in addition to the fact that the care offered by the units of the Ministry of Health was considerably reduced, with half of what was offered in 2017, and nearly half a million fewer surgical procedures were performed.

According to figures from Cero Desabasto (2021), the consequences of the problems described above include a 40% increase in health spending by affected families. Another negative effect is the illegal trade in potentially harmful medicines and the increase in self-medication practices.

Furthermore, the increase in deaths does not escape analysis, as according to INEGI, cited in the report Mapping the shortage of medicines in Mexico, of the total in 2021, 92.4% were due to diseases and health-related problems, while only 7.6% were due to other causes, with COVID-19, diabetes mellitus and heart disease being the 3 main causes of death in the country.

In terms of the legal implications this has had, and which are proof of the demand for respect for human rights in Mexico, especially the right to health, we find the multiple appeals filed by the governed to demand the supply of medicines by the government.

The following image shows the sentence granted by a district judge in the state of Puebla, Mexico, to a minor with leukaemia, which was even written in easy-to-read format, so that the girl could understand it, which is very moving.

Box 1



Figure 1

Judgment in easy-to-read format

Source: Federal Judiciary

Sentence translation:

“Easy reading format.

Good morning. S.C.F.

This message is sent to you by Israel Flores Rodríguez, I am a judge who received a letter in which your mother informed me that you have been going to a hospital so that your health improves soon.

She told me that at that hospital they had not given you a medication that you needed, so she asked me to please ask the doctors who treated you for an explanation.

Those doctors told me that they do have the medicine that your mother asks for, only that this week they will not be able to give it to you because first they must give you another medicine, and then they will assess how your treatment will continue.

From now on I will be attentive to your care at that hospital, so you or your mother can notify me about any situation that raises doubts.

Likewise, I want to inform you that the hospital gave you a new appointment for Thursday, July 1, 2024, at nine in the morning, so if possible, you could attend that day so that they can check you out, give you your medicines and so your health continues to improve.

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Article

You must be very happy because your mother takes care of you and worries a lot about you, and I hope that, with her participation, that of the medical staff and mine, we can ensure that you do not need anything so that you feel much better each time and your health is restored day by day.

Finally, I inform you that I have indicated as a possible date to decide whether or not the hospital has respected your right to health, July 20 of this year, at 2 in the afternoon, which I will inform you in a timely manner.

I send you a big greeting and I am at your service.

Sincerely Israel”

A relevant fact offered by the organisation Cero Desabasto is that the number of appeals filed against the General Health Council by patients who consider that their right to health and more specifically their access to medicines or vaccines has been affected, increased by 278%, from 4,227 in 2020 to 15,980 in 2021. In this context, the objective of this research is to demonstrate the violation of the human right to health, through the shortage of medicines, in the context of the northern region of Jalisco, with the aim of contributing to a broader process that is being carried out throughout the country, to make the problem visible and eradicate it.

Methodology

The methodology implemented in this research, understood as: "the set of actions aimed at describing and analysing an object of research" (Martínez et al; 2019: 22), in this case the violation of the human right to health through governmental omissions, such as the shortage of medicines in the health sector, is shown in Table 1.

Box 2

Table 1

Elements of the framework

Paradigm	Cuantitative
Method	Deductive
Scope of the study.	Descriptive
Data collection technique	Survey
Data analysis technique	Graphing the results
Population and sample	Aleatory

The paradigm used is quantitative which, according to Hernández (2010: 4), ‘uses data collection to test hypotheses, based on numerical measurement and statistical analysis, to establish patterns of behaviour and test theories’, it is sequential and evidential, each stage precedes the next, the order is rigorous, where the starting point is an idea that is being delimited and once delimited, objectives and research questions are derived, the literature is reviewed and a framework or theoretical perspective is constructed. The method used is deductive, which arises from the quantitative paradigm itself, and according to Bernal and Torres (2006), it is based on reasoning, allowing us to move from general principles to particular facts, so that once it is verified and verified that a principle is valid, it can be applied to particular contexts.

The scope of the study is descriptive, which according to Hernández (2010), seeks to specify properties, characteristics and important features of any phenomenon that is analyzed, describing trends of a specific group or population and defining variables, it is intended to discover ideas and insights from new perspectives that expand existing ones. The technique used for data collection, defined by Arias (2006) as the ways or means of obtaining information, was a closed survey, which explores general aspects related to the frequency of use of the health system, the diseases they suffer from, the difficulties they face in filling prescriptions, and the actions taken in response to the problem of medicine shortages.

Consequently, the technique for the analysis of results is the graphing and analysis of results. Finally, with regard to the population and sample, understood as the set or totality of elements under investigation and the part or subset of elements selected, and taking into account the recommendations of Tamayo (2004), when it is not possible to measure each of the units, as well as the fact that the study was conducted in the First Contact Hospital of Colotlán, Jalisco, which provides medical services to the northern region of the State, comprising ten municipalities, and with a population of 13,657 people, the survey was applied to 70 users.

Data analysis

In the opinion of Rodríguez Flores and García (1999: 197), ‘Data analysis constitutes one of the most attractive tasks within the research process’, given that it places the analyst in front of the challenge of finding meaning in the data; and, of course, of providing a viable proposal for a solution to a detected problem, in the concrete case, the results show the following:

Box 3

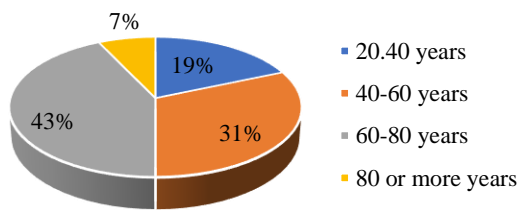


Figure 2

Age range

Source: Own elaboration

Figure 2 shows that 50% of the people attending the first contact hospital in Colotlán are over 40 years of age, when the prevalence of chronic degenerative diseases is higher, which makes it more complicated to regain and maintain health, especially when there is no access to the necessary medicines. One piece of information that was not graphed, but should be added, is that 51% of the hospital users are women and the rest are men.

Box 4

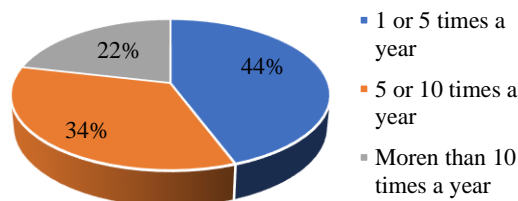


Figure 3

Frequency of hospital attendance

Source: Own elaboration

Another important aspect that was asked to the users of the first contact hospital was the frequency with which they go for consultations, 34% do so between 5 and 10 times a year and 22% more than 10 times a year, which speaks of the need for health services in the region and, consequently, for medicines.

Box 5

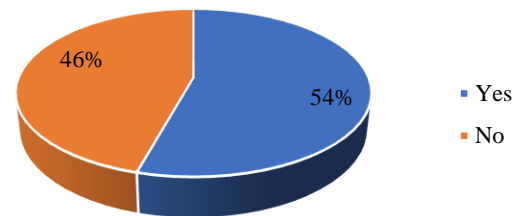


Figure 4

Suffering from chronic diseases

Source: Own elaboration

Figure 4 shows a complicated panorama for families in the region, in the sense that 54% of those who seek medical services provided by the State suffer from chronic degenerative diseases, which is not unique to the region, as statistics at national level show that this is a constant, which also explains why these users come, on average, more than 5 times a year for a medical check-up.

Box 6

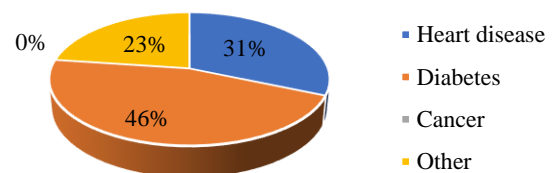


Figure 5

Hereditary diseases or conditions

Source: Own elaboration

In figure 5 we find that diabetes is the most common disease among regular hospital attendees, with 46% and heart disease the second most common, with 23%, diseases that, due to their symptoms and evolution, require constant and regular treatment for life.

Box 7

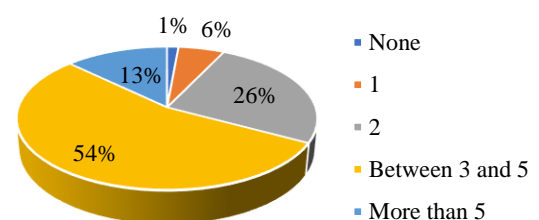


Figure 6

Medicines required

Source: Own elaboration

Another important aspect to know is the number of medicines that are required by patients on a regular basis for the care of their health condition, finding that 54% of the population obtains prescriptions with between 3 and 5, which shows a high demand for medicines.

Box 8

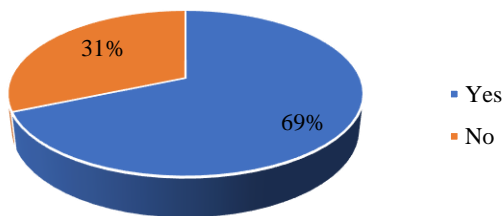


Figure 7

Difficulty in filling prescriptions

Source: Own elaboration

However, when asked about the difficulty in obtaining medicines from the hospital pharmacy, the response is conclusive in the sense that more than two thirds of the people surveyed have had problems in obtaining them, which speaks of a constant problem of shortages and a violation of the human right to health.

Box 9

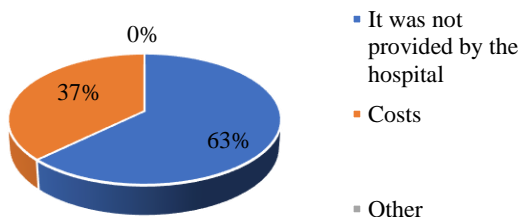


Figure 8

Causes that impede access to medicines

Source: Own elaboration

In line with the previous result, 63% of respondents reported that their access to medicines was prevented by the fact that they were not provided by the hospital, while the rest cited the high cost of the medicines as the cause, which initially had a direct impact on their health and, secondly, on their finances.

Box 10

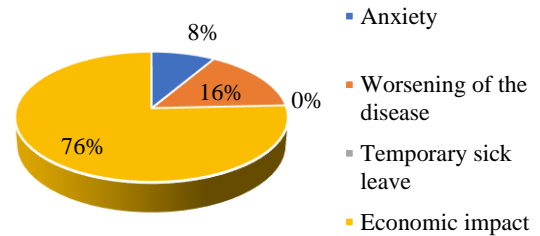


Figure 9

Problems caused by medicine shortages

Source: Own elaboration

In the same vein, in Figure 9, we find that the main problem faced by users of medical services, given the shortage of medicines, is an economic impact, without overlooking the fact that 16% say that their illnesses have worsened and 8% say that it causes worry and anxiety, situations that can lead to other health problems.

Box 11

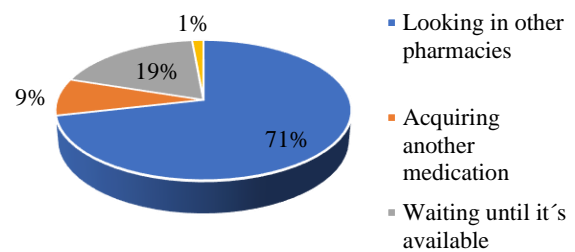


Figure 10

Solutions implemented in response to medicine shortages

Source: Own elaboration

In terms of the solutions implemented by citizens to the problem of medicine shortages, 71% decide to look for medicines in other pharmacies, which implies a financial outlay, without overlooking the fact that 19% say that they wait until they are available in the hospital, while 9% buy another type of medicine, with the consequences that self-medication can entail.

Box 12

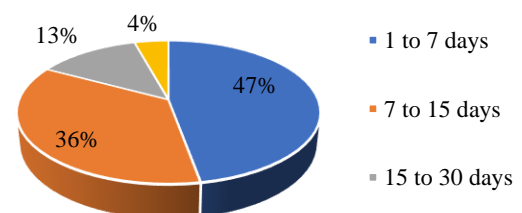


Figure 11

Waiting time for availability of medicines

Source: Own elaboration

In terms of waiting time to obtain medicines in the public sector, we found that 53% of users have to wait more than 7 days to obtain them, which in many cases results in chronic degenerative diseases evolving more quickly to major symptoms that make them increasingly difficult to control.

Box 13

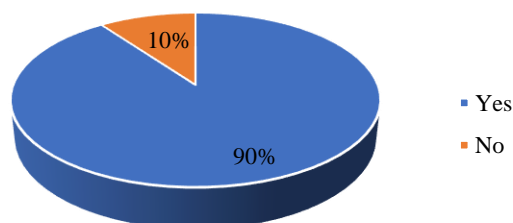


Figure 12

Knowledge about the human right to health

Source: Own elaboration

An important aspect that should be a starting point for solving the problem of medicine shortages and respect for the human right to health is the fact that 90% of the surveyed population knows that access to health is a human right that is enshrined in the Political Constitution of the United Mexican States and that therefore the State has the obligation to make it effective.

Box 14

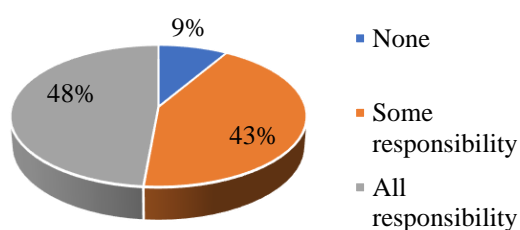


Figure 13

Responsibility of the State to guarantee the right to health

Source: Own elaboration

Consistent with the previous question, Figure 13 shows that 91% of the population knows that the government is responsible for the shortage of medicines, and that this is a problem that must be addressed until it is eradicated.

Box 15

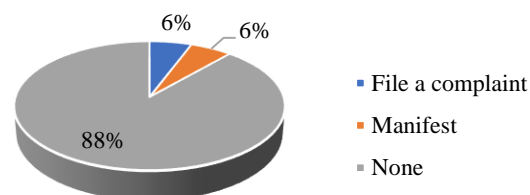


Figure 14

Measures taken in response to medicine shortages

Source: Own elaboration

Despite society's awareness of the human right to health and the government's responsibility for the current shortage of medicines, when hospital users were asked about the measures they have taken to solve the problem, 88% acknowledged that they had done nothing about it; only 6% said they had spoken out and another 6% had filed a complaint.

In this order of ideas, from the analysis of the data obtained, it can be concluded that there is a marked shortage of medicines and, consequently, a constant and flagrant violation of the human rights of the governed, especially the right to health, considered one of the most important in terms of second-generation, also known as social, rights. However, what is even more worrying is that despite the population's knowledge that this is a right enshrined in the Political Constitution of the United Mexican States and that it must therefore be fulfilled at all times and as a matter of priority.

Since the wellbeing of families and the non-impairment of their economy depend to a large extent on it, the problem has become normalized, to the extent that the majority of the population does nothing about it, when we should be moving immediately to demand respect for human rights, especially the right to health.

Finally, it is important to point out that the results obtained are not exclusive to the context in which the research was carried out, because according to Lemus et al (2022: 29), 'The current health crisis cannot be separated from the neoliberal government policies imposed by the hegemonic capitalist states since the 1980s, which have led to cutbacks in the public health sector'.

In the case of Mexico, and according to Alcántara et al (2021: 15), ‘Corruption...has been the main cause of the crisis in the health sector’: 15) ‘Corruption... is complex and systemic... has the Mexican government trapped in a vicious circle... distrust exists in the public health system due to the poor quality of service, making fragilities and corruption visible’; for Velázquez (2022: 13), ‘The right to health of Mexicans is enunciative..., since with the pandemic we have seen the setback in the fulfilment of the obligations of the Mexican State to guarantee... health’, he also points out that people have been left with the responsibility of managing their health by their own means, with the risks that this implies.

Given the above, and according to Meza et al (2015: 4), ‘it is necessary to design and implement operational models that ensure the enforceability of the right to health protection in public services at the time of care and before violations occur that result in serious consequences for life’; Ugalde (2015: 67) believes that ‘it is necessary to design and implement operational models that ensure the enforceability of the right to health protection in public services at the time of care and before violations occur that result in serious consequences for life’: 67) that ‘It is necessary for the Mexican Institute of Social Security to continue working on improving its services and expanding its coverage, to ensure that all Mexicans have access to quality medical care and social security’; no less important is that the authorities take into account the resolutions of the National Human Rights Commission, issued in response to citizens' complaints, because as Velázquez (2021: 73, 74).

It is necessary to ‘generate public policies with strategies and actions to give punctual follow-up to their compliance so that the related victims have a true integral reparation and future and adverse outcomes against people's rights are avoided’.

Conclusions

At the end of the study and using foresight, understood according to Jouvenel (1993) as: ‘the study of the conditions of the future reality of a phenomenon, in order to anticipate it in the present’, the possible scenarios for the problem of drug shortages in the country are as follows:

Trend scenario. The answer to the question ‘What will happen if everything stays the same?’ is that in the near future the problem of medicine shortages will increase, since the population has normalized the problem and the government has done nothing to improve services, which opens the way for continued deficiencies in hospital infrastructure, staff training and medicine supply, which has been aggravated by extraordinary situations such as the one caused by the pandemic.

Catastrophic scenario. The answer to the question ‘What would happen if everything goes wrong?’ is that inevitably the lack of timely access to medicines will leave the most vulnerable groups helpless in the face of a health sector full of deficiencies, which will result in an increase in chronic degenerative diseases due to the lack of prevention policies and timely treatment, as well as the number of deaths as a result.

Utopian scenario. The answer to the question ‘What would happen if everything goes well’ is that by bringing the detected problem to the political agenda, it would be possible, in the first instance, to curb the problem of drug shortages until it is eradicated.

And, in the second instance, to improve the indices of chronic diseases in the population through prevention and timely treatment, reduce the number of deaths at an early age and increase the life expectancy of the population, thereby guaranteeing the exercise of the human right to health. Which of these scenarios becomes a reality will depend on the degree of awareness of the population to demand that the state and federal governments respect and comply with human rights, particularly the right to health, one of the most important rights enshrined in our Magna Carta, which means that it is the task of all of us to make a change in the trend scenario, to move quickly to a utopian scenario, where normality is access to quality medical care and medicines.

Declarations

Conflict of interest

The author declares that he has no conflict of interest. He has no known competing financial interests or personal relationships that might have appeared to influence the article reported in this paper.

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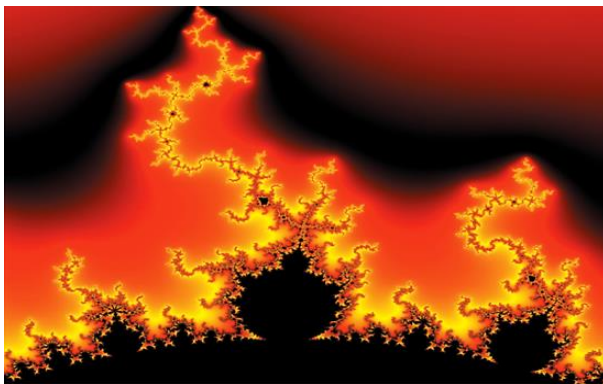


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