The Patient Medical Relationship with the use of New Technologies

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Abstract: The technologies will directly impact the doctor-patient relationship. The health area will receive the help of new technologies such as: robotics, artificial intelligence, augmented reality and tele consultation. These technologies may cause resistance to treatment by patients, if they are not fully aware of how the technology will be applied in their medical treatment. The present study aims to apply a questionnaire with specific questions, to participants attended by the public health network (SUS), as well as by the private health network (private clinics), aiming to obtain information about their acceptance regarding medical care / treatment performed by new technologies, whether these procedures will cause a psychological shock to the point of triggering a judicial claim for compensation for alleged medical error. Another objective is to find out if, if a medical / psychological (biopsychosocial) reception is initially carried out, as well as if the previous presentation of the technology to the patient through a psychopedagogical work, demonstrating the benefits and improvements provided, if the patient will feel more confident with medical treatment using new technologies. The results will be obtained through a descriptive, cross-sectional and qualitative study carried out at the Base Hospital of São José do Rio Preto / SP, and in private clinics of medical specialties in the specialties of radiology, cardiology and ophthalmology of São José do Rio Preto / SP, in the second half of 2019 and the first half of 2020.

Keywords: Artificial intelligence – Biotechnology - Doctor-patient relationship - Biopsychosocial factor.

I . INTRODUCTION

This chapter summarizes this research on the doctor-patient relationship with the use of new technologies, aiming to identify the most sensitive point of medical care, which is the patient's consent to treatment, discussing the possibility of applying modern psychology concepts with the aim of to clarify and inform the participant in order to redefine their paradigms and desires that may erroneously influence a thought of discontent, just based on their past experiences of other unsuccessful medical treatments.

Technology has progressed at an accelerated pace, mainly in technological advances related to health and medicine and its use facilitates the accomplishment of difficult or tiring daily tasks:

As economist Jeremy Rifkin, author of the book The Century of Biotechnology, states: "the revolutions in genetics and information technology are coming together in the form of a true scientific, technological and commercial phalanx, a powerful new reality that will have a profound impact on our lives in coming decades (Rifkin, 1999) [1].

Technological innovations are advantageous for improving medical care. Large areas of research, such as: artificial intelligence, augmented reality, robotics, tele-consultation, etc., are providing technologies that can improve the quality and speed of medical care. Among these, we will see details below as each modality is being used in current medicine.

Psychological knowledge is necessary for health professionals so that they can understand human behavior and can interpret the data provided by the patient in a consultation, for example, leading to an advanced level of capture and interpretation of the information provided, as well as data scientists working specifically on these data mines[1]. Likewise, knowledge in psychology is

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[1] Data Mining (MD, from English, Data Mining, DM), can be seen as a main stage of a broader process known as knowledge discovery in databases (identified in an area that is called Knowledge Discovery in Databases in English , KDD). In KDD there is also the inclusion of two more major stages: pre-processing of data (preparation of data, covering mechanisms for capturing, organizing and processing data) and post-processing of the results obtained in data mining. In this sense, according to Fayyad et al. KDD is the non-trivial process of identifying patterns, from data, that are valid, new, potentially useful and understandable. It is,

necessary for the health professional so that he can have a better performance in the necessary reception of the patient so that he feels comfortable exposing all his symptoms and comorbidities that can directly interfere in the diagnosis or treatment that will be proposed. We also have that this psychological knowledge can be useful in the psychopedagogical work active in explaining how medical treatment will take place with the use of technology, reducing the patient's resistance (Grootendorst, 2020) [3].

New technologies in use in medicine

There are several new technologies that are becoming more and more common in the practice of medicine, in view of their cost reduction, enabling practical applicability, such as artificial intelligence, augmented reality, robotics and tele consultation.

The training of health professionals is marked by a traditional conception, guided by a pedagogical practice centered on the teacher and the acquisition of knowledge unrelated to reality and / or technology, as well as psychology in medical care. As a consequence, this type of training does not prepare professionals to work on the biopsychosocial dimensions of patients, such as subjective, social and cultural parameters involved in the illness process and consequently, also influence the treatment of individuals (Palácio, Gonçalves and Struchiner, 2019) [4].

A. Inteligência Artificial

Firstly, it is necessary to conceptualize what artificial intelligence is:

The term was first used in 1956 by McCarthy (and developed by great researchers like Marvin Minky and Herbert Simon), and it is nothing more than an attempt to formalize the eternal dream of creating an "electronic brain". We also find some interesting definitions in the literature, such as: (1) Definition of Intelligent: Endowed with intelligence, able to understand, smart, skilled; (2) Definition of Intelligence: Faculty to know, to learn, to conceive, to understand: intelligence distinguishes man from animal; (3) Definition of Artificial Intelligence: Set of theories and techniques used in order to develop machines capable of simulating human intelligence; (4) Definition of Artificial Intelligence: Artificial Intelligence is an area of computer studies that is interested in the study and creation of systems that can exhibit intelligent behavior and perform complex tasks with a level of competence that is equivalent or superior to that of a human specialist (Osório and Bittencourt, 2000) [5].

Artificial intelligence can be applied to tests that require high complexity in its analysis, such as: ultrasound, magnetic resonance, computed tomography and other segments of imaging, being able to diagnose, for example, skin cancer, just by analyzing a photographic image in high definition of a spot on a patient's skin. The algorithm[2] contained in this image analysis program compares parameters, shapes, colors, textures, contained in an image database of participants who have already been diagnosed as skin cancer (Lobo, 2017) [7].

Thus, in a matter of seconds, the computer system analyzes and compares this information contained in the image and issues a result much faster and more effective than that of a doctor with little experience in this area (Braga et al., 2018) [8].

B. Augmented reality

Another area of relevance in computing that is bringing improvements in the diagnosis of participants is augmented reality. Nowadays, there is no more talk of virtual reality, because it is already outdated, being used in the use of virtual games and video games (Guimarães and Martins, 2013) [9].

Augmented reality is any system that has the following three characteristics: it combines the real and the virtual world, it is interactive in real time and it is registered in three dimensions. Augmented reality (AR) is a research field in computer science that combines reality and digital data, that is, it uses computer vision, image processing and graphic techniques to merge digital content in the real world (Nolasco de Almeida Mello and Cabero Almenara, 2020) [10].

Cabero and Barroso (2016) [11] when presenting the possibilities of using augmented reality, showed advantages of using this resource: (1) they help in the acquisition of knowledge that becomes essential to relate and understand the concepts learned through the interaction with the resources; (2) promoting more personalized learning by progressing through your own skills and interests; (3) providing a higher level of interaction and exploration of information and objects.

Augmented reality is more dynamic than virtual reality and interacts with the user of this technology, in which the user uses his own hands to increase, reduce, or rotate a three-dimensional image formed in front of him (Freitas and Spadoni, 2019) [12].

This resource can help in the analysis of exam images, being able to stop the evolution of the video at any time, increase a detail, rotate the image, speaking in a better understanding of the symptoms, arriving at a better analysis of the exam, giving rise to greater accuracy in the report to be issued and diagnosis to be made (Guimarães, Martins, Kirner, Eliseo and Kawamoto, 2019) [13].

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therefore, a comprehensive definition, in which KDD is described as a general knowledge discovery process composed of the three major steps mentioned. The standards mentioned must be new, understandable and useful, that is, they must bring some new benefit that can be quickly understood by the user for possible decision making (Costa, Baker, Amorim, Magalhães and Marinho, 2013) [2].

[2] Set of rules determined within a defined logical procedure for solving a problem. The term algorithm is also used in other areas, such as engineering, administration, among others. Let's look at some algorithm definitions: a step-by-step procedure for solving a problem; a detailed sequence of actions to be performed to perform any task (Medina and Ferting, 2006) [6].

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C. Robotics

Robotics, on the other hand, holds great promise in the medical field of surgery, regardless of which specialty is applied. The surgical procedure done by means of robots allows the doctor to conduct a more regular and subtle procedure, since the handling of surgical instruments is assisted by sensors that prevent sudden or accentuated movements, which can, for example, make a deeper cut of the than necessary, or a larger incision than intended (Moreno-Portillo, Salazar, Guadarrama, Gahbler and Rodríguez, 2014) [14].

Robotics allows less exposure of the patient, as a minimum incision is required for the introduction of instruments and high definition cameras, where this would not occur, if the surgery were practiced with traditional methods, in which the doctor has to make a cut much larger to have space for the introduction of instruments, or your own hand, all depending on the type of operation to be performed (Poffo et al., 2013) [15]. With this, a smaller incision in the patient submitted to surgery using the robotic method, significantly reduces the recovery time, as well as reducing the risk of nosocomial infection.

D. Tele consultation

Continuing in the analysis of the previously mentioned technologies that improve the realization of medicine, tele-consultation emerges emphatically. This technology made available by a low-cost apparatus in which video consultations are carried out in cases in which there is no need to attend the medical clinic in person to continue the treatment, or even to accompany the psychotherapy sessions, therefore, treatment is basically done through dialogue with the patient, clarifying doubts and verifying the evolution of the clinical condition (de França, 2009) [16].

In the event that a physical analysis of the patient is required, the doctor who is conducting the tele-consultation can use the technical assistance of a nurse, for example, so that vital signs, blood pressure, heart rate can be clearly determined cardiac dilation, pupil dilation, motor responses, etc. (Arantes, 2019) [17].

E. Applicability of new technologies in healthcare

In contrast, we have the doubt of what the patient's psychological reaction will be when being served by these technologies and what problems may represent this application. Can the patient feel embarrassed? Will it be possible to indemnify moral damages? The patient may omit information that impaired the diagnosis for fear that this information will not be safe, or that they may be exposed to the view of people other than the doctor, which may cause a problem regarding data privacy, affronting the dignity of the patient. Human person? These issues in question deserve to be discussed and explored, as is the intent of the present study that assesses the psychological bias of this applicability, with regard to the patient's resistance to acceptance of treatment with the use of technology, in view of the biopsychosocial factor.

The emergence of new technologies, as a consequence of the globalization process, has brought about considerable changes in society. The technological phenomena that occurred in this new information age have reached and have reached all the existing sciences. Notably, the Law was not excluded from this, triggering a concern regarding the protection of the privacy of individuals, in view of the great capacity for processing data and personal information by computer means (de Melo, 2014) [18].

Science has a clear possibility of influencing human daily life, and even if the application of technology in medicine is observed for greater effectiveness of medical care, we must also excel in adopting an ethical, straightforward and measured posture, so that it does not create psychological discomfort for the participants, resulting in disciplinary or legal proceedings for doctors using these technological innovations (Santos, 2001) [19].

It is important to mention that the advance of science and technology in this century is considered to be greater than any advance previously achieved in this orbit and in view of the transdisciplinary, multidisciplinary and interdisciplinary scope of this work that deserves conceptualization of the levels of interactions of the proposed theme:

Multidisciplinarity - according to Piaget "occurs when the solution of a problem makes it necessary to obtain information from two or more sciences or knowledge sectors without the disciplines involved in the process being themselves modified or enriched";

Interdisciplinarity - the same author is inclined to use this term to designate "the level at which the interaction between various disciplines or heterogeneous sectors of the same science leads to real interactions to a certain reciprocity in the exchange leading to mutual enrichment";

Transdisciplinarity - the concept examines "not only the interactions or reciprocity between specialized research projects, but the placing of these relationships within a total system, without any strict limits between disciplines" (Chaves, 1998) [20].

These new technologies can cause vast discomfort to the patient, generating a psychological disorder that will give rise to reparative legal actions, as much as, if these technologies are used without the patient's prior consent, or even, without a previous explanation of the operation, or the benefits they deliver when compared to contemporary technologies.

Thus, the application of psychology with regard to the patient's medical / psychological reception will be of great value, considering the patient's biopsychosocial factors, so that a psychopedagogical work is carried out to expose the benefits that technology will bring to the patient, solving doubts and fears as for the application, thus triggering a better compliance of the patient to the treatment and a better acceptance of the technology, minimizing the repulsion to the method considered innovative and hitherto unknown.

II. METHOD AND ANALYSIS

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The study was carried out through the application of questionnaires and through the search for data in primary and secondary sources, bibliographic survey on the doctor-patient relationship carried out with the use of new technologies. The research is basic, explanatory and qualitative.

This is a descriptive, cross-sectional and qualitative and quantitative study carried out at the Base Hospital of São José do Rio Preto / SP (25), and in private clinics of medical specialties in São José do Rio Preto / SP (25), through the application of a questionnaire specific. The reference bibliography was fundamental for the formation of the theoretical framework of the research due to the problematic and transdisciplinarity of the proposed theme. The compilation of data, articles and theses democratizes and enriches the discussion, especially on topics that they maintain without their relevant antagonism.

Having as sciences essences of the study Medicine (health sciences) and Law (applied social sciences) the study permeates the areas of knowledge in order to facilitate the understanding of the effects and ways of avoiding the refusal to treatment carried out through the use of technology.

III. RESULTS AND LITERATURE
A. **Application Of Concepts Of Cognitive Behavioral Therapy In Patient Medical Care With The Use Of Technology**

The terms cognitive therapy (CT) and the generic term cognitive-behavioral therapy (CBT) are often used interchangeably to describe psychotherapies based on the cognitive model. The term CBT is also used for a group of techniques in which there is a combination of a cognitive approach and a set of behavioral procedures. CBT is used as a broader term that includes both standard CT and atheistic combinations of cognitive and behavioral strategies (Knapp and Beck, 2008) [21].

Cognitive behavioral therapy focuses on cognitive distortions. These cognitive distortions are a misperception of present or future facts formed by the person without even having a past traumatic event, for example: a patient may not like highly technological exams because he has heard that technology is flawed and generates results wrong, causing the person to be operated unnecessarily, generating life risk to him (Beck, 1963) [22].

Aaron Beck understands cognitive distortions as systematic errors in the perception and processing of information, occupying a central place in the person's thoughts, generating fears and anguishes of situations that have not even been experienced. Thus, the use of technology can lead to poor assimilation of the patient in the treatment, if she has distortions or misperceptions about how the technology will work, because the patient has negative conclusions in advance without scientific evidence (arbitrary interference), because she tends to choose evidence of misuse technology (selective abstraction), or negative personal attribution, such as saying that you are not lucky with machines or technology (personalization) (Powell, Abreu, Oliveira and Sudak, 2008) [23].

In this respect, prior explanatory guidance on how the medical procedure that will use the technology as a basis will be carried out will bring better results to the patient, as it will clarify an individual about how the medical treatment will be, changing their falsified perception of reality, which will directly influence how he will accept and behave during treatment:

According to the information processing approach, the fundamental principle of CBT is that the way individuals perceive and process reality will influence the way they feel and behave. Thus, the therapeutic objective of CBT, since its beginnings, has been to restructure and correct these distorted thoughts and collaboratively develop pragmatic solutions to produce change and improve emotional disorders (Knapp and Beck, 2008) [24].

Spezio and Adolphs (2010) [25] show through research that emotion and cognition are necessary for the formation of beliefs, that is, if a patient is emotionally disturbed by being in pain, for example, this can generate erroneous beliefs about the risk of medical procedures adopted. In these cases, emotion and cognition lead the individual to believe in anything or provide reasons or justifications to reinforce existing beliefs, which must be previously resolved with an explanation from the doctor of how the treatment will be using technology.

This previous explanation of how medical treatment will be with the use of new technologies is also known in psychology as psycho-pedagogical work, which consists of explaining how the treatment will take place, as well as how the technology used will bring benefits, thus minimizing the possible patient's resistance to medical treatment, enabling greater adherence to procedures and better collaboration of the patient who has little instruction, or who is unaware of technological innovations for having a simpler life, devoid of access to these technologies.

Another fundamental aspect in the aforementioned cognitive approach is related to the fact that the subject remembers his experiences and the results caused by those experiences, which have an intrinsic relationship with his emotions and thoughts, thus being able to, a past situation that caused him discomfort may come to reflect in a future care in which it provides the same conditions or similar scenario, generating anxiety and stress without any misconduct by the doctor, only due to the influence of the preconceptions that the patient has by his contact previous bad that marked him (Nassif, 2017) [26].

In this sense, Choo (2003) [27] states that people have values acquired by lived experiences generating feelings and beliefs that determine their respective behaviors. A classic case to be highlighted is that of a child who, when taking a vaccine at an early age, is terrified by people wearing white clothing, associating white clothing with the displeasure of pain felt by the application of the vaccine needle.

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Aaron Beck, one of the precursors of cognitive therapy, defends the idea that "the way individuals perceive and process reality will influence the way they feel and behave" (Knapp and Beck, 2008, p. 57) [28], as well , the cognition incorporated by a past traumatic event determined by experiences lived by an individual will influence the perception of it in a negative way in a future event that resembles the psychologically traumatic occurrence previously experienced.

Shermer (2012, p. 21) [29] states that "the brain is a belief machine", demonstrating that beliefs are formed by emotional and / or psychological reasons, generated by environmental contexts such as: family, friends, culture, society (biopsychosocial factors), and that this belief system can be fed, reinforced, or changed, as well as extinguished.

Cognitive behavioral therapy uses the collaborative and psychoeducative approach, with which specific learning experiences aiming to teach patients to: 1) monitor and identify automatic thoughts; 2) recognize the relationships between cognition, affect and behavior; 3) test the validity of automatic thoughts and core beliefs; 4) correct biased conceptualizations, replacing distorted thoughts with more realistic cognitions; and 5) identifying and altering beliefs, assumptions or schemes underlying dysfunctional thought patterns (Beck, 1976) [30].

In this way, the health professional can establish a good relationship with the patient, making a psychological welcome at first, using the biopsychosocial factors that the patient provides, to later apply the procedure called collaborative empiricism, where the patient and the professional providing medical care will evaluate the patient's beliefs, testing them to verify that they are correct and if they are not trying to modify them according to reality, that is, the professional will guide the patient in a conscious questioning that it will allow him to have a perception of his distorted thinking and thus correct it, also called in psychology as guided discovery (Knapp and Beck, 2008) [31].

Thus, cognitive therapy is a treatment process that helps patients to modify beliefs and behaviors that produce certain mood states and the therapeutic strategies of the cognitive-behavioral approach involve working on three main fronts which are: 1) focus on automatic thoughts and depressogenic schemes; 2) focus on the person's style of relating to others and 3) change of behavior in order to better cope with the problem situation (Leahy, 2017) [32].

Therefore, we cite as a model for better patient acceptance of the use of new technologies the application of the principles of the cognitive therapy approach so that medical care is successful, as this approach is quite empirical, being able to support the subject in the identification of their distorted beliefs and the possibility of modifying them, which turns into cognitive alteration (Knapp and Beck, 2008) [33].

B. **Results Obtained**

After collecting the questionnaires, the participants were divided between those who sought care in the public health system and those who sought care in the private network. Table 1 Comparison between the two groups, it is possible to observe the mean age was higher in more than 15 years ($p = 0.0004$, Mann-Whitney test) in patients from the private network and, therefore, in this group there were also more patients married ($p = 0.0204$, Chi-Square Test) and with the largest number of children ($p = 0.0128$, Chi-Square Test). In addition, patients in the private system also had higher income ($p = 0.0029$, Chi-square test). There was no statistically significant difference between gender ($p = 0.3772$, Fisher's exact test), education ($p = 0.5632$), area of training ($p = 0.1637$, Chi-square test) and the number of people living in the same residence ($p = 0.3676$, Chi-square test).

Table 1. Distribution of socioeconomic characteristics in relation to the type of care provided when the questionnaire was applied

Characteristics	Private Network (n = 25)	Public Network (n = 25)	p
Average age (in years)	47.92 (±18)	32. 4 (±14.5)	0,0004
Sex			
Male	7 (28%)	11 (44%)	0,3772
Feminine	18 (72%)	14 (56%)	
Marital status			
Not married	6 (24%)	14 (56%)	0,0204
Married	17 (68%)	6 (24%)	
Divorced	1 (4%)	2 (8%)	
Widower	1 (4%)	3 (12%)	
Number of children			

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None	7 (28%)	17 (68%)	0,0128
1 ou 2	16 (64%)	6 (24%)	
3 ou more	2 (8%)	2 (8%)	
Education			
Primary	1 (4%)	1 (4%)	0,5632
Elementary School	1 (4%)	1 (4%)	
High school	3 (12%)	7 (28%)	
University education	20 (80%)	16 (64%)	
Training Area			
None	5 (20%)	10 (40%)	0,1637
Health area	3 (12%)	2 (8%)	
Exact Sciences	7 (28%)	9 (36%)	
Human	6 (24%)	4 (16%)	
Others	4 (16%)	0 (0%)	
Monthly income			
Up until 2000 reais	1 (4%)	4 (16%)	0,0029
2001 - 4999 reais	6 (24%)	15 (60%)	
More de 5000 reais	18 (72%)	6 (24%)	
Number of People in the Residence			
1 / 2	15 (60%)	13 (52%)	0,3676
3 / 4	9 (36%)	8 (32%)	
5 / more	1 (4%)	4 (16%)	

In view of the antagonism and uncertainty created by the scientific community, it is concluded that the doctor's conduct can be framed based on criminal precepts, while the Drug Law provides for an exclusive type for the prescription of medication in disagreement with regulations, which in that diapason it is characterized by medical literature.

Regarding confidence in the technology, the two groups reported feeling safer with the application of a technology (p = 0.538, Chi-square test), especially if the doctor explains how it works and what its benefits are (p = 1 , Fisher's exact test). However, the minority of the two groups would replace the traditional consultation with the call center (p = 1, Fisher's Exact Test), or attach a chip to your body for constant monitoring of your health (p = 0.7688, Fisher's Exact Test). There was a statistically significant trend (p = 0. 0094, Chi-Square Test) in which public patients would sue the doctor if something went wrong due to technology; patients in the private system reported more often that they would sue the company responsible for the technology or they simply would not sue anyone. In both groups, most people reported reluctantly relying on the application of the technology (p = 0.6578, Chi-square test).

Table 2. Distribution of participants' responses according to the type of health system in which they are inserted

	Private Network	Public network	

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| Question	Yes	Not	Yes	Not	p
Have you had any surgery?	19 (76%)	6 (24%)	16 (64%)	9 (36%)	0,5380
Did or would you do any aesthetic procedure?	10 (40%)	15 (60%)	15 (60%)	10 (40%)	0,1733
Have you ever had a problem where the doctor acted wrongly?	5 (20%)	20 (80%)	11 (44%)	14 (56%)	0,1284
Have you ever wanted to sue the doctor / hospital for medical error?	5 (20%)	20 (80%)	6 (24%)	19 (76%)	0,7481
Have you ever sued someone for any reason?	3 (12%)	22 (88%)	5 (20%)	20 (80%)	0,7019
Do you consider yourself stressed?	10 (40%)	15 (60%)	9 (36%)	16 (64%)	0,7804
Do you seek to find the solution to your symptoms without going through a consultation?	15 (60%)	10 (10%)	15 (60%)	10 (10%)	1,0000
Do you do an annual health check?	19 (76%)	6 (24%)	17 (68%)	8 (32%)	0,7536
Do you have any type of illness that needs monitoring?	12 (48%)	13 (52%)	5 (20%)	20 (80%)	0,0437
Do you feel more secure if the medical act occurs through the application of technology?	19 (76%)	6 (24%)	16 (64%)	9 (36%)	0,5380
If the doctor explains how a new technology will be used, will you be more confident in using it?	23 (92%)	2 (8%)	22 (88%)	3 (12%)	1,0000
Would you replace the face-to-face consultation with the call center?	8 (32%)	17 (68%)	7 (28%)	18 (72%)	1,0000
Would you attach a chip to your body for permanent surveillance of your health?	10 (40%)	15 (60%)	8 (32%)	17 (68%)	0,7688
Do you think an exam is more important than a doctor's appointment?	9 (36%)	16 (64%)	10 (40%)	15 (60%)	1,0000
Who would you sue if something goes wrong due to the use of new technology?					
Doctor	8 (32%)		17 (68%)		0,0094
Company that developed the technology	5 (20%)		2 (8%)		
Both	2 (8%)		4 (16%)		
Neither	10 (40%)		2 (8%)		
Confidence level in relation to technology					
I do not trust	0 (0%)		0 (0%)		0,6578

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I trust the doctor more	4 (16%)	2 (8%)	
I trust with fear	8 (32%)	11 (44%)	
I trust if the doctor is together	7 (28%)	8 (32%)	
I totally trust	6 (24%)	4 (16%)	

Graph 1 shows the distribution of responses in relation to the participants' confidence level about the adoption of new technologies. The majority (38%) considered trusting with fear, while 30% say they trust technology as long as the doctor is with them. None of the participants said they did not trust the use of technologies. Graph 2 shows these data according to the type of service provided at the time of applying the questionnaire.

Graph 1. Distribution of the participants' confidence level in relation to the use of health technologies
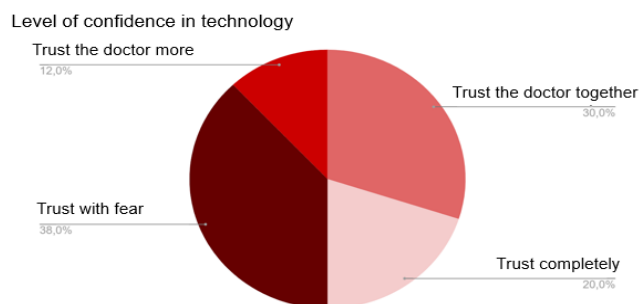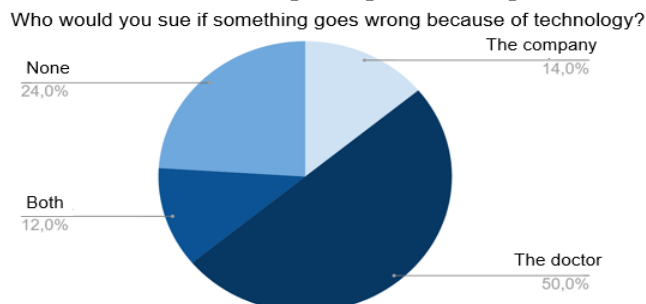

Graph 2. Distribution of the participants' confidence level in relation to the use of technologies in the health area according to the service sector


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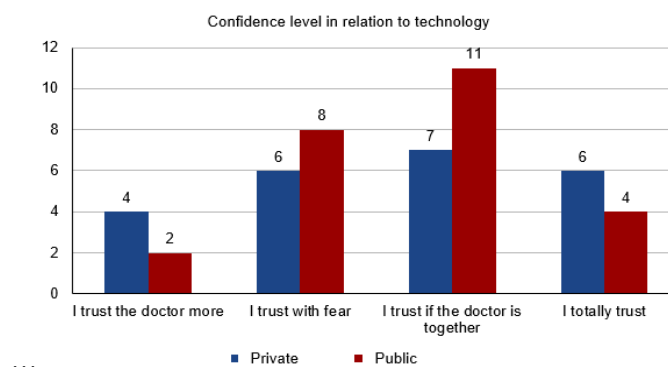
Graph 3, in turn, shows who the participants would point out as guilty if something went wrong as a result of using some technology. Half of the participants would blame the doctor, while 14% would place the responsibility on the company. While 12% would sue the doctor and the company for the error and 24% reported that they would not blame either. Graph 4 shows the division of responses according to the type of service provided when the questionnaire was applied

Graph 3. Distribution of responses in relation to whom the participants would process if an error occurred due to technology


Graph 4. Distribution of responses in relation to whom the participants would process if an error occurred due to the technology, distributed according to the type of service performed when the questionnaire was applied

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Who would you sue if something goes wrong due to the use of new technology?
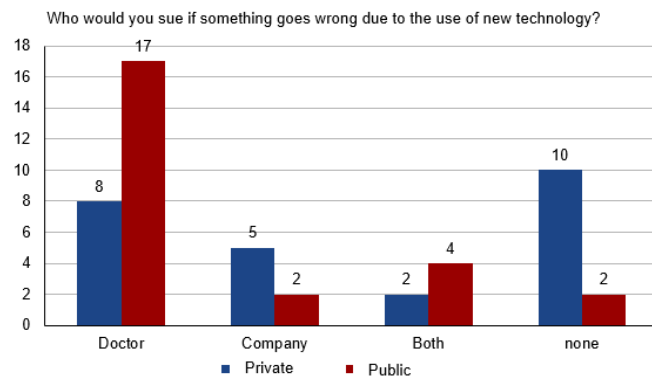
The participants who answered that they think the exam is more important than the medical consultation itself, were asked about the reason for finding this. The answers were categorized into 4 groups and then distributed in Graph 3. Most (47.36%) reported that the exams complement the consultation, while others believe that the exam is more complete (26.31%), has less chance of making mistakes (26.31%) or that the test is able to find asymptomatic diseases (10.52%).

Graph 5. Frequency of reasons for participants to point out that the exam is more important than the medical consultation itself

Why the exam is more important than the medical consultation?
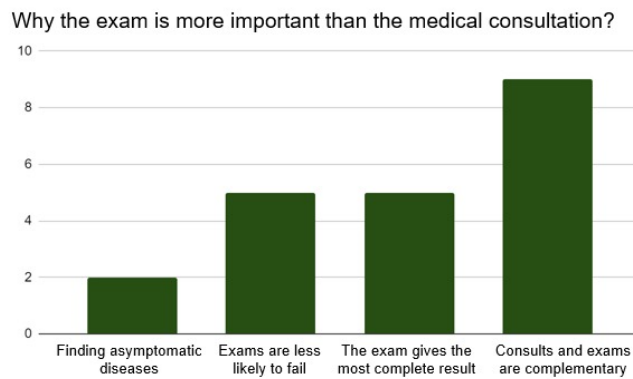
Based on the question "If you undergo a medical procedure, what is your level of confidence in technology?", The participants were divided into two other groups: the first one they totally trust or trust with a doctor together and the second one, in which the participants trusted with fear or trusted the doctor more, each containing 25 participants.

Table 3 shows the results of this analysis, in which only the number of children showed a statistically significant difference (p = 0.0465, Fisher's exact test). Having one or more children has made people reluctant to trust technology.

Table 3. Level of confidence in the application of technology in the health area

	Trust totally / with the doctor together (n=25)	Trust the doctor more / trust with fear (n=25)	
Question			p
Average age (in years)	38.1	42.2	0.4551
Female gender (n = 32)	14 (56%)	18 (72%)	0.3772
Marital status: married (n = 23)	13 (52%)	10 (40%)	0.5709
One or more children (n = 26)	9 (36%)	17 (68%)	0.0465
Higher Education (n = 36)	20 (80%)	16 (64%)	0.3451
Monthly income greater than 5000 reais (n = 24)	13 (52%)	11 (44%)	0.7775
Have you had any surgery	15 (60%)	20 (80%)	0.2165
Did or would do any cosmetic procedure	12 (48%)	13 (52%)	0.7861
Have you ever had a problem where the doctor acted wrongly	8 (32%)	8 (32 %)	1.0000

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Have you ever wanted to sue the doctor / hospital for medical error	6 (24%)	5 (20%)	1.0000
Have you sued someone for some reason	5 (20%)	3 (12%)	0.7019
You consider yourself stressed	8 (32%)	11 (44%)	0.5607
You seek to find the solution to your symptoms without going through a consultation	17 (68%)	13 (52%)	0.3868
You do an annual health check	20 (80%)	16 (64%)	0.3451
Have some type of disease that needs follow-up	7 (28%)	10 (40%)	0.3917
You feel more secure if the medical act occurs through the application of technology	19 (76%)	16 (64%)	0.5380
If the doctor explains how a new technology will be used, you will be more confident in using it	25 (100%)	20 (80%)	0.0502
You would replace the face-to-face consultation with the call center	9 (36%)	10 (40%)	1.0000
You would attach a chip to your body for permanent surveillance of your health	6 (24%)	8 (32%)	0.7536
Do you think an exam is more important than a doctor's appointment	8 (32%)	11 (44%)	0.5607
Who would you sue if something goes wrong due to the use of new technology?			
Doctor	13 (52%)	12 (48%)	0.8376
Company that developed the technology	4 (16%)	3 (12%)	
both	2 (8%)	4 (16%)	
Neither	6 (24%)	6 (24%)	

IV. CONCLUSIONS

The participants demonstrated that they are not prepared to accept the use of new technologies, such as artificial intelligence, robotics, tele-consultation, augmented reality, without there being a clear perception that the health professional is conducting this technological application as a tool of their own. Labor.

The use of new technologies in medical treatment with an exclusive offer may trigger lawsuits for alleged medical error (requesting compensation), as many patients still do not feel confident in receiving medical care without the assistance of a health professional. It is visible the need for the health professional to make a biopsychosocial reception of the patient and perform a psychopedagogical work to explain to the patient, so that he understands the benefits, the techniques, the procedures that will be adopted with the use of technology in medical treatment, to that the patient feels more confident in receiving such therapy and is more receptive to it, avoiding a distorted and erroneous perception, and may give rise to legal proceedings for medical error in a medical conduct that was cleared and correct.

The term of free and informed consent, as well as the term of free and informed consent must be used by health professionals, so that it has proof that it previously explained which medical conduct will be adopted with the use of technology and that the patient understood and accepted this application, preventing convictions of alleged medical error, consolidating the best performance of the health professional.

Consequently, this study will help the principals who organize and establish the curricula of health students, so that, within the programmatic content of professional training, they offer classes aimed at an active approach to the patient in a more humanized way, avoiding impressions. Misunderstandings and understandings that they suffered alleged medical error, causing inconvenience to hospitals and doctors involved in treatment with the use of new technologies.

Finally, it is concluded that psychological concepts are necessary for the health professional to welcome the patient, accepting and working with the biopsychosocial singularities of the patient, comforting him and making him feel comfortable in asking and

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clarifying all questions. Your doubts. In the same way, it is also important to use the concepts of cognitive behavioral therapy, so that the health professional knows how to deal with and rectify the preconceptions that the patient has about the technology that will be used in their treatment, contributing for the same to have greater acceptance of treatment, avoiding possible resistance on the part of the patient. However, these concepts and psychological actions can be the basis for the training of health professionals so that when they act in the care of patients, they act in a more humanized way and consistent with the dignity of the human person.

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