The principle of beneficence in health research implies the effort of researchers to minimize risk to participants and maximize benefits to participants and society, which could be considered an abstract definition. Therefore, the benefits are not easily conceived by researchers who fail to achieve their goal, which is to privilege the well-being of participants. The purpose of this work was to describe and discuss the theoretical elements that support the principle of beneficence so that their knowledge allows designing and granting adequate benefits to participants. The present document defines the principle of beneficence. It also analyzes the maximization of benefits, the distinctions between different classifications of benefits, and the differentiation from compensations or incentives. With all this information, researchers must do a critical deliberation to select adequate benefits for participants of their studies, considering the type of study, potential participants, probability of risk, among others. These benefits should not be understood as a charity that researchers grant to the participant; they should be conceived as any form of action in favor of the well-being of participants. Participants must always be considered as moral agents, responsible for deciding whether the benefits would outweigh the possible negative unintended consequences of a particular study. Finally, no risk should be taken if it is not commensurate or proportional to the benefit of the research study.

INTRODUCTION

The Tuskegee study on syphilis was carried out for 40 years, from 1932 to 1972, with a poor and illiterate population of African American farmers in Macon County, Alabama, USA. The research aimed to understand the natural history of syphilis, to monitor its degenerative course. Since its inception in 1932, 400 men suffering from this disease without any treatment and 200 who served as a control group were identified. None of the 600

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Abbreviations: REC, Research Ethics Committee.

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participants were informed that they were included in the study and were not given the appropriate penicillin-based treatment, available since 1941; on the contrary, the investigation continued for another 25 years [1,2].

An anonymous informant warned the press about the study and that is how Jean Séller published an article on the Tuskegee case in the New York Times in 1972. This generated disapproving reactions in several sectors, forcing the end of the study, and opened an investigation on physicians and non-governmental organizations that collaborated in this research [1,2].

The Tuskegee study is considered a milestone in the history of ethics in research since the medical researchers’ conduct violates the well-being of study participants. Although it is not the only historical fact that shows the atrocities carried out in the name of science, it is a case that had an undeniable impact on how studies should be conducted based on ethical principles in research.

At the beginning of the study, there were ethical regulations that the researchers could have followed for ethical care. For example, in the 19th century, a regulation on human experimentation in Germany from the directive of the Prussian Minister appeared, which may be the direct antecedent of the informed medical consent that we know today. It was proclaimed by the Prussian Congress when the non-therapeutic investigation caused a series of consequences in patients; another historical document that emerged in the 20th century was the “Directive of the Reich Minister of the Interior of February 28, 1931.” The German Minister published this directive on human experimentation that prohibits innovative therapy without the prior informed consent of the subject or his legal representative, and regulates the protection of vulnerable people, among other ethical aspects in research [3].

During the development of the investigation in Alabama, the Nuremberg Code and the Declaration of Helsinki were developed and should have been applied to existing studies. The Nuremberg Code, published on August 20, 1948, led to the trials of Nazi physicians for crimes against humanity, which included atrocities carried out in the name of science. This code stipulates the importance of the authorization of the research subject to participate in a scientific study and indicates that the risks must be less than the benefits offered in the study. Later, the Declaration of Helsinki of the World Medical Association, adopted in 1964 and amended seven times, the most recent in 2013, prescribe the direct benefits to the participants and the indirect benefits of research.

After the scandal caused by the Tuskegee case, the United States Congress approved the National Research Act, which stipulated the creation of the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, which worked on several documents from 1974 to 1978 and produced the well-known Belmont Report, published in 1979. This document identifies the basic ethical principles that should underlie the conduct of biomedical and behavioral research involving human subjects [3]. Three principles and their respective rules appear for the first time in this document: Respect for persons (rule: informed consent), beneficence (rule: risk/benefit ratio) and justice (rule: selection of subjects), giving rise to the principled current of bioethics [1,2,4]. The principle of beneficence is formulated based on two general rules: (1) do no harm; and (2) maximize benefits while minimizing potential harm. The Belmont Report [4] states:

The obligations of beneficence affect both individual investigators and society at large, because they extend both to particular research projects and to the entire enterprise of research. In the case of particular projects, investigators and members of their institutions are obliged to give forethought to the maximization of benefits and the reduction of risk that might occur from the research investigation. In the case of scientific research in general, members of the larger society are obliged to recognize the longer term benefits and risks that may result from the improvement of knowledge and from the development of novel medical, psychotherapeutic, and social procedures (p.4).

Besides the general ethics rules of beneficence, it is important to consider the principism perspective of beneficence. The principle of beneficence is consolidated with the Beauchamp and Childress proposal in the Principles of Biomedical Ethics of 1979, where they reaffirm the need to maximize the benefits and minimize the risks of research for the participants [5]. With the representative principism of these authors, it has been possible to institutionalize and systematize the discussion of bioethics in various fields, one of them the ethics committees when reviewing and evaluating research protocols [6,7].

However, principism and its applicability in research sometimes tend to generate a series of complications due to the incompatibility between the principles to be applied at the same time. Even oppositions can arise between the same principle. For example, Kottow [8] exposes a controversy of the application of the principle of beneficence in research:

A current controversy discusses whether the probands of research with human beings should receive benefits during and after the end of the study, or whether the ethics of research may contravene the Declaration of Helsinki, which requires priority for welfare over scientific or social interests. The tendency of first-world bioethicists favors science being responsible for progress and social good, not for benefiting the probands. With the transfer of a large part of biomedical research to the Third World, the helplessness in which the probands recruited in countries with precarious development remain, subjected to a research ethic that questions and ig-
This example of the controversy that Kottow follows is interesting for the reflection and praxis of ethics committees, mainly in terms of the preponderant value that represents a benefit for the participants of research carried out in emerging or developing economies, where inequalities seem to increase the risks for the participants in exchange for a lack of benefits that they may receive, unlike what is granted in high-income countries [9]. However, a previous step to this reflection is to understand what beneficence is as welfare of the participants and, in any case, what is a real benefit for them. The aim of this work is to describe and discuss the elements that make up the conception of beneficence. This knowledge may allow designing and granting benefits to the participants and, therefore, the adequate and specific application of the principle of beneficence in health research, including biomedical, social, and behavioral research involving human beings. The present document defines the principle of beneficence, it also analyzes the maximization of benefits, the distinctions between different classifications of benefits and differentiation from compensations or incentives. This information could guide ethical committees and researchers to do a critical deliberation to select adequate benefits for participants of their studies, considering the type of study, potential participants, and probability of risk, among others.

CONCEPTUALIZATION OF BENEFICENCE AND BENEFIT

The concept of beneficence comes from the Latin beneficentia, which means the quality of doing good, with its lexicons bene, which is good or favorable, facere, which is to do, and the suffix ence, which is attributed to the quality of an agent. In itself, beneficence is the virtue of doing good [10]. Historically, the term beneficence has been used differently with notions such as good, benevolence, well-being, even non-maleficence (as a principle) according to the Hippocratic proverb of “above all, do no harm;” one term has always replaced another. In this regard, Kottow [8] mentions that the concept of welfare is so ambiguous and impracticable that it was therefore replaced by the notion of beneficence “which in turn occupies the place of the archaic idea of benevolence” (p.58).

In accordance with ethical regulations, specifically with the Belmont Report, beneficence must be considered as an act of doing good or kindness that must be above obligation [4]. This means that it must be present as an act of the agent and not by imposition.

In this respect, Pieper and Thomson [7] considered that doing no harm is not the same as actively providing benefit. It is possible to distinguish between the act and the term of beneficence, with the former implicating the action of helping others, and the latter promoting the betterment of others for altruistic reasons. In both cases it requires researchers to take action in helping others. Beneficence, as the principle of utility, implies that benefits, risks, and costs be balanced to achieve the best overall results.

On the other hand, the application of the principle of beneficence in research considers the assessment or weighing of the risk/benefit that may be granted to the study participants. However, this has caused giving priority to the elimination, attenuation, or avoidance of discomfort, hostilities, etc., which represent both possible risks and harm to the participants. In any case, beneficence must take precedence, not the other way around, as a bioethical mandate to provide and privilege well-being.

Kottow [6] mentions that “in the invasive techniques of current biomedicine, ethics cannot request the elimination of risks and harm, and must focus on seeking proportionality between benefits and negative effects” (p.143), always prioritizing and increasing the former.

In this sense, it is important to address the concept of benefit. This term comes from the Latin beneficium, which means good that is done or received. Its lexicons are bene: good, facere: to do, and the suffix icium, which is relationship or belonging. The current definition of benefit is the good that is done to people or an improvement that they experience thanks to something that is done or given to them [11].

In the field of research, benefit is something that has a positive value, a desirable result that is not expressed in terms of probability, such as risk. Benefit in research must be understood in the context of its possibility or potentiality. Hence, the correct expression is “potential benefits” or “possible benefits” considering the anticipation of the results. The weighting of its delivery will depend on the possible harm and the probability of a risk, always seeking that the benefits are greater or maximized with respect to these two negative aspects in research [4,12,13].

As explained in the definition, for a benefit to be an improvement experienced by a person after something was done or given to him or her, the beneficiaries themselves should be considered. The benefit is proposed by the researcher, but always considering the situation of the potential participants, the condition in which the study is carried out and the context, mainly taking into consideration the interests in appreciating and learning about the study population; this can be a real benefit for the participants and not in a paternalistic sense of granting a benefit as a surplus of the research, according to the judgments of the researcher [6]. Moreover, beneficence, as the action that promotes good at a societal level, encourages researchers to ensure that the way participants are treated...
within research is as beneficial as it can be attained [7].

In summary, beneficence seeks to achieve well-being for the study participants as a result of the research, but the direct benefits must be perceived as such by the participants themselves. However, the experts must propose *a priori* the benefits that the people enrolled in the study will receive, based on their own experience, on the state of the art of their research area, and mainly, on the knowledge of the target population. This does not mean that the welfare or profits should induce participation. For this reason, the researcher must consider that the person who will collaborate in the study is a moral agent who should not be treated as a means of research; the person is the aim in itself and therefore must be a beneficiary for having contributed to scientific research.

**ETHICAL FRAMEWORK**

Principlism, an approach to bioethics currently used in the US and widely accepted worldwide, proposes four ethical principles: Non-maleficence, beneficence, autonomy, and justice. These principles are guidelines for action, but their applicability depends on the reflection of the specific case in which they will be used. These principles may present difficulties in their application, which could be in conflict with each other. For example, the principle of autonomy is often opposed to the principle of beneficence. It is also difficult to define them, as in the case of the principle of non-maleficence and beneficence. However, the principles are usually applied as norms for diverse situations because their role is a standard of optimal or morally obligatory actions, whose capacity is to direct actions and offer the bases for its critical evaluation since they express moral content in the way they should be considered [14].

Beneficence as a principle also has useful content; it states that the “agent must balance benefits, risks, and costs to produce the best overall results.” This utility content of beneficence is perhaps the most used in research. However, the point of greatest inflection is the issue of benefits [5].

The principle of beneficence is very categorical when referring to providing benefits to others, but it is not entirely clear whether this is a moral ideal or if it is really an obligation. The theoretical discussion is endless; some positions lean towards the obligation and others, on the contrary. Others propose a possible resolution with the Kantian distinction between perfect and imperfect moral duties. The perfect duty essentially requires non-interference with the freedom of others, while imperfect duty requires beneficent attitudes and actions toward both others and ourselves, and describes these as of wide obligation and disposition [7,15].

Providing well-being to people is not only minimizing risks or avoiding harm. It implies actions, for example, in preventive interventions in public health, health education is not an optional measure but an obligation. Nevertheless, the difficulty lies in determining what these actions are [4,16]. The center of the reflection is the moral importance of the action, which in the field of research translates into questioning whether we have any obligation to the people who participate in scientific studies for having exposed themselves to risks (however minimal), offering information with beneficial purposes, and giving part of their time. Do they deserve to receive something in return [11]? Some authors have argued that the ethical obligation will depend on each case, according to the vulnerability of the participants, the uncompensated risks or burdens, and the researcher-subject relationship. For example, in a research where the physician-researcher must decide whether to inform a subject about incidental findings, taking into consideration if this action will actually help or prevent harm. In any case, meeting this obligation requires careful judgment on the part of the investigator [7,16].

In research, the benefits for science or society and the risks for the participants are mainly considered. Beauchamp and Childress [5] mention that “benefits are comparable to harm rather than harm risks” (p.222). In this sense, beneficence must be distinguished from non-maleficence; the latter assumes the duty not to do wrong or harm, a primary measure that ensures that no one is subjected to futile or reckless procedures that may entail risks, while the first is a positive prescription that requires the duty to prevent and remove harm and the duty to do or promote good with research [5,14].

**BENEFIT MAXIMIZATION**

*Benefit as a Possibility in Weighting with Risk*

The risk is both the probability that a negative or adverse event will occur, and its severity; its assessment depends on the magnitude of the presence and consequences in the short and long term. The types of risks can be psychological, physical, legal, social, and economic. The most common are physical and psychological, for example in studies on mental health, but all must be considered at the time of planning and developing a research study [4].

On the other hand, benefit is not the opposite of risk; they do not belong to the same category. The benefits and risks coexist in research and can be presented at the same time of the study. Therefore, they must be assessed, seeking that the benefits are always greater than the risks, while the latter must be minimized; that is, finding a favorable proportion, not from a mathematical calculation, but through a careful evaluation derived from a reasonable judgment, considering that harms and benefits may
not have exactly the same impact on different participants in a study [16,18,19].

In this way, recognizing the necessity of benefits implies exposing a person to risk, but the difficulty here is when it is justifiable to propose benefits despite the involved risk, and when the benefits should be inevitable because of the risks. Moreover, it should also be considered that human research endeavors rely on participants’ charity and therefore, researchers should reciprocate by ensuring a benefit from the research [7].

Maximizing Possible Benefits – From Participants and Future Research

When a research protocol is started, in many cases what is sought is to find strategies that allow contributing to the health care of future patients or carry out actions that promote it, and if achieved could be considered a maximum benefit of the research. However, these benefits are generally defined as a possibility because we are not always sure of reaching a clinical applicability.

A research study can maximize the possible benefits, by granting them to the populations that are known to benefit most from the study. On the other hand, it is also possible to recognize and increase the possible benefits for current study participants as well as for future patients, by allowing the results or samples of a study to be used for subsequent research, without affecting the confidentiality of the information or exploiting current participants, maximizing the social and scientific value of the study. Research could be strengthened with other joint actions such as increasing the power of the study with a larger number of participants, including a more representative or diverse sample, evaluating different stages of a process, confirming or complementing the findings, as well as carrying out more complete or refined analyses, etc. [20]. With all these strategies, the benefits of the participants and future research are maximized, but also a clinical application becomes more feasible.

Maximizing Possible Benefits – Protecting Participants and Preventing them from Losing Benefits

Beneficence also requires that participants are not exposed to or are protected from the risk of harm while avoiding the loss of substantial benefits that could be gained from the research. In the case of protection for participants, this will depend on the level of risk and the possibility of benefit [4]. Avoiding the loss of benefits includes even situations when the participant refuses to continue with the intervention or withdraws from it. These actions can be done at any time without penalty or loss of the benefits to which participants are entitled [20].

Maximizing Possible Benefits – Ensuring the Well-Being of the Participants

A further requirement of beneficence is that people not only be protected from possible harm “but also make efforts to ensure their well-being [4].” In this sense, the new knowledge generated by the scientific study should promote the health of future patients, therefore, this will result in the expected benefits of the research for the population. “For example, many experimental drugs in phase III trials offer the prospect of an individual benefit” [16], whose favorable outcome will mainly affect the well-being of people and in the opposite case, they are preserved from harm [4,11,20].

Maximizing Possible Benefits – Vulnerability

Vulnerability defines individuals, groups, or populations as presenting particular disadvantages leading them to increased risk of harm or exploitation. An adequate conception of vulnerability must not be restricted to protecting against harm but to minimizing circumstances that prevent participants from obtaining derived benefits of research, maximizing resilience capacities and social conditions to promote the moral agency of research participants [19].

Maximizing benefits in vulnerability conditions may seem complex due to the difficulty in estimating possible effects on participants, like promoting resilience. Nonetheless, maximizing the good or well-being of participants as a beneficence demand requires strategic planning over the potential comprehension of the impact of the research in vulnerable circumstances, as well as fostering a continued working relationship with the participants [7].

TYPES OF BENEFITS

The benefit does not automatically occur when research is done. It is the decision of the agent, the researcher, to think about the possible benefits expected from the study as long as the obligation emanates from the principle of beneficence. Perhaps the benefits and their granting may vary depending on the type of research. Even so, it is important to consider them as much as possible, understanding that the application of the principle of beneficence, specifically in health research, be it biomedical, social, or behavioral research, takes on a greater value when it comes to the health of the people collaborating in the research.

The benefits must be for individuals and the community, also for society in general when research is seen as a social good, that must be built and maintained on the trust of the community it serves, and, finally, for science, contributions to scientific knowledge [4,7,13,20].

In the division between direct and indirect benefits
(Table 1), the former are directed to the research participants. An example is benefiting through direct social welfare or through institutions that support their well-being; direct benefits can also be directed to a local community [9,21]. In this sense, it is important that these benefits are consolidated with research in order to avoid generating false expectations.

Indirect benefits should be directed to society, considering that research can be a social good and it can benefit current and future generations. Likewise, among these is the benefit to science. The study may also contribute specifically to some anticipated or potential benefit such as the generation of new knowledge, its comprehension and understanding, a confirmation of the results of other previously directed research, and the gain of skills or experience for the researchers or the research institution [13,21].

A second taxonomy involves the temporality of benefits in research. “Researchers and members of their institutions have the obligation to consider in advance how to maximize the benefits in the short, medium, and longer term, which may result from the improvement of knowledge and the development of novel medical, psychotherapeutic and social procedures.” For example, discussing the organization for the transition to post-investigation care and the extent to which participants will continue with applications or other experiences.

Another taxonomy is proposed by Sieber and Tolich [13], who divide benefits into precursors to beneficial science, intermediate benefits, and ultimate benefits. Precursors include “the fundamentals of beneficial research: sound research design and procedure, and the competence of the researcher. “This means that research planning must involve allocating the time, money, talent, and other resources needed to carry out the research project to an effective completion (p.26).”

Sieber and Tolich [13] separate the intermediate benefits into those that are for the subjects and their community and those that are for external institutions. The former point to the duty of the researcher to benefit the participants when the research represents an intrusion into people’s daily lives and when they are expecting a benefit in exchange for their collaboration. In this sense, the authors list a series of types of specific benefits that researchers can provide during research subject participation:

1. **Relevant personal benefits.** Helping people improve their well-being. These benefits can occur through participation in research. For example, the guidance of an expert regarding the advantages of continuing or modifying certain habits, activities or attitudes in relation to the health problem, even bibliographic material, or short texts or summaries on the subject that can be useful to people or including the study procedure or materials of an already proven successful intervention, without this being the same research that is carried out. There are interventions carried out under uncertainty of diagnosis or treatment where people are randomly assigned, these studies are ethically justified by their scientific and clinical relevance (principle of equipoise) [22]. Nonetheless, under this uncertainty, it is not possible to assure relevant personal benefits since the intervention does not necessarily improve participant health status, otherwise the study should not be required. In the case of the community, these benefits can be food or a list with information on local medical or mental health services, which must be offered in a respectful manner, without implying that only the person presenting the problem will benefit.

2. **Knowledge, training, learning, role models, empowerment, and future opportunities.** These can all be benefits of participating in treatments, even more these benefits could be more relevant to the principle of equipoise. Opportunities to continue with applications or other experiences can be discussed with the participants.

3. **Psychosocial benefits.** These include benefits considered altruistic, such as giving time to others, participating in an experiment that elicits feelings of well-being, or receiving favorable attention and esteem from an expert researcher. For example, people who are interviewed about their traumatic or stressful experience have reported that they emotionally benefit from an expert researcher who listens to them, helping them to clarify their own understanding of their experiences.

4. **Kinship benefits.** They include feelings of closeness to the person or reduced alienation. Mainly behavioral research that frequently addresses the meaning of people’s lives or in general, provides the opportunity and conditions to reflect on relationships, generating certain insights or cathartic reactions that people are having for
their participation in the study.

5. Benefits for the community. These can be derived from many resources, including the current intervention and the resources it provides: personal development, improvements in morale, knowledge of problems that need to be solved, data that can be used to make policy or political proposals, development of new opportunities and relationships of power outside the community, prestige, and new skills to serve community members. Even if the community intervention fails to produce the desired effect, the project can benefit the community in other ways, simply by having participated.

BEFORES FOR OTHER INSTITUTIONS

Many intermediate benefits are necessary to sustain the research programs of the institutions, such as equipment, training, building relationships with collaborators, development of appropriate methodologies, peer review, publication of intellectual products, public recognition of the value of research. These types of benefits are not explicitly required in a protocol by ethics committees and may be irrelevant to a student research project or an isolated study. However, all these aspects are important within the research infrastructure so that the project can be carried out.

The differences between benefits and other ethical aspects granted to participants, such as reimbursement and compensation, is that these aspects refer to the payment (monetary or in kind) to the participant for contributing to the social good of an investigation. In this sense, the participants must receive a reasonable reimbursement for the direct costs incurred during the investigation, such as transportation expenses and/or they must be duly compensated for the time invested and other inconveniences resulting from their participation in the study. The amount of compensation should be proportional to the time dedicated to the investigation and invested in their transfers to the investigation site [20].

The obligation to reasonably compensate participants applies even when study recruitment offers potential individual benefits to participants. However, compensation should not:

1) relate to the level of risk that participants accept to assume.

2) be so large as to persuade participants to volunteer against their better judgment or against deeply held beliefs (“undue inducement”) [20].

Previously, these aspects used to be called incentives or compensation. At least that is how they were stipulated in the 2002 edition of the Council for International Organizations of Medical Sciences (CIOMS) Guidelines. As of the edition of the same guidelines in 2017, the terms incentive and compensation were replaced by reimbursement and compensation.

DISCUSSION AND CONCLUSIONS

The benefits in scientific research and their direct and indirect effects on study participants are a widely discussed topic in the bioethics literature, which has raised various considerations to analyze depending on the target population. However, the applicability of the principle of beneficence seems to stem from an abstract conception if the very terms it generates are lightly considered, together with a series of pragmatic controversies, such as the representation of a benefit for the participants of the research carried out in emerging or low- and/or middle-income countries, unlike what is granted in high-income countries, or the weighting itself between the risks and benefits in a study.

The search for beneficence should not be understood as a charity that the researcher grants to the participant. In any case, it should be conceived as an act of doing good: providing and privileging well-being or any form of action for the benefit of individuals with the right to decide as an ethical commitment of the researcher [4,6].

The benefit is the positive value derived from the possibility or potentiality of a desirable result, which the researcher will propose as part of the participation in a research study, but it will always be the people who grant this value, as beneficiaries of the scientific research in which they have contributed, as an aim in themselves and not as a means. For example, bioethical research associates vulnerability with the risk of harm and exploitation, limiting the capacity for autonomy and increasing susceptibility to coercion. Although there is an obligation to protect vulnerable persons from harm, this is as important as protecting their autonomy since an inadequate approach may exacerbate existing vulnerabilities or generate new ones [19]. This is relevant, since when working with vulnerable individuals, societies, and cultures, the principle of beneficence is imposed as a specific duty to promote well-being [7].

The presence of the principle of beneficence in research is not far from controversy or opposition to other principles.

The ethical relevance of this action is the commitment as a formal agreement between moral agents. The exposure of the participants of a study to their inherent risks should not impose the granting of benefits, because these are not compensation for possible harms or balances of a debt for the contribution to scientific knowledge [17]. Sieber and Tolich [13] question who can benefit most from research? Although they recognize several benefits for the researcher himself, they state that “it is not ethical
to build one’s professional and financial achievements on the backs of research participants and the populations whom we never benefited in one serious way or another and therefore do not truly respect. That is exploitation (p.30).”

To conceive of benefit in research as a commitment is to consider the participant as a moral agent, who is responsible for deciding whether the potential benefits would be worth the risks of possible unintended consequences associated with the study in which they are being invited to participate, through the process of informed consent [23]. Although it must be considered that, as Sieber and Tolich [13] state, “a large part of the value of such a benefit is derived from the way it is given (p.26),” but also from what is given.

Although the principle of beneficence raises the search for the risk/benefit ratio, minimizing risks and maximizing benefits, it must be considered that no action in life is free of risks and that in most cases these are unpredictable or permissible, but in any case, no risk should be taken that is not commensurate to the benefit of the research. Therefore, the benefits must be well defined before starting the investigation; the difficulty of this lies in determining what these are or what actions can and should be considered as beneficial for the participants [5,13].

In this respect, evaluating beneficence in human research is probably the most subjective aspect, since what is considered a risk for some may not be seen as a risk for others. Therefore, researchers and members of the ethical committees should deeply analyze informed views of possible risks, always considering that the purpose of the review is not to eliminate the risk but to analyze if it is correctly minimized and adequately managed. For this analysis, it is necessary that the research team demonstrates an appropriate understanding of the research population and to show the ethical committee that the investigators understand the importance participants might take on risks and benefits, and to demonstrate that they have sufficient experience to understand, assess, and mitigate the risks [7].

Distinguishing between direct and indirect benefits makes it possible to show the beneficiary of the actions. The former is aimed at research participants, while the latter should be aimed at society and science itself [13,21,23].

It is also important to consider that researchers must exercise beneficence to participants of their studies in several ways. First, by measuring and considering the risk of harm and the potential benefits of research to participants and the society; second, by being sensitive to the well-being and interest of individuals involved in the research; and third, by reflecting on the cultural implications of the research [7].

At times, the principle of beneficence plays a definite justifying role in many areas of human research. For example, effective methods for treating childhood illnesses and promoting healthy development are benefits that serve to justify research with children, even when the subjects themselves are not going to be direct beneficiaries [4]. In these cases, only the indirect benefits can be applied, but the ethical commitment is that the research contemplates the direct benefits.

This work addressed the taxonomy of the types of benefits proposed by Sieber and Tolich [13], who distinguish benefits in: 1) precursors of beneficial science, 2) intermediate and 3) final, incorporating to these: the allocation of time, money, talent, and other resources necessary for the completion of an effective investigation.

The benefit rankings guide scientists from novice to expert. However, the determination in the election of what possible benefit should be considered in a research study requires a reasonable judgment, a critical deliberation that facilitates different options based on arguments that include various factors: the type of study, potential participants, probability of risks, harm, among others. This reflective process can be discussed and accompanied by the Research Ethics Committee (REC).

The role of the principle of beneficence is not always so precise and that is why the REC must carry out a reflexive and deliberative exercise to argue the decisions it makes regarding the applicability of this principle in the ethical evaluation of the various scientific investigations, or to precede the dialogue with the researchers to specify the potentiality of a desirable result. For example, the problem posed by this imperative for the committee is to decide when it is justified to seek certain benefits from a research study, when a study may actually lack benefits, even though there may be implicit risks, or when the benefits should be rejected in the case of investigations that present risks greater than the minimum without immediate prospects of direct benefit for those involved [4].

The REC should profoundly discuss the ethical acceptability of proposed benefits of human research projects under review by considering that the overall good of benefits is not always evident and promoting the greater good when there are few benefits. Moreover, when in doubt if risks to participants are justified by the offered benefits, it is always necessary to sensibilize researchers of the necessity of proportionate benefits to justify probable risks. In this respect, the role of the lay members of the REC is to promote the community context in the discussion of benefits by offering a distinct perspective from the one researchers have, which is of interest since the public perception of potential risk and benefits is fundamental for beneficence in human research. Profound communication between researchers and REC is necessary to promote reflection in research proposals and to
design adequate benefits for participants [7].

Finally, the ethical requirement in scientific research is increasingly perceived. Carson and Given [24] allude to the fact that in the last decade, governments, funding agencies, and universities around the world have adopted a more structured approach focusing on the impact of research and in support of innovation, making a shift from a traditional publication-focused research impact culture to a broader social impact culture that demonstrates direct and indirect benefits to society.

The purpose of this work was to describe and discuss the elements that make up the conception of beneficence, so that their knowledge allows granting adequate benefits to the participants and, therefore, the adequate application of the principle of beneficence. As has been mentioned elsewhere [25], the discernment, recognition, and consideration of ethical aspects, in this case of benefits, must be a daily ethical exercise in research, as a deliberative, responsible action, respectful and committed between the researcher and the participant, as moral agents.

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