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A THEORETICAL FRAMEWORK FOR ETHICAL DECISION-MAKING DURING PUBLIC HEALTH EMERGENCIES

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Abstract: The new theoretical ethical framework is a general frame or tool for ethical agents, developed to guide ethical reasoning during public health emergency preparedness and response. The TEF is based on the assumption that no existing ethical discourse in medical ethics alone is sufficient to address ethical issues of a PHE. The solutions suggested by existing approaches are limited in practicability and effectiveness, because they cannot address root problems and interplay among ethical problems. The reason for this insufficiency rests on the argument that ethical problems of PHEs have causal and reciprocal relationships, and any ethical decision-making framework should provide a wide enough perspective to consider relevant ethical norms and theories to suggest practical, implementable, coherent solutions compatible with the communal values and cultural norms. The TEF we suggest for PHEs embraces a holistic and integrated ethical perspective that enables us to comprehend that ethical problems that arise in various settings caused by PHE phenomena are in relationship with each other instead of addressing them as a standalone problem. The TEF provides decision-makers to achieve a coherent web of considered judgements compatible with ethical values and principles in various settings. This type of conceptualization offers a wide perspective to see causal and relational relationships among problems and produce outcomes that would not be possible by eclectic approaches.

Key words: public health emergencies, ethical decision-making, COVID-19, pandemic, public health ethics, public health emergencies, bioethics

Un marco teórico para la toma de decisiones éticas durante emergencias de salud pública

Resumen: El nuevo Marco Ético Teórico (MET) es una estructura general o herramienta para eticistas, desarrollada para guiar el razonamiento ético durante la preparación y respuesta a emergencias de salud pública (ESP). Supone que no existe un discurso ético en la ética médica que por sí solo sea suficiente para abordar temas éticos de ESP. Las soluciones sugeridas de aproximaciones existentes son limitadas en la práctica y en la efectividad, debido a que no pueden abordar problemas de raíz sin considerar las interacciones entre los problemas éticos. Esta insuficiencia es porque los problemas éticos de ESP tiene relaciones causales y recíprocas, y cualquier estructura de toma de decisiones éticas debería proporcionar una perspectiva suficientemente amplia como para considerar normas éticas y teorías relevantes, y sugerir soluciones prácticas que sean coherentes y compatibles con valores comunes y normas culturales. El MET que sugerimos para ESP abarca una perspectiva ética integral e integrada, que posibilita la comprensión de que los problemas éticos que surgen en varías situaciones causadas por fenómenos ESP se hallan en relación entre ellos, en vez de abordarlos como un problema aislado. El MET proporciona a los que toman decisiones el lograr una red coherente de juicios compatibles con los valores y principios éticos en varias situaciones. Este tipo de conceptualización ofrece una amplia perspectiva para ver relaciones causales y relacionales entre problemas y producir resultados que no serían posibles mediante aproximaciones eclécticas.

Palabras clave: emergencias de salud pública, toma de decisiones éticas, COVID-19, pandemia, ética de salud pública, emergencias de salud pública, bioética

Um referencial teórico para tomada de decisão ética durante emergências de saúde pública

Resumo: O novo referencial ético teórico (NT: TEF, sigla em inglês) é um referencial geral ou instrumento para agentes éticos, desenvolvido para guiar o raciocínio ético durante o preparo e resposta a emergências de saúde pública (NT: PHE, sigla em inglês). O TEF é baseado na suposição de que nenhum discurso ético existente em ética médica sozinho é suficiente para abordar aspectos éticos de uma PHE. As soluções sugeridas pelas abordagens existentes são limitadas em praticabilidade e efetividade, porque elas não podem abordar problemas fundamentais e inter-relacionar problemas éticos. A razão para essa insuficiência repousa no argumento de que problemas éticos de PHEs têm relações causais e recíprocas, e qualquer referencial para tomada de decisão ética deve propiciar uma perspectiva ampla o suficiente para considerar normas e teorias éticas relevantes para sugerir soluções práticas, implementáveis e coerentes, compatíveis com valores comunitários e normas culturais. A TEF que sugerimos para PHEs abarca uma perspectiva ética holística e integrada que nos permite compreender que os problemas éticos que surgem em diversos ambientes causados pelo fenômeno da PHE estão em relação entre si, ao invés de abordá-los como um problema isolado. O TFE propicia a tomadores de decisões alcançar uma rede de julgamentos considerados compatíveis com valores e princípios éticos em ambientes diversos. Esse tipo de conceitualização oferece uma perspectiva ampla para observar relações causais e relacionais entre problemas e produzir desfechos que não seriam possíveis por abordagens ecléticas.

Palavras chave: emergências de saúde pública, tomada de decisão ética, COVID-19, pandemia, ética em saúde pública, bioética

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Introduction

Like the bubonic plague of the Middle Ages, the coronavirus disease 2019 (COVID-19) pandemic is driving us to reevaluate and rethink the ethics of pandemic preparedness and response. One of the earliest rethinking that that had to be done in the COVID-19 pandemic was the ethics governing decisions that needed to be made around the fair allocation of scarce medical resources. There was the need to ration personal protective equipment used by health care workers resulting from an imbalance between the supply and demand for medical resource and make ethical decisions on who could benefit most from accessing intensive care beds and ventilators*(1)*. Currently, critical decisions are being made about the fair allocation of the limited supplies of COVID-19 vaccines*(2)*.

Th ethical framework proposed for making ethical decisions for scarce resource allocation proposed by Emmanuel et al.*(1)* is the same framework that is required for decision-making about scarce resources during peacetime - maximizing benefits, treating equally, promoting and rewarding instrumental value, and giving priority to the worst off. There however appears to be consensus building around the adoption of these principles for allocation of scarce resources during the pandemic; one built on a foundation for respect for human dignity that enables everyone to have access to a medical triage developed with fair and transparent objective criteria, and that ensures access to appropriate information about their health status, the conditions of the care system and the established criteria*(3)*.The ethical framework proposed by Emmanuel et al.*(1)* is well reflected in other ethical frameworks proposed for prioritizing patients in the setting of resource scarcity; and approaches for evaluating healthcare decisions in a priority-setting*(4)*.

These ethical discussions and frameworks are limited in scope in addressing the wide range of decisions that need to be made during public health emergencies. It addresses a fragment of the mirage of clinical ethical decisions that need to be taken during public health emergencies of the magnitude faced in recent times inclusive of the COVID-19 pandemic. Worse still, public health ethics (PHEt) addresses ethical issues of communicable diseases*(5)* which is often the emergency problem for the public when there is an outbreak with an agent that is easily transmitted from person to person and causes severe mortality rates. The scope of bioethics discussion on PHEt has been limited to addressing public health measures that interfere with individual freedom and autonomy. Hence, ethical questions arise about justice, legitimacy and the responsibility of governments or public health authorities to implement these measures. The discussions on justice emerge from the tension between utilitarian and egalitarian approaches to efficiency, equity and fair distribution of burdens and benefits while individual liberty and duty of governments to protect public health constitute the main debate in terms of legitimacy*(6)*. These public discussions have not only been limited in their scope of addressing the complex tangles between clinical, research and public health ethics, they have also been limited in contextualizing local and global social inequalities that drive the need for these ethical discussions. Sadly, social inequalities are deepened during crisis times like health pandemics*(7)* thereby compromising processes that try to drive equitable health responses.

The aim of this paper is to develop a general frame or tool for ethical agents to make public health related ethical decisions during health crisis like pandemics. The theoretical ethical framework (TEF) that we offer embraces a holistic and integrated ethical perspective to enable ethical agents to comprehend the ethical problems that arise in various settings caused by PHE phenomena and are in casual and reciprocal relationship with each other. We expound on the gaps there are in the existing public health ethics, identify the need for a new theoretical ethical framework (TEF) for public health and proposed a TEF. The proposed TEF will provide ethical decision makers with the tool to develop a coherent web of considered judgements compatible with ethical values and principles during PHEs. It is a heuristic evaluation process that helps ethical decision makers to examine the interfaces between multiple ethical challenges during public health crisis, and how to judge the compliance of decisions made with recognized usability ethical

principles. We propose a decision-making processing based on ethical principles that is consistent with the logic of heuristic processing*(8)* to help solve the complex ethical dilemma that needs to be addressed during PHEs. We also make recommendations on the qualifications of the stakeholders who should be involved with the decision-making process so that the ethical reasoning is as much unbiased and impartial as possible. Our discission is limited in discussing the application of the ethical reasoning processing in real life as this discussion will evolve with the refinement of the current proposal through further ethical debates.

Main body

Why do we need a new theoretical ethical framework?

PHEt discourse is not sufficient to address ethical dilemmas and moral issues that emerge during PHEs like pandemics. The reasons for this insufficiency rests on following issues:

First, the development of PHEt has been towards providing an analytical tool to consider ethical concerns while developing public policies and population-based programs for disease-prevention, risk-mitigation, and promotion of heathy behaviors. PHEt also provides a framework for monitoring the ethical appropriateness of these policies and programs during their implementation. The Public Health Code of Ethics and the American Public Health Association identified the primary goal of PHEt as the promotion of public health by addressing causes of diseases through programs and policies*(9,10)*. This perspective is also supported by the European Public Health Ethics Network*(11)*, which developed a framework for PHEt. Hence, the scope of PHEt had been largely limited to addressing the ethics of communicable diseases with almost to the exclusion of PHE preparedness and response and its devastating impact on health. There is a lack of a systematic ethical framework in PHEs*(12,13)*. Also,

PHEs accommodate several ethical issues that are beyond its scope such as routine health service provision or scientific research, which fall within the coverage of clinical ethics (CE) or research ethics (RE).

Public health responses during pandemics require discussions on clinical ethics because of the need to make considerable decisions on the prioritization of access to care when there is limited medical supplies including personal protective equipment, life-saving ventilators and other intensive care resources; the obligation of healthcare providers treat when life-saving devices accessible to them is limited; and the under-funded public health system capacity that limits the provision of quality care*(14)*.

The current COVID-19 pandemic highlights the need to reflect on and provide guidance for ethical decision-making for moral issues that arise in clinical settings when responding to a public health emergency. The rapid worldwide spread of the SARS-CoV2 infection and the resulting surge in the need for healthcare services precipitated value-based decision-makings in various healthcare services including, hospitals, outpatient services, health surveillance services. These decisions include considerations for access to intensive care services at the peak of care demand*(15)*, patient and physician autonomy*(16)*, privacy and confidentiality*(17)*, cultural diversity*(18)*, surrogate decision-making*(19)*, micro-allocation of scarce resources*(20)*, futile treatment*(21)*, relations in the medical team*(22)* and approach to particularly vulnerable groups such as the elderly, pregnant women, pediatric patients and the limitation of therapeutic efforts*(23)*.

Though CE discourse within the frame of various ethical decision-making theories, grounded on utilitarian ethics, deontological ethics, virtue ethics, principalism, and a case-based approach could address many of these ethical questions in pandemic-free times, CE is not equipped to address the value-based problems associated with a health care pandemic. CE frameworks alone are also inadequate to reflect on and solve moral questions during a pandemic because of the context, mandate and range of activities, main concerns, and primary focus*(24)*. The main concern of CE is the well-being of the individual patient. Patient-centeredness and providing benefit t to the individual patient is the physician's moral ob-

ligation. This perspective of CE fails to guide the physician's decisions in situations like allocation of scarce resources in a PHE. The scarcity of resources during a pandemic is one of the key areas where ethics of public health and CE converge.

Emergency public health response during pandemic caused by unknown pathogens has been expanded to include an obligation to conduct research. Basic and epidemiological research to understand the etiology and clinical course of the pathogen; conduct of clinical trials to identify therapies and prevention strategies and tools; implementation research to identify what works best in every context; and social science research to understand the behavioral responses and appropriate community response strategies*(25)*.

The urgent need for scientifically proven knowledge about the causes, treatment, and prevention of the disease. This urgency raised concerns about the integrity of scientific research and wellbeing of research participants that challenges the norms and principles of RE. The theoretical and normative approach to RE could otherwise deal with these concerns during peacetime using the four principles of biomedical ethics as mirrored in internationally accepted guidelines like the Declaration of Helsinki and CIOMS guidelines. However, the RE discourse is not well-equipped to address the ethical problems experienced by researchers, ethics review committees, regulatory bodies and communities face during a PHE. These include serious moral problems such as access of vulnerable, stigmatized and criminalized populations' access to healthcare, vaccines, and scientifically proven health information.

The ethical problems that arise in different settings about population access to care during pandemics can be traced back to root problems and dilemmas embedded in healthcare and social security at a national or global level.

These ethical dilemmas are usually detected among the moral requirements for providing common good; protecting and respecting individual rights; and justice and fairness in allocation of scarce resources. These problems are grounded in structural problems related to social determinants of health and provision of health care.

The context and severity of existing ethical problems may change during pandemics.

For example, a population group that was doing fine before a PHE may become disadvantaged or vulnerable because of the pandemic. A typical example is the emergence of healthcare workers as a vulnerable population group during the COVID-19 pandemic*(26)*. Not only did they have to face the moral tussle of continuing to provide care in the face of the overwhelming need for their services, but also how to do this safely in ways that they do not compromise their own physical and mental health and wellbeing but also that of their family and loved ones. they also had to face new stigma in many settings as they were identified as potential sources of community disease transmitters*(27).* Thus, PHEs may deepen existing ethical dilemmas in health care provision or PHEt or may cause new moral issues not considered problems before. These ethical issues may have a causal and/or reciprocal relationship and may be exaggerated because of the emergent circumstances of the PHE.

These ethical gaps created by pandemics require different ethical agents for solutions. This is not the usual situation for biomedical ethics.

CE addresses the physician as the ethical agent for solving ethical dilemmas or value-based problems in clinical settings. Likewise, the ethical agent determined to take responsibility for responsible research on human participants is the principle investigator, as clearly stated in the Declaration of Helsinki. PHEt appeals to public authorities for moral problems regarding public health governance legitimacy of powers and responsibilities. However, when it comes to PHEs, different interlocutors of ethical problems arise at different settings.

Current PHEt discourse is not well-equipped to comprehend and address this colodrum of new ethical discussions during a PHE resulting from a highly infective disease of unknown pathogen and this insufficiency raises the need for a new ethical framework for PHEt.

Considering all these arguments, it is plausible that the ethical issues and value-based decisions

of PHEs cannot be addressed properly with an eclectic approach that attempts to see every ethical problem as an issue that needs to be solved in the settings in which they emerge.

The current literature on PHEs and ethics prefers to address ethical problems of PHEs separately by overseeing the causal and reciprocal relationships among them and strives to suggest solutions by referring to some values and ethical principles they borrow from different discourses*(1,3)*. The solutions suggested by eclectic approaches are limited in practicality and effectiveness because they cannot address root problems and interplay among ethical problems.

The New Theoretical Ethical Framework for Public Health Emergencies

The new ethical framework (TEF) for PHEs that we suggest embraces a holistic and integrated ethical perspective that enables us to comprehend that ethical problem that arise in various settings caused by PHE phenomena, which are in causal and reciprocal relationship with each other. We propose that the TEF for PHEs should embrace a holistic and integrated ethical perspective that enables us to comprehend that ethical problems that arise in various settings caused by PHE phenomena. The TEF should also recognize that the ethical problems are in casual and reciprocal relationship with each other.

The TEF is inspired by the reflective equilibrium theory of John Rawls, later reinterpreted by Norman Daniels (1996) and which laid the foundations of the ethical reasoning framework suggested by Beauchamp and Childress. In his phenomenal book "A Theory of Justice," Rawls*(28)* defined reflective equilibrium as a continuous process that involves going back and forward between considered judgements and relevant principles, values, and norms to achieve a state of coherence to solve an ethical problem. The search for coherence only between considered judgements and moral principles is known as narrow reflective equilibrium*(29)*. Norman Daniels built upon Rawls' idea and suggested building coherence among a broader set including background theories. His approach, known as wide reflective equilibrium, considers moral judgements, moral principles, and relevant scientific and philosophical background theories*(29)*.

Inspired by a wide reflective equilibrium approach, Beauchamp and Childress*(30)* suggested a version of coherentist theory for ethical reasoning in issues of biomedical ethics. There is a significant difference between coherentist theories, and the version Beauchamp and Childress propose, which lies in the approach to the central problem of epistemology: When are we justified in holding a position to be true? According to coherentist theories, only another belief can count as a reason for a belief, and coherence of beliefs establishes their truth. In this sense, the justification of beliefs depends on their coming together as a coherent set to form a sensible and meaningful web of beliefs*(31)*. Beauchamp and Childress*(30)* reject this epistemological approach and begin the reflective equilibrium process with the four principles of biomedical ethics as considered judgements that are "acceptable without argumentative support" or moral beliefs that do not need other beliefs for justification. Beauchamp and Childress derive the four principles of biomedical ethics from common morality and see their approach as inherently foundationalist because of the central role of considered judgements.

According to Beauchamp and Childress*(30)*, considered judgements are the basis for ethical reasoning, but they are not absolute. If a disagreement arises between one or more considered judgements, they are subject to change. Due to this methodology, after determining the considered judgements, the ethical agents should scan the implications of these judgments and scrutinize their coherency with all other relevant principles and norms, such as nondiscrimination or respect for human dignity, for incoherency. If reaching coherence in this process is not possible, the agents should go back to specification and balancing of the principles of biomedical ethics and search for coherence. This is an ongoing process of specification and balancing of principles, deliberating norms, and monitoring the results to seek coherence and revise any step-in case of conflict. Beauchamp and Childress*(30)* define this process as follows: "Establishing policies and specifying norms in new directions using reflec-

tive equilibrium is a continuous work in progress—a relentless process of improving moral norms and increasing coherence."

The methodology of the TEF is indebted to the wide reflective equilibrium approach as this allows us to reflect on the solutions to ethical problems using both the root ethical principles and values of the PHE and the main ethical discourse/paradigm of the setting in which the problem arises. The TEF builds upon a series of searches for coherence among root moral issues, the principles and core values of the ethical discourse in which the ethical issue arises, other ethical discourses in which there may be causal or reciprocal relationships, and current scientific knowledge. Note that scientifically proven knowledge is significantly important in ethical reasoning in biomedical ethics, and, therefore, all reflections should follow the existing knowledge in PHE.

We also endorse the foundational approach of Beauchamp and Childress*(30)* and initiate the reflective equilibrium process with the three root moral issues. These issues are identified after reviewing the current literature on ethical problems that commonly emerge during PHEs and experiences from recent PHEs. Existing literature on PHEs and history of medicine show that the main tensions during PHEs are between utilitarian approaches, which argue for the primacy of the common good; rights-based approaches, which advocate for human rights and respect for autonomy; and justice and fairness for the allocation of risks, burdens, and benefits. These three root areas can be summarized as follows: 1. Providing common good, 2. Respecting human rights and autonomy, and 3. Protecting fairness. We argue that these common moral issues should be at the base of every reflection on ethical problems during PHEs. Failure to recognize these three root issues and not grounding ethical solutions on relevant scientific knowledge may lead to what seems to be a very coherent web of thinking that otherwise breach values that respect human dignity or right to live. At this point, we follow the steps of Beauchamp and Childress*(30)* and suggest placing the three root moral issues and scientific knowledge at the beginning of the ethical reasoning frame to avoid the "risk of bare coherence that may be nothing more than a system of prejudices."

According to the TEF, the first step of reasoning is to define the ethical problems—P1, P2, P3… Pn—and search for any causal relationship between P1 and the other problems. If we determine a causal relationship between them, we should address the causing issue first.

After defining the ethical problems, the reflective equilibrium process begins with the search for a considered judgement that is coherent with the three root moral issues. The process of reflecting back and forth among utility, rights, and fairness; revising our specification and balancing approaches; and reconsidering our judgement endure until we reach a state of reflective equilibrium and a considered judgement: C1.1, which fits in a coherent web of moral perspective.

The second step is to challenge considered judgement C1.1 with the main ethical discourse of the setting in which P1 arises. For example, if P1 is about allocation of scarce resources in the ICU, then the settings in which P1 arises is the clinical setting, and the main ethical discourse is CE. In the second step, our aim is to challenge C1.1 with the principles and values of CE and run a reflective equilibrium process to develop coherence between C1.1 and norms and principals of CE. Note that CE discourse consists of different approaches such as utilitarian ethics, deontological ethics, virtue ethics, Pellegrino's virtue ethics-based approach, principalism, and a case-based approach. Deciding which approach to choose depends on how CE norms are conceptualized in the region or country. For example, some cultures may prioritize individual rights and respect for autonomy while others may value altruistic behaviors for greater good and communal decision-making*(32)*. The search for coherence at the second step should consider these local variations and make sure that the coherence reached is consistent with cultural norms in the local context.

This step may require us to go back to step one and make modifications in the way we specify and balance the root issues. The product of this second round of reflective equilibrium process is C1.2.

In the third step, we reflect on the reciprocal relations between P1 and other problems P2 and P3 and scrutinize if C1.2 is in coherence with C2.2 and C3.2. The search for a reflective equilibrium in these three steps is an ongoing process. New scientific knowledge or the emergence of novel problems and conditions may require restarting the process to adjust for rebuilding the coherence in various steps. We also should be watchful about the actions inferred from the considered judgements and see if they facilitate or complicate implementation of each other. The unexpected and unwanted consequences that are incoherent with the web of values we established constitute another requirement to reflect back and forth on the whole process.

The state of equilibrium we are searching for is an idealistic position we may never reach*(30)*. In ideal terms, this reflective equilibrium should start during the PHE preparedness phase with the participation of relevant stakeholders and should be pursued with theoretical simulations of probable moral problems and consequences of considered judgements. It is plausible to assume that the considered judgements at the equilibrium state will have to sacrifice some values and principles to protect others. If the reflective equilibrium process is initiated during the preparedness stage, there would be enough time for the authorities to share these considered judgements with the community and see how common sense reflects on the considered judgements. This would serve as a safety valve to avoid any misjudgments against common morality and public conscience. Moreover, community engagement at this phase would facilitate compliance with public policies and measures if the PHE becomes a reality.

Who should decide?

The role and qualifications of ethical agents

The impartiality, reasonableness, and scientific competency of ethical agents who participate in the reflective equilibrium process is crucial. Rawls (1971) tries to secure impartiality and reasonableness of the decisions by sketching a hypothetical initial position where he puts the ethical agents behind the veil of ignorance to determine a system for fair distribution of primary social goods. The impartiality of the decisions depends on this veil of ignorance, which shields the decision-makers' social status, gender, age, ethnicity, abilities, level of intelligence, and level of education from themselves. In addition, the veil prevents the decision-making individuals from remembering what their own concept of good is and, accordingly, what their life plans are. Rawls argued that the veil of ignorance assures the impartiality of the decisions, and, therefore, these decisions should constitute the fundamental principles of justice. The institutions that are constituted and act in compliance with these principles are considered impartial and objective by essence.

Though tempting, this theoretical position may serve us no more than reminding us about the significant role of impartiality of decision-makers. We can also borrow the concept of institutional justice from Rawls*(28)*, which asserts that the decisions of an institution established and operating according to the principles of justice should be considered just and fair.

Beauchamp and Childress are also concerned with the qualifications of the ethical agents (individuals or institutions) who participate in the process to reach nonbiased, sound, and sufficiently consistent grounds for our ethical reasoning. The ethical agents should be free from prejudice, vested with relevant existing knowledge, honest, and compassionate toward the welfare of others. Additionally, the judgements should be framed with a perspective free from conflict of interest and self-interest*(30)*.

This list can serve as a frame for ethical agents who participate in the reflective equilibrium process. Diversity of participants in terms of cultural, religious, and professional background may serve to improve soundness and consistency of the considered judgements.

Ensuring absolute impartiality is an unrealistic ideal like reaching perfect coherence without any incoherencies in the web of values we agree on. The ongoing continuous nature of the reflective equilibrium process may provide opportunities for checking impartiality of the considered judge-

Table 1: Assessment of the TEF

Assessment Criteria	Explanation	Evaluation of the TEF
Clarity	The whole ethical theory or its parts should be cleared of elusiveness or vagueness as much as possible.	Moderate
Coherence	There should be internal coherence. Conceptual inconsistencies or contradictory arguments should be avoided.	High
Comprehensiveness	A theory should elucidate all justifiable moral norms and judgments.	Not applicable
Simplicity	The norms and principles should be reduced to the fewest number of norms and principles.	Weak
Explanatory power	A theory should have appropriate explanations to conceptualize morality in terms of its purpose and its objective/subjective or absolute/relative status.	Not applicable
Justificatory power	There should be justifiable grounds for moral beliefs.	Moderate
Output power	A theory should produce new moral judgments not suggested before.	High
Practicability	A theory is practical if the considered judgements can be applied by a wide range of communities or ordinary people.	High/Moderate

ments. Moreover, inclusion of various stakeholders from different backgrounds and communities may limit bias and endorse impartiality.

Assessment of TEF: Shortcomings and strengths

Beauchamp and Childress propose eight criteria for assessment of ethical theories (2019; Table 1). We will refer to these criteria to shed light on shortcomings and strengths of the TEF.

Clarity: The whole ethical theory or its parts should be cleared of elusiveness or vagueness as much as possible. Beauchamp and Childress*(30)* put forth that the ethical theories relevant to biomedical ethics contain more obscurity than is ideal. This argument prevails for the TEF as well. We clearly identified the three root ethical issues to initiate the reflective equilibrium process, we did not specify which ethical paradigms will be addressed in the second step. Although this is a lack of clarity, it may also be considered a strength because of providing flexibility for ethical agents to choose the most appropriate and culturally accepted approach to build a coherent considered judgement, taking into consideration local context and practices.

Coherence: There should be internal coherence. All possible conceptual inconsistencies, or contradictory arguments should be avoided. Achieving a coherent web of considered judgements compatible with ethical values and principles in various settings is the main goal of the TEF. Internal coherence is checked at all steps within relevant ethical paradigms. Moreover, the TEF urges us to reflect back and forth to probe any inconsistencies that may arise in next steps. This methodology enables the ethical agents to find out and strengthen any contradictory judgements and discordances.

Comprehensiveness: A theory should elucidate all justifiable moral norms and judgments to be comprehensive. The TEF is not a normative

ethical theory. It is not designed to comprehend and address all issues in the ethical realm. On the contrary, it is a general frame or a handy tool for ethical agents to guide ethical reasoning during PHE preparedness and response. Therefore, it is not meaningful to assess its comprehensiveness the same way we assess normative ethical theories. However, the TEF can be and should be assessed for comprehensives in terms of how much it can account for the root ethical issues and ethical discourses in the second and third steps.

Simplicity: The norms and principles should be reduced to the fewest number of norms and principles. The TEF is an inherently complex methodology because it not only seeks coherence in the theoretical sphere of an ethical theory but navigates among various theories and moral discourses developed to guide moral norms of particular professional areas like research and healthcare services. Therefore, the TEF is not assertive in terms of simplicity. On the contrary, the search for wide reflective equilibrium and involvement of ethical agents from divergent backgrounds may complicate the process.

Explanatory Power: The explanatory power of a theory depends on its appropriate explanations to conceptualize morality in terms of its purpose and its objective/subjective or absolute/relative status. The TEF is neither a normative nor a metaethical theory that aims to explain the ethical realm as a whole. Therefore, it is not concerned with the questions of metaethics like objective/subjective or absolute/relative status of moral norms and principles. The TEF is a consistent and structured methodology to search for coherence among ethical theories, norms, and values, which have proven explanatory power to be considered among the ethical theories we address to solve ethical issues.

Justificatory power: A theory should provide justifiable grounds for moral beliefs. Beauchamp and Childress*(30)* state in their model that "justification is a matter of reflective equilibrium not a matter of bare coherence." This is an appropriate approach to avoid bare coherence built upon a fallacious moral system that involves biases, prejudices, or violations of human rights. In other words, establishing the internal coherence in a web of moral values and principles and considered judgements does not bring moral justification of these values or considered judgements per se. Beauchamp and Childress's*(30)* foundationalist approach to initiating the reflective equilibrium process with the four principles of bioethics aims to avoid this problem. They regard the four principles as building blocks that are acceptable initially without argumentative support. We endorse a similar approach by starting the reflective equilibrium with the root ethical issues. However, we think further empirical, normative theoretical, and conceptual justification is needed to prove the acceptability of these root ethical issues without argumentative support.

Output power: This criterion is defined as the power to produce new moral judgments not previously suggested. The output power of the TEF is assumed to be higher than any other approach to ethical issues of a PHE. Because of its holistic and integrative structure, the TEF provides the opportunity to see an ethical issue not as a standalone problem but, rather, as a part of a problem set resulting from the PHE. This type of conceptualization offers a wide perspective to see causal and relational relationships among problems and produce outcomes that would not be possible with eclectic approaches.

Practicability: A theory is practical if the considered judgements can be applied by a wide range of communities or ordinary people. The methodology, context, and qualifications of ethical agents are important factors to determine the practicability of the TEF. As stated before, the TEF is a tool for practical ethics to be used in the context of PHEs. Therefore, practicability is one of the criteria that determine its importance. In other words, if the TEF is weak in terms of practicability, we should scrutinize its structure or implementation closely. We think the diversity of the ethical agents involved in the reflective equilibrium process is a deterministic factor for practicability. Inclusion of agents from different settings like public health authorities, clinicians, researchers, and community leaders may bring the wisdom of specifying and balancing norms such that the outputs of the considered judgements are realistic and applicable.

Conclusions

The current pandemic demonstrated to us that the ethical issues during a global health emergency cannot be solved properly by an eclectic approach addressing them as standalone problems within the ethical discourse that is developed for that specific area of medicine. On the contrary, we need a wide perspective to perceive the causal and reciprocal relationships among the ethical issues caused by the PHE. The TEF is designed to provide guidance for ethical decision-making with a wide enough perspective to consider all relevant ethical norms and theories to suggest practical, implementable, coherent solutions compatible with the communal values and cultural norms. Although the holistic and integrated ethical perspective of the TEF enables us to comprehend and construe ethical problems that arise in various settings caused by PHE phenomena, it has some shortcomings in terms of simplicity that may hinder its implementation. On the other hand, initiating the reflective equilibrium process during the PHE preparedness phase would provide enough time for comprehension and implementation of the TEF and facilitate ethical decision-making during PHEs.

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