Review Article

Exploring The Ethical Concerns in Vulnerability and It's Remediation

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ABSTRACT

The ethics of vulnerability is a complex and multifaceted topic that involves considerations of power dynamics, consent, trust, and the responsibility of individuals and institutions to protect and support those who are vulnerable. The key points to consider when discussing the ethics of vulnerability are power imbalances as vulnerability often arises in situations where there are power imbalances between individuals or groups. When individuals choose to be vulnerable, they should do so with informed consent. This means they understand the potential risks and benefits of being vulnerable and have the capacity to make autonomous decisions. Vulnerability often involves sharing personal information or experiences with others. It is crucial to establish a relationship of trust and ensure that the confidentiality of shared information is maintained. Individuals and institutions have a responsibility to provide support and assistance to those who are vulnerable. This includes creating safe spaces, offering resources and services, and actively working to mitigate harm. While vulnerability can be challenging, it is important to empower individuals to exercise their agency and make decisions that are in their best interest. Respecting the autonomy and self-determination of vulnerable individuals is a fundamental ethical principle. Ethical approaches to vulnerability should prioritize beneficence (promoting well-being) and justice (fair distribution of resources and opportunities). It is important to note that the ethics of vulnerability can vary across different contexts and cultures. Therefore, ongoing dialogue, critical reflection, and the inclusion of diverse perspectives are vital when addressing the ethics of vulnerability.

Key words: Vulnerability, beneficence, ethics, vulnerable groups, ethical approaches

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Introduction

When we speak of vulnerability, a rather abstract and often subjective notion occupies most of our minds. In the shortest of definitions, it can be said to be the predisposition of a person either individually or as part of a particular group or class, to be more prone to certain kinds of stresses of adverse effects, than others. It is a notion that all of us have experienced at some point of time in our lives, either in our own context, or in that of some other person. Vulnerability, however, has seldom been viewed from a conceptual perspective or analysed scientifically as an objective, quantifiable entity. Its emergence in this light is recent, and first surfaced in environmental studies dealing with the impact of disasters - both natural and man-made - on particular individuals or groups of people who happened to be more prone to the adverse effects of such an event than

others [1]. Soon after this, it gained remarkable significance in the fields of Medicine and Public Health, finding especially strong mention in epidemiological studies [2].

The concept of vulnerability is widely used in research and policy framing for medical, social and economic schemes by organizations [2-4]. It is commonly used to determine if certain groups of people are eligible to receive certain benefits or access to services. However, exactly which individuals or classes of people are said to be vulnerable and the exact reasons for such inclusion are varied [5].

On a broader note, vulnerability may well be said to be universal in nature - Every human being is somehow more prone to certain threats or stresses as compared to others, either by virtue of their individual characteristics, or of that of some category or group that they belong to.

Narrowing down, on the other hand, certain predefined groups of people are almost always found to be in the vulnerability bracket irrespective of the factors causing the actual or potential threat. They therefore need greater safeguarding and consideration to help cope up with their situation and try to overcome it whenever possible. These include women - especially lactating and pregnant, children, the elderly, the differentially abled, the mentally challenged, the chronically ill, the poor, the illiterate and the marginalized.

These groups are of striking interest when it comes to studies in Epidemiology or any field within the purview of Health Sciences. Not only are such fields replete with stressful or adverse factors the effects of which one can systematically analyse, but also raise important ethical questions which have rarely been explored or studied, and even more rarely studied. Vulnerability appeared to be self-evident and pertained to particular people or groups. Though some authors find vulnerability a concrete, conceptual entity, several of them also condemn or warn against it as an agent of stigma, labelling, marginalisation, and objectification. Such critique cannot be ignored since it is rather serious and raises challenges – theoretical, methodological, and ethical – in research that often studies people thought generally thought to be vulnerable.

When elaborated and expanded upon, vulnerability emerges as a multifaceted entity with the following aspects within this realm:

- Biological: the internal disorders or external forces affecting an individual's body or mind, that can cause stress or general disruption in the life on an individual.
- Social: the variety of complex factors concerning the interactions - both negative and positive - with fellow human beings, that one participates in and that governs their wellbeing in association with those around him. An extreme form of such interaction that gravely affects a large number of individuals in this way is war. However more "peaceful" times do not guarantee absolute peace for every individual. One may have so much going on in their everyday lives, both within their minds or directly with other humans that is a leading cause of depression in today.
- Cultural: the great many values, traditions, practices and standards that hold significance to people by virtue of their ethnic and cultural ties; these must be preserved and upheld at all costs to ensure the perfect survival and upliftment of entire races, clans and communities.

Worth mentioning at this juncture is the dilemma concerning vulnerability. On one hand, vulnerability appears by all means a negative entity making people selectively more prone to harm, and its elimination or at least containment seems only readily desirable; on the other hand, however, if pondered and observed in depth, it appears so intimately woven in the very fabric of human life that generalization as negative entity seems hardly fair, and at any cost, complex. For example, disability is often seen as a leading cause of vulnerability, but at the same time this can often become a cause for them being treated differently for being disabled which can often amount to stigmatization.

Since human vulnerability is common to people the world over, it inevitably demands solidarity. Human vulnerability also leads to ethics of care. It is a source of concern for others as well as awareness that we are ultimately undeniably dependent on one another and thus forms the basis for duty to care for those threatened by the plethora of vulnerable factors. The challenge of vulnerability is that it can never be entirely eliminated from human life. The question lies, however, in whether at all its complete elimination is desirable at all. Instead, its capability to draw

compassion from fellow human beings may well be the driving force for sympathy and empathy among people and ultimately inspire new approaches in Bioethics.

Concept

We argue that in most social work literature, vulnerability is used without properly defining it and the consequences of such naming and conceptualizing are not always carefully reflected on [5].
There are also researchers who argue that vulnerability should be seen as universal human condition instead of defining certain people or groups as being vulnerable [6-9]. Herring states that in fact, there are two broad opinions: one proposes that vulnerability is a universal condition while the other professes that specific people or groups are particularly vulnerable [9].
The World Medical Association – in the it's Declaration of characterized vulnerable individuals and groups as those who *"may have an increased likelihood of being wronged or of incurring additional harm"* than others [10].
Thus, the salient feature of a vulnerable individual in context of research studies is the risk of some kind of harm beyond that of other individuals in the inclusion criteria. The exact nature of the *"additional harm"* is also under debate, ranging from *"the possibility of physical harm"* [11] to *"an assault [on their] respect, health, or rights"* [12] to *"[not] getting fair consideration in resource allocation"* [13].

The articles reviewed for this paper focused in diverse and wide-ranging ways on the concept of vulnerability.
Jordan [14] focused on the psychological aspect of vulnerability and proposed that it is essentially woven into the very fabric of society. She used examples from routine therapy sessions to support her point of view. She argued that fear, vulnerability and the necessity to socialize, or, in fact, marginalization and isolation, are intimately entwined. In modern society, especially, and even in the earlier eras – though in very different ways, fear has been a constant driving force for humanity, while isolation and marginalization have been a leading cause for suffering. According to her, vulnerability is an aspect of human life that is to be acknowledged, accepted and valued, not denied and abhorred:

"Vulnerability defines our humanity. Fear signals our vulnerability. Denial of fear and vulnerability creates our most profound alienation from others and ourselves and generates our worst isolation." [14]. While Jordan projected vulnerability as an innate psychological feature of human life, Fawcett [15] and Brown [16] viewed it from a very different and rather critical angle. They projected it a scientific concept linked closely with policy and practice. Brown [16] has analysed the concept in detail and argued that one should be careful while dealing with it. Firstly, it has been utilized in patronizing and oppressive manners, especially in the context of differently abled and disabled individuals, as also in that of those with learning difficulties. Its conceptual use has consolidated the notion of some groups of people being limited, deficient or incapable. Secondly, she opined that the concept was being used to control these groups since it is often used as a means to justify the practice of imposing the opinions, ideas and even directives of those considered to be outside the bracket of vulnerability over those considered to be within it, ie., the former deciding things for the better by virtue of their purported "better" position. Thirdly, it been widely used as a basis to justify the exclusion and stigmatization of these predetermined individuals or groups. Brown specified that vulnerability can never be value-free, but had significant ethical implications linked to it. Additionally, she said *"… presumed inherent vulnerability can function as an excuse for failing to tackle structural vulnerabilities"* [16]. In conclusion, she states that there is a need for immediate sharpening up of research agenda on vulnerability; workers of the social sciences must cease to view it as a pre-existing or inevitable reality and change their stand to question the conceptuality of the notion. [16] more recently, however, she has carried out further critical analyses endeavoured to develop the notion as a more concrete concept [17].

Like Jordan [14,18] Carlson [19] considered vulnerability a salient feature of human life. However, unlike Jordan, who considered it an inherited feature, Carlson stated that it to have been socially

constructed as 'universal' or 'salient' by multiple dominating interests; it could therefore be utilized to justify the recognition of certain limited standpoints, experiences and opinions, leading to the undermining and negligence of the other one. For example, in the context of gun and crime discussions, she stated that, it justified the marginalization of feminine voices, reported experiences of domestic violence and intersectional differences.

Kirby [20] offered a viewpoint that starkly differs from those of his predecessors: he viewed vulnerability from the perspective of globalization. According to him, it can be used as a valuable instrument to analyse the numerous social impacts that globalization has had on modern human life. The chief potential of vulnerability as a concept rest in its relational nature: unlike that of security, this concept does not put forth a state to be attained. It therefore points, not to the attempt to make ourselves invulnerable which is unattainable, but to strengthen the means by which we might cope with the threats to which we are vulnerable.' [20] In his emphasis on the prioritization of strengthening coping mechanisms, his view closely resembles that of Schröder-Butterfill and Marianti [21].

Vikstrom [22] viewed vulnerability as a universal limiting agency, but also pointed out that avenues to act upon and mitigate are clearly highlighted through our acknowledgement of specific groups of people in certain situations or conditions. It is evident therefore, that both Kirby [20] and Vikström [22] projected vulnerability to be a multifaceted concept in line with the authors of this review. It can, for example, be utilised to deal with both individual and structural aspects of impoverishment and its causes.

Classification

After a thorough perusal of those studies that have approached vulnerability as an attribute of specific groups, we have listed vulnerable individuals on the basis of the type of vulnerability that they face, ie., the aspect of their life that has been negatively affected, which makes them vulnerable in comparison to others.

Four main aspects have – biological, social, economic, and cultural – been framed under which to place these individuals, albeit, clustered in several other subgroups vide infra.

The categorical approach, however, isn't particularly accurate since it doesn't hold good for cases where a person has multiple vulnerabilities. For example, a pregnant minor or a disabled homeless woman. [23]

Our daily experiences in real life are enough for us to realize a significant – perhaps most – real individuals come under multiple categories, which are almost invariably entwined causally with each other. It is in fact the interplay of these multiple aspects that affect the real life of an individual. Thus, in real life, the vulnerability of most individuals is in fact, multicategory.

This approach also fails to account for differences in the magnitude of vulnerability within a particular subgroup. For example, "economic disadvantage" has a very broad spectrum: a university student who is in need of money because he has exhausted his monthly allowance and therefore cannot buy a drink, is a far cry from an impoverished woman mother unable to make ends meet [23].

Groups of minors categorised vulnerable and reported in literature included orphans [34], urchins [25], African child [26] and adolescents [27]. The second largest vulnerable group consisted of the elderly, reported mainly in European studies. These persons were held to be vulnerable due to multiple reasons including, to frailty, need for care, lack of income, low socio-economic status, dissatisfactory social relations, want of autonomy, chronic disease and poor living standards life [28].

Women came in third by the number of reported studies. Predictably, several life situations were described in which women were found to be vulnerable. These included mothers, survivors of war [29], adolescents, women of colour, rural and poor women [30], refugees [31] and incarcerated mothers [32].

Vulnerability & Gender

The analysis of multiple papers has illustrated that individual of both genders, on facing particular life situations have been said to be vulnerable. It has been of particular interest to us authors to

analyse how gender relates to vulnerability, and whether such a connection has been conceptualized [5] since such theorization is found to be rather lacking in literature, especially that concerning social issues in this regard and welfare services to mitigate them [33].

Womanhood and motherhood have mostly been expected to attain rather high standards based on morals and cultural traditions [34,35]. Literature clearly shows that the way in which the welfare system deals with men and women are quite different if not contrasting [36,37].

Several articles have directly reported women to be more vulnerable than men, based on overall considerations. For example, since women's identities have a greater likelihood to be undermined, therefore they were said to be having greater psychological vulnerability than men by a study on the psychological effect of war. The same study also opined that contrary to popular conceptions, vulnerability is not innate in the female psyche. [38]

Vikström [22] also considered women to be more vulnerable than men, but contrary to Kellezi and Reicher [38] she proposed that rather being a psychological feature, women's vulnerability stemmed from their socioeconomic dependence on men.

Studies on widowhood illustrated the significance of position women hold in society and culture in alleviating or aggravating vulnerability. The same was true in studies of impoverishment and social participation with women occupying vulnerable positions facing risks of social exclusion [39-41]. Contrastingly, Williams [42] proposed that men too faced various degrees of vulnerability because of gender, though social status and ethnicity also influenced this significantly. Some of the aspects, he illustrated were fatherhood, health issues, relationship issues and stress load. He argued that men often experienced vulnerability due to societal ambiguities leading to *"uncertainty, confusion, and contradictions about what it means to be a man"* [42].

Vulnerability in Research

The concept of vulnerability forms the cornerstone of the conceptual and theoretical interpretation of ethics in research and its practical application [43]. The National Bioethics Advisory Commission (NBAC) reported dual themes in its definition of vulnerability: *"In general, persons are vulnerable in research either because they have difficulty providing voluntary, informed consent arising from limitations in decision making capacity … or situational circumstances …, or because they are especially at risk for exploitation"* [44].

The Declaration of Helsinki states a decreased capacity to give informed consent makes people vulnerable: *"Some research populations are particularly vulnerable and need special protection. These include those who cannot give or [cannot] refuse consent for themselves …"* [10].

Since a significant number of papers have proposed vulnerability to be inherent and universal, the very use of terms such as 'vulnerable populations" is said to be discriminating and stigmatizing. These lead to people being grouped based on apparent dissimilarity, deviance, and victimhood. As the comprehension of vulnerability becomes more profound, other concepts, such as individual responsibility and consent are also called into question. Ethical and legal dilemmas are often solved based on these concepts.

If normalized, vulnerability becomes a strong, inclusive instrument that can aid in defining individual, professional, or institutional responsibility in situations faced with inherent inequality, for instance, that of doctor and patient. Acknowledgement of vulnerability to be universal clearly illustrates how all human beings invariably depend on social relationships.[45]

Bioethics acknowledges a rather limited version of human vulnerability, one that is narrow but targeted. In the 1979 Belmont Report [46], a landmark in the development of bioethics, the National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research established three ethical principles that must govern research among human subjects: respect for persons, beneficence, and justice [46, 47]. It mandated informed consent, risk-benefit assessment, and fairness in participant selection [47].

The declaration identified *"racial minorities, the economically disadvantaged, the very sick, and the institutionalized" as leading classes of vulnerable individuals [20 p.19]. They were to be given special protection or excluded altogether due to their "dependent status and compromised capacity for free consent"* [46].

The United Nations' Universal Declaration on Bioethics and Human Rights in 2005 elevated the consideration of vulnerability – both general and special – to a principle. Article 8 provided thus:

"In applying and advancing scientific knowledge, medical practice and associated technologies, human vulnerability should be considered. Individuals and groups of special vulnerability should be protected, and the personal integrity of such individuals should be respected" [48].

Bioethics aims to identify the vulnerable who actually need special protection. A researcher is expected to try and minimize a subject's vulnerability even if it involves a compromise in the study, i.e., the total exclusion of the subject in question from the study [1].

Different Vulnerable Groups – Concerns and Remedies

1. The Chronically Diseased

This is one of the most encountered groups in the field of medical research. Such individuals are vulnerable in more ways than one, being both physically unfit as well as psychologically demoralized.

If they are to be included in research studies or any other social or academic endeavour, care must be taken to avoid all possibility to aggravate either their condition or mental agony which will not only be an unjust and unethical move, but also pose a high chance of skewing the results of the study itself.

Adequate effort must be made to explain thoroughly to them their condition and its implications(s), its relevance in the study they are chosen for and the exact role they must play as participants. Only after they have satisfactorily understood the aim and course of the study and consented freely to it should they be included as participants.

Necessary protection and safeguards shall be put in place to protect their best interest and privacy. Provisions must also be made to adequately remedy and compensate for any inadvertent ill effects that they might face in course of their participation.

2. The Disabled

The inclusion of individuals from this group in research is far more sensitive and delicate. As they are permanently disadvantaged physically either due to congenital afflictions or trauma. The common physically handicapped individuals, i.e.., the lame, the blind, the mute, the deaf and the deformed all fall under this category.

Naturally, their disadvantage and subsequent vulnerability is more pronounced as their physical capacities are grossly curtailed compared to the latter. Moreover, their condition and the limitations they entail often lead to discrimination, marginalization, and taboo.

Leach Scully [50] has also reported two distinct kinds of disability-related vulnerability – 'inherent' and 'contingent' vulnerabilities. The former is caused by the biological attributes of the disabled, while the latter finds its cause in the external environment surrounding the individual.

A loss or gain of power over external forces influencing one may be a direct result of the loss or gain of autonomy [49]. If, for example, disability service fundings are directly sent to service providers from the government, no autonomy remains in the disabled individual to choose as to how the fundings may be utilized. This lack of control makes the disabled person vulnerable to the wishes of the service provider which may well go against his own. Even if the affected individual had a partial say in the utilization of funds, the magnitude of his vulnerability would have been lower.

It has been found that disabled women, especially those with cognitive impairment, are often denied sexual choice [51-52]. They are also denied the right to exercise legal capacity to consent to sex by way of policies discouraging sexual relationships. Substantial evidence, for example, shows these individuals have limited access to sex education, which would help them make an informed choice to exercise legal capacity to consent to sex [53-57]. Additionally, evidence suggests that certain residential service providers serving disabled people not only discourage romantic or sexual relationships, but also act directly to prevent such relationships [58].

Though modern society has moved far ahead of the widespread attitude of keeping such individuals apart and looking down upon them with scorn or contempt, with broad measures in place to help in the integration of these individuals into mainstream society rather than their

segregation, the actual number of people affected by such debilitations that still face the difficulties mentioned isn't negligible by any means.
As such, utmost care must be taken to prevent the slightest incident that eve inadvertently aggravates their situation. Through thorough explanation, assurance, and supportive caregiving, they must be counselled as to what they're participating in, and how it shall be helpful to them and to others in their situation.
Great care must be taken to ensure that no form of discrimination or indignity is allowed to come upon them either directly through misbehaviour on part of incompetent personnel or indirectly by way of vested interests at the expense of their wellbeing.

3. The Invalid

The matter of invalids, those in a permanent vegetative state, is one that needs to be dealt with in an extremely cautious and sensitive way.
Not many investigators would readily undertake studies dealing with these individuals since the implications of involving people in conditions such as theirs are far too challenging than most would have the timeframe or facilities to deal with. Yet, when it has been decided to materialize such involvement, all the implications must be taken care of.
Whenever possible, their families must be taken into the picture and be well-informed of the key features of the study and what real or prospective effects, if any, it would have on the patients. When families are involved, their consent in all matters concerning their patient must be adhered to.
In course of the study, the total wellbeing of the patient, both physical and mental, shall be ensured without compromise. At no point shall the investigators place their objectives above the safety and health of these participants.
Whenever possible, they must be cared for thorough follow-ups even after the completion of the study.

4. The Mentally Unsound

Their detachment from the sanity that pervades the rest of the population is what makes them especially vulnerable. They, along with invalids, come within that bracket of people who are incapable to defend themselves in the face of adversity.
The World Bank and World Health Organization (WHO) had predicted that by 2020 neuropsychiatric disorders would see an increase of about 50% health burden, which would represent about 15% of total burden. Further predictions suggest that 'depression will contribute the largest share to the burden of disease in the developing world and the second largest worldwide' [59].
As such, extreme care must be taken to safeguard their best interest even when it entails excess complication, workload, and protocol on part of the workers [60]. The latter must be ready to undertake any and every measure as far as possible to ensure that the basic rights of those involved are strictly maintained.
No form of coercion, force or violence, whether physical or verbal must be reported by the investigators or from their subordinates since these would not only be gross flouting of universal rules on bioethics, but also blatant violations of human rights. Dated practices of confinement or corporal inflictions must be totally condemned, and those indulging in them, be brought to book.
The humanness of the patients must be always considered and prioritized over the ends and interests of the investigators.

5. The Pregnant

Pregnancy is a state that may often become a cause enough for immense mental stress and physical strain on the mother and sometimes, even the family. As such, pregnancy entails a host of implications on both the subject as well as the investigators which need a lot of consideration and fine tuning.
The health of the mother and child are of prime concern and cannot be taken lightly or compromised on at any point. Pregnancy comes with a lot of other concerns too, besides the

obvious health risks. In several cases there are internal familial issues if not downright taboos involved, especially when marriage and other related social norms are at play. Single mothers are the foremost examples of such predicaments.

Religious and community traditions or morals also play a significant role in this state, especially when questions of non-marital pregnancies and desired abortion arise.

As such, it is not only of great importance to take care of the overall health and well-being of the mother and child, but also to keep watch that one's personal stand on matters of faith and morals or those on social righteousness do not eclipse the best interest of the mother-to-be.

When such individuals are involved in research, utmost care is to be ensured at every stage since the slightest lack of care on part of the investigators may result in catastrophic adversities for the mother and child. Procedures, especially when interventional, must be kept minimally invasive, and by no means be performed without adequately assessing the rationale behind them and the risks they entail; only after these two aspects have been weighed and contrasted, must the decision regarding whether or not to involve the procedure in question.

Increasing exposure to high risks due to sheer lack of scientific knowledge appears to be the only reason pregnant women are subject to potential vulnerability.

The psychological sensitivity of a pregnant mother and quite often, her family at large, must also be kept in mind. It is now a proven fact that pregnancy can affect the mother's psychological status to varying degrees. As such, the investigators must take care to choose their participants only after a thorough evaluation of their psychological state and weighing out the possible effect that their involvement in the study may have on it.

Therefore, the development of practical methodology to facilitate the inclusion of pregnant women in medical research is indispensable [61]. Standard protocols already in place governing various ethical aspects of pregnancy in both clinical as well as extra-clinical settings are key to maintain soundness in this regard. If and when the standards are perceived to be unclear, effort must be made to initiate their clarification of reframing rather than to evade them on account of their ambiguity.

6. The Terminally Ill

Although those who are terminally ill don't have much to expect from this life for much longer, they must die with the same dignity that any human being deserves. This dignity in death that is so often overlooked and forgotten must be preserved by workers of the scientific community.

Palliative care when provided early, in a patient centric manner, is much more effective and can serve to minimize the anxiety patients often undergo during their last days. Through effective support and the reasonable fulfilment of their desired end-of-life choices, we can greatly improve the experience of such unfortunate patients before they finally pass on [62].

When patients happen to be younger, the anticipation of death raises numerous existential concerns, including the feeling of a loss of control, psychological agony, and a sense of unfinished work. They might sense their death to premature, untimely, and downright unjust.

Moral or religious faith, may provide soothing and relief from such end-of-life distress, as compared to consolations centred on existential wellbeing; the former may bring on a feeling of being at peace with oneself through a sense of meaning and purpose for the life that is soon to end [63].

Patients – no matter how battered by illness, or close to the ends of their lives they may be – must be treated as the complete and real humans who they have been throughout the greater part of their lives. It must not be forgotten that these are as much humans as any other, with all the basic rights that all men are entitled to.

For this group too, the consent of the family or caretakers is of absolute priority and primacy, especially since they form one of those categories of people that cannot speak for themselves. Instead of taking advantage of their incapability, one must follow the ethical guidelines laid down for such cases in word and spirit to ensure the dignified participation of such people in research for the greater good of one and all.

The category formed by the terminally ill becomes especially sensitive by several more degrees when the question of assisted death arises. Though not directly or necessarily related to research

and investigations of most kinds, in the rare case that such an issue is faced, the final decision must be taken after thorough analysis, dialogue and complete adherence to ethical directives. The personal beliefs, stands and wishes of the family or caretakers and those of the community they are part of must be upheld and by no means violated unduly.

It must be remembered that the stress from biological vulnerability can in the right circumstances lead to impaired health and even premature death. It can in other words insinuate itself into body systems and impair function and equilibrium. But though each of the types of vulnerability differentiated above can impact negatively on health, none is either a necessary or a sufficient condition for doing so [64]

Social Based Vulnerable Groups

1. Women

Women have been vulnerable in society since time immemorial. Though globally mankind has come a long way from the universal notion that women are second citizens totally under and inferior to men, or that they are "weaker sex" incapable of self-dependence, yet, even now, for almost all practical purposes, women face difficulties and hindrances to a perfectly safe and worry-free living totally at par with men.

Broadly speaking, this is especially true in rural settings and certain orthodox or backward communities and societies, but a thorough introspection in almost all of our so-called equalized societies will show that indeed, even if in the slightest and subtlest of ways, women do face inequality and discriminations almost in all walks of life on a daily basis.

Hindrances to earn for themselves, take decisions big and small, unequal wages, limitations to education, especially higher studies, restrictions or limitations to safe and independent travel and social taboos on women's health and hygiene are some of the issues that most women routinely face at some point of their lives even today.

Matters are further aggravated when they happen to fall into multiple categories of vulnerable populations, causing their risks and concerns to multiply exponentially.

For example, a woman having to heath or economic issues is much farther away from the pangs of vulnerability than one who is impoverished or affected by disease. Now combine the last two conditions into one – which is, in fact, most often the case, since the one might lead to the other, and it's easy to see just how the woman affected dually by these two afflictions is thrice as vulnerable as one who isn't. Since in real life, a combination of factors is most often at play, therefore most vulnerable individuals actually constitute such multi-categorical populations with a complicated interconnected network of factors determining their exact condition and concerns.

Psychological distress is naturally reported to be significantly increased if social support and personal control are both low. This clearly indicates that these factors retain importance across class levels [65].

When such individuals are involved in scientific studies, a thorough analysis of their exact situations and a perfect determination of exactly which categories they fit into must be undertaken. Their psychological state before, during and after the study is also to be monitored closely. Appropriate measures must be taken to ensure their perfect wellbeing and minimal stress. Latest guidelines and directives in this regard, both legal and institutional, must be in place and followed strictly.

Some of the steps that can effectively remedy the ethical concerns of women's vulnerability include [66]:

- Conducting in-depth, gender-specific analyses of vulnerability
- Creating an environment conducive to the participation of women in every walk of life
- Helping women to raise their voices from micro to macro levels.
- Promoting capacity and resilience building mechanisms through proper training and awareness to help cope with prospective hard times, eventually leading to women's empowerment.

- Ensuring that various policies and programs on common matters such as human rights, women's rights and environmental themes are coherent rather than conflicting, such that they consolidate each other.
- Addition of gender-specific indicator in national policies to effectively bridge gender gaps.

2. Minors

Infants, children, and juveniles form a large and multi-faceted group of individuals who are vulnerable in many ways, especially because of their lower age and maturity. Physical tenderness partially matured mental faculties and the inability to prudently decide for themselves are some of the factors that cause minors to be extremely vulnerable when compared to most other groups.

The vulnerability of minors is easily illustrated through the example of one of the leading issues in modern times, environmental adversities caused by human intervention. Urban environmental health research, a better understanding of health outcomes and vulnerabilities in children is evident.

Exposure often increased manifold in urban areas, due to predominant design of most outdoor and congestion, results in enhanced vulnerability. Energy budget models as well as health outcome studies fail to adequately parameterize children.

Present research indicates that climate change coupled with increased migration to urban settings and unsustainable urban design are undoubtedly projected to increasing complications in the near future [67]. Infants and children are replete with risks centred around physical immaturity and sensitivity by virtue of the developing bodies. Juveniles are more prone to mental stresses and psychological undulations due to the psychological effect that their changing minds and bodies undoubtedly bring upon their young, impressionable minds.

Another study assesses the ill-effects of prolonged hospitalization in children. Ruth [69] assessed the proportion of chronically ill critical paediatric patients in U.S. hospitals in a particular time frame and segregated those whose stay in the hospital lasted for months to years. Prolonged hospitalization of children was found to cause several counter-effects including but not limited to over treatment, infection, and deteriorating family life, combined with severe moral distress experienced by caregivers. This issue must be analysed systematically under ethical guidelines so as to determine what measures could be taken at clinical levels to minimize the adversities associated with prolonged paediatric hospitalization [68].

Thus, both these subgroups have to be dealt with in as much of a fool proof and efficient way as possible.

Personnel involved in studies concerned must be properly trained and sensitized so they can effectively cater to the needs and requirements of their young subjects. Paediatric specialists must be involved whenever possible or deemed necessary and the children's wellbeing must be kept up-to-the mark. Care must be taken to keep in mind at all points of time that these participants will not be able to provide full-fledged, voluntary cooperation or fully comprehend the significance of the endeavour they've been chosen for and the impact its results may have. Thus, procedures and facilities must be framed to suit their infantile or juvenile mindsets and suitable adaptations SHOULD BEput in place to ensure the efficiency of the study without compromise on the sound ethical treatment of its participants.

3. The Aged

The high number of medical conditions the geriatric population presents us with, on which research opportunities are endless, their psychological changes and fluctuation, socioeconomic journeys and so much more provides avenues for exploration. Yet, they too form one of the weakest and most vulnerable groups when it comes to physical fitness, mental strength and social or familial stability. Of course, exceptions to such a notion are always present, ie., physically sound, strong-willed elderly people with a good family and social security do exist, but a great number of them aren't fortunate enough to fall into this narrow panel. Thus, it is of great importance to ensure that just like the other vulnerable groups elaborated on thus far, their individual needs and concerns are catered to, and the processes and technicalities of the studies

they're involved in be adapted and customized to fit their situation best as far as possible. The extent to which this is plausible must be decided after thorough fact-checking, analysing, discussion and dialogue.

The maintenance of optimal health in the elderly depends on a set of physical and mental aspects, financial freedom, prevention and cure of chronic illnesses and injuries in addition to social support. [69]

It has been found that lonely, childless individuals or those whose children have all died are at a worse point in life and health than those with children, though demographic characteristics, socio-economic status and social security are significant influencers too.

The government as well as NGOs must work to improve social security for these groups and workout social services – especially counselling and mental health services – for older people [70].

While designing ethical guidelines and directives for their inclusion and participation in research, it must be kept in mind that these individuals are, indeed, in their "second childhood"; thus, they must be dealt delicately.

4. Widows

Widows have been considered vulnerable in society right from the biblical times. They were one of those groups of people who found special mention among those that were directed to be specifically taken care of in the religious and legal literature of the earliest populations of historical Jews and Christians. Similar considerations are to be found in the texts of the Brahmanism. Unfortunately, however, these are also those people who have been tortured, derogated and marginalized since the earliest times. Right from the time when society dictated that women be completely dependent on men for even the most basic of their needs, to these modern times when women have progressed hand-in-hand with men such that they are by no means any lesser than the latter, the oppression, hardships and taboo that widows have had to face can be anything but negligible.

The widow has been the classic picture of desperation and lowest dejection in society. Especially if she belonged to communities that remained backward due to orthodox rules and a lack of the will to make way for compassion and practicality rather than staunch laws and mechanical rituals. A woman whose husband has expired is seen as a weak and often "dubious" being, said to resort to several unfair means to make ends meet, while their perceived lack of a "guardian" is often exploited by many to make unjust gains from these women who have been brainwashed to think of themselves as helpless and dependent. Until very recently, a young widow couldn't dream of remarriage no matter what her age; yes, widow remarriage began several centuries or decades back worldwide, but even today, to see it happen right before one's own eyes is considered rare.

Widowhood was also mentioned in relation to vulnerability in other articles. (71), who studied the situation of widows in Mali, Africa, stated that widow-headed households were in a considerably weaker, and persisting, welfare position compared to other households.

Van Eeuwijk P (72), who identified old-age vulnerability in relation to risk to inadequate care provision in Indonesia, found that unmarried women and poor widows were the most vulnerable due to their weaker social position in their family and kin.

In old age, the problem worsens. The loss of a spouse after long years of marriage creates an emotional vacuum that is difficult – if not impossible – to be filled. Such elderly people are faced with serious bouts of loneliness, which almost invariably leads to depressive disorders.

Two main types of types of feelings were observed by a study [73]:

- Helplessness for fear of accidents or of unexpected illnesses while they're alone at home
- Uncertainty about the future, wondering who would look after and take care of them once their own faculties gave way

As is evident, both these feelings – rooted in each other – contributed to gross loneliness and associated depression [73].

The death of a husband must be treated like any other death. The loss of life has been equal for the whole family. Someone has lost a father, a son, a brother and a husband. Why then must the wife alone bear the burden of his loss her entire life while the others get to normalise soon?

It is high time that the scientific community stood by this vulnerable group of individuals, and especially when they're involved in research, conduct a thorough background check, psychological evaluation and overall fact-checking for each such individual involved. They must be made to feel comfortable and wanted rather than miserable or cheap before they can fully consent to participation.

5. Orphans

These are children who have lost both their parents and sometimes, their entire families, and are therefore in need of delicate protection from society. Not only do they have all the concerns that the other minors have, as already explained above, but also bear the additional burden of being left in this world without a guardian or anyone at all whom they could freely call their own. As such, their situation is rather serious and needs truly compassionate handling and care.

Some orphans are lucky enough to retain their families though the parents are no more; others however, might have lost every near one on earth, and are truly, alone. It is this second group that needs great courage, understanding, patience, tenderness, and cautiousness to be handled well. Therefore, investigators will have to ensure that they take appropriate steps to try and ward off the feelings of helplessness and loneliness from their minds and take time to truly make sure that each child participating in the study is truly comfortable.

If they happen to be part of an orphanage, the consent of the relevant authority is mandatory. It must be noted that these are children may often have deep-seated psychological issues and so, need prudent handling. Thus, at no point of time shall the investigators do or say anything that may further aggravate the already unfortunate situation, especially by way of mental agony.

6. Prisoners

Prisoners form that sensitive category of people whom most of the society would rather forget than remember. However, as members of the scientific community, especially healthcare providers, we cannot afford to do the same.

One must remember that no matter how serious the crime of a criminal, he does, he is a human citizen with all his basic rights intact. Irrespective of whether they're really guilty or not, treating prisoners – of both war and peace times – in an inhuman way shows an uncivilized, cruel and lowly mindset on part of the people or institutions engaging in such acts.

In modern times prisons – now called correctional homes – are being modernized to have a completely different outlook. Inmates are often given extensive opportunities to use their time to acquire new skills or education.

However, all isn't perfectly well behind the high walls of these institutions. Often inmates face highly dissatisfactory living standards, poor sanitation and inhuman treatment from staff. In fighting is another major issue in prisons where inmates often get into clashes with each other, which almost invariably escalate into physical conflict.

The anguish, frustration and isolation of the prison has often led in mates to dire psychological states, with attempts of self-harm up to and including suicide [74].

Incarcerated youth face much higher morbidity and mortality in comparison to general adolescent populations. Physical and mental health needs are exceedingly high, resulting from lower access to care, in high-risk behaviours also play a role among these youth, and health disparities. Exposure to violence and injury. Health care facilities at correctional homes aim to address required health needs, but care delivery in detention centres hardly ever meets requisite standards for effective impact. A vital role can be played by community-based paediatricians in the post-detention period. By comprehending and addressing the underlying social issues in their patients' lives and attempting to link them to services that can help prevent juvenile offences, these clinicians "can have tremendous impact in improving the life trajectories of these vulnerable youth". [75]

Several institutions aim to understand, explore and improve the lives of these inmates, and so, research studies conducted on them are numerous. As such, scientists undertaking such studies must remember that they are dealing with an extremely sensitive stratum of society replete with controversy and danger. One must not only be careful of the sake of the inmates, but also for those workers dealing with them directly for the purpose of data collection.

Often, staff reshuffling, changes, reluctance to sincerely complete forms and resistance to consider self-injury as serious issue are some of the difficulties faced in research related to this field. [76]
Legal and criminal aspects of such interaction must also be adhered too. It must be made sure that the study doesn't create any additional pressure on the inmates over and above their already vulnerable state.

7. Refugees

Refugees are also a group of vulnerable directed to be people protected by society since ancient times. Both Judaic and Brahmanical faiths instruct on the cordial treatment of foreigners living among natives as no less than guests, having all the basic rights in full force.
In modern times, the number and nature of refugees that most countries host are rather large and varied. With most countries struggling to meet the needs of their own citizens, the rights of refugees are invariably forgotten or suspended altogether. They often live in cloistered, unhygienic shelters with inadequate food and water, and sanitation. This poses a high risk for chances of disease outbreak, which, if not identified and curtailed at the start, might well turn into an epidemic.
Young refugees commonly come under social service schemes and undertakings in various ways. If a minor (aged below 18 years) happens to enter the country, they are usually referred to local bodies through rota systems to assess their age and needs. Social workers then determine what exact level of support the individual is entitled to receive under the law of the land. Support may include placement into foster care homes or semi-independent accommodations, financial aid or pastoral care.
However, often, the matter of refugees is not taken seriously by officials and assertive assessments take quite long to even get a clearance to be conducted. Legalities – wherever they are involved – make things more and more difficult in this regard, especially these individuals aren't citizens with constitutional rights. [77]
Minor immigrants and refugees are at a higher risk for physiological and psychological health issues. Health schemes and considerations for such persons should be framed with care to include ecological contexts as also family, community, social and cultural influences that can by no means be neglected. For example, the migration history of an immigrant child or its family must needs be taken thoroughly to form a clear idea of possible incidence of diseases, especially genetic or infectious ones, subsequent to which appropriate steps such as screening can be undertaken. [78]
Several countries have even taken strict stands in more recent times, to deny entry to refugees seeking asylum, with many perishing in pursuit of a hospitable or welcoming country or losing their lives on the borders and shores of lands nearest to them. Thus, the situation of refugees who are already under tremendous stress and strain after the loss of their lands and livelihoods in their native countries, gets worse in the new lands that they seek to enter, or even successfully do enter.
Countries accepting and rehabilitating refugees must commit to address their health needs without reservations, and whenever necessary – in case of pregnant women, for example – with immediate urgency [82]. Studies dealing health issues among refugee women in some of the most developed countries of the world show a significant disparity in the incidence of maternal and perinatal adversities such as preterm birth, low birth-weight, stillbirth and maternal mortality, compared to non-displaced women [79, 80, 81].If such disparities are addressed worthily by providing refugees easy access to reproductive care, the modifiable risk factors can be greatly reduced [82].
Extensive efforts must be made to lay down strict guidelines for the facilitation and treatment meted out to these helpless people. Legal protection is the only way in which these people can hope to find the slightest relief and wellbeing in their new homes. They must be treated as every human deserves to be treated, without discrimination and prejudice. On satisfactory conduct and feasibility depending on the state's capacity and policy, options for citizenship may also be offered to give these individuals an opportunity to start anew.
When such individuals are involved in research - which is most necessary to achieve the goals mentioned so far – one must remember the hardships that they have undergone which would have invariably broken or at least shaken their morals. Every effort must be made to keep them as comfortable as possible and slowly, but steadily gain their confidence and eventually build up their morals and help them build up their lives afresh.

8. Menial Workers

Menial or sanitary workers subserve an indispensable function in society that nothing and no one could hope to replace. It is them that ensure that common man can hope to find a clean and clear surrounding to move about and stay in.

Their work may be labelled as "dirty", "filthy", "stinky" by thoughtless shallow thinkers and so on, but one needs only to imagine how things would be, if, for even a single day, these workers didn't do their work. It paints a picture of firth, decay and ruin.

As undertakers of such an important function in society, these workers should be respected just as much as anybody else if not more. Their occupation is looked down upon as lowly and undignified, because of which they are blatantly discriminated against and neglected by most other citizens. Since their knowledge base, awareness and education levels are extremely limited, they can hardly do anything themselves to avail the rights that they so often miss out on. Even the institutions that are supposed to oversee the imposing and executing the rights and facilities that citizens are entitled to, do not make enough efforts to ensure that these workers' rights are upheld.

In most countries, especially developing ones, the working conditions and life quality of menial workers are essentially unaddressed and consistently substandard over extended periods of time. These individuals are prone to many occupational hazards, both traumatic and pathological. Concrete legislature must be framed and implemented to address these matters so as to ensure their protection from avoidable risks and adversities. Effective occupational health schemes must be developed right from local body levels. Strong efforts must be made to educate and train workers at least on basic hygiene as well as on specialized or specific sanitation techniques [83].

As such, when these people are involved in research, especially those concerning their occupational aspects in relation to medicine or the environment, investigators must make sure that they too do not indulge in the slightest form of discrimination or neglect in course of their interaction with the workers while the study progresses.

They should be intimated to whatever degree possible about the endeavour they are participating in, and their specific role in it without obscuring any prospective hazards or side effects of any procedure that they have to undergo. Only after they have given an informed consent should they be included in the study.

9. Victims Of Crime

Persons scarred by the unjust stroke of a crime committed against them tend to be extremely sensitive and timid, and often extensively traumatized long after the incident.

A study on rape victims [85] showed that the occurrence and subsequent reporting of rape of male victims differed remarkably by age.

Adults underwent more violent incidents with armed perpetrators and severe humiliation and often in institutional settings. They reported comparatively earlier and thus were able to show clearly detectable signs and injuries associated with the crime.

In stark contrast, infant or juvenile victims often suffered at the hands of known perpetrators behaving softly, mostly in domestic settings.

Once a victim has been identified, these personnel should be able to link with multidisciplinary service providers and eventually reach enforcement and administrative agencies to manage and salvage them from further victimization [84]. Failure to identify victims can be due to lack of adequate knowledge to identify signs, inability to efficiently aid and assist patients and make proper, timely referrals for the speedy action required in such cases.

Healthcare workers play an important part in the identification and aid of victims of trafficking. If trained adequately to effectively identify signs of involvement in trafficking, they can pick them out and initiate the necessary actions required to curb the malpractice.

Such victims are often taken for studies concerning fields such as crime, criminal psychology, effects of physical and mental trauma, to name of few. Such studies are extremely necessary and obviously beneficial to society to help predict, prevent, and control crimes; however, the aims and objectives of such studies shouldn't be prioritized over the wellbeing of those who have already been victim to the exploits of criminals. One must remember that such studies are for the benefit

and advantage of common man by alleviating suffering, so at no cost should the suffering of those who have already suffered much.

More often than not, the simple recall of a traumatic incident can be an extremely stressful exercise for the victim. Analysis, questioning and other such interactions or procedure relating to the crime can be even more stressful for these individuals. Not only have they already suffered enough because of the crime itself, but will also be exposed to further stress if they aren't dealt with in a sensible and thoughtful manner.

At all times, their privacy and confidentiality should be protected, and no form of coercion should be imposed upon them either to extract information they aren't willing to provide or for any other cause whatsoever.

Economic

1. The Impoverished

Poverty is so widespread in all communities and societies that no civilization can deny having experienced it at some point of time through the lower strata of its population. Since financial ability now forms the basis of acquiring the most basic things in life, poverty deprives its victims of most of it. Right from the basic needs of food, clothing, and shelter to the essential ones of modern society, that is, education, healthcare, employment and so on, neither of it is adequate if not completely lacking in the lives of the impoverished.

Poverty, when coupled with the other vulnerabilities it invariably leads on to, can be downright devastating.

For example, poverty severely limits the extent to which families gain awareness and education about diseases and how to prevent them. Moreover, their lowly living conditions and poor hygiene also caused by poverty makes them more prone to ill health. As such, a large number of impoverished families fall victim to deadly diseases that can wreak havoc on them. Once the earning members become too ill to work, the family spirals deeper into poverty due to a lack of whatever income the ill individuals were bringing in [86].

Similarly, poverty forces individuals to indulge in sex work which when undertaken without adequate awareness and protection, inevitably leads to the contraction of deadly STDs such as HIV [87].

And once the individuals are diseased, this same factor od poverty prevents them from availing health services: people in poorer nations have no or difficult access to healthcare than those in prosperous ones; similar contrasts can be seen between the poor and wealthy classes of citizens of the same nation [88]

Thus, impoverishment is perhaps the most cancerous of all vulnerabilities since it pervades all aspects of the life of the victim it affects. The constant stress and tension of never having enough, and the pain and agony it brings about to earners as well as dependents can literally crush an individually, first mentally, and eventually physically.

When this group is studied for research, care should be taken to consider their pitiable situation and alleviate or at least mitigate it to a descent level as far as is possible. At all costs, their mental and physical constrains and limitations must be kept in mind, and they must be dealt with in sensitive and compassionate way. Their inherent inhibition or inability to stand up for themselves should not be used unduly against them to indulge in unethical practices for benefit of mechanized investigators.

Assessment of progress and status of participants at multiple levels and periods could ensure that unethical practices are minimized. Law enforcement and administrative agencies should be actively involved to ensure effective implementation of ethical guidelines and directives.

2. The Unemployed

Similar to the impoverished, the unemployed also form a large section of society who are vulnerable because of constrained financial abilities. A great number of youths have to face the challenge of a dire lack of job opportunities since almost every country in the world today, especially the developing ones have a great disparity between the number of eligible youths waiting for employment and the number of vacant posts in both the public and private sectors.

Even if there are vacancies and opportunities for the unemployed to avail, fair chance to try and attain the posts is lacking, and lack of corruption and malpractices in employing institutions. Especially when they have family's dependent on them, the unemployed can often be led to serious depressive disorders, alcoholism and even self-harm culminating in suicide.

Therefore, it is the moral responsibility of investigators involving such individuals in research to approach and interact with them in an appropriate manner in perfectly ethical lines and whenever possible, help them overcome their situation through assistance in basic employment. Moral support and financial aid within ethically sound limits are indispensable in this regard, especially in modern times.

Within the low-income groups, other factors such as race, ethnicity and gender further affect individuals; as such, those from marginalized or more vulnerable groups such as racial or ethnic minorities are the most affected. It is observed that high predisposition to alcohol abuse is seen in such groups. Further studies should be undertaken to establish more completely the exact correlation between socioeconomic status and alcohol use, which will aid the development of multilevel interventions addressing "…economic disparities that have precipitated and maintained a disproportionate level of alcohol-related consequences among more marginalized and vulnerable populations" [89].

Policy making bodies must think beyond the preview of result and outcome and set aside adequate consideration for these individuals to at least provide temporary support or compensation to participants until they have managed to attain basic employment for the day-to-day needs of themselves and their families.

3. The Underemployed

Although their situation is not as dire as the impoverished or the unemployed, they form a large portion of the middle class, the largest of the socioeconomic classes, as also a sizeable portion of the lower class.

The depression and stress of inadequate funds are often great enough to affect individuals both mentally and physically. Most people belonging to this group have qualifications much higher than that required for the occupation, or they currently pursue. The agony that comes their way when they could have earned much more than what they are earning, given their educational or vocational qualifications, often leads to chronic discontent which can either lead to depression and a loss of will to live, or resorting to unfair practices, crime and addiction.

Predictably, underemployed individuals have been reported to have lower levels of health and general wellbeing as compared to adequate income. The nature of the link between employment and wellbeing varies, however, by degree and kind of underemployment as well as indicators considered to measure health and wellbeing. [90]

Every effort must be made - over and above delicate and ethically appropriate approach - to connect them to suitable forums so as to ensure that within the foreseeable future, they have employment that is at par with their education qualifications and vocational knack and capacity.

Cultural

1. Indigenous People

The indigenous people of all the world's lands have suffered atrocities in the hands of dominant settlers and immigrants on every continent on the planet. From violent destruction of life and property, bonded labor, unscrupulous oppression and wiping out of entire cultures and traditions, the crimes against these people are stacked high and wide. They form a very delicate part of society since they mostly live in isolation within their own segregated bubbles, away from the influence of modern society.

Invariably, they are prone to disease, environmental hazards, internal conflicts and several other dangers that modern humans do not have to usually fear. Though almost all indigenous communities have now been approached to lesser or greater extents, the degree of effectiveness that has been attained to modernize these groups in constructive ways is hardly commendable at least when the overall picture is considered. Those instances which have seen remarkable success must widen their span of action, with the personnel involved participating in global interaction,

idea and thought sharing and take global steps to reach out to every community in the nooks and crannies of the planet that are in grave need of aid and assistance.
Far removed be the historic atrocities that they have already faced in the hands of colonizers and imperialists; instead, perhaps in compensation for it all, every humanitarian effort must be made to provide them with basic care and support before using them in research for the advancement of science. That the betterment of life is the chief goal of science and those who profess it, must never be dispensed with.
Researchers shall make every effort to integrate with such societies within their comfort zones and levels and gradually bring them up in trust and confidence. Respect and reverence for their cultures, traditions and beliefs must be exhibited and no sign of imposition or dominance shall surface when they are being dealt with. Not only shall ethical guidelines be the same if not specifically advantageous to them, but every effort should also be made to provide them with basic needs, education, healthcare, employment, and adequate representation in society. Government and private organizations and agencies must work together to achieve this Nobel goal.

2. Backward Communities

Backward communities are those groups of people that are not as advanced in multiple facets of life including education, employment and social presence. The reasons for such backwardness may either be traditional or religious ideology.
In both cases, they tend to retreat further within their little groups and face similar disadvantages as mentioned in the case of indigenous peoples. More often than not, their deep-seated and staunch ideologies that have only grown stronger in conviction due to isolation from alternative mindsets, are difficult to change of dilute. As such, they must not be forced to let go of their convictions as this may led to resentment, isolation, and further retreat from modernity. Backward communities are inherently more vulnerable to a range of factors just like indigenous ones due to their limitations in contrast to modern society. The lack of education that this kind of backwardness leads to, prevents those individuals from having the adequate knowledge to undertake measures to defend themselves against the environmental adversity [91].
Thus, only by spreading awareness and educating them to the needs of the modern world once gentle, patient interaction and trust-building has gained their confidence, can effectively ready them for modernity. A more tolerant, patient and integrative approach must be adopted to gradually integrate them with mainstream society rather than impose the norms of modernity of them all at once and undermine their own ideologies and traditions.
Research can go hand in hand and often aid in the moderninsation and rehabilitation of these groups when undertaken with full ethical considerations and wider goals in view.

3. Minorities

Their lower numbers play a major role in their situation that leads them to be more vulnerable than others communities with larger numbers. Often, lack of representation and inadequate knowledge to effectively seek it, leads them to be left out and marginalized passively. When active oppression from unethical individuals or groups is added to this, their situation is only worsened.
Though laws and provisions to protect minorities exist quite substantially on paper, their effective implementation, and the reasons for the lack of it are highly debatable. Not only should effort be made to provide them with adequate opportunities and protection, but also the fact that those around them too have to be sensitized, must not be forgotten. Unless the mindsets of the oppressors are effectively altered, atrocities on minorities shall not cease. As such, governments, and private organizations right from the level of the family must inculcate a sense of tolerance and fraternity for all humans rather than thoughts and ideas of bigotry and segregation.
The Belmont Report [92], lays down guidelines to ensure compulsory implementation of informed consent and prevent disproportionate and over-representation of minority groups in studies. These, however, are generalized directives; the precise identification of the nature, source and most effective response to particular cases of vulnerable minorities has proven rather challenging. Here too, research must go hand in hand and aid in supporting and uplifting these groups. When conducted in line with all ethical guidelines, this can be of immense help to both the participants

as well as the investigators offering promising results that can help in the mitigation of the adverse factors affecting such populations.[93]

Discussion

The notion that vulnerability is universal, is also seconded by the authors of this paper, especially in the conceptual manner in which it has been dealt with and projected by Martha Fineman [8, 94] Fineman [95] defines universal, characteristic human vulnerability that "arises from our embodiment, which carries with it the imminent or ever-present possibility of harm, injury, and misfortune". Yet, she agrees that some groups of people are indeed more vulnerable than others. In other words, she presents vulnerability as both universal and. She holds it to be a complex entity that manifests in more ways than one and can often be inherited through generations. She states that it is in fact a relational concept relevant to relationships between individuals and society [96, 97]. Vulnerability also has its temporal, situational, relational and structural facets which must be kept in mind while analyzing of defining vulnerable groups. Emphasis is laid on the gender-based implications of vulnerability which often go neglected and remain unproblematized [99].

Most commonly, vulnerability has been viewed as an absolute consequence of some attribute of some specific group. However, it would be more accurate and ethically if it were occurring over a spectrum of magnitude, depending on situations or contexts. Investigators and IRBs may adopt a stepwise approach to assess if studies satisfy regulatory or ethical standard to ascertain that the rights and wellbeing of truly vulnerable subjects are upheld and protected. [23]

Conclusion

After extensive reviewing of numerous papers on the topic, the authors have chosen to take a stand that embraces both the major schools of thought defining vulnerability. It is far from ethical to chalk out prejudiced, predetermined groups and label them as vulnerable purely to impose the will of so-called non-vulnerable people. At the same time, the notion that vulnerability being universal and almost innate, not much can be done to identify most affected by it and then proceed to try and take measures to mitigate if not alleviate it, is also not acceptable. Thus, we take a stand somewhat similar to Kirby [20] and Vikstrom [22] that despite vulnerability being a universal human feature, there are ample avenues to identify genuine groups that are typically affected, and then device methods to remedy it.

As healthcare researchers we choose to retain and utilize in the best possible ways to those concepts and theories that aim to empower our subjects rather than the whole notion as negative. It must of course, be acknowledged that no matter how high the degree of vulnerability of people in a certain group may be, there is always scope for rising up and acting to mitigate its effects rather than simply resigning to it as an unchangeable burdensome entity of life. Moreover, every individual or class must be given fair opportunity to express their own viewpoint or opinion regarding their apparent vulnerability and act on it whenever possible.is given to them [98-99].

When most relevant and done with the aim of identifying individuals facing similar types of vulnerability to alleviate their difficulties, categorization is not only inevitable, but advised. However, it must be kept in mind that more often than not, an individual may be facing two or more different kinds of vulnerability, the causes of which are either interlinked or consequential. As such, remediation may have to be undertaken in different of innovative ways that must be clearly determined after a thorough assessment of the exact situation. Governments and social organisations must work in union with social and healthcare workers who are pursuing the cause of vulnerability and its implications. It is an important and perhaps the most relevant question in bioethics and must therefore be prioritized by both public and private policy-framing bodies. Schemes and benefits for verified vulnerable groups or individuals go a long way to mitigate and alleviate the hardships faced by these people.

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