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Editorial: Genetics and Ethics in Asia and Latin America

This issue of *EJAIB* includes a series of papers sent independently of each other, but with common themes of discussion of ethics from different traditions across Asia. There are two papers from Brazil, one on the attitudes of dentists towards reporting abuse of children to authorities. Although it is required by law to do so, Monica and her colleagues found they did not. Their justifications may have taken the form of various ethical arguments, but the papers of Sawa and Konstantin review different approaches towards making ethical decisions. How do we balance the interests of individuals with the broader interests of the community? There is a discussion of utilitarianism and biocosmology. From what perspective should we take? The paper by Saima explores the views of teaching from the side of both a patient and a medical doctor educating students.

There are several descriptive bioethical papers which present the results of surveys in Japan, China, Panama, India and Brazil and make cross cultural comparisons. Ichiro Matsuda and colleagues provide up to date results on the attitudes of questions similar to the famous work of Wertz and Fletcher that gave us a picture of genetic counseling across the world. They also discuss the ethical basis of the decisions expressed. The survey of Rajini and Gandhi in India provides a good comparison, and includes issues of sex selection. Abortion is discussed in the final paper.

We look forward to further papers from readers, and some will meet in the Asian Bioethics Conference soon to be held. For ABA Membership please complete the order form at www.eubios.info/ABA.htm

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Utilitarianism and the replaceability between potential persons

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1. Introduction

Some utilitarians judge some kinds of beings as replaceable. Let us define such a judgment replaceable thesis; if and only if a certain being (A) dies, it is possible to give birth to another being (B), and if the total amount of happiness is not changed or is increased by producing B, the act of killing A and giving birth to B is justified. For example, we can justify eating animal meat based on this thesis.

The application of this thesis is not limited to the case of animals. Suppose that a woman thinks that the timing of pregnancy is not desirable for now and refrains from getting pregnant, for example, when she is a student or is busy with work. At the same time she wants to get pregnant in the future. Then, it can be seen that she is replacing the child whom she can conceive now, with a future possible child. In the practices of IVF or PGD, some embryos are transferred into a womb but others are not. This is also one example of replacement. Another example is the case of selective abortion. If a now-conceived fetus has a severe and incurable defect, and parents can foresee that the next child would be happy, then giving birth to the latter child, not the former one, would be justified. R. M. Hare called the latter child as Andrew, though he is not conceived yet (Hare, 1993, pp. 187 ff). He wrote that if Andrew seems to have the higher possibility of a happy life, "we should maximize of bringing into the world a human being with a high prospect of happiness" (Hare, 1993, p. 189).

Applying the replaceability thesis to these problems, utilitarianism can provide some clear answers to us. However, the thesis is probably the most controversial among the utilitarian claims because it does not distinguish possible and future children and the existing fetuses at all. Some people have regarded it as unethical or evil. Intuitively speaking, the existing fetuses seem to have the high possibility of growing up a normal person. Let us call the fetuses potential persons and distinguish them from possible children.

This paper has two main questions: "Can utilitarianism avoid the replaceability thesis?" and "When human beings become irreplaceable?"

2. Brain life and personal individuality

Lockwood was not totally against Hare's arguments, but he criticized Hare's way of justification via replaceability between the existing fetus and Andrew (Lockwood, 1988, p. 349). To avoid the replaceability, Lockwood suggested the different meanings of potential for person, making a distinction between potential persons and possible persons.

The points of his argument are as follows. As Hare said, Lockwood admits that he also has the reason to be glad that his parents did not abort him or prevent pregnancy. To abort him was bad for him, that is, Lockwood as a fetus. However if his parents prevented pregnancy to begin with, it was not bad for him because he had never been in the possible world. He thinks it as morally relevant that "an action can be in, or contrary to, the interests of an individual X, only if X exists at some time or other." (Lockwood, 1988, p. 347). Then, the beginning of the individual X must be specified: when does the individual start? He regards it as the point when the brain begins. He called such marker event as 'brain life.' (Lockwood, 1988, p. 348). Potential persons are distinguished by this, whether they have own brain life or not and whether they build own personal identity as an individual.

Based on brain life, Lockwood distinguishes normal fetuses and newborns from a pair of gametes and pre-embryos. Therefore, he wrote: "late abortion and infanticide...runs directly contrary to the interests of the very same *actual* individuals who, were it not for their being killed, would in due course be able to live a normal human life"(Lockwood, 1988, p. 345). On the other hand, a pair of gametes or a possible child has not possessed a brain yet and thus the destruction of them "will prevent there ever being an actual individual with a direct interest in the development of the potential for a normal human life"(Lockwood, 1988, p. 345). It implies that in the case of contraception or the experiment using pre-embryos, the direct subject or individual with the interest does not exist. The moral status of a fetus or an infant is different from that of a pair of gametes, a pre-embryo, or a possible child, and replacing an existing fetus or infant as an individual is regarded as not equivalent and therefore as impermissible.

Certainly, the argument based on brain life can include some practically efficient conclusions. However, to adopt his argument we have to clear up a couple of things, that is, the reasons why we should see brain life as morally relevant.

The fetal brain develops gradually. When does the brain life start? The cerebral cortex develops in the period of 25-40 days of pregnancy. An alternative to the cerebral cortex formation is the establishment of a functioning nerve net at 40 days gestation. One measure of a functioning nervous system is a positive electroencephalogram signal which represents electrical activity in the brain, which occurs at about 8 weeks. The fundamental completion of brain structure is at 12 weeks. However, it may be not sufficient yet. The person is the subject of enjoying a various experiences, so some argue it does not exist before consciousness begins. This view leads to the idea of the potential person beginning to exist between the completion of neural tube at 3 weeks, at the beginning of brain activity, or with the first conscious experience. At this stage the embryo could be said to be of a different kind of being, a conscious being. Most brain developmental pathways have begun at 24-28 weeks gestation, and this is another possibility (Jones, 1989, pp.173-8). In this way, the concept of brain life has been placed at various points between 25 days and 28

weeks gestation, and it seems to be difficult to identify the starting point.

After all, it is practically difficult to mark a particular time when a sudden brain life occurs. Lockwood also does not define strictly the beginning time of brain life and merely suggests 10 weeks as a rough guide because it is reasonable to allow for the abortion (Lockwood, 1985, p.25). Furthermore, the reason given by him as to why we should adopt the brain life as morally relevant seems to be insufficient. He wrote:

“Just as we now think of a human life as having ended when that part or aspect of the brain in which thoughts and feelings occur has been destroyed, so it seems to me that we ought, in consistency, to think of a human life as not having begun when the relevant part or aspect of the brain has yet to come into existence” (Lockwood, 1985, p.25).

According to him, the main reason is that the brain life can be argued in a parallel way to brain death.

Certainly, brain death may be a major criterion for the end of personal life at the present day. However, even if the criteria of brain death may be important in deciding when the personal life ends, it does not mean that the brain life is necessary for the start of human life. Brains at the start of life and at the end are very different qualitatively. The loss of the brain function can be a relevant difference for us. The person seems to be quite different after brain death than before it, because one cannot talk, smile, or communicate with us. The fetus before and after brain life do not seem so different dramatically as both are *in utero* and immature. If the criterion of brain life is adopted just to be consistent with brain death, it can be said to be insufficient for accepting and supporting the criterion.

In this way, the argument based on the brain life faces issues in the practical and theoretical parts. As the result, it is difficult to regard his argument as sufficient to refute the replaceable thesis. When we try to draw a cut-off line in the natural and gradual process of fetal development and to judge that abortions and replacements are permissible before the line and are not permissible after it, we have to show a morally relevant fact and explain the ethical reason why it should be regarded as relevant. Such a morally relevant fact can justify our different judgments in two different situations as ethically acceptable.

3. The prior existence view

Singer (1998) also considered whether the replaceability argument could be avoided in his framework. He first distinguished two approaches (Singer, 1989, pp.383-98). One approach is called the ‘total view’ which allows in two ways in increasing the amount of happiness or pleasure in the world; one is to increase the pleasure itself which people (or sentient beings) experience, and the other is to increase the number of pleasant lives. In this way, this ‘total view’ does not morally distinguish the way of increasing happiness. Therefore, when a couple is trying to have only one child, if the child seems to lead a happy life then giving birth to the child is morally good because it results in increasing happiness. Furthermore, if the child seems

to lead an unhappy life but, at the same time, the next different child seems to lead a happy life, then giving birth to the next child is morally good because it brings about an increase in happiness as a whole. In this way, the total view allows the replaceable thesis.

In fact, this is counter-intuitive but he guessed that most people would agree to the replacement between possible people as future children (Singer, 1993, p.189). If people accept this replacement and, at the same time, reject the replacement between an existing fetus and a non-existing one, then there is a significant difference between both cases of replacement. The difference is the fact whether a fetus has already existed or not. It may be said that people feel this fact is morally significant.

Another approach, he proposed, matches this intuition and is called as the ‘prior existence view’, which counts “only beings who already exist, prior to the decision we are taking, or at least will exist independently of that decision”(Singer, 1993, p.103). This view regards the fact that certain beings have already existed before our decisions as morally significant and makes us promote the happiness of such beings. It refuses to adopt the way of giving birth to possible happy beings in maximizing the total amount of happiness and therefore, the interests of the additional not-yet-conceived child are not included in the utilitarian calculation.

Is existence itself really morally relevant? If we accept that existence is in itself morally relevant, what will happen? According to the prior existence view, when a couple considers whether to give birth to a ‘defective’ fetus, they cannot compare the happiness of the present fetus with that of a next possible child by definition. They can care about only the quality of the present fetal life. Singer believes that, on this point, the view is more in harmony with most people’s intuitive judgment (Singer, 1993, p.104).

At the same time, however, there is a serious issue in this view as follows. Singer suggested that people believe intuitively that while it is not morally desirable to produce possible people even if they will lead pleasant and happy lives, it seems to be intuitively wrong to bring into existence knowingly a miserable child who will suffer from incurable disease and die shortly after birth. A serious issue is here that “if the pleasure a possible child will experience is not a reason for bringing it into the world, why is the pain a possible child will experience a reason *against* bringing it into the world?” (Singer, 1993, p.104).

Here again, Singer encountered another counter-intuitive result of the prior to existing view. One hand, the view should support the symmetry that neither the happiness nor misery of a possible child can give to us the reason of producing him. On the other hand, our intuitions support the asymmetry that the misery of possible children only gives us the reason for not producing them. In the asymmetric judgment, we include the interests of the possible child into the utilitarian calculation when we judge that the child should not be produced. For example, when the carrier of a serious genetic disease tries to have a child, in fact, the misery of possible children can be imagined to some degree. The fact that we can imagine and describe the life or interest

of a possible child may drive us to include such a possible interest in the calculation when people make a decision. Such an interest can be the object of moral consideration actually even if existence itself is possible.

However, the fact that the interest of a possible child can be an actual object of our moral consideration will send us back to the replaceability thesis. For, if the misery of a possible child can be the actual object of moral consideration for us, then the happiness of that could also be the actual moral object for us.

4. When human beings become irreplaceable?

As far as we take utilitarian positions, it seems to accept the replaceability thesis because the attempts to avoid it were not working. If we do so, then the next question would be when a human being became to be seen as irreplaceable in the continuous development process.

Hare's explanation to the question, in fact, is so simple. He regarded adults or young children as the beings no one can replace, because they have the 'desire to live' (Hare, 1993, p.182). In contrast, he said that it is clear a fetus does not have the same desire, and it is controversial whether or not a newborn baby has it. This may mean that not only fetuses but also newborns are replaceable because they lack the desire to live at this stage.

However, Hare wrote that "if the potentiality principle be granted, the number of permissible infanticides is greatly reduced, though not to nothing" (Hare, 1993, p.162). The potentiality principle prescribes us to give birth to beings that can be a grown person in the future. Utilitarianism can support this principle when producing such beings lead to increase the amount of happiness. Hare thought the potentiality principle gives fetuses and infants the only and significant reason why they should be protected (Hare, 1993, pp.154-5). In contrast, the potentiality principle does not protect some fetuses and infants, such as those with severe chromosomal abnormality or anencephalia, because they lack the potential to become a grown person (Hare, 1988, p. 216). In such cases, the infanticide and replacement could be permissible.

This is related to the problem of a slippery slope, which means that the top of the slope can be acceptable for us but the bottom of it cannot be acceptable and we must avoid shifting to the bottom. Certainly, we should avoid sliding there and divide the cases of infanticide between permissive and impermissible. However, how can the potential for person be so effective for the division?

Consider the following case of a newborn baby with a congenital defect. The defect is not so severe and the quality of life can be seen as not so low, that is, the life is worth living. As far as it is worth living, the potentiality principle would prescribe the parents to raise the newborn. At the same time, however, another aspect of the potential evaluation can compare the QOL of the newborn with that of the next normal and healthy child. As the result, the replaceable thesis can prescribe the parents to replace one for the other. In this case, the potentiality principle may not always be strong enough to prevent the replacement. It is the only and significant

reason to protect, but only it cannot be purely a standard to distinguish between permissive cases of infanticide and the impermissible ones, and to avoid the slide from the permissive cases to the other.

The same can be said in the case of abortion. Hare also suggested the possibility that "there is a slippery slope from killing fetuses under certain conditions to killing them under other conditions" (Hare, 1993, p.181). Whether the slippery slope is dangerous or not, he thought, depends on "what view we take about the general question that abortions should be allowed, and who should make the decision" (Hare, 1993, p.181).

To think about these problems, take abortion by reason of sex selection as an example. In some countries, there is a general tendency that people prefer a boy to a girl. The QOL of the child who is born in a certain country as the girl would not be as low as that of a life not worth living in most cases. The potentiality principle would give parents or mothers the reason to support for giving birth to the fetus, whether male or female, if both have the potential for the grown person equally. However, the next child who will result from the next pregnancy may be a boy and the comparison between male fetuses and female ones can always be possible under another aspect of the higher prospect of happy life. In some countries, in fact, the judgment that the male fetus has greater prospects could be made. Then, should people select the male fetus, not the female, by purely comparing different preferences from the strength? The potentiality itself may not give the efficient answer to the problems which abortions should be allowed and who should make the decision.

If this is true, then the problem of reproduction and population policy could not be treated in the parallel way. It seems to be preferable in utilitarianism that the rate of birth in a country maintains a certain balance when the problem of gender selection is considered as a population policy. Then, it can be justifiable to control the rate by the government.

On the other hand, when the same problem is treated as a reproductive problem, there seems to be room for a moral judgment that giving birth to not a girl but a boy may result in a better result for the unit of the family. For, it seems to be at least a rational preference if it is judged that it will be good for the entire family after parents seriously think about the meaning of having a child in the society. Then, the government should not prohibit abortion based on the gender and should respect such a rational preference. Of course, it is not until later that we can know whether the preference was truly right or wrong. At the present time, however, if the preference with enough strength seems to be possessed thought serious consideration at least, then it would be called as reasonable in utilitarianism.

Although morally it is necessary to change the social dominant system that gives priority to boys over girls, realistically one has to treat the problem to have a child in the actual society where people live. Then, a second best selection might be chosen in the society, not in the ideal world. This problem is related to the problem of to what extent universalization can be applied. The universalizability of moral judgments requires us to reflect their own decision from the viewpoint of whether other

mothers or parents in very similar situations make the same decision. However, different countries may not have the “very similar” situation.

5. Conclusion

We have compared the utilitarian methodology and considered whether the replaceability thesis itself is avoidable in the utilitarian framework. Lockwood aimed at balancing moral intuition based on the concept of personal identity and scientific facts of brain development. The concept of personal identity itself is one of the philosophically difficult themes and his explanation for why we should think of brain development as a morally relevant fact seems to be invalid.

Singer also tried to avoid the replaceability thesis and considered his proposed view, the prior existence view. However, it faced another counter-intuitional result: the asymmetry judgment between the happiness and misery of a possible child. When we saw the counter-intuitional result in the view, we noticed that a possible child can be the actual object of our moral consideration. If this is true, then it seems to be right to calculate the interests of the possible child. As the result, we accepted that utilitarianism cannot avoid the replaceability thesis.

Lastly, we considered when human beings become irreplaceable in Hare’s argument. We have considered the concrete cases of the selective abortion, such as based on not-so-severe defects and gender selection. In these cases, the potentiality principle was an insufficient basis to stop the slide from morally permissible replacement to impermissible replacement when we applied it to some practical issues. This can imply that the only and significant principle to protect potential persons, after all, is not strong enough to prescribe us to respect them.

The problem when human beings become irreplaceable is not solved completely here. A more detailed analysis of the potentiality thesis will be needed.

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Happiness and the Individual’s Health: From the Biocosmological Triune Standpoint

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“*Philosophy is a science and therefore, like every other science, it seeks to establish truths that have been strictly proved and are therefore binding for every thinking being and not only for a particular people or nation.*”

Nicolei O. Lossky

Abstract

The author applies the Biocosmological approach to the study of the concept of happiness and its interrelation with the notion of the individual’s health. In the result, he arrives at the conceptions of the two poles of happiness – of “Adaptational Survival” and “Functionalist Contribution”; and, further, substantiates the anthropological triune nature of the individual. In this light, the comparative analysis between the notions of *Homo sapiens socialis* and *Homo sapiens cosmicus* is conducted. Finally, author gives the Biocosmological definition to the concept of “happiness”.

Introduction

First of all, categorically, the *Biocosmological* approach does not treat “biocosmology” in the common sense of SETI (Search for Extra-Terrestrial Intelligence) or investigation of the origin of life in the Universe (detailed characteristics of the Triune Biocosmological approach are given in the author’s works/ including the papers published in the *EJAIB*, 2008, and the *Journal of Futures Studies*, 2010). Therefore, our Biocosmology is written with a capital letter – to highlight and signify its special (neo) Aristotelian meaning.

Herein, “Bio-” signifies precisely the Aristotelian “Bio-”cosmos – i.e. organic, whole, hierarchical cosmos, in which every (living) entity has its/her/his inherent place and destination in the one whole (organic) self-evolving cosmic world (‘Organism’ or ‘Evolutionary Process’). Therefore, “Bio” firstly signifies Bio-Universality, i.e. the universal foundation and origin of all organic processes on Earth, i.e. – the reality of the universal laws for all levels and processes of life: *biological, ecological, anthropological, individual, sociocultural and cosmistic global evolutionary processes*. In this perspective, the essential universalizing nature of Aristotelism¹ becomes apparent and called-for, including the reinstatement of the natural unity of philosophy and science (metaphysics

¹ We use the spelling version “Aristotelism” instead of the conventional “Aristotelianism” to emphasize that our “Aristotelism” is based primarily on Aristotle’s original Organistic cosmology.

and physics), for, they both belong to (reflect) one the same universal (organic) world.

Naturally, the term “happiness” comprehends a large variety of meanings and, thus, causes an impression of ambiguity. However, we can find every time the essential constituent of the notion “happiness” – its ‘nuclear’ part – that is the “emotions experienced when in a state of well-being”. The latter points out that *happiness* is substantially realized either on unconsciousness level or through the psychophysiological motivation (*goal setting*), but in each case it occurs by the means of the so-called physiological “reward systems”² that include the neurotransmitters liberation and other physiological structures participation. All this clearly demonstrates as the psychosomatic, as ecobiopsychosocial wholeness of a “happy person”. In turn, in this relation, we see the evident similarity of “happiness” with the notion of individual’s health. Indeed, the well-known WHO definition of health (1948) is, “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”

What is happiness – from the Aristotelian point of view

The next evident thing is the fundamental relation of the notion “happiness” (*eudemonia*) to the philosophical system of Aristotle. Due to Aristotle – “happiness” is the full realization of the individual’s rationality (functionality), i.e. – happiness is a process of performing the individual’s function well through her/his entire lifetime (ontogenesis). As Aristotle theorizes, “The Good of man is the active exercise of his soul’s faculties in conformity with excellence or virtue.... Moreover this activity must occupy a complete lifetime; for one swallow does not make spring, nor does one fine day; and similarly one day or a brief period of happiness does not make a man supremely blessed and happy.”³ Consequently, to constitute a true happiness, due to Aristotle, this action must persist with continuity throughout a lifetime.

Evidently, the Aristotelian definition of happiness has the *immanent teleological – functionalist* – essence (it does not depend on material things). Aristotle’s “happiness” naturally has many-valued (polysemantic) meaning, for, “happy life” embraces all good things such as safety, friendship, wealth, knowledge, health, etc., but, ultimately, – the individual’s self-realization. One of the main principles of Aristotle’s philosophical system is *hylomorphism* – the principle that every object simultaneously consists of *material* (potential) and *form* (soul, entelechy) – an active goal-directed foundation – the actuality of which matter is a possibility. Therefore, Aristotle’s “*happiness* is the active exercise (i.e. – *functioning*. – K.K.) of his soul’s faculties”. It exactly means the natural psychosomatic wholeness and well-being of the individual (her/his physical and mental well-being) and her/his wholeness and well-being with the environment (surrounding milieu).

One more important thing (pointed by Aristotle) is that a change (movement, development) in things is caused

by their transition from one opposite state to another – her/his well-being “place” (i.e. ecological and sociocultural milieu). On the whole, we appreciate the conclusion of Stephen Modell (2010), “Aristotle transformed the study of philosophy from the realm of abstractions into a practical science, thus providing biomedicine with the foundation for realization a truly holistic practice aimed at her/his individualized health (happiness).” Modell reminds of another quote of Aristotle: “True happiness is unattainable in a period of time shorter than an entire life.” (from Aristotle’s “*Nicomachean Ethics*,” 1953, P. 26).

The triadicty of the original Aristotelian cosmological organicism

Indeed, we really need the introduction of the Aristotle’s (Biocosmological) vector and dimension of “happiness”. Substantially, modern “concepts of happiness” imply both the psychosomatic wholeness and the integrity of a (happy) person with the environment. Therefore, exactly Aristotelian (rationally well developed) approach turns to be a true vector for the study of “happiness”.

However, we are to use this approach in the triadic mode, taking into account all three integral levels of Aristotle’s cosmological organicism:

- Aristotle’s Organicist world-viewing, including his four-membered *aetiology* – of the four Cosmic driving forces or causes: *materialis*, *formalis*, *efficiens* and *finalis*;
- Aristotle’s Organicist methodology (ideology of his Organicist “physics”, hence – of the science and practical activity on the whole); and
- Aristotle’s Organicist (*functionalist*) scientific and praxeological practices (methods) themselves, which are based on the leading significance of the subject’s *causa finalis*.

A matter of fact is that Aristotle’s philosophy (his basic integral conceptions) have been dismantled in the world cultural history and transformed into a kind of ‘bricks’ (constructional blocks) that were used in the Middle Ages and the Modern times (as the ‘conceptual bricks’) for the building of another cosmologies and ideologies, that have the different or the opposite meaning to Aristotle’s original constructions.

However, we are to take into careful consideration the valuable conclusion that had been made by Ayn Rand in the 1963: “If there is a *philosophical Atlas* who carries the whole of Western civilization on his shoulders, it is Aristotle. He has been opposed, misinterpreted, and—like an axiom—used by his enemies in the very act of denying him. Whatever intellectual progress men have achieved rests on his achievements.” Indeed, a matter of fact is that Aristotle’s conceptual (theoretical basic) elements are used in every modern philosophical and scientific area, but, exclusively, – as a Mean, but (still) not as the End.

At present, with respect to Aristotelism, we have found ourselves in a strange situation. The point is that we currently are putting into the notion “Aristotle’s philosophy” something quite different than it has in reality. Substantially, Aristotle’s philosophy and science (metaphysics and physics) radically differs from the

² In neuroscience, the reward system is a collection of brain structures which realizes the regulation and control of the individual’s behavior by inducing pleasurable effects.

³ Aristotle *Nicomachean Ethics*, bk. 1, ch. 7, sct. 1098a.

modern 'theologian interpretations' (that have substituted the real value and actuality of his philosophy). The gist is that the true Aristotelian philosophy differs from the main forms of scholastic theological philosophy at the same extent, as the latter differs from the philosophies of Bacon, Descartes, Kant, etc.

First of all, Aristotle's philosophy is based on his primary (basic) Organicist cosmology – the body of realistic⁴ fundamental principles ("ultimate, true reality-values", – in the expression of P.A. Sorokin), including the fundamental realistic principles of 'organicist universalism', 'hylomorphism', 'immanent teleological essentialism', 'ethical eudemonism', etc. On the whole, this is exactly the situation, using the metaphorical expression (and examining this phenomenon from an evolutionary perspective) – that, in essence, the result was achieved of a kind «a baby has been thrown out from the bath together with water».

At present, we ought to rehabilitate the true essence of Aristotle's philosophy. A key point is that the philosophy of Aristotle – his *First* philosophy (metaphysics) and *Second* philosophy (physics) – is neither *idealist*, nor *materialist*, but truly a *naturalist* (*cosmistic, Realistic, RealCosmist*) philosophical system. The gist is that Aristotle believed in only one whole (real, natural, cosmic) world, driven by the *immanent teleological forces*. Essentially, Aristotle's cosmic absolute *Nous* serves categorically as the *attractive universalizing centre* of all natural purposeful forces, but not as the managing and driving Absolute.

To overcome the contemporary "cosmological insufficiency"

A natural task is to advance and substantiate a core meaning and definition for the notion "happiness" that could provide the basis for integration of all other meanings and definitions of "happiness". Closeness of "happiness" to the notion of the individual's health points out that the individual's happiness is quite accessible for a scientific exploration (but exclusively from the basis of Organicist methodological positions). A "happy" or "unhappy" individual is the matter of her/his inadequate behavioral and sociocultural actions, or of the unfavorable circumstances, but, to a considerable degree, – of our scientific incompetence to assist the individual in the realization of her/his happy and healthy route (vector) during the whole life time (ontogenesis). The basic reason is the contemporary "*cosmological insufficiency*" – our current inability to use adequately the different (but natural) cosmological foundations for the scientific research.

Herein, the method of "*essential metaphor*" could be a good help. Firstly, this method contributes to the

⁴ Currently, there is a lot of notions and meanings of "realism", often incompatible with each other. Herein, however, in the general (Biocosmological – neo-Aristotelian) context the term "realistic" relates to the philosophy of Aristotle, i.e. basically has the Biocosmological essence and categorically differs from the Platonist realism. Likewise, having the Aristotelian essence, – our "realism" does not spring from the medieval scholastic philosophy and its "realism /nominalism" debates, or modern and contemporary forms of realism (from Francis Bacon and John Locke to Alfred Whitehead and Bertrand Russell, et al).

exercising of a universal modeling in the research processes. This method is really significant for the purpose of introduction the Biocosmological principles. Indeed, inasmuch as the actual reality is that all life processes are fundamentally universal (a natural sciences fact since the discovery of DNA by Watson and Crick in the 1953), – this naturally provides us with a really powerful Bio-realistic method of cognition – a metaphorical transfer of existing knowledge (including their substantive principles) from one field of research (e.g., physiological) to another (e.g., sociological), or vice versa, for example, using the principle of the three-dimensional study of social (sociocultural) reality, developed by the sociologist and culturologist Pitirim Sorokin.

Bipolar and Triune essence of life processes

One more significant point, already applying the method of "essential metaphor", – is the apprehension of the Bipolar essence of life processes. Bipolarity is expressed in the scheme below:

Firstly, we have the *Awake (A-)* pole of life organic processes, that is characterized by the inherent expedient – *goal-directed* – life activity, and that is basically sensible, sane, reasonable – for the good of the ambient organism-world or the environment. Under this pole each subject of life realizes its/her/his *purposeful – functionalist – integrity with the cosmistic (organic, hierarchical) world*. Herein, any subject's life activity is essentially *cosmos-centric* (realizing microcosm-macrocosm and macrocosm-macrocosm interrelations).

On the contrary, *Sleep (S-)* pole (centre of life activity) is characterized by *the essential sensory rupture (denervation)* of a living subject with the world – for the realization of processes of *assimilation, accumulation, restoration, regeneration, growth, development of one's potentials (self-actualization), domination in the environment*, etc. For a conscious subject, substantially, a *S-cycle* of life activity is realized in the *chaotic realm*, governed by dominant dreams (*per se* – hallucinations). Any life activity, during *S-cycle*, is essentially *subject-centric (anthropocentric)*.

In the light of aforesaid, a well-known Maslow's pyramid of needs (1943) takes on, in the Biocosmological (neo-Aristotelian) consideration, a *bipolar* form (a scheme is given hereafter). Naturally, herein, we realize the unity of the two polar (diametrically opposite) modes of life, in the metaphor – the unity of "live – to eat" and "eat – to live".

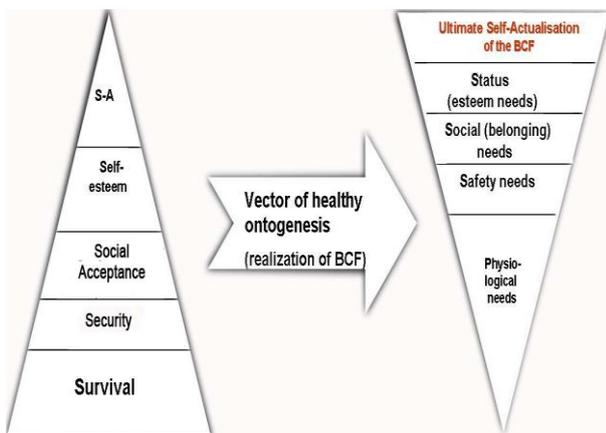
The next step, on the basis of aforesaid and applying the method of 'essential metaphor', – is the advancement of the notion of the Three main autonomous synchronous spheres of life activity and, accordingly, – of the three main spheres of the individual's needs, *two polar* and the *third intermediate, but fundamental*:

1. One polar sphere which general vector of life activity is directed *inwards* – this is, for example, the domination of anabolism on the metabolic level; or the predominance of adaptational reactions – on the behavioral and sociocultural levels, including the processes of self-actualization of the individual's inherent potentials;

2. The opposite sphere which general vector of life activity is directed *outwards* (essentially requiring the expenditure of accumulated resources and prepared potentials) – this is the domination of catabolism on the metabolic level; or the predominance of the wholesome life activity on the social level (mainly, of professional character, aimed at the satisfaction of the needs of a higher-level – sociocultural, incorporating – organism: family, community, society, professional body, country, global community);

3. And the *third* (but ‘of *first* importance’) – *axial* (*integral, middle, basal, intermediate, bearing*) layer – of constant sustainable development – which main task is the self-maintenance of homeostatic parameters (attainment of the state of equilibrium) in the life activity of an organ, organism on the whole, and the individual’s behavioral and sociocultural activity.

Maslow’s pyramid from Aristotle’s – Biocosmological – point of view



A further approach to the goal of representing the Biocosmological (neo-Aristotelian) consideration of the notion “happiness” includes the conceptual presentation of the two poles (of happiness): of “Adaptational Survival” and “Functionalist Contribution”, which carry out the two opposite directions of life activity and development:

1. to *Survive* – the general vector is directed *inwards* – i.e. to save life, assimilate, accumulate, regenerate, growth, proliferate, differentiate, enlarge (spread), dominate;

2. to *Contribute* – the general vector is directed *outwards* – i.e. to self-realize the functionalist maturation and the ultimate specific effective contribution to the surrounding processes of evolutionary (emergent, of the new evolutionary stages and levels appearance) development;

3. the *Third* (axial, integral, basal, middle, intermediate, bearing) sphere that accumulates in itself the results of the development during the aforesaid polar cycles of life activity, thus forming the *axis* of the entire ontogenesis. This sphere basically and constantly deals with the maintenance of all vital processes on all levels (metabolic, homeostatic, behavioral and sociocultural). The main task of this sphere is to *exist* – to continue all

life processes of the organism in the range of homeostatic equilibrium (i.e., within normal, healthy, happy parameters).

The anthropological triune nature of humans – from the Biocosmological standpoint

Accordingly, in the light of aforesaid, we might distinguish three spheres of anthropological life activity:

- Homo Sapiens *biologicus* (HSB) – who realizes the maintenance of the homeostatic equilibrium on all metabolic, physiological and behavioural life levels;
- Homo Sapiens *socialis* (HSS) – who realizes the entire spectre of adaptational (mainly, sociocultural) life goals;
- Homo Sapiens *cosmicus* (HSC) – who realizes the individual’s inherent self-realization and functionalist contribution to the surrounding world (cosmos) during her/his entire ontogenesis.

Substantially, both HSB and HSS ever are Bio-Social creatures, and never – Bio-Social-COSMIST ones. In other words, the individual here is ever a bio-organism, social actor, and a unique person (in his adaptation to the environment and society), but never a COSMIST agent of executing her/his immanent (specific, functionalist) assignment – contribution to the wellbeing of the one common Evolutionary Process of the life on Earth.

Thus, in Biocosmological (neo-Aristotelian) light, – biological potentials and social possibilities (for the individual’s development) are just the *tools* for the individual to transcend the biological and social macro-levels of her/his ontogenesis and achieve eventually the highest (for her/him) sociocultural creative macro-level – for the realisation of her/his direct (or indirect participation in the) contribution to the Evolutionary Process’s well-being (its continuation and development).

Criteria	HSS	HSC
<i>Basic needs</i>	Adaptational survival	The Individual’s Functionalist Ontogenetic Contribution
<i>Main driving forces</i>	Extrinsic	Intrinsic
<i>General vector of life</i>	“Live to eat”	“Eat to live”
<i>Type of selection</i>	Selection of the fittest	Selection of the functionally worthy individuals (an ‘elite’ in the given labor field)
<i>Temporal factors</i>	Act mainly in the past and present	Act from the emergent future, which is (in the terms of A.A. Ukhtomsky) – “the anticipated new, better, needed reality”.
<i>Relationship with the Society</i>	Confined within and determined by the Society	‘Transcending-the-Society’ individual

Therefore, in principle, while HSS is the *microcosm* and is confined within the boundaries of the given society, HSC is the *macrocosm*, who is the equal element to the Nature (Biosphere) and Society, and who is precisely 'Transcending-the-Society' individual. A comparative table, hereafter, helps to apprehend the distinctions between HSS (*Homo sapiens socialis*) and HSC (*Homo sapiens cosmicus*):

Conclusion: Definition of the individual's happiness

The proposed (Biocosmological) definition is: 'the individual's happiness is the successful cosmist unity of *adaptational* and *creative* (functionalist ontogenetic) processes of the human organism and personality'. In other words, the individual's happiness is the 'process of processes' of the individual's well-being during her/his entire ontogenesis. It comprises:

- a) the individual's successful specific cosmist (functionalist, of the individual's self-realization) ontogenetic *macro-evolution* – process of transcendence of the individual's whole life activity on the successively higher hierarchical levels (of the evolutionary ascending emergent complexity); and at the same time,
- b) the regular and necessary individual's *micro-evolution* – process of man's successful adaptation and development from the stage of initial elementary (infantile) forms up to the stage of mature stable forms ('from assistant to professor') of the man's integrated wellbeing on the given macro-evolutionary level.

This formula of the individual's health essentially relies on the basic Biocosmological (Realistic) principles of *Bipolar unity* and *Triadic evolutionary cyclicality* of all life processes (on all levels of life organization).

An important point is likewise that this work is a part of the general Biocosmological development that is exercised in the course of the BCA—Biocosmological Association (originated in the 2010, in Veliky Novgorod, Russia), its website: <http://en.biocosmology.ru/>. The webpage of the BCA's journal – *Biocosmology – neo-Aristotelism*: Bilingual Electronic Journal of Universalizing Scientific and Philosophical Research based upon the Original Aristotelian Cosmological Organicism – <http://en.biocosmology.ru/electronic-journal-biocosmology---neo-aristotelism>. All colleagues who are interested are welcome to participate and contribute to the Biocosmological development.

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On being Acne Vulgaris and Marfan's Syndrome: Use of Patients for Medical Teaching within the Pakistani context

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"A classic case of Acne Vulgaris" beamed the elderly, dome-headed dermatologist as he scanned my face with his huge magnifying glass. Four extra pairs of eyes showed their interest and were peering at my face and my "classic" lesions, comedones and pustules also known in common terms as whiteheads, blackheads and the ever-dreadful zit. I remember my extreme discomfort, a gangly fifteen year old wearing spectacles and being looked at as if one would an oddity. Living with zits in the turbulent teen years is nothing less than sheer mental anguish. On top of that come these 20 something adults who show an interest in my disease. I feel unclean and violated. But the feeling passes when I leave the doctor's office and go back to my familiar world of family and friends. Fast forward half a decade and there is a similar situation. Now, I am at the other end. A man in his 20s, "a classic case of Marfan's syndrome". Our consultant points out the spider-like fingers, high arched palate and pigeon chest. The young man has about five students peering at his face and body. He is uncomfortable and showing it. Our consultant does not seem to notice. When the Marfan's shows some sign of his irritation the consultant clicks his tongue and tells him to be patient. It is part of his treatment during his stay in a teaching hospital. And that is that.

Is this the training for our medical doctors as envisaged by Hippocrates to ensure that we "do no harm"? Perhaps with Marfan's I would not have realized the gravity of the situation but because I had been Acne Vulgaris the message hit home. No one bothered to ask me or involve me in medical teaching. Was it because I was a teenager and underage? Or was it because I was a patient? Could it be because I was a girl with low self esteem and an obvious lack of confidence? What about Marfan's? Were his feelings overlooked because he was a patient or because he was occupying a charity bed? Or was it because both of us had arrived at one of the most renowned teaching hospitals of the city?

For years medical education of future doctors is being implemented through the traditional apprenticeship approach. (1) Patient contact is crucial and this tends to focus not only on the disease but also the *illness*. The illness is a unique experience of the disease as experienced by and narrated by the patient. It involves the patient's health beliefs, his/her gender, psychosocial and economic factors as well. Unfortunately, it took me years of post graduate experience as a Family Physician to realize this fact. Now as a teacher of undergraduate medical students I find it distressful and disappointing

when students tend to overlook the illness for disease. I also find it distasteful when students totally disregard the fact that the patient is not merely a teaching tool but a person suffering from an illness. For me its *deja vu*, looking at Acne Vulgaris and Marfan's and learning the characteristic features, differential diagnoses and lines of management.

Perhaps because of glorification of doctors through different texts and paintings, the focus has always been on the healer rather than the ailed. Thomas Eakins' paintings *The Gross Clinic* and *The Agnew Clinic*, Henri Gervex's *Before the Operation* and Luke Fildes' *The Doctor* are a case in point. Looking at these pictures, one is quick to identify the superiority and supremacy of the doctor and hardly a second glance is given to the patient around which the entire activity is taking place. Do we as medical postgraduate and undergraduate students tend to take our patients as teaching material for granted? Perhaps the answer is yes. Medical professionals are now taking on numerous roles. We are not only doctors as healers but also as academicians, teachers, researchers, administrators and mentors. The stresses of wearing so many hats and juggling so many responsibilities may spill out on the patient. The patient is also wearing the hat of the ailed as well as "instructor" and "facilitator" for learning although he may be totally unaware of this fact.

In a study conducted by Stacy and Spencer (2), patients considered themselves to be contributing significantly in students' education and training. They saw themselves in an active role as teacher and facilitator. The patients drew considerable satisfaction from participating in student training. However, these are results of patients residing in the UK who have access to numerous medical facilities and most cost of health care being borne by the UK health system.

Now would that same scenario apply in a third world developing country like Pakistan? In Pakistan, a great cost of health care is borne through out-of-pocket expenditures by the patients. Also there has been an exponential increase in the number of private medical colleges within the country to meet with the demands of health care needs. These are monitored by the Pakistan Medical and Dental Council (PMDC) which is the regulating body of all medical institutions within the country. The PMDC lays down stringent criteria for medical institutions as regard to facilities to be provided for student teaching and learning. Unfortunately many a time patient influx is compromised especially in private medical colleges where patients have to bear expenses of their health care as well as become teaching tools for medical students. Such institutions then resort to formation of "charity beds" or "charity out patient clinics" in which the patient is offered services at subsidized rates, to increase their inflow and meet the requirement of patient contact for medical training of students. Often because of this culture, both students and faculty take such patients for granted and believe that if the institution is providing them free services or services at subsidized rates, it is imperative on them to consent for training purposes. Patients are hardly part of the equation when teaching students is involved. Hardly any patient in this situation would be offered a choice about a student being

present in their care. Access to patients' records and discussions of their cases also require consideration which may not be done on ground.

The socio-cultural paradigm of Pakistan is such that strong family systems and authoritative position of the doctor are the tipping point of medical decision making within the health care system. A high rate of illiteracy, poverty and ignorance of patients' own rights are conducive to such an environment in which the doctor is endowed with a God-like status. (3) Not only that but also patients are quick to place a relational regard on the doctor-patient relationship. It is not uncommon for patients to refer to their treating physicians as *maa*, *baap* (mother, father). In Pakistani culture, parents are placed at high esteem and as a parent would take care and act in the best interest of their children, so it is believed that a physician would act in the best interest of his or her patients. (4) An article by Mahmud (5) rightly reflects the ethical dilemmas like informed consent, privacy, confidentiality and beneficence faced by Pakistani physicians with regards to patient involvement in Medical Education. Mahmud's focus was basically on informed consent of Pakistani patients presenting with kidney and urological problems. The results of his study are in support of what the average teaching institution of Pakistan faces. Explaining patients the concept of their autonomy in such a situation becomes problematic and challenging because of their unquestioned faith in the doctor as a healer. Patients' perceptions and beliefs with regards to their involvement in medical teaching is an under-researched area especially within the Pakistani context.

Now, in the medical education of modern times, the role of the simulated (standardized) patient (SP) has gained significance (6). Although, the role of SPs cannot be undermined because they do have the advantage of ready availability and standardization, but can we equate them with the real patients? Simulation is necessary when one wants to evaluate numerous students on the same yardstick but will it lead to development of virtues like empathy and compassion? One can assess the *method* or *technique* of demonstrating the above mentioned virtues but are they really there within the student? It is difficult to assess and ascertain on patients that your students may know are "fake". I don't think there could be a better teaching tool than the "real" patient if the tool is used with compassion and understanding. So what is the way forward? That is a question that we as doctors and medical teachers of third world countries like Pakistan need to ask of ourselves. One is to perhaps instill within our medical students the concepts of empathy with patients and gratitude for their involvement in their learning process. Students need to realize that without these patients their education would be incomplete. Patients on the other hand, need to be made aware of their rights to refuse their involvement in a teaching activity if they are reluctant to do so. The doctors or mentors should respect that right even if it is at the cost of compromising teaching. Such role modeling will go a long way for the younger generation to emulate.

In retrospect I think I could have been made to feel special if the doctor or medical students had introduced themselves and their purpose for being there. That would

have made me comfortable and I would in fact have liked being Acne Vulgaris.

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Attitudes of Genetic Decision Making in Culturally Diverse Populations

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Abstract

To understand the public opinion concerning the genetics in culturally different populations, we conducted two focus groups in Japan, with one focus group each in China and Panama between April 2008 and August 2009. Generally, the participants in Japan were more cautious to disclose their personal thinking in a clear manner. Most participants in China and Panama hoped to have children free from any genetic disease if at all possible. The major difference between China and Panama seems to be whether or not they will accept the issue of genetic abortion. Compared to China and Panama, fewer participants accepted a reproductives procedure in Japan. "A goal of genetic counseling is to reduce the number of patients of genetic disease" is supported to a greater degree in China and Panama than

in Japan. Most participants in China as well as Panama, and fewer participants in Japan accepted the concept of sharing genetic information with relatives, even though it is useful for preventing a possible genetic risk. The difference of the answers for the questions (statements) is depending on the cultural and value diversity in each country, while some of them are related into a paucity of knowing the principle of biogenetics. Education as to medical genetics and the principle of bioethics is most important to make genetics more accessible to the general public.

Introduction

Although bioethical principles of medical genetics were proposed by several international bodies such as WHO and European Commission [1,2], actual attitudes and interest for genetic issues depend to a large degree on the culture and social situation of each country [1]. Even within the same country, a culturally diverse population has different recognition values about genetic issues [3]. A law concerning reproductives of each country is also different, such as in the case of pre-implementation diagnosis which is approved in UK, France, the USA, the Netherlands, Norway, and Sweden, but not in Germany, Canada, Switzerland, Australia, and Ireland. Therefore, it is a matter of discussion to consider a relationship between genetic issues and the public reaction to it. Japanese and Chinese geneticists participated in the international survey for the ethical attitude concerning medical genetics conducted by Wertz and Fletcher in 1993-1995 [4]. Apparent differences such as the attitude for genetic abortion and sharing genetic information with the relatives were observed between these two countries. Nevertheless, only a few surveys were performed in the populations which included lay persons. In the previous studies of Wertz and Fletcher, Latin American countries, such as Argentina, Brazil, Cuba, Mexico and Peru were included, but Panama was excluded, though the reason is unclear [4]. We aimed to understand the existing public opinion when people face issues related to genetic health care in three different countries; Japan, China and Panama.

Methods

We conducted two separate focus groups in Japan (Health Sciences University of Hokkaido and Institution of Disabled Children in Yokohama), one focus group in China (Xiangya Hospital, Central South University) and one focus group in Panama (Children's Hospital of Panama University) for this survey, between April 2008 and August 2009. Anonymous survey sheets were distributed by hand and collected later in every focus group except for one in Japan (Health Science University), where the survey was conducted using the web based system. In Panama, a medical doctor explained some technical (medical) terms before implementing the survey to avoid any misunderstanding.

We prepared questions (statements), as shown below, belonging to several categories of genetics, which appeared randomly and separately, sometimes on different pages of the survey sheet to obtain unbiased responses. After the survey was completed, those

questions were then rearranged according to each category of genetic issues.

The original questions were first created in Japanese and then translated into English by a native English language speaker. The questions were then retranslated into Chinese and Spanish. Most of the questions were the same as found in the survey conducted by Wertz and Fletcher [4]. The number of participants, male/female ratio, age, married or single, having children or not, health care givers/ lay person ratios and collection rate of the survey sheets are all shown in Table 1.

We requested responses for each question by indicating the following numbers from 1 to 5 according to the decision making (1: *strongly agree*, 2: *agree*, 3: *neither agree nor disagree*, 4: *disagree*, 5: *strongly disagree*), but we re-categorized these responses into three major categories: *agree* (*strongly agree* + *agree*), *neither agree nor disagree*, *disagree* (*strongly disagree* + *disagree*), because of the statistical reason that some frequencies of the data in several cross tables were under 5 and so their expectations were not calculable.

Statistical analysis

The re-categorized data set was examined by chi-square test, using SPSS package ver.160J, at the significant level of 1 percent (p< 0.01).

Results

No statically significantly different set of answers were obtained between males and females, between health care givers and lay persons, and participants having children and those having no children in all three countries. Therefore, the data obtained was analyzed as the echo of the participants belonging to each country.

Questions and Answers

1. Reprogenetics

1) *Persons who are aware that they carry a recessive genetic disease should not mate with another carrier of the same disease.*

	Japan (n=280)	China (n=202)	Panama (n=218)
Agree	21.3%	31.7%	69.1%* ¹
Neither a or d	43.2%* ²	15.3%	10.9%
Disagree	35.5%	53.0%	20.0%* ³

*¹ significantly higher in Panama than in the other two countries; *² significantly higher in Japan than in the other two countries *³ significantly lower in Panama than in China

2) *A pregnant woman should have a prenatal diagnosis performed, if medically indicated by factors of her age and family history.*

	Japan (n=280)	China (n=202)	Panama (n=218)
Agree	45.5%* ¹	98.5%	88.1%
Neither a or d	38.1%* ²	0.5%	3.7%
Disagree	16.5%	1.0%	8.2%

*¹ significantly lower in Japan than in the other two countries *² significantly higher in Japan than in the other two countries

3) *It is acceptable to perform the prenatal diagnosis and even undergo selective abortion in the case of severe genetic disease which generally results in the early death of the infant within several months after birth.*

	Japan (n=280)	China (n=202)	Panama (n=218)
Agree	39.9%	84.2%* ¹	53.4%* ⁴
Neither a or d	34.5%* ²	8.9%	13.6%
Disagree	25.6%	6.9%* ³	33.0%

*¹ significantly higher in China than in the other two countries *² significantly higher in Japan than in the other two countries *³ significantly lower in China than in the other two countries *⁴ significantly fewer participants agreed to question 1.3) than to question 1.2) in Panama

4) *It is not fair to the child to be brought into the world with a serious disorder, when the genetic testing is available.*

	Japan (n=280)	China (n=202)	Panama (n=218)
Agree	28.4%* ¹	89.1%	80.1%
Neither a or d	33.2%* ²	5.9%	7.7%
Disagree	38.4%* ³	5.0%	12.2%

*¹ significantly lower in Japan than in the other two countries *² significantly higher in Japan than in the other two countries *³ significantly higher in Japan than in the other two countries

By further analysis, participants who agreed to this fifth question also agreed to question 1.2) 76.0% in Japan, 98.9% in China, 94.9% in Panama, to question 1.3) 66.0% in Japan, 87.6% in China, and 59.3% in Panama.

And the participants who agreed to this fifth question also agreed to question 3.1) 69.0% in Japan, 82.1% in China and 97.2% in Panama, and to question 3.2) 69.0% in Japan, 74.9% in China, and 91.0% in Panama, the difference between Panama and Japan being significant.

5) *When patients ask for a procedure that a medical doctor is unwilling to perform for a variety of moral reasons (such as selective abortion), it is his/her responsibility as the medical doctor to offer a referral, when the procedure is legal.*

	Japan (n=280)	China (n=202)	Panama (n=218)
Agree	62.0%	68.3%	68.6%
Neither a or d	24.3%	17.1%	10.0%
Disagree	13.7%	14.6%	21.4%

6) Surrogate motherhood

1) Surrogate motherhood without any limitation
“Surrogate motherhood” must be acceptable as a legal option without any limitation.

	Japan (n=280)	China (n=202)	Panama (n=218)
Agree	30.1%	12.9%* ¹	31.1%
Neither a or d	29.8%	33.7%	31.0%
Disagree	40.1%	53.5%	37.9%

*¹ significantly lower in China than in the other two countries

2) Surrogate motherhood in case of maternal genetic disorder

“Surrogate motherhood” is a morally acceptable alternative when a woman has a dominant disorder or carries an X-linked disorder

	Japan (n=280)	China (n=202)	Panama (n=218)
Agree	34.8%	59.0%*1,2	48.9%*2
Neither a or d	40.0%	25.0%	25.0%
Disagree	25.2%	16.0%	25.9%

*1 significantly higher in China than in Japan

*2 significantly increased participants agreed to question 16) ii) than to question 1.6) i)

7) *A child born should have a right to know the biological father in case of artificial insemination with the sperm of a donor and not from the actual spouse.*

	Japan (n=280)	China (n=202)	Panama (n=218)
Agree	46.3%	28.9%*1	47.0%
Neither a or d	32.7%	19.9%	18.7%
Disagree	21.0%	51.2%*2	34.2%

*1 significantly lower in China than in the other two countries *2 significantly higher in China than in the other two countries

2. Genetic counseling

1) *An important goal of genetic counseling is to reduce the number of harmful genes in the population*

	Japan (n=280)	China (n=202)	Panama (n=218)
agree	20.5%*1	84.9%	81.8%
Neither a or d	37.0%*2	10.1%	6.8%
disagree	42.5%*3	5.0%	11.4%

*1 significantly lower in Japan than in the other two countries *2 significantly higher in Japan than in the other two countries *3 significantly higher in Japan than in the other two countries

By further analysis, participants who agreed to this question also agreed to question 3: 1) 53.5% in Japan, 85.2% in China, and 97.2% in Panama.

2) *Genetic testing should always be preceded by genetic counseling*

	Japan (n=280)	China (n=202)	Panama (n=218)
Agree	56.9%*1	88.0%	90.9%
Neither a or d	31.5%*2	10.5%	0.9%
Disagree	11.7%	1.5%	8.2%

*1 significantly lower in Japan than in the other two countries *2 significantly higher in Japan than in the other two countries

3) *A client’s decision should be supported by means of genetic counseling, even though the counselor may have a different personal option that he/she would follow.*

	Japan (n=280)	China (n=202)	Panama (n=218)
Agree	54.7%	49.8%	80.4%*1
Neither a or d	34.7%*2	21.9%	7.3%
Disagree	10.6%	28.4%	12.3%

*1 significantly higher in Panama than in the other two countries *2 significantly higher in Japan than in Panama

3. Genetic information and Genetic privacy

1) *Prior to marriage the couple should know each others, whether they or their partner carries a genetic disorder that could be transmitted to their children.*

	Japan (n=280)	China (n=202)	Panama (n=218)
Agree	43.5%*1	82.1%	90.9%
Neither a or d	33.0%*2	10.9%	0.9%
Disagree	23.5%*3	7.0%	8.2%

*1 significantly lower in Japan than in the other two countries *2 significantly higher in Japan than in the other two countries *3 significantly higher in Japan than in the other two countries

2) *Patients should tell their blood relatives the results of their own genetic testing if the results are relevant to the relatives’ health or reproductive issues.*

	Japan (n=280)	China (n=202)	Panama (n=218)
Agree	57.4%*1	73.2%	85.0%
Neither a or d	29.7%*2	20.4%	5.9%
Disagree	12.9%	6.5%	9.1%

*1 significantly lower than in the other two countries

*2 significantly higher in Japan than in Panama

3) *If genetic data of the patient will have relevance for their relatives at risk that may be in need of treatment (or avoid serious genetic harm), the information should be disclosed to at-risk relatives even though the patient’s consent is not given.*

	Japan (n=280)	China (n=202)	Panama (n=218)
Agree	19.4%*1	68.3%	61.1%
Neither a or d	26.3%	17.8%	13.1%
Disagree	54.0%*2	13.9%	25.8%

*1 significantly lower in Japan than in the other two countries *2 significantly higher in Japan than in the other two countries

Table 1 Demographic data of the participants and collection rate in each country

	Japan	China	Panama
N	280(M/F:131/149)	202(M/F:83/119)	218(M/F:69/149)
Age	37.2±12.4	24.1±5.0	38.6±10.6
Married	44.0%	20.4%	67.7%
Having Child	31.1%	12.5%	64.8%
HCG(Health Care Givers) /Lay person	44.0/ 56.0%	31.8%/68.2%	47.5%/52.5%
Collection rate	53.4%	96.7%	95.0%

Discussion

There were some differences in the demographic data of participants such as, the age of participants in China who were generally younger than in other two countries and the rate of marriage in China was also lower than in the other countries. Japan and Panama had similar age demographics. The proportion having children was also different among the three countries. The number and sex ratio of participants were similar in all three countries, although the rate of collection (response rate) was significantly less in Japan than in the other two countries.

We, however, anticipated that useful data for comparison was obtained by analyzing the responses from individuals of these three countries. In comparison to China and Panama, the significantly higher proportion of the answers stated as *neither agreed nor disagree* was found in Japan, such as in 7 out of 14 answers in both countries and in 2 of these answers in one country, suggesting that Japanese participants were cautious about disclosing their own thinking. Those figures were quite similar to those in the survey of Japanese geneticists, which had been previously performed [4, 5].

Japanese are known to have a rather unique culture and civilization according to the works of Nakamura, Huntington and others [6, 7]. One unique feature reflected in Japan is that of being ambiguous seeking heteronomy rather than autonomy, seeking for harmony rather than conflict, and a scrupulous or conscientious need to maintain a good relationship with others. The features can be traced to the influence of Japanese history and the geographical limitation of an island country [6].

Reprogenetics

The results obtained for the questions 1.1) Persons who are aware that they carry a recessive genetic disease should not mate with another carrier of the same disease, 1.2) A pregnant woman should have a prenatal diagnosis performed, if medically indicated by factors of her age and family history, and 1.3) It is acceptable to perform the prenatal diagnosis and even undergo selective abortion in the case of severe genetic disease which generally results in the early death within several months after birth suggest participants in China and Panama hoped to have a child free from any genetic disease if at all possible. The difference between China and Panama is whether or not they will generally accept genetic abortion. Most participants in Panama avoided marriage between the carriers of the same recessive disease rather than getting a genetic abortion. The fact that significantly fewer participants agreed to question 1.2) than to question 1.3) in Panama (proportion of both answers were similar in China) may suggest that receiving a prenatal diagnosis and the acceptance of selective abortion must be discussed independently, although these activities are correlated with each other. It was shown that even if 79% and 58% of the people said they accept prenatal diagnosis for genetic diseases, only 24% and 20% agreed to have a selective abortion when the fetus is affected in African Americans and in Caucasian Americans, respectively [8]. A previous survey among the geneticists in Japan showed very similar data obtained at this time, such as 18.8% and 25.0% of geneticists agreed to questions 1.1), and 1.2) [4,5]. Therefore, only a few people were willing to have reprogenetics procedures in Japan.

Genetic abortion in China is approved by the Law on Maternal and Infant Health Care, in which Article 18 prescribes that the physician shall give advice to married couples for a termination of pregnancy if some disorder or malformation is detected in prenatal diagnosis [9]. In Panama abortion is approved by law, if the fetus has been found to have a severe genetic disease [10, 11]. In Japan the Eugenic Protection Act, under which those

with mental disabilities could be possibly sterilized by force, was repealed in 1995. Instead, a new Maternal Protection Act was passed in 1996 where abortion is legal, if continuation or delivery may possibly cause considerable harm to maternal health for either physical or economic reasons, but the fetus's condition is excluded [12], like that in Germany [13]. Thus, there is a possibility that the differences of the legal situation among the three countries are reflected in the answers.

However, the widely different answers to the question 1.4) *It is not fair to the child to be brought into the world with a serious disorder, when genetic testing is available*, acceptance by 28.4% in Japan, 89.1% in China and 80.0% in Panama could not be explained by the differences among the laws in each country alone. The international survey by Wertz and Fletcher in 1995 showed that 12.5% of Japanese geneticists agreed to this statement [4]. In the survey performed in 2001, only 2.3% of Japanese geneticists agreed to this statement [5]. By further analysis as shown in the Results, most participants (66.0% to 98.9%) who agreed to this question agreed to other questions, such as 1.2), 1.3), and also 3.1), 3.2) (*sharing genetic information prior to marriage, and within blood relatives*) in all countries, including Japan. These responses are an indication that the participants trying to have a child free from genetic disease are actively accepting reprogenetics management and sharing of the genetic information with relatives, even in Japan.

According to the description of Mao, traditionally the mourning period after a person's death lasted for seven weeks; however, a dead fetus was never mourned. Most Chinese did not consider the fetus a human being or a person, and they do not feel a child has died or has been killed when a spontaneous or induced abortion occurred [14]. On the other hand, many lay people in Japan and Panama think abortion is similar to killing the baby. The different view of the fetus might be one of the reasons why genetic abortion is more acceptable in China than in other two countries. In addition, Japan has had much less experience with genetic issues because of an absence of major genetic diseases such as Sickle cell anaemia, β -thalassaemia and cystic fibrosis. This factor is another reason for the paucity of accepting reprogenetics management. In case of the Duchenne muscle dystrophy, 59.5% of the patients and their family members said prenatal diagnosis being acceptable even in Japan [15].

Answers concerning the responsibility of medical doctor offering another doctor to take care of the patient were not different among the three countries. The answers are well reflected in the concept as was suggested by WHO guidelines [1].

Generally, participants were reluctant to accept surrogate motherhood without limitation in all three countries, with Chinese the least accepting. Increased acceptance of surrogate motherhood in the case of X linked genetic diseases in China and in Panama is understandable, when the concept of having a child free from genetic disease, as discussed above, is taken into the consideration. In Japan surrogate motherhood had been discussed more than 10 years publicly including Council of Science of Japan and still not approved at

present except only a few cases. This is possibly one of the reasons why no increase of acceptance was observed in Japanese, even in the case of X linked genetic diseases.

A child's right to know of his or her biological father in the case of artificial insemination with donor sperm is a matter of discussion all over the world [16]. However, China still remains sensitive in the area of surrogate motherhood as well as artificial insemination, possibly due to the only one child policy.

Genetic counseling

It is understood that the main purpose of genetic counseling is a communication process, which deals with human problems associated with the occurrence, or the risk of occurrence, of a genetic disorder in a family. This process involves an attempt by one or more appropriately trained persons to help the individual or family: consisting of (1) provision of all genetic and related information relevant to a family's needs, (2) supportive counseling that enables a family or individual to make their own decisions after gaining understanding of their needs, values and expectations [1]. Therefore, question 2.1) *An important goal of genetic counseling is to reduce the number of harmful genes in the population* seemed to be an incorrect goal in the literal meaning, but was supported by more than 80% of the participants in China and Panama. In Japan, similar to the previous data (12.5%) [5], only 20% of the participants agreed to this question. In further analysis as shown in the Results, even if the respondent accepts this goal, fewer participants accepted question 3.1, (*sharing genetic information prior to marriage*) in Japan (53.5%), in contrast to China (85.2%) and Panama (97.2%). Thus, it seemed there is a gap in logical consistency in the replies of Japanese participants.

According to Nipper and Wolf there is general agreement that reducing the prevalence of genetic diseases that cannot be cured is not a primary goal of genetic counseling in Germany. Instead, it sees the primary goal is informing people about their individual risks and letting them decide how to act upon this information [13]. Some Japanese participants commented on the statement 2.1) it is a form of Eugenics. However, we must discuss in greater detail, the consideration of situations in every country. Bioethics in clinical practice and in public health has a set of different perceptions. The former view seems to be much more dependant on autonomy and rights of the patient producing "good for the individual," while the latter view is dependant on the prevention of diseases and keeping the public health in a stable condition with certain limitations of human rights.

As discussed by Public Health Leadership Society, public health should achieve community health in a way that respects the rights of individuals in the community [17]. Genetic counseling is one of the genetic services of clinical health care, but not in the case of public health care. However, when genetic diseases, such as β -thalassaemia in Cyprus and Sardinia, had social and economical burdens on the community, the purpose of genetic services will have another meaning rooted in public health care. After a suitable degree of education of

genetics and through careful genetic counseling with understanding, individual / couple will make a choice which may include avoiding conceptions, using donor gametes or using prenatal diagnosis followed by genetic abortion to avoid birth in the case of an affected child. If most couples were to make the same choice, an overall outcome could be a reduced population frequency of disorder. Otherwise, health care costs of these countries will be highly elevated and cause a most serious condition. Especially in the case of a developing country, to reduce the medical expense for the genetic disease and increase funding for other more popular diseases, such as infectious diseases, will bring about a much more desirable status. Answer to question 2.3) indicated that 80% of participants accepted to have a genetic choice with free will after genetic counseling in Panama. And voluntary choice is approved in China by law [18]. Therefore, the responses in China and Panama do not justify a "Eugenics" label, according to the WHO guidelines [1].

Genetic counseling before genetic testing is required consequentially in every genetic guideline [1, 2, 19]. Thus, the fact that 88% to 91% of participants of China and Panama who agreed to the requirement of pre-testing counseling of question 2.2) is most satisfactory. However, fewer participants of Japan in comparison to both countries had the proper answer, even though 57% of them agreed to the question. Only the participants in Panama had most desirable answers for non-directive genetic counseling of question 2.3) in comparison to the other two countries. More education seems to be necessary for the countries less familiar with the principles of genetic counseling.

Genetic information and Genetic privacy

Significantly more participants in China and in Panama (73% to 90%) than in Japan (44% to 57%) agreed to question 3.1) *Prior to marriage the couple should know whether they or their partner carries a genetic disorder that could be transmitted to their children.*, and to question 3.2) *Patients should tell their blood relatives the results of their own genetic testing if the results are relevant to the relatives' health or reproductive issues.* In the previous survey in Japan (1995), only 21.6% and 35.1% of the geneticists agreed to question 3.1) and 3.2) [5]. And to question 3.3) *If genetic data of the patient will have relevance for their relatives at risk that may be in need of treatment (or avoid serious genetic harm), the information should be disclosed to at-risk relatives even though the patient's consent is not given*, only 19.7% of the participants agreed in Japan, whereas 68% and 61.1% of the participants agreed in China and in Panama.

According to the principle of warning for the third party to prevent a possible risk, the genetic information should be shared with relatives and even in the instance of absence of the patient's consent the information could be disclosed to the genetic relatives by genetic health care providers, if it is available to prevent severe genetic risk [1, 2, 19, 20]. Therefore, the attitude of the participants in China and in Panama is most consistent with the principle of bioethics. Japanese participants, from lay persons to geneticists were very reluctant to share the

genetic information with relatives, and showed almost a negative reaction for disclosing the genetic information to relatives by health care givers without the patient's consent, even though the information is available for preventing a severe genetic burden.

Those attitudes are clearly in contrast to the Guidelines of Japan Society of Human Genetics [19]. In the previous survey, there were significant differences among the answers to the question of "Do you think members of the family should be informed of your genetic status?", with an acceptable response in 48.9% of health care givers and lay persons (n=1349), and 69.3% of patients and their parents of genetic diseases (mostly Duchenne muscle dystrophy, n=140) [12]. As discussed above, the people having an experience and knowledgeable background with genetic diseases, directly or indirectly, will have the more favorable reaction. Thus, education of medical genetics is of paramount importance to make the ethical principle of medical genetics more accessible to the general public.

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Violence against children and adolescents: awareness and attitudes of Brazilian dentists

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Abstract

Violence against children and adolescents, ranging from negligence to sexual abuse, is an imperative public health problem. The ill treatments are considered as non-accidental traumas, actions or omissions against children, who suffer physical or emotional violence. The main perpetrators are fathers, mothers, guardians, family, friends or the children's primary caretaker. It is very important to identify abuse cases, because this allows proper medical and legal intervention. In Brazil, the law n. 8.069, of July 13, 1990, known as the ECA -Statute for Children and Adolescents (SCA), stipulates the obligation

to report suspected or confirmed cases of ill treatment against a child or adolescent to the Guardianship Council of the respective locality.

The health professionals play a crucial role with regard to identifying cases of violence, collecting information, making early diagnosis of suspect cases and reporting such cases to the authorities. The dentists can contribute significantly, as most injuries occur in the orofacial region. Bite marks, burns, bruising, among others, are easily identified during a dental consultation. The aim of this work was to verify the awareness and attitudes of Brazilian dentists concerning violence against children and adolescents. This research was approved by the Research Ethics Committee of the Faculty of Dentistry of Araraquara – São Paulo State University (FOAr – UNESP).

Sixty-three dentists answered an open and closed questionnaire concerning their formation, knowledge, experience and attitudes towards ill-treated children and adolescents. Among other results, thirty-nine dentists (61.9%) affirmed to have the means to identify ill-treatment cases, 13 (20.6%) reported having some experience on this matter, but only 8 reported the cases to the Council of Guardianship, as determined by Brazilian law. Twenty percent of the reasons presented for not notifying the Council were fear of reprisal, and 60.0% were uncertain concerning the ethical and legal implications. Physical violence was the most reported form of identified violence (76.9%), followed by negligence (38.5%). Among the 13 professionals that had experience with violence cases, in 10 cases the perpetrators were identified – in 70.0% of the cases, the parents were the originators of such violence. It was concluded that further formation and orientation are necessary, in order to prepare dentists to act correctly when, during their professional activities, they encounter cases of violence against children and adolescents.

Keywords: Violence; Children and Adolescents, Bioethics, Ethics, Professional Ethics, Forensic Dentistry

Introduction

Currently worldwide, public health has faced many problems, and violence can be considered one of the most serious problems (Tardivo, Fernandes, Serra, 2007). There are several ways violence reaches people, directly or indirectly, either by undergoing the consequences or by causing them, and children are the most vulnerable as they have no possibility of defending themselves (Gomes et al., 2002). Children are the recipient of ill-treatment in a serious global problem and although it seems to be very distant from our homes or workplace, this problem affects all segments of society. According to Aded et al. (2006), there are various forms of abuse against children and adolescents – such abuse comprises physical, sexual, psychological and neglect, however which is the most harmful is not known. Violence, oftentimes, goes unnoticed by the parties involved and can be prompted by various factors and manifested differently, dictating the severity of injury to the victim. Cavalcanti (2001) declares that child abuse can be considered non-accidental trauma and comprise actions or omissions against children who suffer from

habitual or occasional physical and emotional violence or both, intentionally, with the aggressors being the parents, guardians, relatives, friends or persons responsible for them.

As child abuse generally takes place within the family environment, usually caused mainly by the parents, this violence fits into the so-called domestic or intrafamily violence (Vieira, 1998; De Antoni, Koller, 2000; Cavalcanti, 2001; Gonçalves, Ferreira, 2002; Chaim, Daruge, Gonçalves, 2004; Brito et al., 2005; Coohy, 2006). According to Zilberman and Blume (2005), domestic violence is defined as any type of physical, sexual or emotional abuse carried out by one spouse against the other, in addition to abuse of children and the elderly in the family's residence. Although the first case of child violence notification was in 1874, in the United States, sexual abuse has been described since ancient times. The Roman emperor Tiberius, according to Suetônio's work on the life of the Caesars, had sexual inclinations that included children as objects of pleasure. There are reports that he withdrew for the island of Capri with several of them, requiring them to satisfy his libido through the practice of various forms of sexual acts (Carter-Lourensz, Johnson Powel, 1999). The episode that took place in 1874 was responsible for the creation of the Society for the Prevention of Cruelty against Children in the following year (Ten Bensel, King, 1975). Among the various forms of abuse against children and adolescents, the most frequent are physical, sexual and psychological abuse, in addition to negligence. Even today, within the Brazilian society and other societies in the world, the use of physical punishment is a quite frequent in child rearing. According to Azevedo and Guerra (1994), this form of parental discipline can facilitate the trivialization and recurrence of domestic physical violence, as parents consider this to be a normal discipline practice.

Since the early 1980's, domestic violence has aroused greater interest in the scientific environment (Santos, 1987; Azevedo, Guerra, 1988, 1989; Azevedo, 1995; Minayo, 1993; Saffioti, 1997), a fact demonstrated by the appearance of the first specific programs for handling this problem, as for instance, the Regional Centre of Attention to Child Abuse (CRAMI - Rio Preto), in accordance with the CRAMI model - Campinas, created in 1985 (Gonçalves, Ferreira, Marques, 1999; Brito et al., 2005). Since then, this form of violence has received more attention from researchers, recognizing its severity. The protection of children and adolescents is the subject of national and international standards, subject to bioethical principles and legal provisions.

At the international level, Brazil is signatory to the Convention on the Rights of Children (Convention on the Rights of Children, 1990), stipulating in Article 19:

"1. The participating States shall take all appropriate legislative, administrative, social and educational measures to protect children from all forms of physical or mental violence, injury or abuse, neglect or negligent treatment, maltreatment or exploitation, including sexual abuse, while in the care of parent(s), legal guardian(s) or any other person holding legal custody.

2. Such protective measures should include, as deemed appropriate, effective procedures for the establishment of

social programmes to provide necessary support to the child and for those who have the custody of the child, as well as for other forms of prevention and for identification, reporting, referral, investigation, treatment and follow-up of aforementioned instances of child abuse, and, as appropriate, for judicial intervention."

The Brazilian Federal Law No. 8069, June 13, 1990, known as the Statute of Children and Adolescents (Brazil, 1990), determines the enforcement of communicating to the Council of Guardianship any suspected or confirmed cases of abuse against children or adolescents, and decrees punishment for professionals who fail to do so, according to the text below:

"Art. 13. Without prejudice to other legal measures, cases involving suspicion or confirmation of maltreatment of children or adolescents will obligatorily be notified to the Council of Guardianship of the respective locality.

Art. 245. Should the medical doctor, professor or element responsible for an institution of health assistance and basic education, preschool or day-care center, fail to notify the proper authority of cases which he has become aware of, involving suspicion or confirmation of maltreatment against a child or adolescent:

Penalty – A fine of three to twenty reference-wages and double that amount in the case of recidivism."

The Universal Declaration on Bioethics and Human Rights (UNESCO, 2005), adopted unanimously by the General Conference of UNESCO in October 2005 in its Article 3 - Human dignity and human rights, states in item 3.1: *"Human dignity, human rights and fundamental freedoms are to be fully respected."*

The recognition of abuse against children contended the need to protect them, with such protection officially starting from notifying violence to the qualified authorities. The health care professionals have a vital role with regard to identifying cases of violence, collecting information, diagnosing early cases of suspicion and reporting them to the qualified authorities. The surgeon-dentists are in a perfect position to observe the signs of ill-treatment, given that most injuries, in cases of physical abuse, involve the regions of the head, neck and mouth (Mouden, Bross, 1995; Sfikas, 1996; Silveira, Mayrink, Sousa Netto, 2005; Granville-Garcia et al., 2006).

Louzado et al. (2001), found that health professionals, particularly dentists, should be able to at least suspect of sexual violence incidents on children, in cases of suggestive lesions. According to Chaim and Gonçalves (2006), Dentistry, as a health profession, should be questioned on what to do and how to help reduce this form of violence, including practicing a greater responsibility and legal ethics regarding the abused child. However, health professionals in Brazil are not prepared to handle the chaos of abuse against children and adolescents, since there is no specific approach to that issue in the universities, as well as no dissemination concerning the specialized services available. There is also a lack of effective public guidelines that enable the creation and, especially, the maintenance of prevention and treatment programs, necessary for the improvement and development of effective techniques in fighting this

problem (Chaim, Daruge, Gonçalves, 2004; Chaim, Gonçalves, 2006; Monte Alto et al., 1996).

According to Gonçalves and Ferreira (2002), despite the legal determinations in the Statute for Children and Adolescents, the underreporting of violence is a reality in Brazil. Among the factors leading to such omission is the fact these professionals do not feel safe concerning the identification of injury and subsequent diagnosis. Another factor to be considered is whether notifying the act represents a breach of professional confidentiality, in addition to the fear of legal problems and implications with the family that can oppose and challenge the notification. The precariousness of services and lack of infrastructure for the proper performance of the responsible agencies are also obstacles these professionals are faced with.

The severity of violence against children is still little recognized, and awareness of the subject needs to be extended (Tardivo, Fernandes, Serra, 2007). We understand that verifying awareness and attitudes of dentists on violence against children and adolescents is vital, assisting to outline an overview of this reality and, based on this, proposing awareness and guidance actions, if necessary. The objective of this study was to evaluate the degree of professional knowledge regarding the identification of cases or suspected abuse against children and adolescents and the requirement to notify abuse cases to the competent authorities and agencies.

Methodology

A questionnaire was drawn up (Addendum I) concerning the awareness and attitudes of dentists with regard to their ethical and legal responsibilities in case of suspicion and diagnosis of violence against children and adolescents. This questionnaire was randomly applied during the 61st Dental Conference (JOFOA) and the 21st Academic Conference (JAFOA) of the Faculty of Dentistry of Araraquara, SP, Brazil, held in August 22 to 25, 2007. Professionals who provide care to children and/or adolescents were invited to participate in the survey. Sixty-three dentists consented to participate in this research by responding the questionnaire. The data were analyzed using the program EPI-INFO 2000 version 3.0. This study was approved by the Committee on Research Ethics (CEP) of the Faculty of Dentistry of Araraquara, São Paulo State University (FOAr - UNESP).

Results

Table 1 presents the results on the gender of the participants, and Table 2, data on the time after graduation. Table 3 presents the data related to their professional activities as general clinicians or specialists, and Table 4 shows the specialties of the participants.

Table 1 - Gender of the dentists

Gender	Frequency	Percent
Masculine	27	42.9
Feminine	36	57.1
Total	63	100

Table 2 – Time since graduation of the dentists

Time of graduation	Frequency	Percent
Up to 05 years	44	69.8
06 - 10 years	11	17.5
11 - 15 years	4	6.3
16 - 20 years	1	1.6
21 - 25 years	1	1.6
26 - 30 years	1	1.6
31 years or more	1	1.6
Total	63	100

Table 3 – Type of professional activity

Type of professional activity	Frequency	Percent
General clinician	37	58.7
Specialist	26	41.3
Total	63	100

Table 4 – Specialties of the dentists

Specialty	Frequency	Percent
General clinician	37	58.7
Oral and Maxillofacial Surgery and Traumatology	5	7.9
Operative Dentistry	6	9.5
Endodontics	1	1.6
Odontopediatrics	6	9.5
Ortodontics	1	1.6
Periodontics	7	11.1
Dental Prosthesis	4	6.3

Note: The percentages refer to the 63 participants. Some professionals informed more than one specialty.

The majority participating in this survey are females (57%), and with professional time less than or equal to 5 years (70%).

Slightly more than half of the participants are general practitioners (59%), and the specialties most cited were Odontopediatrics and Operative Dentistry (10%).

Following, Table 5 shows the receipt of information concerning on identification of ill-treatment against children and/or adolescents during graduation, and Table 6 shows the disciplines that gave such information. Table 7 shows the guidance about identifying abuse against children and/or adolescents during the course, and Table 8 shows the subjects in which such information was taught, after graduation.

Table 5 – Receiving information concerning identification of abuse against children and/or adolescents during the graduation course

Receiving information	Frequency	Percent
Yes	39	61.9
No	24	38.1
Total	63	100

Table 6 – Subjects that provided information concerning the subject during the graduation course

Discipline	Frequency	Percent
Oral Medicine	4	10.3
Forensic Dentistry/Deontology	13	33.3
Sanitary and Preventive Dentistry	9	23.1
Odontopediatrics	33	84.6
Ortodontics	1	0.3
Oral and Maxillofacial Surgery and Traumatology	4	10.3
Other	0	0

Note: The percentages refer to the 39 professionals that declared to have received orientation during the course. It was possible to choose more than one alternative.

Table 7 – Receiving guidance about identifying abuse against children and/or adolescents after graduation

Receiving guidance	Frequency	Percent
Yes	22	34.9
No	41	65.1
Total	63	100

Table 8 – Events where guidance was ministered after graduation

Event	Frequency	Percent
Conferences	4	18.2
Actualization courses	7	31.8
Specialization courses	5	22.7
Others	8	36.4

Note: The relative frequency was calculated regarding the 22 professionals that declared to have received guidance during the course. It was possible to mark more than one alternative. Regarding guidance on identifying abuse against children and/or adolescents during the graduation course, it was observed that 62% of the respondents of the survey received such information, and the Odontopediatrics subject was the most cited by those who received such guidelines (84%). Forensic Dentistry/Deontology was the subject pointed in second place (33%). However, after graduation such information was lower (35%).

Table 9 presents the self-assessment results regarding the ability to identify abuse against children and/or adolescents. Table 10 shows the data related to the experience of such identification, and Table 11 lists the type of violence identified.

Table 9 – Self-assessment regarding the capacity to identify abuse against children and/or adolescents

Feels capacitated	Frequency	Percent
Yes	39	61.9
No	24	38.1
Total	63	100

Table 10 – Experience of identifying abuse against children and/or adolescents

Experience	Frequency	Percent
Yes	13	20.6
No	50	79.4
Total	63	100

Table 11 – Type of violence identified

Type of violence	Frequency	Percent
Physical	10	76.9
Sexual	2	15.4
Negligence	5	38.5
Others	0	0

Note: The relative frequency was calculated regarding the 13 professionals that declared to have experienced identifying abuse against children or adolescents. It was possible to mark more than one alternative.

Most professionals considered themselves capable of identifying cases of abuse (62%) although only 13 dentists (21%) have had the experience, in their careers, of identifying possible cases of violence. Among the types of violence cited, the most common was physical violence, represented by 77% of the responses, followed by neglect (38%).

Table 12 shows the answers related to the difficulty in identifying signs of violence, by those who conducted such identification. Table 13 shows the information about the identification of the perpetrators, and Table 14, their identity.

Table 12 – Difficulty in identifying signs of violence

Difficulty	Frequency	Percent
Yes	4	30.8
No	9	69.2
Total	13	100

Note: The relative frequency was calculated regarding the 13 professionals that declared to have experienced identifying abuse against children or adolescents.

Table 13 – Identification of person responsible for the violence

Identification	Frequency	Percent
Yes	10	76.9
No	3	23.1
Total	13	100

Note: The relative frequency was calculated regarding the 13 professionals that declared to have experienced identifying abuse against children or adolescents.

Table 14 – Identity of the aggressor

Identity of the aggressor	Frequency	Percent
Father	3	30.0
Mother	4	40.0
Stepfather	1	10.0
Stepmother	2	20.0
Other relative	1	10.0
Friend of the family	0	0
Others	0	0

Note: The relative frequency was calculated regarding the 10 professionals that declared the aggressors had

been identified. It was possible to mark more than one alternative.

Of the 13 professionals with experience in identifying cases of violence, only 4 said they had some difficulty in identifying the signs (31%), and 10 could identify the perpetrators (77%). Among the perpetrators identified, the mothers were responsible for the aggressions in 40% of the cases, and the fathers in 30% of the cases.

Table 15 presents the information on notifying to an agency, and Table 16 presents the agency that received the notification. Table 17 lists reasons for the lack of notification, and Table 18 shows the awareness of the participants related to the legal implications for the lack of notification.

Table 15 – Notifying the violence

Notification	Frequency	Percent
Yes	8	61.5
No	5	38.5
Total	13	100

Note: The relative frequency was calculated regarding the 13 professionals that declared to have experienced identifying abuse against children or adolescents.

Table 16 – Agency receiving the notification

Agency	Frequency	Percent
Tutelary Council	8	100.0
Judicial authority for Children and Adolescents	0	0
Others	0	0
Total	8	100

Note: The relative frequency was calculated regarding the 8 professionals that declared to have notified the identified violence.

Table 17 – Reasons for not notifying violence

Reason	Frequency	Percent
Doubt regarding diagnosis	0	0
Doubt regarding ethical/legal implications	3	60.0
Distrust regarding effectiveness of the agency responsible	0	0
Preferred to solve problem directly with the family	1	20.0
Fear of reprisal	1	20.0
Problems of abuse are a family matter	0	0
Others	1	20.0

Note: The relative frequency was calculated regarding the 5 professionals that declared the aggressors had been identified. It was possible to mark more than one alternative.

Table 18 – Awareness by the participant on the legal implications to not notify

Is aware of implications	Frequency	Percent
Yes	22	34.9
No	41	65.1
Total	63	100

As to the notification, 62% of the professionals who declared to have experienced identification of abuse against children and/or adolescents reported to have made the complaint, and all denouncements were issued to the Guardianship Council. Among the reasons given for the failure to issue the notification, the uncertainties with respect to ethics and/or legal implications accounted for 60% of the responses of those who did not denounce the abuse.

As noted in Table 18, only 35% of the dentists who participated in this survey declared to be aware of the legal implications if the notification is not made.

Discussion

The question of abuse against children and adolescents is serious and prevention is important. However, once violence has occurred, it is vital that it is denounced, reported to the competent bodies to take appropriate action. The Statute of Children and Adolescents (Brazil, 2008) stipulates the obligation of the professionals to denounce cases of suspected or confirmed abuse. The head and neck region, included in the competence of Dentistry, receives much of the violence in situations of aggressions, which puts the dentist in a pivotal position for diagnosis, or at least to suspect cases of abuse. Therefore, the orientation of future professionals, during their academic years, and even after they graduate, is very important. It was observed in this work, that 62% of the respondents received guidance on identifying abuse against children and adolescents during their graduation course, which was observed by Santos et al. (2006) in 53% of their sample, which consisted of 17 odontopediatricians. Chaim, Daruge and Gonçalves (2004) and Chaim and Gonçalves (2006) found that 14% of the participants in their survey declared to have received guidance on the matter during their graduation course. Cavalcanti et al. (2002), interviewing 82 dentists, found that 13% reported to have received guidance on child abuse during their course. In this work, the subject most cited for teaching guidance on the issue, during the graduation course, was Odontopediatry (85%), followed by the Forensic Dentistry/Deontology (33%), which coincides with the findings by Chaim, Daruge and Gonçalves (2004) and Chaim and Gonçalves (2006), who observed that the subjects that contributed most to disseminating the information on abuse against children were also Odontopediatry (56%) and Forensic Dentistry (11%). We believe that it is during these subjects that the issue should be addressed at depth, because the former works with children, and the latter addresses the professional ethical and legal aspects of such practice. However, after graduation, only 35% of the participants of this work declared to have received some guidance on the matter, given that among the events cited, to actualization

courses correspond to almost one third (32%) of the cases.

Despite receiving guidelines, it is crucial for dentists to genuinely be trained to identify cases of abuse. In a self-evaluation, 62% of professionals considered themselves to be trained for this, unlike what was found by Santos et al. (2006), which declared that all the participants considered themselves to be able to diagnose cases of abuse. However, note that the sample of these authors was formed exclusively by odontopediatricians. Chaim, Daruge and Gonçalves (2004) and Chaim and Gonçalves (2006) found that 39% of their sample considered themselves to be trained for such diagnosis, that percentage is around 30% lower than the data found in this work. Cavalcanti et al. (2002) found that 83% of the professionals interviewed would be able to identify cases of abuse against children in a dental office. 21% of the dentists claim to have had some experience identifying abuse against children and / or adolescents. This is worrying, considering that our sample comprised mostly general practitioners; odontopediatricians constituted 10% of the sample. The vast majority of the reported cases (77%) were with regard to physical violence, but neglect was reported by 39% of the professionals who have had some experience with violence. Physical violence, perhaps because it is more evident, was the kind of violence most identified, but neglect can also cause serious damage, and cannot be forgotten. Among the professionals who reported having had experience in identifying cases of violence, the majority (69%) reported no difficulty in identifying such symptoms. Gurgel et al. (2001) found that 33% of those surveyed had already suspected some forms of ill-treatments. Santos et al. (2006), working with odontopediatricians, found that 53% had already suspected cases of abuse. Chaim, Daruge and Gonçalves (2004) and Chaim and Gonçalves (2006) reported that 23% of the interviewees had seen children with characteristics of abuse. Silveira, Mayrink Sousa and Netto (2005) observed that, among the 38 respondents of the survey, 35% had seen cases of abuse; 11% of the dentists interviewed in the work of Cavalcanti et al. (2002) detected cases of child violence in their work place. 77% of the professionals who had had an experience with violence against children and/or adolescents said that those responsible for the violence were identified and of these, the mother was the aggressor in 40% of the cases, and the father in 30%. Stepfathers and stepmothers were the aggressors in 10.0% and 20%, respectively. This corroborates with the data indicating that this type of violence occurs predominantly in the homes, caused by persons very close to the children. Silveira, Mayrink Sousa and Netto (2005) observed in the city of Blumenau-SC that 34% and 8% of abuse cases had identified the aggressors as the father and mother, respectively.

In Brazil, by law, it is an obliged complaint to the Council Guardianship in cases of abuse against children and adolescents, as determined by federal law (Brazil, 2008). Despite this, 39% of the participants of this study, who had experiences with cases of violence, did not notify; all the complainants sent the notification to the Guardianship Council, as required by the Brazilian law in effect. Silveira, Mayrink Sousa and Netto (2005) found

that 29% of the participants in their study, in the cases of abuse, did in fact complain. Among those who did not formally complain, the most frequent reason alleged (60%) was the uncertainty about the ethical and/or legal implications. These data demonstrate the lack of information by the dentists about the ethical and legal aspects involved, a fact proven by the data presented in Table 18, where only 35% of the participants said they knew the legal implications regarding the lack of notification. Among the professionals who did not formally denounce, 20% preferred to solve the problem directly with the family, and 20% claimed to fear reprisals. It should be remembered that often the aggressors are the very legal caretakers of the victims and merely talking to them does not mean resolving the issue. Santos et al. (2006) observed that only one professional (14%) from the sample of violence reported the case to the qualified authorities, and 85.7% talked to the parents and/or person in charge about what happened, which brings us to ponder about the previous discussions.

Final Considerations

The decision to notify or not the cases of violence against children and adolescents did not follow the guidelines set by the legislation. In spite of the bioethical principles and legal standards that determine complaints in cases of abuse, the professionals of Dentistry are not fulfilling their role. The majority are unaware of the legal implications for the lack of notification. The ethical reflection should be encouraged, highlighting the social and ethical responsibility of dentists concerning the protection of children and adolescents that are victims of violence, in addition to the legal enforcement. More training and guidance are needed to prepare dentists to act correctly when confronted with cases of violence against children and adolescents during their professional activities.

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Addendum : Questionnaire

1 - Gender: Masculine Feminine

2 – Time after graduation

- up to 5 years
 6 to 10 years
 11 to 15 years
 16 to 20 years
 21 to 25 years
 26 to 30 years
 31 years or more

3 – Type of specialization:

- General Practitioner Specialist

Area: _____

4 – During your graduation course, did you receive any type of guidelines on identifying abuse against children and/or adolescents during dental treatment?

- Yes No

5 – If yes, the guidelines were taught in which subject(s)?

- Bucal Medicine
 Forensic Dentistry /Deontology
 Preventive and Sanitary Odontology
 Odontopediatrics
 Orthodontics
 Oral & Maxillofacial Surgery and Traumatology
 Others, specify _____

6 – Did you receive any guidelines on identifying abuse against children and/or adolescents after graduating?

- Yes No

7 – If yes, where was it taught?

- Conference
 Actualization courses
 Specialization courses
 Others specify _____

8 – Do you consider yourself capable of identifying abuse against children and/or adolescents?

- Yes No

9 – Have you had any experience identifying abuse against children and/or adolescents during your professional activity? If not, go to question 17.

- Yes No

10 – If yes, what type of violence?

- Physical
 Sexual
 Negligence
 Others, specify _____

11 - If yes, did you have any difficulty identifying signs of violence?

- Yes No

12 - If yes, was the person responsible for the violence identified?

- Yes No

13 – If yes, who was (were) the aggressor?

- Father
 Mother
 Stepfather
 Stepmother
 Relative
 Friend of the family
 Others, specify _____

14 – Did you notify the violence to an agency?

- Yes No

15 - If yes, what agency?

- Tutelar Guardianship Board
 Court of appeal for Children and Adolescents
 Other, specify _____

16- If you did not notify, what was the reason?

- Doubt about diagnosis
 Doubt of ethical/legal implications
 Disbelief about proper and effective procedures of the agency in question
 Preferred to solve the problem directly with the family
 Fear of reprisal
 Abuse is a family matter and problem
 Others, specify _____

17 – Do you know what are the legal implications for dentists who do not notify abuse cases?

- Yes No
-

Knowledge and Perceptions of New Genetic and Assisted Reproductive Technologies: A Preliminary Report

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Introduction

Biomedical advances, techniques and options, like stem cell research, organ transplantation, gene therapy, assisted reproductive technologies, euthanasia, etc., have raised concerns and presented dilemmas about the right choices to be made from pre-conception to after death (Macer, 1998). Stem cell research continues to reveal insights into human development, besides providing therapeutics for human diseases. As for other biomedical techniques, there exist guidelines and recommendations for the conductance of applied and basic research. In fact, national frameworks have been formulated to avoid exploitation of these technologies. National Ethics Committees, which provide guideposts for usage of biomedical advances, are generally based on the recommendation of the committee members within the backdrop of western recommendations. However, public concerns are often neglected and/or overlooked. Moreover, there is also a lack of inputs from regional-specific as well as traditional/cultural/religious viewpoints. Keeping this in view, a preliminary survey focused on a limited group was undertaken to assess information and awareness about various modern biomedical advances and techniques, and about their hypothetical acceptance.

Methodology

After voluntary informed consent, a questionnaire-based-cum-interview method was followed to gather information and record the attitudes of people towards medical genetic advances. The respondents (n=200) included students and employees of the local Dayanand Anglo-Vedic (DAV) College. The study was cleared by the Institutional Ethics Committee. A questionnaire was designed meticulously in simple language and administered to the respondents. The information gathered included personal details and generated data about age, gender, literacy level, occupation, marital status, religious beliefs and background, etc. The participants were familiarized with various scientific terms, and verbal explanations supplemented the written text. There were a total of 40 questions – some required affirmation or otherwise while others were open-ended requiring specific comments. Eighteen questions pertained to awareness of debatable issues like medical termination of pregnancy i.e. abortion (AB), sex selection (SS), female foeticide (FF), female infanticide (FI), diagnostic procedures i.e. prenatal and pre-implantation diagnosis (PND and PGD), status and rights of the foetus (FS, FR) and embryo (ES, ER), cloning (C), cell-based

therapeutics i.e. therapeutic cloning (TC), suicide (S), brain death (BD), organ transplantation (OT) and organ donation (OD), death on request i.e. Euthanasia (EU), and eugenics (E). Another set of nine questions pertained to inquiry about making available and acceptance of procedures to improve reproductive health i.e. assisted reproductive technologies (ART), surrogacy (SU), donation and preservation of gametes i.e. sperm donation (SD), egg donation (ED), sperm banking (SB) and ova banking (OB), babies of choice i.e. designer babies (DB), to control population explosion i.e. contraceptives (CC) and storage of cord blood (CB). The last 13 items pertained to ethical acceptance of medical genetic advances and procedures, besides awareness about environmental issues. Genetic advances enquired included genetic testing and screening (GT, GS), gene patenting (GP), free availability of genetic databases (GD), genetic information (GI), DNA profiling and acceptance of research on genetically modified crops/organisms (GMOs). Environmental issues queried included use of animal models (AM) for experimentation, war-strategy – biowarfare (BW), nanotechnology (NANO), sustainable development (SUD) and concerns about environmental pollution (ENP) and depletion of non-renewable resources (NRR). The sample was stratified into groups on the basis of gender (male, female), religion (Hindu, Sikh) and age (<22 years-students, ≥22 years-faculty).

Statistical Analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS) software programme version 16.0. Data were tabulated with respect to frequency and percentages. Chi-square (χ^2) test was used to compare responses of the participants of sub-groups based on gender, sex and religion. A 'p' value of ≤ 0.05 was considered statistically significant.

Results

The informational inputs from a total of 200 subjects have been consolidated and analyzed. The observations are presented under several sub-heads and include information about the background of subjects (Table 1), general awareness of biomedical advances, acceptance and availability of ART procedures, and acceptance of genetic advances and environmental issues (Table 2, Figs.1-12).

Background of Subjects

General background of the subjects is presented in Table 1. The average age of respondents was 26.18 ± 9.14 years with more female subjects (n=116, 58%) than males (n=84, 42%). The sample group comprised 58% students (n=116), and 84 subjects from teaching and non-teaching faculty (42%). Based on the religion, the sample group comprised 69% (n=138) Hindus and 31% (n=62) Sikhs. A probable reason for the higher percentage of Hindus in the sample group may be attributed to the fact that DAV College is situated within the walled-city of Amritsar (Punjab), and these people could be living nearby.

Table 1 Characteristics of Sample Group

	Number	Percentage
Gender		
Male	84	42
Female	116	58
Religion		
Hindu	138	69
Sikh	62	31
Age		
<22yrs	116	58
≥22yrs	84	42
Education		
Matric	28	14
Undergraduates	116	58
Graduates	8	4
Postgraduates	25	12.5
Others	23	11.5
Occupation		
Students		
Life Sciences	58	29
Computers	22	11
Commerce	20	10
Arts	16	8
Teachers		
Life Sciences	18	9
Computers	10	5
Commerce	6	3
Arts	14	7
Non-Teaching		
Lab Staff	24	12
Clerical	8	4
Sweepers	4	2

Table 2 Awareness and Acceptability of Medical Genetic Advances

ISSUE	YES	%	NO	%	χ ²	p
Awareness and Acceptability of Biomedical Advances						
Abortion	198	99	2	1	190.3	0.0001
Sex Selection	180	90	16	8	134.6	0.0001
Female Foeticide	176	88	16	8	130.7	0.0001
Female Infanticide	4	2	196	98	175.6	0.0001
Prenatal Diagnosis	182	91	16	8	134.2	0.0001
Pre-implantation Genetic Diagnosis	170	85	24	12	106.3	0.0001
Status of Foetus	186	93	2	1	180.0	0.0001
Rights of Foetus	188	94	10	5	158.2	0.0001
Status of Embryo	178	89	8	4	153.6	0.0001
Rights of Embryo	176	88	18	9	127.1	0.0001

Cloning	190	95	10	5	141.9	0.0001
Therapeutic Cloning	120	60	78	39	8.12	0.0044
Suicide	4	2	196	98	181.4	0.0001
Brain Death	182	91	16	8	134.2	0.0001
Organ Transplantation	194	97	4	2	177.6	0.0001
Organ Donation	192	96	8	4	166.4	0.0001
Euthanasia	178	89	20	10	121.3	0.0001
Eugenics	124	62	70	35	13.4	0.0003
Awareness and Acceptability of ART Procedure						
Assisted Reproductive Technologies	178	89	10	5	144.8	0.0001
Surrogacy	154	77	34	17	75.32	0.0001
Sperm Donation	164	82	22	11	106.9	0.0001
Egg Donation	162	81	20	10	108.3	0.0001
Sperm Banking	166	83	16	8	118.7	0.0001
Ova Banking	156	78	26	13	88.6	0.0001
Designer Babies	84	42	108	54	3.255	0.0001
Contraceptives	152	76	26	13	89.69	0.0001
Cord Blood Banking	132	66	40	20	48.15	0.0001
Awareness and Acceptability of Genetic Advances and Environmental Issues						
Genetic Testing	170	85	26	13	105.4	0.0001
Genetic Screening	154	77	40	20	65.82	0.0001
Gene Patenting	84	42	110	55	2.99	0.084
Genetic Databases	104	52	90	45	0.871	0.35
Genetic Information	150	75	38	19	63.2	0.0001
DNA Profiling	158	79	24	12	99.2	0.0001
Genetically Modified Organisms	136	68	50	25	39.98	0.0001
Animal Models	120	60	78	39	8.12	0.004
Bio-Warfare	56	28	140	70	35.15	0.0001
Nanotechnology	172	86	28	14	101.3	0.0001
Environmental Pollution	62	31	138	68	25.52	0.0001
Sustainable Development	120	60	78	39	8.577	0.0034
Depletion of Non-Renewable Resources	70	35	130	65	16.9	0.0001

* Unanswered issues were excluded,
* p value Significant ≤0.05

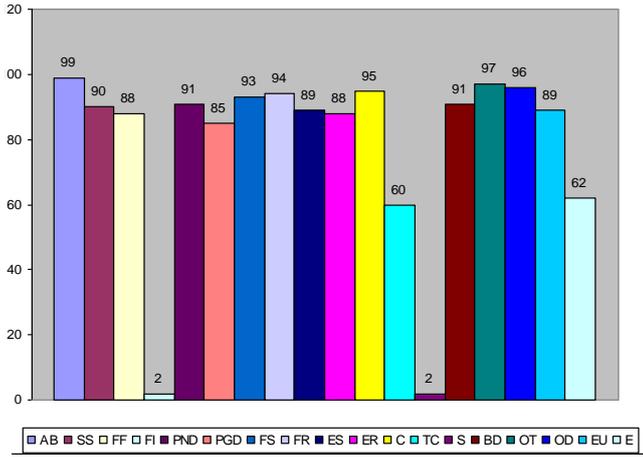


Fig. 1 Awareness and Acceptability of Biomedical Advances

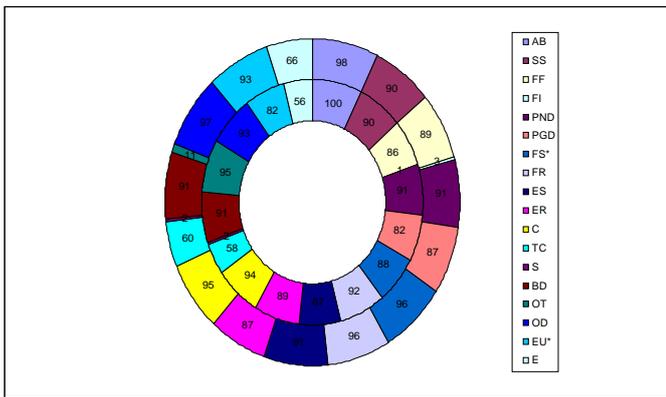


Fig. 2 Awareness and Acceptability of Biomedical Advances on the Basis of Gender

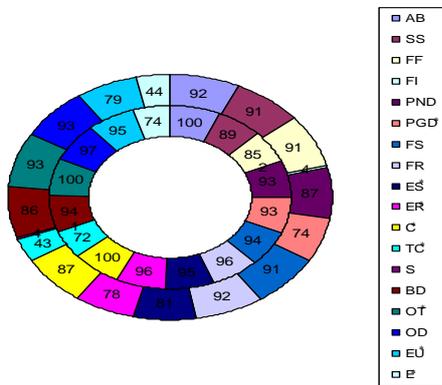


Fig. 3 Awareness and Acceptability of Biomedical Advances on the Basis of Age

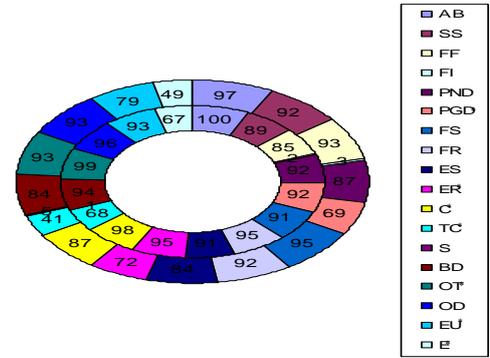


Fig. 4 Awareness and Acceptability of Biomedical Advances on the Basis of Religion

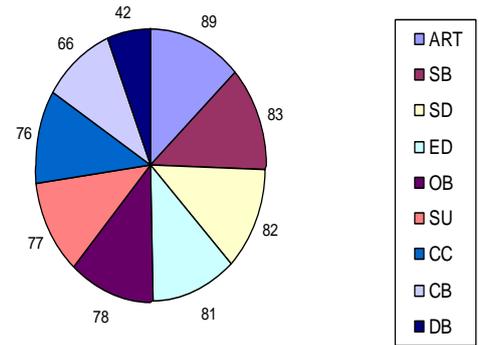


Fig. 5 Awareness and Acceptability of ART Procedures

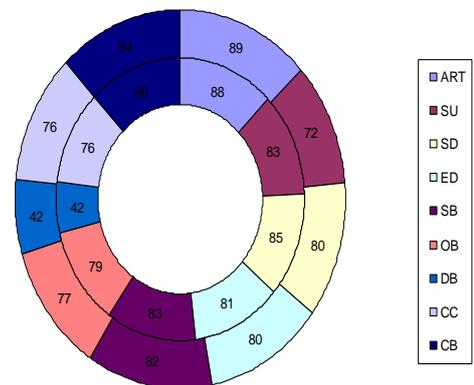


Fig. 6 Awareness and Acceptability of ART Procedures on the Basis of Gender

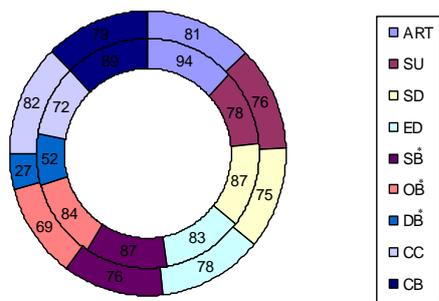


Fig. 7 Awareness and Acceptability of ART Procedures on the Basis of Age

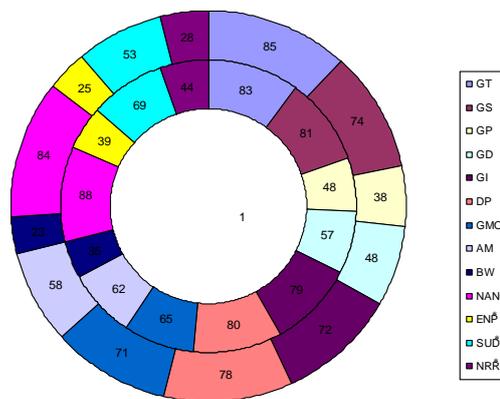


Fig. 10 Awareness and Acceptability of Genetic Advances and Environmental Issues on the Basis of Gender

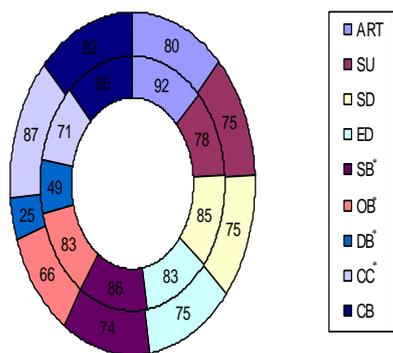


Fig. 8 Awareness and Acceptability of ART Procedures on the Basis of Religion

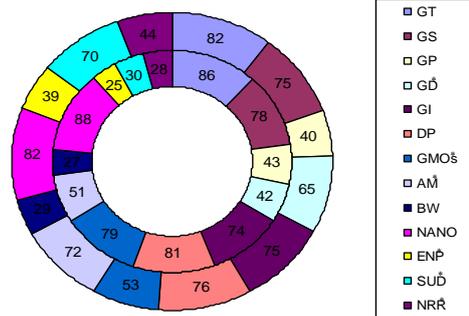


Fig. 11 Awareness and Acceptability of Genetic Advances and Environmental Issues on the Basis of Age

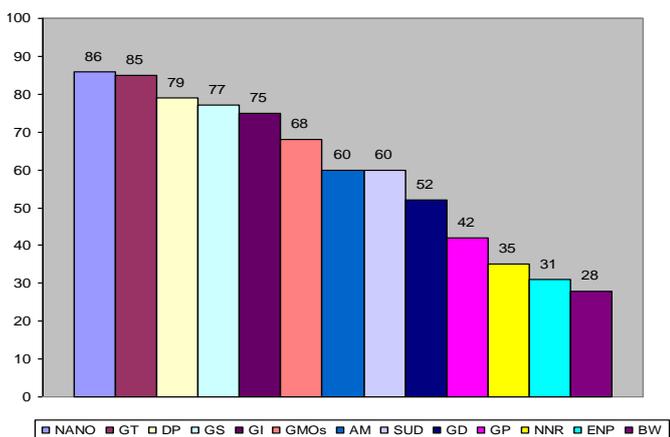


Fig. 9 Awareness and Acceptability of Genetic Advances and Environmental Issues

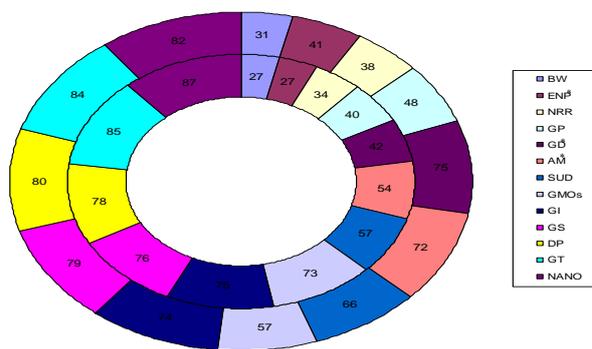


Fig. 12 Awareness and Acceptability of Genetic Advances and Environmental Issues on the Basis of Religion

* p value Significant ≤ 0.05

Awareness about Biomedical Advances

Table 2 (Fig. 1) includes the responses of subjects regarding awareness about biomedical advances, and this information is separately depicted with respect to gender (Fig. 2), age (Fig. 3) and religion (Fig. 4). Almost all subjects (99%) responded in the affirmative to the question, "have you ever heard of the term 'abortion'?" The term 'sex selection' (SS) was also known to large

strata of people (90%) while 88% reported awareness about female foeticide (FF) and 98% of the subjects documented against female infanticide (FI). Statistical analysis (Chi-square test), when carried out on the responses of the subjects, did not reveal any significant difference with respect to age, sex or religion. Both the embryo and foetus were regarded as living entities by >88% and females significantly substantiated this view ($p=0.002$). On the basis of religion, more of Hindus (95%) believed in the rights of embryo as compared to 72% of Sikhs ($p=0.0001$). Similarly, students were more cautious of the status and rights of embryo as compared to the faculty ($p=0.0017$). Organ donation and transplantation found favour with 96% subjects and Hindus had higher awareness level compared to Sikhs ($p=0.053$). The same trend was observed among students. The practice of eugenics was familiar to 62% respondents and students were significantly ($p=0.0001$) more aware than faculty as was more of awareness among Hindus compared to Sikhs ($p=0.015$). As far as familiarity about cloning (C) and therapeutic cloning (TC) was concerned, faculty ($p\leq 0.002$) as well as Sikh respondents ($p\leq 0.005$) showed less awareness compared to students and Hindus, respectively.

Availability of ART Procedures

Reproductive choices have increased because of various options and procedures which have become available in reproductive medicine. The data for the study group is depicted in Table 2 and (Fig. 5) and also for gender (Fig. 6), age (Fig. 7) and religion (Fig. 8). Assisted reproductive technologies were generally acceptable to 89% of the respondents, followed by those who accepted surrogacy (77%). The availability of sperm and egg donation to assist the infertile couples was acceptable to >80%. Banking of sperms and oocytes found acceptance by Hindus more significantly than Sikhs ($p< 0.015$) and students compared to faculty ($p<0.006$). Contraceptive measures were acceptable to 75%. The concept of designer babies (DB) found acceptance in less than half the subjects (42%). This was in fact supported significantly more by Hindus ($p=0.007$) and by the students group ($p=0.0024$). Cord blood banking acceptance (66%) did not differ significantly in different age groups or on the bases of gender or religion.

Acceptance of Medical Genetic Advances and Environmental Issues

This information from the study group is included in Table 2 (Fig. 9) and also separately for gender (Fig. 10), age (Fig. 11) and religion (Fig. 12). Both testing for genetic disease (GT) and genetic screening (GS) of individuals was acceptable to 85% and 77%, respectively. Again, the students significantly favoured population-based GS more than faculty ($p=0.03$). Not many (42%) were agreeable for issuing of gene patents (GP), though 52% considered free availability of genetic databases (GD) to be appropriate. DNA profiling to ~80% and 75% non-confidentiality of genetic information (GI) were acceptable. For GD, Sikhs were more receptive than Hindus ($p\leq 0.0001$). A similar trend was observed for acceptance of GD in students ($p=0.0007$). Almost one-third of the respondents regarded genetically modified

organisms (GMOs) acceptable provided these were not health-hazardous. Females were more supportive for GMOs than males ($p=0.05$), and students favoured GMOs more than faculty members ($p=0.0001$). Animal experimentation was not favoured by 40%, though the use of bio-warfare (BW) was acceptable to 28%. No significant differences were observed for acceptance of BW in the groups based on age, gender or religion. Sikhs were significantly more ($p=0.022$) in favour of animal models (AM) as were the faculty ($p=0.006$). Nanotechnology (NANO) found favour with 86% while 65% were worried about the depletion of non-renewable resources (NRR) and 68% were anxious about environmental pollution (ENP). Significant differences were observed for acceptance of ENP in the groups based on age, gender or religion. There were 60% of the subjects who wanted to be sustainable (SUD). In fact, more males and faculty significantly ($p<0.05$) favoured this.

The overall results reveal that awareness level regarding biomedical advances, acceptance and availability of ART procedures, and acceptance of genetic advances and environmental issues is fairly high for some issues and mixed for the others. The sample, when stratified on the basis of gender, revealed that females had higher level of awareness regarding euthanasia (EU). They believed in the living status of the embryos (ES) and found GMOs acceptable. On the other hand, males worried more about environmental pollution (ENP), and depletion of non-renewable resources (NRR) and wanted sustainable development (SUD). On the basis of religion, Hindus had awareness of higher degree about PGD, EU, C, TC, OT and E, and they believed in the rights of embryo (ER). They were also positive regarding the acceptance for the availability of SB, OB and DB while Sikhs accepted the availability of CC, GD, AM and ENP. The study data on the basis of age showed that students were more aware regarding PGD, C, TC, OT, EU and E. They also believed more in the living status and rights of embryo compared to faculty. The availability of banking of sperms and eggs as well as the concept of DB was more acceptable to them, and was in favour of population-based GS and acceptance of GD and GMOs. On the other hand, faculty was more cautious about environmental issues like AM, ENP, SUD and depletion of NRR and not very acceptable to other issues.

Discussion

The present findings revealed that the stance on acceptance of abortion (99%) did not vary significantly in relation to age, gender, or religion. Such a high level of pro-abortion attitudes has not been revealed from other studies in literature. Though public attitudes towards social issues have become liberal over the past decades (Carter et al., 2009), the issue of abortion has remained polarized, and attitudes to abortion have been found to vary by race and gender. Non-cultural reasons include, more working-females, secularization and education while feminist beliefs and those supporting family and gender roles oppose abortion (Wang, 2004), except when life-threatening (Ellison et al., 2005). Increased religiosity, church attendance and political affiliations also

oppose abortion. However, the viewpoints towards abortion need to consider the social context for data collection as well as race and gender (c.f. Carter et al., 2009). In fact, despite rapid industrial, technology and scientific developments in India, the bias against the girl-child continues to prevail. This has deep roots in Indian ethos and has flared with the onset of prenatal and pre-implantation genetic diagnoses and ultrasonography in a patrilineal society (UNFPA, 2005; Sharma, 2010). UNDP (2010) has recently reported that 42.7 million girls are missing in India. As per the United Nations, a large number of female fetuses are aborted every year in India, with higher rates mainly in the states of Punjab and Haryana. In other reports also, the abortion-favouring attitudes vary while sex-selection to avoid X-linked diseases has found acceptable. Steele (2008) had reported that attitudes of medical students of University of Oslo (UiO) were mostly pro-abortion (78.2%) while of the Queen University of Belfast (QUB) were anti-abortion (14.3%), and these did not vary in relation to age or sex of the participant. The difference in their attitudes was attributed to the fact that more QUB students had religious affiliations and those at UiO had more casual exposure of abortion during their training than those at QUB. Kalfoglou et al. (2008), in their study on 176 Americans divided into 20 groups for their attitudes on pre-conception sex selection (PSS), reported that all participants favoured the use of PSS to avoid X-linked genetic diseases while some (8 groups) did not favour the use of PSS for non-medical reasons. Earlier studies on attitudes of US medical students (Mastroianni Jr., 1999) and of the members of the lay public in England (Scully et al., 2006) and the UK (HFEA, 2003) had also reported similar observations.

The present study reported 90% awareness level of sex selection and it was non-significant in relation to age, sex, or religion. There were 98% subjects of the current study who were against female infanticide (FI) and this could be attributed to the sensitization from various news items and advertisements highlighting declining sex ratio and associated problems in India, especially in Punjab. Motivation through newspapers/ magazines/media about the missing girl-child may be one avenue of sensitizing the younger generation to female foeticide, sex selection and pregnancy termination. There could also be awareness from prevalent advertisements on the net and in Sikh religious places whereby the girl-child is being promoted as 'Nanhi Chhaan' launched in Punjab on 27th of August 2008 and is being adopted by other states like Rajasthan, Haryana, Delhi (Singh and Singh, 2010). In fact, the Golden Temple at Amritsar has a counter in its premises for free distribution of plants/saplings – the idea being that just as a tree is an ecosystem by itself providing, food, shade and rest to others living on it or passing by, so is the woman/girl in the household and, therefore, the female deserves respect and not death! The Govt. of India in 2005 instituted free school education and scholarships for higher education for the single girl children (PIB, 2005). On the similar pattern, to combat the menace of female foeticide and to balance the skewed sex-ratio, incentive-based schemes; 'Balri Rakshak Yojna' (DHFV, 2009) and 'Ladli' (ABAD, 2006) have been launched by the Govt. of Punjab and Haryana,

respectively, but incentives fail to cut ice and sex-ratio in these two states is still low compared to the national level (Gayatri, 2011; Grewal, 2011).

The present findings highlighted that the students (93%) were more aware about pre-implantation genetic diagnosis (PGD) than faculty (74%), and Hindus (92%) were more aware than Sikhs (69%). Young people may be having more knowledge and exposure in places of study, and from the media and with access to internet and hence have information on the latest diagnostic methods. The Sikhs may be more conservative in respect of non-acceptance of newer methodologies. This finding is in contrast to that of a study by Meister et al. (2005). They explored knowledge and attitude towards PGD in a representative general population group (n=2110, age 35.8+9.1) in Germany. They reported 30% awareness of PGD and more females (39%) were aware about it than males (29%). However, the authors had concluded that PGD was not well known by German population as a modern technique in reproductive medicine. Wustner and Heinze (2007) had compared attitudes of German and Japanese students towards PGD and reported less awareness in the two groups (30% and 51.4%, respectively). The German data (Wustner and Heinze, 2007) almost matched the earlier one (Meister et al., 2005) indicating no marked changes in perceptions about PGD in this two-year interval. In the current study also, more awareness has been observed in females (87%) than in males (82%). As the prenatal and pre-implantation diagnostic procedures are invasive for the mother alone and are carried out on women, the awareness could be more in women of child-bearing age. Again, the balancing of careers with a healthy family would entail more information-gathering about safe and normal children compared to the causal mindset of the putative father. On the other hand, Borkenhagen et al. (2007), on exploring awareness of PGD in German infertile couples, found 60% to be aware and observed their overall higher approval for PGD. The authors concluded that German infertile couples were as liberal towards PGD for all health-related issues as in Australia (Katz et al., 2002) and Italy (Chamayou et al., 1998). They also suggested that PGD could be legalized and useful to raise pregnancy rates and to have healthy genetic disease-free children. In 2006, Alsulaiman and Hewison had observed that Saudi parents at genetic risk were unaware of PGD, though 37.7% stated that they would accept it when explained that the process could be used for avoiding the birth of an affected child. Attitudes to PND and termination of pregnancy for foetal abnormality in White and Pakistani women residing in UK were compared by Hewison et al. (2007). The results revealed that Pakistani pregnant women held more favourable attitude to PND (96%) and were less favourable (75%) to termination than White Caucasoid females. In the present study, there is 91% and 99% awareness about PND and abortion irrespective of age, sex, or religion, suggesting that people in developing countries like India are also receptive to modern technologies to a large extent.

To promote organ donation (OD), many countries, including India, have adopted biomedical standard of brain death (THOA, 1994). The respective awareness

about brain death (BD), organ donation (OD) and organ transplantation (OT) was 91%, 96% and 97%, respectively, in the current study. Euthanasia (EU), a controversial issue, has taken legal root in India. The Supreme Court recently on March 7, 2011 sanctioned passive euthanasia on patients who are brain dead or in permanent vegetative state (Sedhuraman, 2011). In the present study, the awareness about EU was high, though males were less aware (82%) than females (93%). Recently, McCarthy et al. (2010) have also reported 92% awareness of EU in a national survey in Ireland. They studied Irish views on death and dying, and observed that the general public was not very comfortable with, or informed about, the process of dying and death. Lindblad et al. (2009) studied attitudes among general public of Sweden and reported that 72% individuals favoured EU and observed non-significance on age- and gender-basis. The current study observed that Hindus (93%) were more aware than Sikhs (79%), with students (95%) more aware than faculty (79%). This lower awareness in the faculty group could be because it included non-teaching employees who may not generally be well-read and so less aware.

The present study reported high awareness (95%) about general (reproductive) cloning and 60% for therapeutic cloning (TC) ever since the birth of Dolly, the cloned sheep. Student and Hindu respondents were significantly more aware. Varying literacy levels, reading habits and self-restricted and selected television viewing may be some of the probable reasons for the differential awareness among subjects of the study. Stobel-Richter et al. (2009) explored attitudes of men and women in the German general population and had observed that 7.3% subjects supported cloning (C), with males more significantly than females, while respondents having children supported prohibition more than respondents without children though there were no significant differences for age. Inaba and Macer had published the results of public opinion surveys conducted in 2003, with comparisons over the past 13 years and reported 79% and 45% awareness about C and TC, respectively.

Availability of ART Procedures

Infertility is an important prevalent medical problem and 15% infertility in couples has been reported worldwide (ART Regulation Act, 2010). Though 85% of the cases of infertility can be taken care of through medication, surgery or newer reproductive technologies involving gametes, outside the body, donation of gametes, use of surrogate mother, etc. collectively termed 'Assisted Reproductive Technologies' (ART). Dissansyake et al. (2002) had observed that 36 Sri Lankan medical officers approved the manipulation of sperms, eggs and embryos outside the body and found them acceptable as methods to overcome infertility. They reported 64% acceptability of sperm donation (SD) and 69% egg donation (ED). In the present study, the acceptance for ART, SD and ED was between 80-90%, and banking of sperms (SB) and eggs (EB) was also acceptable to the majority (92%). In a study conducted to determine opinions and attitudes of the German general population towards treatment methods of reproductive medicine, Stobel-Richter et al. (2009) observed 50.8%

approval of ED; the older subjects gave least approval and endorsed prohibition compared to the approval by younger subjects and by those without children. They suggested that this could probably be because of having completed family planning; the desire to have a child had lost the importance for the older group. On the other hand, the attitude of the German population towards surrogacy (SU) was mixed (44%), as it was approved and rejected by almost identical proportion of respondents. In the current study, the acceptance for availability of SU was approved by 89% irrespective of age, sex, or religion. Inaba and Macer (2003) had observed growing awareness of the Japanese public towards biotechnology.

In 2003, 95% of the surveyed individuals had heard of SU and 57% were able to explain it to a friend. In Iran, 74% Christians and 59% Muslims favoured egg donation for infertile couples as an alternative to infertility (Khaili et al., 2006). These findings were similar to those supported by Isikoglou et al. (2006) in a Turkish population and by Westlander et al. (1998) in Swedes. Osemwegie (2005) had earlier compared the attitudes of European and African subjects, and reported their 9% and 43.2% respective approval for designer babies (DB). The observations from the present study find similarities to those of the study by Osemwegie (2005), where the acceptance for DB was reported more in the student group.

Acceptance of Medical Genetic Advances and Environmental Procedures

In 2003, Inaba and Macer had reported increasing concerns about genetic engineering (GE) in Japan and documented 90% concern in Japan. According to Hansen and Nascimento (2003), 25% of the students of a State University in the less-developed Northern region of the State of Rio de Janeiro viewed GE as beneficial while 3.2% considered it immoral or anti-ethical. Osemwegie (2005) had reported higher awareness about GE in European (99.6%) compared to African (77%) subjects. The study suggested that lower awareness in Africans could be attributed to the fact that Africa is a developing continent as compared to Europe. In respect of GMOs, which are genetically engineered, 68% acceptance without health-hazard was acceptable to the subjects of the present study with significantly more approval among females (71%) compared to males (65%). Sheikha et al. (2006), who had explored public knowledge and perceptions of biotechnology and GMOs in Iran, observed 97% awareness of GM foods. They also reported that 95% of the people wanted to learn more about GM foods. The subjects of the present study have more knowledge about the hazards of GMOs and hence reported GM food acceptable if not hazardous. This could be because there has been an exhaustive debate in the press and media about GM crops, especially *Bacillus thuringiensis* cotton (Bt cotton) and Bt brinjal (ICA, 2010).

Different types of genetic testing (GT) is available for diagnosis of disease, identification of disease carriers, screening fetuses, or newborns for disease, predicting risk of disease, etc., and population-based genetic screening (GS) can identify subjects at the risk of developing or transmitting diseases. Henneman et al.

(2004) had reported that 60% of the subjects (n=817) had heard of GT while 8% were familiar with the use of a genetic test in The Netherlands. Inaba and Macer (2003) had earlier observed 40% acceptance of GT during pregnancy in Japanese students. The current study reported high acceptance (85%) of GT.

De Silva and Attapattu (2010) have recently reported views of 200 Sri Lankan undergraduates on use of animals in experiments and teaching. They documented that a significantly higher percentage of veterinary (100%), agriculture (92%), medical (95%) and engineering (84%) respondents accepted the use of animals for experiments. On the contrary, 86% of management students strongly opposed the use of animals to conduct research that would disable an animal at the end of an experiment. They also concluded that the majority of students following science-based curricula held more utilitarian ethical views compared to management students. The present study reported 60% acceptance of animal models. This comparatively less acceptance could be due to the diverse group of students and faculty i.e. with backgrounds of humanities, arts, administration rather than biological sciences only.

Conclusions

It can be concluded from the results of the present study that awareness level regarding various biomedical advances is fairly high for some issues but mixed for others among sample group. Though this is an important contribution in view of no other data from this part of the country, it cannot be expected to mirror the awareness level in the society at large and hence requires a large group to cover the different strata. An important outcome of the study results is that the students (<22 years) are more receptive to modern technologies. This has significance because this group is the nation's future policy maker/bureaucrat. It is of paramount significance that detailed information about biomedical techniques and processes as well as ensuing ethical concerns be provided at the grass-root levels. The study of bioethics should form an essential part of the core-curriculum at school and college levels and at entry-points of university education to sensitize the youth regarding bioethical maturity with the ability to handle/accept appropriately the various available techniques and procedures. Educating the youth about these concerns has the scope of educating the older members of the society, since there is bound to be permeation of this knowledge at home and in the peer group.

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Bioethical principles and vulnerability regarding induced abortion in adolescence

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Abstract

In Brazil, induced abortion in adolescents has been frequent in less-advantaged socioeconomic classes, and the vulnerability of these adolescents has not been addressed. Given this context, the present study sought to investigate the relationship between the practice of abortion and vulnerability in adolescents. This was a descriptive cross-sectional study of 201 adolescents who completed a structured questionnaire that allowed the analysis of variables with respect to intent to abort. The profile of the pregnant adolescents in the sample studied was the following: average age, 16.1 years; stable partner; mulatas; did not use condoms during sexual relations; precocious with respect to their first sexual relations; and did not plan the pregnancy. According to the classification of the World Health Organization, 81.59% of the subjects' abortions were known to be induced. Twenty-one (10.45%) were vulnerable to induced abortion; of these, 13 (6.47%) reported forced sexual intercourse, of whom 8 (3.98%) reported that they had suffered associated violence. These results indicate that sexual violence and unwanted pregnancy subject adolescents to a context of greater vulnerability to induced abortion. Thus, it is suggested that this relationship should be considered from the perspective of bioethics and human rights, but always respecting the cultural values of the society in which the adolescents live, as well as their human dignity.

Keywords: induced abortion, adolescence, vulnerability, bioethics.

Introduction

Data from the international literature on the subject of abortion indicate that women at the reproductive extremes experience a higher proportion of pregnancies that end in abortion (1). In general, pregnancy in adolescence occurs in a way that is unplanned, unexpected, and frequently unwanted, and a significant number of these pregnancies, almost half, end in induced abortion (2). In Brazil, abortion in adolescence represents 7% to 9% of the total of induced abortions. Among adolescents, 72.5% to 78.0% of abortions occur between the ages of 17 and 19 years, when one can often observe stable and economically co-dependent relationships. In these cases, the abortion is generally the result of an unwanted pregnancy (3). Thus, research on induced abortion in adolescence has consistently pointed to different aspects and indicated a context of vulnerability. Etymologically, the word "vulnerability" is derived from the Latin (*vulnus*: wound) and, in referring to people, expresses in a general way the possibility of someone being wounded (4). However, the World Health Organization (WHO) considers vulnerable people as those who are relatively or absolutely unable to protect their own interests (5). Historically, Wisner (6) analyzed the concept from the perspective of the vulnerability that individuals or populations can experience when exposed to large-scale disasters, such as earthquakes. In contrast, Dilley and Boudreau (7) used the term in the context of nutrition, defining it as the possibility of suffering from the consequences of malnutrition without any way to address these. From the perspective of health care, an analytical picture of vulnerability emerged at the beginning of the 1980s, with a heuristic matrix devised by Delor and Hubert that was based on research conducted on people living with HIV/AIDS (8). In Brazil, Ayres et al. (9) have suggested that the model of vulnerability be shaped to try to understand personal behavior (or individual vulnerability), social context (or social vulnerability), and the program combating a disease, in this case, AIDS (or programmatic vulnerability).

According to the WHO, approximately 30% of adolescents may have begun their sexual life through a forced encounter (10). It is worth emphasizing that if one broadens the definition of sexual violence to include, in addition to rape, any threat or undesired sexual act practiced using strategies of coercion, the proportion of adolescents who have experienced sexual violence varies between 12% and 35% (11). Thus, sexual violence is a worldwide problem that affects, above all, children, adolescents, and young women. Because it is a complex problem, rooted in cultural dimensions, it allows different approaches and definitions, hindering a comprehensive view of the problem (12). Brazilian research on sexual violence, including various forms of repression of sexuality and forced sex, have understood these phenomena not as isolated events but as a process that manifests itself in restrictions on individual sexual freedom through coercions such as social and verbal pressure, blackmail, and the use of physical violence (13). Attempts to gain a perspective on, and to

characterize situations of, sexual violence against adolescents lack the appropriate data, where these would help us work toward an understanding of the problem (14). In this sense, vulnerability to induced abortion of a pregnancy that results from sexual violence is an issue that has not been addressed, particularly among adolescents with lower incomes and less education (15).

It is important to emphasize that the concept of vulnerability was incorporated into debates on bioethics beginning in the 1990s, due to the costs caused by the widespread growth of the HIV/AIDS epidemic among socially and economically disadvantaged populations, which seems to have been a fundamental factor in the consolidation of this concept in bioethics (16). Subsequent bioethics paradigms, developed in the Anglo-American geocultural context, particularly following the theoretical structuring initiated by Beauchamp and Childress (17), have reinforced the idea that vulnerability, which can characterize both individuals and population groups, should be addressed in concert with the protection of both individuals and groups.

In short, the notion of vulnerability was introduced and persists in the vocabulary of bioethics with an adjectival function, as a characteristic, particular and relative, contingent and provisory, of limited use in the field of human study, and becoming ever more relevant in the consideration of a reality that its consideration seeks to overcome or even change through attributing increasing power to those who are vulnerable (18).

From this point of view, the present report, which studied a sample population of adolescents for whom abortion was commonplace and who were treated at a Brazilian public hospital that treats expectant mothers, aimed to describe the epidemiological profile and to analyze the bioethical aspects of vulnerability to induced abortion.

Methods

For the present study, we used data obtained over the course of 12 months, from March 2008 to April 2009. The study included 201 adolescents with a diagnosis of inevitable abortion, who underwent uterine curettage in a hospital affiliated with the Sistema Único de Saúde (Unified Health System) in Maceió, Alagoas, Brazil. Information on socio-demographic conditions (age, marital status, and ethnicity) and sexual practices (beginning of sexual activity, number of partners, and forced sexual intercourse), behavior (contraceptive methods, planned pregnancy, desired pregnancy, abortion methods), and clinical aspects (number of pregnancies and number of abortions) were obtained through a survey.

To classify an abortion as induced, we applied a checklist to the questionnaires using the following WHO criteria (19): 1. abortion that was known to be induced: at the gynecological examination, the pregnant woman admitted that she had used tea, medicine, and/or another procedure to trigger menstruation, and/or presented with cervical laceration, and/or had used a foreign body in the vagina or uterus; 2. abortion that was probably induced: the pregnant woman did not admit to having induced the abortion but referred to the pregnancy as unplanned, with signs of sepsis or peritonitis having been found; 3.

abortion that was possibly induced: when only one of the two conditions previously mentioned was present. Other situations, classified as spontaneous abortions, which did not fulfill any of these criteria, were not addressed by the survey. Before the beginning of the interview, each adolescent was informed about the goal of the study and invited to fill out the informed consent form regarding their participation. The interviews were privately performed in the presence of the legal guardian.

The analysis and understanding of the bioethical aspects pertinent to the epidemiological investigation of induced abortion vulnerability were subjected to analysis of the orienting principles of autonomy, justice, beneficence, and non-maleficence (20). This research was conducted in accordance with the guidelines for research involving human beings, established by Resolution 196/96 of the National Council on Health, according to the ethical principles of the Declaration of Helsinki and after being approved by the Ethics Committee on Research of the Federal University of Alagoas (UFAL) (Trial number 010679/2008-51).

Results

Among the pregnant adolescents studied, 164 (81.59%) reported at least one episode of induced abortion. Eight adolescents (4%) reported having suffered sexual violence. Among those subjects, six

(75.0%) reported that the forced sex had occurred once, and two (25%) reported that it had occurred multiple times. The majority of pregnant adolescents (177, or 88.06%) were between 15 and 19 years of age, followed by those younger than 15 (24, or 11.94%). Among the adolescents who reported sexual violence, three (37.5%) were younger than 15, and in two of these (66.7%), the abortion was known to be induced. However, among the adolescents of 15 to 19 years, there were no possibly or probably induced abortions, nor any spontaneous abortions. The most frequent age at which abortion was undergone for the first time was 16 years. In addition, the age at which abortion that resulted from sexual coercion was most frequently performed was 16 years.

With regard to relationship status, adolescents with a stable partner made up the majority of the group with abortions that were known to be induced, corresponding to 114 (69.51%), whereas 7 belonged to the possibly induced group (53.85%). Thus, there were over twice as many abortions that were known to be induced in adolescents with stable partners than in those with no partner. In adolescents without partners, the probably induced type of abortion was more prevalent, equivalent to 14 (70.00%). For the adolescents who reported that they had suffered some type of sexual violence, the majority had a stable partner.

Table 1: Distribution of pregnant adolescents according to ethnicity, relationship status, and sexual behavior. Maceió, AL-BR, 2008. (**p*, ns = not significant (χ^2 test).)

Variables	Types of abortion										<i>p</i> *
	Known to be induced		Probably induced		Possibly induced		Spontaneous		Total		
	n	%	n	%	n	%	n	%	n	%	
Ethnicity											
White	53	32,3	11	55,0	5	38,4	3	75,0	72	35,8	ns
Brown	10	62,8	9	45,0	8	61,5	1	25,0	12	60,2	
Black	8	4,8	0	0,0	0	0,0	0	0,0	8	3,9	
Marital status											
No partner	50	30,4	14	70,0	6	46,1	2	50,0	72	35,8	ns
With partner	11	69,5	6	30,0	7	53,8	2	50,0	12	64,1	
First sexual intercourse (age in years)											
10-14	61	37,2	10	50,0	9	69,2	2	50,0	82	40,8	ns
15-19	10	62,8	10	50,0	4	30,7	2	50,0	11	59,2	
Number of partners											
1	95	57,9	11	55,0	7	53,8	2	50,0	115	57,2	
2 - 3	56	34,1	8	40,0	6	43,1	2	50,0	72	35,8	
4+	13	7,9	1	5,0	0	0,0	0	0,0	14	6,9	
Total	164	81,5	20	9,9	13	6,4	4	1,9	201	100,0	

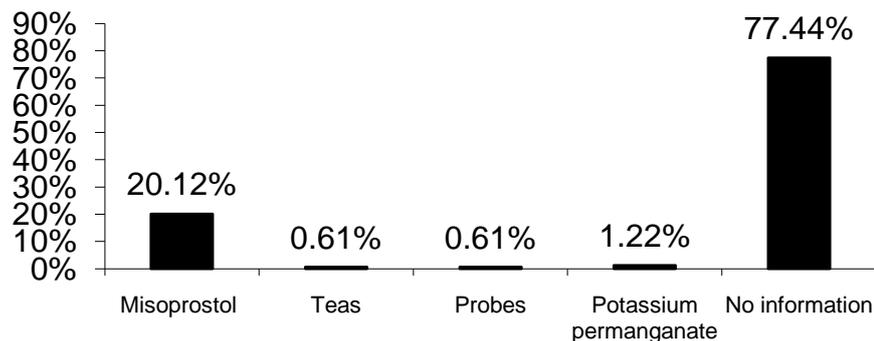


Figure 1: Percentages of abortions that were known to be induced, according to the method used.

With respect to ethnicity, the majority of the pregnant adolescents (121, or 60.20%) were mixed race, 72 (35.82%) were white, and 8 (3.98%) were black. It is important to highlight that the majority of the adolescents who did not desire the sexual relations that led to the induced abortion were mixed race (Table 1).

With regard to their sexual behavior, 119 (59.20%) had initiated sexual activity between 15 and 19. The same was reported by those who reported sexual abuse. The average age for beginning sexual activity was 15 (SD = 1.5) and varied between 10 and 19 years of age (Table 1).

With respect to the number of sexual partners, 115 (57.21%) of the pregnant adolescents reported having had only one partner, whereas 86 (42.79%) had had two or more partners. A sexual encounter without consent that resulted in induced abortion was reported by 21 (10.45%) of the adolescents, with 13 (6.47%) reporting forced sexual relations, and 8 (3.98%) declared that they had been raped, of whom 6 (75.0%) reported a single instance of violent sexual intercourse, and 2 (25%) reported multiple instances (Table 1).

In terms of spontaneously revealed awareness of contraception, 168 (83.6%) and 183 (91.2%) of the adolescents indicated that they knew about oral contraceptives and condoms, respectively. Coitus interruptus (123, or 61.2%), the rhythm method (96, or 48.1%), and the diaphragm (42, or 20.9%) were cited less frequently, even after they had been mentioned by the interviewer. With respect to the use of contraception in the case of the current pregnancy, none of those evaluated mentioned the use of a condom during sexual relations. A total of 141 (70.15%) did not use a contraceptive method in the month of conception, and 80 (29.85%) reported the use of contraceptive methods before becoming pregnant. The most used contraceptives were injectable contraceptives, by 31 (15.43%); coitus interruptus, by 23 (11.44%); oral contraceptives, by 4 (1.99%); and intrauterine devices, by 2 (1.00%).

Among those who reported or showed evidence of having induced abortion, 128 (63.68%) had not planned the pregnancy, and 54 (26.87%) had not wanted it.

Figure 1 presents the methods used to induce abortion. Among the 164 adolescents with abortions that were known to be induced, 127 (77.44%) admitted having used one of these methods to induce abortion; and 4 (2.44%) reported other methods, only one of whom declared the use of an intrauterine probe. In the other cases, 33 (20.12%) did not admit to, but presented signs of, abortive efforts in the examination of their genitals (lesions of the vulva, vagina, or cervix).

With respect to the number of pregnancies among the adolescents with induced abortions, the largest number (103, or 52.24%) were experiencing their first pregnancy, 81 (41.29%) were primiparas, 51 (26.87%) had already had two births, and 35 (17.42%) had already experienced three or more births.

In this sample, abortion had been induced only once in 22 (10.95%) of the adolescents. In total, 170 (86.57%) of them affirmed that they had never had an abortion, and 5 (2.49%) of the adolescents had undergone two induced abortions. No one reported three or more abortions.

Discussion

Beginning in the first half of the 20th century, many countries reduced the limitations and judicial charges regarding the practice of abortion in consideration of the gravity of the problem in the area of public health (3). The WHO (20), in an effort to improve the information available about the prevalence of induced abortions, has proposed a classification system based on the history of the patient and on the clinical findings. Among the adolescents in the present study, 164 (81.59%) showed signs that the interruption of pregnancy had been induced. Other authors (21, 22) have observed that a significant percentage of all women who seek hospital care for the treatment of abortions that are known to be induced are adolescents.

Chaves et al. (23) have noted the value of bioethics in assisting with ethical conflicts involving providing

medical care to adolescents with signs of abortion. Additionally, it is necessary to be familiar with laws and legal codes, to consult institutions and competent professionals in various areas of knowledge, and to evaluate each case individually without adhering to absolute answers.

The scenario with which the adolescents in our study were confronted was difficult because faced with a sexual relationship that resulted in an unforeseen pregnancy, where their only remaining recourse was an abortion. In a Latin American country with great socioeconomic and cultural disparities, adolescents tend to be submissive because they are not used to being able to exercise their autonomy; therefore, they passively accept the shortcomings of the reproductive health assistance they are offered without holding public policies responsible (24).

With respect to the age of the adolescent who presents clinical signs of abortion, our results show that 177 (88.06%) of them were 15 to 19, with the average being 16. A total of 114 (69.51%) had stable partners. We also observed that the majority (121, 60.20%) of the adolescents undergoing abortions were mulatas, a result that may be explained by the setting of the study in the Northeast region, where the population is mostly of African descent (3, 24). In this context, induced abortion must be analyzed from a broader perspective, in the light of both social norms relating to reproduction and effective contraceptive resources, appearing above all as an obstacle to the material and financial autonomy of the adolescents (25).

In the present study, the average age of first sexual intercourse for the adolescents with induced abortions was 15 years. The age of first sexual intercourse among Brazilian adolescents has been decreasing (13). The fact that half of them had a single partner means that violence is left unpunished for fear of retaliation and the fear of being exposed (26). Sexual intercourse against their will was reported by 21 (10.45%) of the adolescents, 8 (4%) of whom reported sexual violence. Thus, most of the adolescents did not characterize sexual relations against their will as a form of sexual violence. It is notable that none of them referred to "rape" or presented signs of physical violence. Moraes et al. (27) have emphasized that the term "sexual intercourse" is often understood as sexual penetration, discounting other forms of sexual contact.

For Gracia (28), sexuality and sexual rights are subject to the ethics of responsibility. Sexual rights are valuable tools for the ethical review of sexual behavior in society and under the law. However, in the specific contexts of health care and the promotion of sexual rights, it is appropriate to introduce the elements of the ethics of care due to the special conditions of humane treatment and personal proximity, which favor promotion and prevention in sexual health.

Bioethically, the theoretical picture of vulnerability highlights three interdependent aspects, which should be taken into account in the analysis of vulnerability. 1. The individual aspect, in which vulnerability is related to behaviors associated with the exposure and susceptibility of the individual and which may vary over time as a function of values and resources that allow for greater or

lesser protection. 2. The social aspect, in which collectivity is evaluated, through access to information and health services; epidemiological indicators; sociopolitical, cultural, and economic aspects; and the degree of freedom of thought and expression. 3. The programmatic aspect, in which vulnerability is related to the proposal, implementation, and continuity of policies, programs, services, or actions directed toward the resolution of the problem (29). The silence from public institutions concerning sexual violence contributes to increasing the vulnerability of adolescents, making it impossible to assist in preventing new occurrences or providing access to educational and juridical resources. This is precisely the type programmatic vulnerability that, according to Ayres et al. (9), can diminish individual risk if addressed. In this sense, vulnerability is the result of the intrinsic relationship between individual behavior and social determinants, which includes access to public policies.

With respect to contraceptive methods, most of the pregnant adolescents were not using contraceptives (141, 70.15%), and none reported using condoms. According to some authors (3), the frequency of condom use falls as relationships become stable, due to the rejection of its use by the male partner. These facts, however, do not express the complex relationship between women and contraception (25). Another study (30) has reported that despite the availability of contraceptive information and regardless of the quality of this information, problems accessing contraceptives are seen as important barriers for many of the women who use public health services. This fact is associated with the restricted list of methods available, the lack of availability of contraceptive supplies, and even the lack of appropriate locales to attend to these women and their needs. The phenomena described above, even if important, cannot represent alone the complex relationship of adolescents to contraception. What is lacking is the identification of determinants that influence and model contraceptive practices (25).

Brazilian research performed through surveys with women in public maternity units has shown results that converge with ours. Most of the interviewed women were aware of contraceptive methods, especially the contraceptive pill and condoms. However, these studies showed that women's knowledge about fundamental aspects of conception and contraception was fragile, inconsistent, and incoherent, which explains at least in part the ineffective use of contraceptives (3).

Although contraception is an issue addressed by health policies since the 1980s and has been guaranteed as a right in the Brazilian Constitution since the same decade, the heterogeneous implementation of policies in Brazil does not assure that contraception is effectively distributed (20). Recently, the Brazilian government launched the National Plan for Integrated Attention to Women's Health, acknowledging the right of the population to the broadening of supplies of reversible contraceptive methods and of male and female sterilization (30).

In the present study, among adolescents with certainly induced interruptions of pregnancy, 128 (63.68%) had not planned the pregnancy, and 54

(26.87%) had not wanted it. Thus, we observed a strong association between desired pregnancy and unplanned pregnancy; that is, in this phase of life, the adolescent may have a strong desire to be a mother but may not have the maturity to properly plan for all the elements that follow from early motherhood. Thus, in Brazil abortion is still widely used by women as a solution for unplanned pregnancy, especially in environments that make access to effective methods of contraception difficult (31).

In the present study, the certainly induced type of abortion was observed for 164 (81.59%) of the adolescents, and in 160 (89.19%), it was related to the use of misoprostol. More recent estimates have shown that abortion statistics are elevated not by women who go to sophisticated clinics but rather by those women who have difficulty accessing nutritional, educational, and basic health care needs and who use high-risk measures or self-medicate themselves with drugs for abortion, among whom the use of misoprostol is growing rapidly, which seems to contribute considerably to the reduction of infectious complications in patients with induced abortions (3).

In our study, most of the women with induced abortion were in their first pregnancy. Other authors (3) have found that abortion was more frequently observed from the third pregnancy onwards. Among the bioethical dilemmas involving the field of reproductive rights, the question of abortion stands out. Thus, the vulnerability of the adolescent to the practice of induced abortion can be approached from different experiences. The bioethical paradigm used is systematized according to three principles (20): autonomy, which is based on the assumption that to exercise freedom, the individual must be autonomous; that is, all participants involved in sexual practice should consent in a clear and voluntary way; beneficence, assuming that every act aims to do good to people; and non-maleficence, based on the deontological principle that one should avoid, to the greatest extent possible, causing harm to others.

In principle, justice presupposes the equal treatment of individuals, with equitable and appropriate consideration for what is considered to be or constitutes their property. Through the concept of justice, individuals are accorded benefits or punishments in accordance with the nature of their actions. Distributive justice, in turn, concerns equal, equitable, and appropriate distribution in society, determined by norms that structure social cooperation. In a broad sense, justice is applied in the distribution of rights and responsibilities. These ethical principles are founded on the moral discussion that comes from the interactions between individuals. The emphasis is on individual autonomy. Beginning in the 1990s, new theories arose that began to problematize the hegemony of principlist theory. In fact, economic globalization, the problems of social exclusion experienced in developing countries, the lack of access by vulnerable groups to developments in science and technology, and the inequality of access of poor people to the consumer goods indispensable for survival became important parts of bioethical thinking (32). In this regard, ethics based on universal principles cannot be applied or simply incorporated in a context of inequality. It

is important as well to develop thinking that allows the complexities of Third World societies to be addressed (33). Schramm (33) has warned that even if contemporary bioethics are characterized by a tension produced by two distinct ethical paradigms, "the sacredness of life" (strongly influenced by religious doctrine based on the inviolability of human life) and "quality of life" (characteristic of secular and lay bioethics), it is fundamental to understand the biopolitical context of contemporary life, at the risk of not addressing the net of complexity represented by the challenges of the dilemmas of today. In understanding bioethics as a stage for plurality, the legalization of abortion does not mean an obligation to abort (34). The human character of the embryo is indisputable and was established by science long ago. Sgreccia (35) has condemned what he calls "hidden forms" of abortion, such as emergency contraception, that is, the use of interceptor substances that prevent the implantation of the zygote, and/or contraceptives that do not allow a pregnancy to continue.

According to Mori (36), "psychological and economic conditions became relevant for the acceptance of abortion, according to the needs of the woman." In this context, women will gain autonomy and the social and material conditions that will enable them to decide what to do when placed in a complex situation like an undesired pregnancy. However, the Brazilian Penal Code makes an exception for an abortion performed by a professional doctor to save the life of the mother or in case of rape. In general, the data indicate the necessity of promoting programs that assist family planning, focusing on the correct use of contraceptives and emphasizing continuity in the use of the method of choice, having as a goal the reduction of the incidence of induced abortions. Finally, bioethical principles will guide us in daily reflection, allowing us to create minimal directives for assistance that will protect the adolescent from vulnerability to undesired pregnancy and will bolster public policy programs directed toward access to effective contraceptive methods and health services that provide treatment based on the complexity of the facts.

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