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The Society, the Barriers to Organ Donation and Alternatives for a Change

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<http://dx.doi.org/10.5772/intechopen.73756>

Abstract

Objectives: To evaluate the current possibilities that transplantation offers to the patients on waiting lists, and to propose alternatives to modify this medical and social crisis.

Introduction: Persistent organ shortage remains a problem. Put simply, patients are dying because people have not understood that donation means to prolong lives. Ignorance and prejudice and mainly fear of dead and mutilation are major causes for inadequate society's response.

Conclusion: The stagnant shortage of organs shows that current educational strategy has not improved people's behavior. Renovate the current message might be a way for a change. New catch phrases like: "After death, our body is a unique source of health"; "Organ donation is not a gift. It is to sharing of a new life for one and all". "Throughout life, we are all potential recipients of a transplant"; could be included in educational programs; in addition, instructive action on this subject addressed to the youth, starting in the schools, could be another positive contribution for a solution to this crucial crisis for the possibilities of welfare of the Society.

Keywords: modifying educational programs, organ donation, organ transplantation, dying in waiting lists, social behavior, school curricula

1. Introduction

Transplantation of organs and tissues has succeeds to associate life and death for the benefits of society. Current evidence suggests that transplantation medicine might be a crucial health guarantee for society. However, the paradoxical shortage of donated organs limits this possibility.

This extraordinary progress of medical sciences offered to the people by health care organization, has generated the need for novel methods and State actions to be able to implement it without any restrictions for the benefit of society.

Certainly, this advance in medical practice should generate new health programs different from those recognized until now. The vital requirement to transform death into life, which is what organ transplants symbolize, requires the end of somebody's life. Therefore, the knowledge and acceptance of the metaphor, "transforming death into life", should be recognized by the State and by the people.

It is important that society knows the benefits that organ transplants mean for the security systems. This reality is evidenced in the significant budget differences of a kidney transplant compared to a same period of patient in hemodialysis.

To achieve this goal, it is essential that people should understand currently the essential solution to solve the inexorable evolution of patients suffering from a terminal organ failure and that our body after death is a unique and irreplaceable source of health.

This possibility depends on people's legal organ donation either during their lives or that at the time of death of their loved ones. Unfortunately, this people's option remained for decades in a partial response.

Organ shortage is a social, psychological, ethical, moral and political problem, causing unjustifiable damage to public health.

As a consequence of organ shortage, patients on waiting lists are "unfairly" dying everyday. In a way, the unjustifiable truth of today is that society is denying another human the chance to live.

Regarding the notion of people "unfairly" dying while waiting for an organ, it is also true that thousands of people are dying everyday because of socio-economic inequalities [1]. However, the reality of this is that such deaths are a consequence of multiple and complex problems, including economic, political, social inequality and corruption. All of these problems are extremely difficult to take care of. In contrast, organ shortage solution fundamentally depends on the change in the current social behavior toward organ donation. This alternative could be achieved if the strategies to modify frequent people's attitude toward organ donation are evaluated and revised.

This social paradox urges a rational response. The puzzle to answer is what is the motive of this crime of "lese majesty" that humanity is committing against itself?

The reasons most responsible for this negative behavior toward organ donation are basically ignorance and misinformation [2–6].

Worldwide, approximately 47% of people who are asked to donate organs and tissues gave their consent despite the fact that in opinion polls, between 75 and 90% of the population is in favor of the donation.

At this moment, more than 125,000 people in the United States are in need of a life-saving organ transplant. And 64% of them are currently on a waiting list—to which roughly one person is added every 10 min—unfortunately, only about half of them will actually receive, the transplant they need this year [7].

A critical analysis of the reasons for the uncertain people behavior toward donation suggests as a valid alternative, that the current message to society has not been able to develop a positive change in this current social conduct [2].

As a proposal, we have suggested a change of the classic slogan "Donate is a gift of life" for "Donate is to share life". In addition, we have proposed the following ideas as useful supplements to modify current behaviors toward donation:

"During life we are all potential recipients of a transplant".

"All monotheistic religions accept organ donation and transplantation".

A social education that allows a real knowledge of this problem will be a challenge to facilitate people understand a human right acquired by the Society: to give or receive donation of organs and tissues during life.

We suggest the aforementioned slogan: "Our body after death is a unique and irreplaceable source of health" as a valid challenge in search of a social change.

It is interesting to note that current people's feelings regarding organ donation does not fully agree with the concepts stated by UNESCO emphasizing that attitudes of society toward organ donation do not conform to the principles of social behavior [8].

It would be important to make people aware, as the main protagonist of the lack of organs, of these significant notions required today by society.

At present, time should ensure the possibility that anyone who requires a transplant can receive it in necessary time. The social security of modern states should use maximum resources in the achievement of educational programs that have analyzed and proposed solutions to the real barriers that generally inhibit the will to donate, in the search of achieving a positive change in the current indefinite social behavior.

In addition, the training of young people through the incorporation of topics on donation and transplants in curricular programs, periodically carried out in schools, colleges and universities, may be another way to develop a change in people's attitudes toward organ donation.

2. The underlying reasons for organ shortage

Ignorance and prejudice continue to be the general causes of society's lack of response to the social need of organ donation; particularly with respect to the deceased donor [3]. Several possible explanations for this behavior have been suggested:

1. People are only partially aware of how accepted, organized and frequent transplantation of organs and tissues is today.
2. People do not consider that they themselves may need a transplant during their life.
3. Society is not cognizant that the body after death offers a unique source of life.

4. Medical teams are largely untrained in organ donation because of insufficient education on this matter [4–7].
5. The decision about organ donor after death, or the response of relatives to donation requests, awakens primal fears such as:
 - a. The instinct of self-preservation [9].
 - b. The Freudian notion that nobody thinks about his or her own death until a loved one dies [10].
 - c. The ancient idea that the integrity of the body is mandatory for the pathway to eternity [11].
 - d. The fears concerning a diagnosis of brain death [12, 13].
 - e. Beliefs that the organs will first go to the rich and only then to the poor [14–16].

People are not informed about the beneficial impact of transplantation on health budgets, that is, transplantation can reduce the cost of diseases, which would otherwise have to be treated by expensive long-term therapy [17, 18].

The media has featured stories about criminal “organ commerce” [19].

These myths, misinformation and prejudices are barriers that weaken the instincts of solidarity and altruism, arousing selfishness and uncertainties.

Regarding the aforementioned negative factors on donation, it is important to emphasize the importance of two of them: fear of death and respect for the integrity of the body that are not essentially linked to ignorance and/or bad information. Surveys on the behavior of university students regarding the implication of fear of death as an inhibition factor in the acceptance of organ donation and transplants were investigated in different studies. These surveys showed that negative attitudes toward organ donation were associated with higher fears of death and dying of the self and less strongly with higher fears of the death and dying of others. A study showed that students without donor card and with reservations about donation scored significantly higher fear of physical destruction. Possible implications of these findings for medical education and future research are suggested. It was mentioned that given the urgency, attitude toward organ donation should be considered a civic responsibility transforming an unfortunate yet inevitable event into something that positively affects someone else [20–22].

Body integrity, it also remains a central issue for negative behavior toward organ donation. Fear of mutilation is the fear of losing any part of our body structure, the idea of having limits in the mobility of our body or of losing the integrity of any organ, part of the body or natural function. These ideas can generate ethical and moral inhibitory behaviors regarding the treatment that our bodies or those of loved ones receive at the time of death. These reflections regarding the conservation of the body’s image play a significant role in the decision of families toward donation [23].

Understanding that those factors can limit the potential supply of available organs for transplantation, the suggestion that our body after death as a unique and irreplaceable source of

health should be considered an educational challenge in the search to modify socio-psychological behaviors deeply structured in people's mind. Educational procedures searching the best way to spread this notion should be deeply analyzed by experts in social, psychological and religious questions.

Public education, mainly through the media, non-governmental organizations and lectures by experts, has been the main strategy to change social attitudes toward organ donation. It is important to highlight that the results of these educational endeavors have not been completely satisfactory, as the crisis remains almost unchanged. Although the public is more aware about transplantation issues, there remains a shortage of donated organs.

The increasing number of patients on waiting lists and their daily mortality is a clear expression of the insufficient impact of social education programs to date. The consequence of this inadequate social response is that at least 22 unreasonable deaths occur everyday on organ donation waiting lists [24].

Highlighting the serious situation, Matas and Hays considered that the United States educational policy has had little effect on organ donation [25]. For that reason, the author suggested that making organ donation financially neutral for donors should be supported as one solution to this serious problem. However, it should be considered that this strategy might generate a new type of social injustice and inequality. In addition, it should be noted that there has been several criticisms of the educational social programs on organ donation. Many authors believe that the current methodology is useless and is a needless economic investment [26, 27].

Paradoxically, none of these authors suggested thoughtful modifications to the educational methodologies in order to achieve a more positive social response to organ donation.

2.1. Potential reasons for the present crisis

2.1.1. The message to the public has been inadequate

From the earliest times of the transplantation era, the philosophy used for educational purposes has relied on the concept that organ donation is an expression of altruism and solidarity, a "gift" that will save or improve someone's life. In fact, several surveys have shown that, in general, people are open to donate their organs (or those of a family member) after death. However, when facing the moment of grief, a high percentage of people fail to remember this commitment and consequently the "gift of life" is questioned and does not come to fruition.

The inadequate societal response to the persistent lack of donated organs encourages the following conceptual changes in the philosophy of the organ donation message:

1. Organ shortage is a health emergency.
2. Our body after death is a unique source of health for everyone.
3. Sharing our bodies after death should be acknowledged as a tacit social agreement for a common welfare.

4. Organ donation is not giving life, it is sharing life.
5. Throughout our lives we are all potential organ and tissue recipients.

Successful implementation of these ideas requires acknowledgment by state health and education institutions, scientific societies, organ sharing organizations and representatives of monotheistic religions.

2.1.2. The message has not been effectively transmitted

Undoubtedly, a scientifically programmed and continuously disseminated MEDIA campaign will have an important influence on the improvement of social behavior toward transplantation and donation.

Nevertheless, on the other hand, the MEDIA can transmit prejudicial and negative information and the myths most commonly perpetuated as:

1. Premature declaration of death.
2. Transference of personality traits from donor to recipient.
3. Criminal black market for organs.
4. Corruption in the medical community.
5. Organ allocation systems, which allow celebrities to get transplants first.

A recent study has shown that mass media can generate a conflicting image of organ donation. The inadequate information is responsible for a negative attitude on the part of many potential donors. Investigations on the effects of MEDIA on donation have shown that when people are not in favor, they often mention the negative effect of television programs [28]. The myths transmitted were more believed by the viewers, than by those who did not see these programs. The same phenomenon occurred regarding the donation between spectators and non-spectators.

Although these are not the only myths that the general public believes to be true, the media is a powerful support for them. A well-programmed and persistently disseminated media campaign might have an important influence on improving society's knowledge of organ donation and transplantation.

It has been proposed that the ability of the press to correct negative misinformation might be fundamentally improved with the collaboration between specialists in transplants and journalists in the drafting of news or recommendations on donation and transplantation to society [29].

The decision of an organ donor is one of the most important and significant behavior of a current world citizen.

A public debate regarding organ donation can inform and stimulate many people to be donors.

Proposed solutions:

1. Legal measures
2. Financial incentives
3. Expanding donors
4. Education

1. Legal measures

Laws about organ transplantation have been passing attempts to provide a better system of organ donation and distribution and to encourage individuals to volunteer as organ donors.

In USA, in 1968, The Uniform Anatomical Gift Act was the first effort at providing a national organ and tissue donation policy. The act created a uniform legal procedure for persons who wish to donate organs and for hospitals and medical institutions that want to accept them. A 1986 federal law requires all hospitals participating in Medicare or Medicaid to implement a “required request” policy. Hospitals are required to discuss with potential donors and their families “the option of organ and tissue donation and their option to decline” [30].

Consent and altruism remain core values of organ donation. The term consent is typically defined as a subject adhering to an agreement of principals and regulations.

Two types of legislation concerning organ donations are at present valid worldwide:

1. Informed consent or “opt in” (only those who have given explicit consent are donors or the expressed voluntary of their families in case of death).
2. Presumed consent or “opt out” (who has not refused to express their consent to the donation is a donor).

People have thus to register if they do not want to donate their body.

Presumed consent is one of a number of different varieties of consent. The paradigm of consent in biomedical ethics is to express consent. It appears in the Uniform Anatomical Gift Act’s framework for organ donation as well as in rules of voluntary, informed consent in both therapy and research involving human participants.

On the other hand presumed consent has always been perceived as the “best” system for society in terms of organ donations.

However, in both systems, the family has something to say, especially for the deceased who did not sign anything while alive.

Proposals to introduce presumed consent should have full knowledge of their organization and results in the countries in which this legal instrument is in force. In practice, the citizen is informed that his non-registration as a non-donor means that he is a donor. The experience has shown that, in general, the presumed consent has not nullified the will of the families.

In Spain and Italy, it is considered that the increase in donation is the exponent of a better institutional management rather than the result of the presumed consent law.

In France according to the 1976 “Caillavet Law”, a person is presumed to have consented to organ donation if he or she has never explicitly said otherwise to close relatives. But even for organs and tissue, where there is no such legal confusion, the “Caillavet Law” has not been applied uniformly in all French hospitals because there was no centralized administration in France to coordinate people’s wishes.

France has modified its law on organ donation. All people are donors at death unless they record their refusal in an official registry. The new law provides for the procurement of organs, even against the wishes of the family.

Spain is routinely cited as a successful example of presumed consent. But in Spain, the next-of-kin still has veto power. Most of the growth in donation rates there happened well after the passage of presumed consent legislation.

Some people do not trust the government or the health care system. Many of them are afraid that that signing a donor card may make physicians give up on them too soon, especially if the hospital is likely to lose money on their care.

This legislation, if enacted, must take into account this relatively frequent fear of the people.

Changing the law will not be sufficient. As the experience with presumed consent in Western Europe shows, education of the public and constant training of hospital personnel are essential to achieve the improvement of the structured medical organization for the increase of organ procurement.

Another possibility for increasing donors has been developed with the modification of it acceptance criteria. This means the alternative to consider the use of donors with different medico-surgical conditions that may diminish part of their chances of long-term success.

On the other hand, improvement in the detection, prevention and better therapeutic of the pathologies leading to terminal organ failure, provides alternatives by reducing the number of requiring organs for transplantation.

It is complex to establish whether the presumed consent can justify various social behaviors in countries with or without that type of legal measure.

The medical-social people behaviors are adapted to the degree of education on the subject, the quality and formation of the responsible medical organizations and the economies of each one of the countries.

In particular, the participation of a medical group trained in excellence in the psychosocial methodology of approaching families at the time of the grief of the loss of a loved one, is undoubtedly a factor of principal importance for a positive result regarding the family response [31].

Some critics claim that presumed consent is a “fiction” [32]. However, the conception of presumed consent as tacit and silent overcomes the notion of being a fiction. Sometimes it can be

a concretely effective consent, according to the characteristics and organization of the institutional resources, as well as to the competence, understanding and motivation of the people.

With some notable exceptions, previous studies consider that, in practice, the laws of presumed consent have not achieved more important levels in the behavior of people toward donation [33]. In addition, it has been suggested that these results are related to the fact that, despite the law, the consent of the family is usually required [31, 32].

Finally, with respect to the effectiveness of laws concerning the mode of consent, we believed that hardly a law can change the moral and ethical behavior of the people.

2. Financial incentives

Financial incentives are considered any material gain or value obtained by those who consent directly to the process of obtaining organs, whether to the donor, the succession of the donor or the family of the donor.

The arguments in favor of financial incentives for organ donation are based on the hope that such a system will increase the supply of organs safeguarding the basic ethical concern of saving lives.

A set of reimbursement of funeral expenses has also been suggested as a direct “milder” means of incentive for donation.

Finally, a form of “insurance for the donor” has been suggested, for which an individual agrees in advance of the donation, with a payment to their beneficiaries that will only take place after the donation.

The concept that financial incentives can offer a possible solution to the shortage of organ donors in progress has been considered and debated among experts in the field of transplantation, ethics, law and economics [34].

The essential conception of altruistic donation, unchanged in general in the last 50 years, has not been able to overcome the constant lack of organs, with a critical permanent increase in mortality on the waiting list. This constant reality has motivated the justification by different authors to invoke a fundamental change of the current altruistic criterion: financial incentives to facilitate organ donation.

It has been specifically pointed out in this regard that the current system generates financial gains for all concerned: doctors, coordinators, social workers, hospitals, pharmaceutical laboratories, etc. Consequently, it has been described as unjust and insensitive to the families of the donors and a source of basic distrust on the part of the public, that the donor and the family are the only ones that do not directly benefit from the donation process, which therefore, some type of compensation must be defined [35].

Finally, those who promote financial incentives for organ donation conclude that their motives are ethical because they are based on concern for patients and saving lives and not only on abstract theories and issues without concrete answers.

Pilot programs are proposed to evaluate the potential effects of financial incentives for organ donation instead of rejecting this proposal on the basis of theoretical disadvantages not yet tested [36]. This means that it is time to use incentives to reward people who are willing to save the life of a stranger through donation.

Those who support the establishment of economic incentives consider that our current transplant system is inadequate for the task of increasing the volume of organs necessary to save lives. Altruism is not enough, incentive pilot trials are needed [37].

On the other hand, opposed to financial incentives base their objections on the argument that the altruistic system has not been correctly promoted.

It is pointed out that there would be a decrease in respect for life and the sanctity of the human body, and a loss of the personal relationship that currently exists in the donation process [38].

Great concern has also been expressed regarding a potential phenomenon of rich versus poor. Ironically, this type of incentive would be mainly aimed at racial communities of significant poverty [39].

Economic necessity should not be linked in a coercive way to consent to obtain organs. This money would be better spent more on education for medical communities regarding the need for organ donation through the current system to make the society understand the fundamental benefit for its future of donation and organ transplantation.

Beyond that the proposed incentives can be negative for potential donors, it has been argued that the financial gain of the family of the donor has not resolved at all the economic problem motivating the acceptance of economic incentive to donation.

On the other hand, the relative failure of the medical community to participate in the donation process will not be improved by the incentives directed to the potential donor [40].

In the discussion of the problem of acceptance of economic incentives for organ donation, it is convenient to mention the Iranian program of transplants. In this country, a system for payment of organ donation coordinated by the government has been implemented with significant results. Actually, a candidate for transplantation in Iran can get a kidney from a cadaver, living relative, or a living stranger.

However, in contrast to most countries, 76% of kidneys come from strangers; only 12% of kidneys are from deceased donors.

This significant difference makes it necessary to consider the obvious poverty-donation relationship, which notwithstanding any image of responsibility on the part of the state, does not excuse an unavoidable presumption of social injustice, ethically not compatible with the basic principles of ethics in organ transplants.

Those who oppose the financial incentives for organ donation predict the possible loss of control of this process by the government bureaucracy and the "organ traffickers" with a tremendous increase in the cost of administrative requirements [39].

Until it is available through universally accepted surveys as accurate and representative, the feasibility and effect of financial incentives for organ donation remain questionable.

3. Expanding donors

One important factor in the number of transplantations, currently performed, is the growing acceptance of marginal grafts, which are defined as organs at increased risk for poor function or failure that may subject the recipient to greater risks of morbidity or mortality [41].

The persistent “organ shortage” remains with an increase of 8% organ transplants per year. The annual growth of patients on the waiting list is 22% and its mortality is 18%.

This reality has conditioned a modification of the classic acceptance criteria for an organ donor. Currently, donors regarded as “expanded criteria donors” with potentially suboptimal organs have been included.

Simultaneously, the number of cadaveric organ donors has remained relatively static, with only a 4% increase per year. Most of this incrementally small increase has been through the use of “expanded” donors, reflected by the fact that the uses of donors older than 50 years old increased by 24% per year while those younger than 50 years increased by only 1.5% per year [42].

As it was mentioned, to increase the potential donor supply, the implementation of presumed consent and financial incentives for donation have been proposed, nevertheless public attitude toward presumed consent would probably not be acceptable. On the other hand, there has been resistance to financial incentives to the donor family because of the perceived danger of this escalating to the selling of organs as currently taking place in Southeast Asia and India [42].

Efforts to expand the donor pool are therefore limited to expand the criteria for the use of “suboptimal” organs.

Mainly, suboptimal donors are considered when donors are less than 5 years old or older than 65, donors with moderate decrease in renal function, donors with antibodies positive against hepatitis C, donors with type 2 diabetes or with moderate arterial hypertension and particularly the use of donors with cardio-circulatory death [42].

Essential characteristics of these suboptimal donors:

Older donors: the general refusal to use kidneys from older donors is due to the normal structural changes in the aging kidney.

However, these changes may not occur in all donors. For this reason, it has been considered that the older donor should be evaluated individually for its renal function at the time of death. Renal biopsy can be used in donors older than 50 years or with a history of significant hypertension. An organ that presents a glomerular sclerosis less than 20% and with mild interstitial fibrosis is acceptable to be implanted.

It is important in these cases to implement the system called Old to Old, it does means, old donors kidneys for old donor receptors.

It is very important in these kidneys the evaluation of the cold ischemia time (CIT). Kidneys with CIT of more than 48 h have a graft survival of 38% compared to kidneys with CIT less than 48 h, which had a very acceptable graft survival of 76% at 1 year.

Nephrotoxic injury with medication or rejection may also limit the long-term final result of these organs [43].

The hypertensive and diabetic donor: patients who received cadaveric kidneys from donors with a history of either diabetes or hypertension (“non-ideal”) were compared with recipients of “ideal” organs. Although the overall graft survival of the non-ideal organs was somewhat less (69% versus 74%), these differences were not significant. Again, these kidneys should be evaluated on an individual basis by biopsy and donor history [42].

The donor with hepatitis C: the use of the hepatitis C (HCV) + donor organ has been controversial and was a subject of debate. Nevertheless, today advances in the treatment of hepatitis C have change acceptance criteria for these donors.

Prevalence of HCV positivity in organ donors has been reported to be between 2 and 6% with contradictory data with respect to the risk of transmission of HCV from positive organ donors [44].

Non-heart beating donors (NHBD): the use of NHBD has been increasing all over in recent years. In controlled and uncontrolled trials, delayed graft function is 60–80% of cases. Nevertheless, no matter this consequence of longer periods of warm ischemia, long-term results and graft survival rates are excellent [45].

Until other options such as xenotransplantation or tissue engineering become realistic, the challenge for the millennium will be to identify which donor organs previously considered suboptimal can be safely used to expand the organ donor pool.

Paired kidney donation: increased living donation (LD) rates are determined by less invasive approaches to donor nephrectomy and by the excellent long-term results.

In recent years, a number of strategies have been introduced to expand living donation programs beyond the classical direct donation, to overcome immunological barriers of blood group or HLA sensitization of recipients.

New strategies in LD include paired kidney exchange. In order to overcome the sometimes difficult barriers of incompatibility in blood groups or the hyper immunized receptor, the pair kidney donation technique has been a significant advance.

The procedure consists of combining the pair of incompatible donor recipients with each compatible member of different pair. Other alternative programs are: altruistic donation, altruistic donor chains and list exchange programs, and desensitization of hyper immunized patients and transplantation across the blood-type barrier [46].

The transplant community is challenged to address the ongoing crisis in organ transplant access. A discarded organ may be a missed opportunity to save a life. While careful judgment and prospective monitoring is crucial, a blanket “no” to these organs will help neither you nor your patients [47].

4. Education

The teaching of basic concepts regarding transplanting and organ donation has been insufficient.

An efficient education on the need to modify the current reluctant negative behavior toward organ donation by society constitutes a potential possibility to improve this urgent medical-social

crisis. Education and information will increase the value of altruism by protecting the population from exploitation, increasing the meaning and value of organ donation [48, 49].

Organ donation and transplantation education at all levels of society have been a matter of interest for decades. Nevertheless, the results observed to date must be considered inadequate because organ donation and procurement have not improved worldwide. With regard to medical education on transplantation, multiple polls show a severe lack of knowledge [3–7].

When searching for new alternatives to modify ancestral prejudices and barriers inhibiting the use of the body after life, priority should be given to youth education starting with children in schools.

The rationale of this proposal is that young people, particularly children, are free of prejudices, and are able to easily learn new ideas, sometimes much more easily than adults. Modern psychology suggests that childhood is the best developmental stage to start prevention programs against harmful prejudices. In addition, new notions learned by children at schools can be a way to offer clear and unprejudiced knowledge to their families [50, 51].

The central task of education is to implement facilities to learn; it should produce learning people. The truly human society is a learning society, where grandparents, parents and children are students together.

At present, young people have not been sufficiently informed of their future organ transplant needs and their potential role in the development of educational programs.

No one has yet realized the wealth of sympathy, the kindness and generosity hidden in the soul of a child. The effort of every true education should be to unlock that treasure [52].

Organ and tissue donation can also involve children. Because of its sensitivity, this topic requires careful decision-making. Children have the ability to carefully reflect on this subject and enjoy participating in family discussions about it [53].

Shoenberg consider that teaching young people about organ transplantation is not particularly difficult. He considered that helping young people understand the problem of transplant increases the possibility that they clearly understand its importance. Probably young people in response to this teaching will discuss this issue with their families or with their peers, thus multiplying the educational effect. Intense and persistent educational efforts focused specifically on young people are relatively rare. Consequently, this leading educator not related to medicine, suggested that “the transplant community has to offer strong stimuli that induce professors in various places to assume such a task” [54].

Undoubtedly, the insufficient results of people’s education, without significant changes over the decades, indicate the need to review the current methodology of teaching society about this severe crisis, consequently of their current behavior toward organ donation.

The introduction to the permanent curricula of study, in the different levels of education; structured by a commission of experts, that will analyze the insufficient achievements obtained with the current education methodology.

Introducing a new conceptual line of teaching that will provides new approaches and even new slogans to be transmitted to society, could be a necessary test in a search for a progress in the results so far obtained.

Clarify fundamental concepts previously mentioned and up-to-date information on organ donation and transplantation will help to understand fears and prejudices generated by ignorance.

Previous information to the teachers by experts in social communication and specialists in transplants will be fundamental as an initial step for the realization of a new program of education of the youth with transmission to the whole society.

Recent experiences in Argentina and Canada, inspired by the previously described conceptual suggestions, have produced positive results. In their responses to a questionnaire completed after the class, students (aged 10–16 years, from households of different socio-economic levels) showed a clear understanding of the concepts taught, and a coherent and logical interpretation of the problem.

The pilot trial consisted in a 45 min course followed by discussion and questions, with the following purposes:

1. Evaluate the possibility of application of the project.
2. Assess in countries with socio-economic differences, the understanding and acceptance of basic concepts concerning organ donation.

Materials and methods

- Mixed school in Argentina.
- Average age 12.9 years [11–14].
- Girls school in Canada.
- Secondary school: 45 students.
- Average age 14 years [13–16].

The following where the main topics included in the lecture:

1. History of transplantation.
2. Brain death.
3. Cadaveric and living donor.
4. Mortality on the waiting list.
5. Religious attitudes toward transplantation and organ donation.

This pilot test highlights the usefulness of a stable and universal introduction transplantation subjects in the curriculum of youth education [50].

2.2. The role of international organizations responsible for health and education

Considering the stagnant rates of organ donation, it is important to mention that in the search for possible solutions the potential role of a different educational strategy has not yet been significantly promoted by the World Health Organization (WHO) and international transplantation societies.

In contrast, it is interesting to note that the WHO and The Transplantation Society have developed an intense and positive legal and ethical interest into the serious problem of organ commerce and transplant tourism. It would be of great utility to promote joint activity by the WHO, UNESCO and Transplantation Societies, and religious authorities, in order to generate international consensus meetings, looking for efficient educational policies and search for other possible solutions to this global social emergency.

3. Conclusions

Organ and tissue transplants provide the possibility of new life and improved health and well being. However, the number of patients who died due to lack of donated organs increases daily. The main cause of this paradox is inadequate social behavior regarding organ donation, both in life and after death. Education at all levels of society may offer the possibility of improving this critical situation. In this chapter, we suggest a change of methodology based primarily on a modification of the message. We emphasize the need to focus education at an early age, starting with primary school and intensifying it at the university level, especially in medical sciences.

In the USA from 1988 to 2010, donation-related policies on organ donation and transplantation increased in number from 7 to 50. That is great progress with intentions to improve a crisis. Nevertheless as remarked by Chatterjee et al. strategies to encourage organ donation have had no observable effect [55]. Millions of dollars have been unsuccessfully spent on the education of society seeking to change feelings toward organ donation [27]. Consequently, international figures have suggested the controversial need to institute legal and economic incentives to living and deceased donors [37].

The current contradiction is that the global success of organ transplantation is growing as fast as the waiting list and the mortality of its members.

Fundamental measures looking to improve the shortage of donated organs have been scientific and technical; however, there has not been a significant increase in the number of organs and tissues obtained for transplantation. Almost inexplicably, society's communication and education methodology has remained practically unchanged over time. It is clear that human behavior regarding organ donation should be critically analyzed to identify the most effective

solutions for the shortage of donated organs. The virtual absence of positive attempts to modify human behavior concerning organ donation suggests a scientific stalemate for crisis resolution by the main protagonists. A change in the current philosophy of social education policies regarding organ donation and transplants is clearly necessary, as recognition and support by international health and education organizations will undoubtedly confirm this need.

As we have previously discussed, should be of critical importance to consider. In the development of new educational plans, the complex barriers to donation, deeply established in social behavior: fear of death and respect for the integrity of the body.

These psychological inhibitions have not been primarily considered in the educational programs. In particular, should be of interest that people can realize some crucial concepts such as that today the dead body represents a unique irreplaceable source of health.

An educational program developed by experts in sociology, psychology and theologians should be essential to carefully planned potential solutions of these real barriers to donation. A change in transplant and organ donation education programs, efficiently reviewed, may be a challenge to change the inadequate people's behavior and the tragic consequences of organ failure. The persistence of current reality becomes an unanswered uncertainty.

We consider it of interest at the end of this article to hypothesize why the positive results obtained at an educational level in schools at Argentina and Canada, which have been internationally reported in specialized journals, have not been repeated, particularly in the analysis of the structural changes that have been suggested to carry out concerning education and the message to Society.

Models of social education whose qualities can generate important changes in individual behaviors can be resisted. All potential interested that has experienced long time traditional establishment educational programs usually develop resistance to a change.

Certainly, this resistance to educational changes, especially increases when it modifies ideas set up in the consciousness of people through the time.

The introduction of these educational changes with the aforementioned characteristics also seeks the learner's autonomy and the maximum development of their ability to change concepts firmly established in their knowledge.

In fact, these innovations cannot be taken in isolation or generated at individual levels. Undoubtedly they require the support of official or private institutions responsible for international education policies.

Dealing with ideas that will modify long-held concepts typically produces anxiety and worry.

Obviously, we can think, following concepts mentioned by Schoenberg in 1991 expressed "the transplant community has to offer strong stimuli that induces professors in various places to assume such a task" [54], that even for the main protagonists of the dilemma of organ shortage, the professionals responsible for the practice of transplantation, the influence of traditional educational establishment have not been totally overcome.

In practice, every action to modify this crucial problem should be supported by International Transplant Societies through discussions and forums, which must include, in particular, leading international organizations in education and preventive health policies such as WHO and UNESCO.

Alternatives to improve people's knowledge should be carefully planned so as to avoid the possibility that organ donation becomes equivalent to Shakespeare's disturbing reality of the dramatic symbol of "to be or not to be".

Conflict of interest

The author certifies that they have NO affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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