Using modern information technology in health promotion through various forms of health education at community

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Abstract: Health promotion represents the mediation strategy between people and their environment (ecosystem) that synthesizes personal choice and the responsibility of the society towards health. The health education aims at developing abilities and attitudes which maintain the health status. Internet and other modern electronic and information technologies users are healthy or ill people, of different ages, sexes, professions, etc., who want to inform themselves on how to preserve and promote the individual, collective and community health, on how to recover and maintain a good quality of life, even in some chronic crippling diseases. The medical practice and our study inclusive prove the imperative necessity of developing internet networks or other modern information technologies that could make available to the users and the Romanian medical scientific community information supports necessary for improving the health promotion, the health education practice, the prophylaxis, the promotion of a healthy lifestyle, including a better coordination of the activity in the field of national and international public health assistance and an efficient management of the relation between medical units, local governmental units and central management units and the user of medical assistance services.

Key-words: public health, health promotion, health education, quality of life, modern information technologies – the internet.

1 Introduction
Health promotion represents the mediation strategy between people and their environment (ecosystem) that synthesizes personal choice and society’s responsibility towards health. Each community has a series of values that must be clarified and the role of health promotion is to help people or groups of people discover which their real values are [1, 6].

Health promotion and the maintenance of the quality of life, of a good health status of the population, the adopting of a healthy lifestyle, with great implications in the long term at social and economic levels, are realized by a health education sustained ever since the first years of life, and today the information technologies are an easy way of promoting public health education [2, 3, 7].

It has become more and more necessary to develop and make more efficient electronic public services (e-Government, e-Education, e-Health) in all fields of daily life, and even more in that of health promotion where different forms of health education are needed for groups, organizations and communities [3, 4, 10].

The creation of a complex integrated interdisciplinary model of health education based on modern information technologies for implementing a network at the health care system level is a distributed responsibility which needs the cooperation and the creation of partnerships between the decision factors in the field of public health and specialists in the computer science and medical fields.

The diversification and the integral approach of health promotion through health education, using the advantages of modern electronic systems, including the reduction of economic expenditures, represent a huge progress compared to the traditional way of realizing health education which was mainly oriented towards changing the deviating individual habits and not towards the prophylaxis of the apparition of tendencies detrimental to health that today plays the role of a potential force for change [5, 6, 11].

The present electronic information techniques belong to the new types of health education applications which include the motivation of users with respect to the educational contents and the new medical methods used, the achievement of better results in the learning process, the development of new competences, such as the communication, media and digital competences (culture, comprehension, knowledge), the outrun of cultural barriers, cognitive abilities generated by the digital infor-
information, such as the observation, the visualization, the systematic approach, the information processing, all of them being necessary in the practice of public health and health promotion [7, 11].

Another application of great interest of the modern information techniques is the public health programs that represent the background of the implementation of the objectives of the public health strategy and policy, and these are addressed to population groups and are oriented towards health promotion, disease prevention and prolongation of a good quality of life. Presently, the projects dedicated to health are divided into three main areas of action:

- improving information and knowledge related to public health development;
- increasing the capacity of quick and coordinated answer against aggressions towards health;
- promoting health and disease prevention by including the determinants of the health status in all policies and activities.

World Health Organization defines health education as the most efficient weapon of the population health which imposes “providing health education to population and determining the different sectors where it can participate in the application of all public health programs in order to mark in this way the personal and collective responsibility of all members of the society for protecting human health [3].”

2 Problem Formulation

The electronic information offered by the modern information systems implemented in the public health practice will have as main goal to complete, not to replace, the existent relation between the healthy or ill person (client)/internet application user for example, and the doctor or the service supplier or between specialists in carrying out the medical procedure or the proper medical intervention.

World Health Organization considers that at the basis of health promotion rests a series of principals that take into consideration the following aspects [3, 11]:

- the implication of the population as a whole in the context of the day-to-day life, concentrating less on the population with high risk of apparition of certain diseases, from where the necessity of adequate informing before making a decision;
- the orientation towards the health determinants: environmental factors, conducts, health services, human biology, the health promotion being oriented towards action;
- the use of different complementary methods and approaches, including communication, education, legislation, fiscal measures, organizational change, the development of the community and of local spontaneous activities against health risks, as the sanitary sector is incapable of maintaining and promoting health alone;
- the ensuring of the public participation and the transformation of the acquired knowledge into conducts by concrete and efficient participation of the public;
- health promotion represents a common activity in the social and medical fields, the implication of the medical-sanitary staff in the increase in the health education level of the entire population having an important role in spreading and sustaining health promotion.

Health education aims at developing abilities and attitudes which maintain the health status. The health education programs are addressed to all ages and have as an objective the development of a healthy lifestyle or the modification of health risk conducts. These programs aim mainly at the last two areas of action aforementioned. The main target of the different forms of health education is the individual as well as the collectivity, with stress on healthy conducts and risk conducts too.[15,16]

The medical information presented at population level through health education which is processed in different information systems is presented simply and synthetically and in a language as accessible as possible for the large public, making it be more informed, more responsible for its own health and that of the others and adopt a prophylactic attitude.

The internet has become one of the most used mass media means, but, at the same time, more and more internet users have become aware of its risk and admit that it is difficult to have access to trustworthy information. [8, 9]

The impact that a site with medical information has on its users (current or future patients) is one of the important preoccupations of the specialists in the medical field, of the decision factors and last but not least of computer scientists.

In the medical and educational practice, health promotion and education have to be integrated in the information system of the health services.

The information system accessed for the healthy as well as for the ill person has to include information organized in a system of interconnected databases of passive prophylaxis, for example the immunization, screening, prophylactic strategies and methods, risk factors, environmental factors, occupational health, children and youth health,
institutions involved in the public health field, educational models on types of collectivities, as well as a library with medical publications and applications for facilitating the dissemination of analysis from the territory and the cooperation between the institutions that play a role in the public health system – exchange, experience, training, proposal, partnerships and the promotion of national and international programs in the field of public health [6, 7].

The use of the internet and of other information technologies in the health education practice allows [10]:
- the promotion and the maintaining of the population’s health status and longevity;
- the improving of the cooperation between the institutions that play a role in the public health system;
- the improving of the communication between the responsible factors from the public health field;
- the informing of the users on prophylactic methods and strategies and on public interest data;
- the informing, dissemination and implementation of population immunization programs according to national and international strategies, as well as the informing of individuals belonging to groups under risk factors;
- the users to be informed on the screening tests for facilitating early diagnosis;
- the improving of the access to public health information by implementing in the system the high-speed mobile communication technology;
- the periodical analysis of the accessed information from the network for their quick adaptation to the users’ demands;
- the cooperation and the exchange of materials with other traditional means of information;
- the creation of some feedback mechanisms allowing the users to comment on the validity and the value of the information presented;
- the creation and the implementation of information instruments for the instruction of the population, including the school populations from rural and urban communities, at local, regional and national level;
- the use of information technologies together with epidemiological means to identify the groups of people under great risks of getting ill;
- the increase in the quality of health care systems;
- the periodical analysis of the accessed information from the network for their quick adaptation to the users’ demands, including the informing of the national (e-Government, e-governing) and international decision-making bodies (EU, WHO, UNICEF, UN, etc.);
- the ensuring of a high degree of flexibility to changes;
- the improvement of the information management process.

The development of internet networks or of other information instruments will make available to the users and the Romanian medical scientific community information supports necessary for improving health education, prophylaxis and the coordination of the activity in the field of public health [7]. The modern information technologies are and will be a means more and more used for health care and the prevention of urgent critical states and therefore the benefits are less quantified in money and more quantified in the increase in the quality of life and automatically in the increase in the life expectancy which has as direct effect the decrease in the financial effort that the society is paying.

The electronic information systems allow a better and quicker way of information in the field of health promotion through different methods of health education, of the early detection of the first signs of different health problems, of the national and international prevention strategies (the prevention of the infection with the HIV/AIDS virus, specific programs of immunization for different transmissible diseases) and of the public health assistance, and as a daily work tool it can constitute a novelty for the population and the specialists in Romania. [12]

Internet and other modern electronic and information technologies users are healthy or ill people, of different ages, sexes, professions, etc., who want to inform themselves on how to preserve and promote the individual, collective and community health, on how to recover and maintain a good quality of life in some chronic crippling diseases. Other users interested in these information and communication sources are the specialists who work in the health care system and the decision factors involved in the field of public health, for example the county authorities for public health, the pre- and post-university education system, including the scientific researchers, etc. [13, 14]

3 Problem Solution
Health education programs aim at all age subgroups, especially at children and youth, having as an objective the development of a healthy
lifestyle or the modification of health risk conducts. The healthy lifestyle represents the totality of conducts that maintain the health status and prevent the apparition of diseases: a healthy diet, regular physical exercises, protected sexual behavior, periodical medical monitoring, screening, the use of protection equipments, the observance of the physiological rhythm sleep/relaxation, etc. National and international studies have revealed that as a person has access to more complex medical information, he/she will try to become more involved in the decision-making related to his/her own health, the internet becoming one of the most used mass media means in the world. The number of internet users in Romania has quickly increased over the 10 last years and the access to these electronic technologies of information and of quick, easy, accurate and highly economically profitable communication is in continuous growth [16, 17]. Therefore, there are many studies in the world that have tested the opinion of the population, especially of teenagers and of young people, between 10 and 30 years of age, concerning the utility of the internet and of other electronic technologies in the medical practice and in the process of health education of the healthy and ill population, as a health promotion tool ever since the pre-school and school period, in the urban area as well as in the rural one. The study we have carried out in March 2009 in several school units in four Romanian counties (Cluj, Mures, Alba and Salaj) was based on the testing of the respondents’ opinions (n=500), teenagers and young people, concerning the daily use of the internet in the medical practice, not just as a way of informing or educating, but also as a way of communicating between the health promoter (doctor) and the client, a very easy way of receiving rapid, correct and safe information. The study methodology was taken and adapted after that of the non-profit organization – HON - “Health On the Net Foundation” of Geneva (the mission of HON is to promote and support medical sites and their correct information from safe sources) [16, 17] - and it is based on collecting opinions from surveys made up of a series of specific questionnaires concerning the utility of the internet and its effects in the medical practice.

From the analysis of the answers offered by the respondents (n=500) it can be noticed that the majority (60-98%) of the teenagers and young people acknowledge the positive effects of internet information in the medical practice and the necessity of using modern information technologies for health promotion and for the improvement of several medical, educational and communicational parameters in the client-health promoter relation.

### Conclusion

Our study has revealed the fact that the use of medical information from the internet can improve the communication (85%) between the clients and the health promoter – the doctor who carries out consultations and health education. A significant number of teenagers and young people, respectively 490=98% of the total lot, is convinced that the internet represents one of the multiple modern technological means that can improve the medical knowledge of the population for health promotion and the adopting of a healthy lifestyle, as well as a health education tool in the medical practice.

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<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
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<tr>
<td>Can the use of the medical information from the internet <strong>improve the communication</strong> with the doctor?</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>The health information from the internet has improved your <strong>level of medical knowledge</strong></td>
<td>98%</td>
<td>2%</td>
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<tr>
<td>The information gathered from the internet has increased the <strong>compliance</strong> with your doctor?</td>
<td>88%</td>
<td>12%</td>
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<tr>
<td>Can the information from the internet <strong>reduce the time</strong> necessary for a consultation?</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>Can the research of medical information on the internet <strong>improve the quality of the consultation</strong>?</td>
<td>90%</td>
<td>10%</td>
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<tr>
<td>The information from the internet has improved your <strong>knowledge level</strong></td>
<td>82%</td>
<td>18%</td>
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Table 1. The respondents’ opinion concerning the utility of the internet and its effects in the medical practice (n=500 teenagers and young respondents)

A highly important effect obtained as a result of the access to and the appropriation of medical information from the internet, for both the client and the health promoter – the doctor, is the increase in the client’s compliance to the medical procedure (88%), the reduction of the consultation time (60%) and also the improvement of the quality of the medical procedure (90%) and the optimization of the confidence in the doctor and his/her special recommendations (82%).

These results impose the implementation at a quick pace of modern information technologies in health promotion through different forms of health education at the community level as well as the
extension of this kind of projects in the whole country so that the population can be informed and responsible for promoting individual and collective health. The development of internet networks or other information instruments will make available to the users and the Romanian medical scientific community information supports necessary for improving the health education, the prophylaxis and the promotion of a healthy lifestyle, including a better coordination of the activity in the field of public health assistance and an efficient management of the relation between medical units, local governmental units and central management units and the user of medical assistance services.

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