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VIEWS OF DECISION-MAKERS ON THE FEASIBILITY OF IMPLEMENTING TELEMEDICAL TECHNOLOGIES IN CERVICAL SCREENING IN THE REPUBLIC OF MOLDOVA

Diana VALUȚA**, master in public health, obstetrician **gynaecologist[1],
***Oleg LOZAN,** university professor, doctor of medical sciences[1].*

[1]School of Public Health Management, State University of Medicine and Pharmacy "Nicolae Testemitanu", Republic of Moldova, Chisinau.

Cervical screening together with vaccination against the Human Papilloma Virus (HPV) can completely eliminate cervical cancer from the life of the 21st century woman, the only completely preventable oncological disease. This commitment can only be achieved if 90% of girls will be vaccinated, 70% of eligible women will be cytologically investigated, 90% of women detected with cervical lesions will be treated, which is the key to success and cost-effectiveness and can be significantly accelerated by investing in technologies and innovations, including telemedicine [1].

Telemedicine has become a vast branch of modern medicine, when the universal coverage of the population with health services can only be achieved with the support of information technologies, which come to help health systems to be truly responsive, sustainable and as close as possible to the needs and conditions of the beneficiaries [2].

In the prevention and monitoring of non-communicable diseases, telemedicine is used most frequently, after emergencies and the monitoring of chronic and elderly patients. In this context, the ways to implement telemedicine in Cervical Screening adapted to the specifics of the healthcare system in the Republic of Moldova (RM) require thorough research.

The implementation of telemedicine in Cervical Screening can significantly increase the recruitment and scheduling of women for the primary screening test, the provision of pre- and post-treatment monitoring, the development and clarification of the colposcopic diagnosis by providing remote video-guided methodological support, the development of cytological and histopathological decisions through the virtual council, remote guidance of treatment procedures and last but not least solving the crisis of qualified medical personnel in remote regions of the country. [3].

The COVID 19 pandemic has really succeeded in propelling the implementation and widespread use of telemedical technologies, at the same time multiple barriers remain, including at the level of perception and the opinions of decision-makers, which stagnate the implementation process and its effectiveness.

In this context, we aimed to study the opinions of decision-makers in the research of the feasibility of implementing telemedical technologies in cervical screening.

12 in-depth interviews with decision-makers helped to answer several questions, to identify implementation barriers and to find ways to solve them. The interviews were carried out as part of a large-scale research, the purpose of the research being the assessment of the feasibility of implementing tele-medical technologies in cervical screening in the Republic of Moldova, with the development of recommendations for solving the detected deficiencies.

Keywords: Telemedicine, Cervical Screening, decision factors, in-depth interview, Republic of Moldova

INTRODUCTION:

Telemedicine faces an unprecedented rejection in the implementation process, first of all from the representatives of the health system, the argument being that it is unknown, complicated to implement and use, expensive and unsecured, with a major risk of exposing personal data and the particularities of the medical act. The lack of a strategic vision at the government level and clearly defined policies keep the process in continuous stagnation [4].

The World Health Organization has adopted a comprehensive definition of telemedicine, defining it as "the provision of healthcare services, where distance is a critical factor, by all healthcare professionals for the exchange of valid information, diagnosis, treatment and disease and injury prevention, research and evaluation, and for the continuing education of health care providers, all in the interest of promoting the health of individuals and their communities" [3].

Cervical cancer continues to represent a major public health problem despite the fact that it is the only oncological disease that can be prevented. Tens of thousands of women are diagnosed annually with this disease in advanced stages, two-thirds of them in low- and middle-income developing countries, the implementation of cervical screening can result in substantial reductions in cancer incidence and/or mortality, to achieve this however, screening must be organised, adequately funded and reach a substantial proportion (≥75%) of the target population. In addition, all services must maintain high quality, be coordinated effectively, and ensure that all detected women benefit from diagnostic and treatment services (≥ 90%). Failure to meet these criteria makes the option of the primary screening test ethically questionable and largely ineffective, leading to a waste of financial and human resources [5].

In the context of telemedicine, the Republic of Moldova faces not only the geographical distance, but also the low socio-economic and educational level of the population, as well as the crisis of qualified human resources within the country. In order to obtain a second opinion or a multidisciplinary assessment, it is often necessary to call on the support of experts located at a distance or even outside the country, and to perform an intervention, it is necessary to transfer the patient to another institution at the central level. In such situations, modern technology becomes invaluable, providing the means to avoid long waiting periods and travel times. [6]

The Republic of Moldova implemented an organized cervical screening program in 2014 supported by Government Decision no. 1291 of 02.12.2016, regarding the approval of the National Cancer Control Program for the years 2016 -2025.

The COVID 19 pandemic complicated the situation and dramatically limited the population's access to essential services [7], but at the same time it boosted digitalization in the health field and accelerated the development of telemedicine services. This includes the development of

virtual communication methods, telephone applications, remote professional assistance, etc., in which telemedicine has shown great potential to address many of these challenges [5]. The rapid, even fulminant evolution of telemedicine during COVID-19 represents one of the few phenomena with a "positive" impact of this pandemic and should be used for noble purposes, to improve the quality of medical services and increase the satisfaction of the beneficiary [9].

Telemedicine in cervical screening can be implemented at all levels and can be divided into two large groups: in relations with the benefits of the screening program and in relations with the health system (curative and educational process).

THE OBJECTIVES of the research consisted in the analysis of experience and international and national legislation in the field of implementing tele-medical technologies in cervical screening; developing the methodology of in-depth interviews, analyzing the opinion of decision-makers, health sector workers, about the feasibility of implementing tele-medical technologies in cervical screening; identification of barriers to the implementation of digital technologies in cervical screening; the development of recommendations for solving the deficiencies in the implementation of tele-medical technologies in cervical screening in the Republic of Moldova.

METHODOLOGY

A wider study was carried out - descriptive, qualitative and quantitative mixed, with analytical elements, in the qualitative part of which the opinions of decision-makers regarding the feasibility of implementing telemedical technologies in cervical screening in the Republic of Moldova were evaluated by conducting 12 interviews in depth with decision-makers from strategic government-level institutions, civil servants and managers, representatives of strategic institutions such as the Ministry of Health, the Electronic Government Agency, the National Medical Insurance Company, the National Public Health Agency, the country offices of the Organization of Nations United, leaders of national level medical institutions, development partners.

The interviews took place in the online format on the ZOOM platform, which allowed the video recording of the sessions by using the application Free Cam — Free Screen Recording & Video Editing Software, which perfectly fit into the research format through the prism of remote communication with the use of technologies and modern digital applications. The opinions and findings identified were analyzed and systematized according to the priorities and specifics of the implementation of cervical screening, but also the general policies of digitization in health, correlated with the national normative framework in force and the strategic plans for the development of the field of telemedicine.

OBTAINED RESULTS

The discussions during the interviews included: the evaluation of the general opinion regarding the researched definitions (digitalization, e-government, e-health, e-transformation, telemedical technologies in health), the strategy, the vision, the legal framework, the normative framework, the plan regarding the development of telemedical technologies in health and in screening, the responsibilities of relevant institutions, the attitude of the medical staff, the infrastructure and logistics specific to the implementation of telemedical technologies, the salary fund, the development funds and performance indicators, the institutional training plan, the opinion and possible barriers from the representatives of the health system, employees, managers, cultural particularities of attitude and perception towards the implementation of telemedical technologies in cervical screening, the ways to solve them.

The discussions were conducted according to the methodology of in-depth interviews, mostly freely, without conditioning, leaving some discussions to resort spontaneously, in order to be able to evaluate the subjective opinion of the participants regarding the field of research, to identify the visions, knowledge and practices obtained.

At the same time, the interview was moderated within the limits of specific topics of research interests, in order to avoid deviations from the proposed theme in order to understand the area of intervention with telemedicine services at the level of cervical screening. It was very important to understand the mechanisms of interaction with research subjects regarding the feasibility of implementing the implementation of telemedicine technologies. It was important to define what telemedicine is in screening from the point of view of people with different degrees of responsibility, in order to later identify possible barriers to implementation, to specify which barriers come from the health system, as the main users of the technologies or and from the beneficiaries. The duration of the discussions varied between 30 and 60-90 minutes.

The main implementation barriers related to human resources were highlighted as a determining factor for the implementation of telemedical technologies in cervical screening.

In this sense, most of the participants expressed the opinion that the implementation of telemedical technologies will be very slow and difficult in the conditions of the major shortage of medical personnel in general and IT personnel in particular. Educated and dedicated health IT specialists are practically lacking and at the moment there is no strategic vision in this regard. Also, there is no clear vision regarding the salary policy of people specialized in information technologies in health. At the moment the salaries are unattractive and do not favor full-time employment. Another issue is the urgent need for literacy of medical health workers in the use of information and telemedicine technologies. Systematic and strategically planned training is lacking. The staff is trained sporadically, unemployably and in the absence of continuous educational support. In this sense, the proposal from the respondents about the need to create a competent unit responsible for digitization in health was presented at the central level.

Examples from in-depth interviews: "We don't have people anymore...", "If we impose technologies we won't have workers, everyone will leave, young people will go abroad, old people will retire..." "Many are needed

trainings, the staff is not computer literate, what about advanced technologies..." "Who takes the cytology? Most of them are over 60 years old..." , "Human resource deficit everywhere, who will take care of the training? We don't have dedicated staff...", "It is very difficult to find an IT specialist at current healthcare salaries..." "We need a unit dedicated to the implementation of technologies, with a clearly defined budget and action plan... ", "Medical staff imposes major resistance...."

The above opinions were confirmed by the quantitative assessment. Only in 32%, the providers of cervical screening services were trained by the administration of the institutions in the use of IT or high-performance equipment, the other 68% of the users did the training as they could, only 34% of the institutions employed an administrator Dedicated local IT. Age is not the main cause of non-use of IT. (Figure 1)

Dedicated specialists employed as local administrators are only in 34% of respondents. In the remaining 66%, the position of local administrator is held by various specialists, in the absence of specific skills in the field, including, in some cases, by the administrator or housekeeper. (Figure 2)

The lack of specific skills explains why a third of local administrators do not have access to information systems for which they are employed. (Figure 3)

And age is not a barrier to the use of information technologies, but the reduced skills of users related to the lack of systematic training, would be a more significant impediment than age, being indicated in 78% of responses. Most support the flexibility to study regardless of age, but there should be conditions and scheduled time for training. Particular examples were given of advanced users over the age of 70 who were more successful in using information technologies than relatively young people. (Figure 4)

Regarding the existing regulatory framework, the research found that it is unbalanced, needs to be supplemented and harmonised, and is often not respected. From the interviews: "We have a lot of documents in different areas, but they don't work...", "At the level of the documents we have no problems, the problems are at the level of their execution, many are not executed..." "Each project comes with new adjustments to the regulatory framework, it must be systematized...", "Online counseling was a saving solution in COVID, it is promoted privately, but it is discovered legally..., ...at the moment it cannot be considered a medical act , has no legal value...", "Telemedicine needs a separate document, as has been done in many countries, including Romania, otherwise we risk, there are personal data..." "The standard of operational procedures in screening, yes, it is a very good document, the first document, which standardized processes and procedures vertically, will help a lot in the development of the Registry..." "Telemedical technologies, digitization in general is the inevitable future, we are moving towards Artificial Intelligence...", "The central management changes too often, political instability causes non-compliance with directions, documents are no longer valuable", "There is an urgent need for the approval of the e-Health Strategy, after which planning and financing will appear, now nothing is clear..."

Figure 1. How were you trained in using IT ?

Figure 2. Specialists nominated by the administration of the medical institution as local IT administrator.

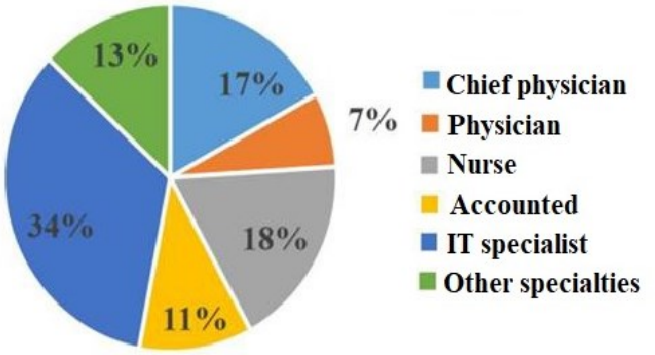


Figure 3. Access of Local Administrators to institutional IT systems

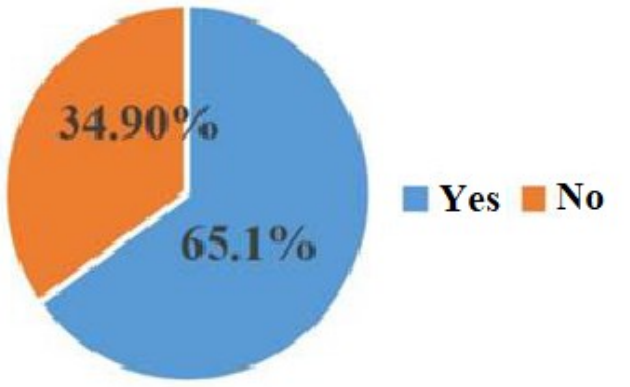


Figure 4. Low user skills related to lack of systematic training.

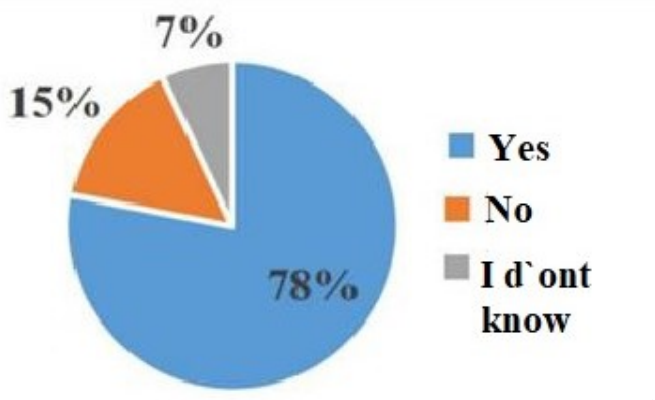


Figure 5. The opportunity to implement digital technologies

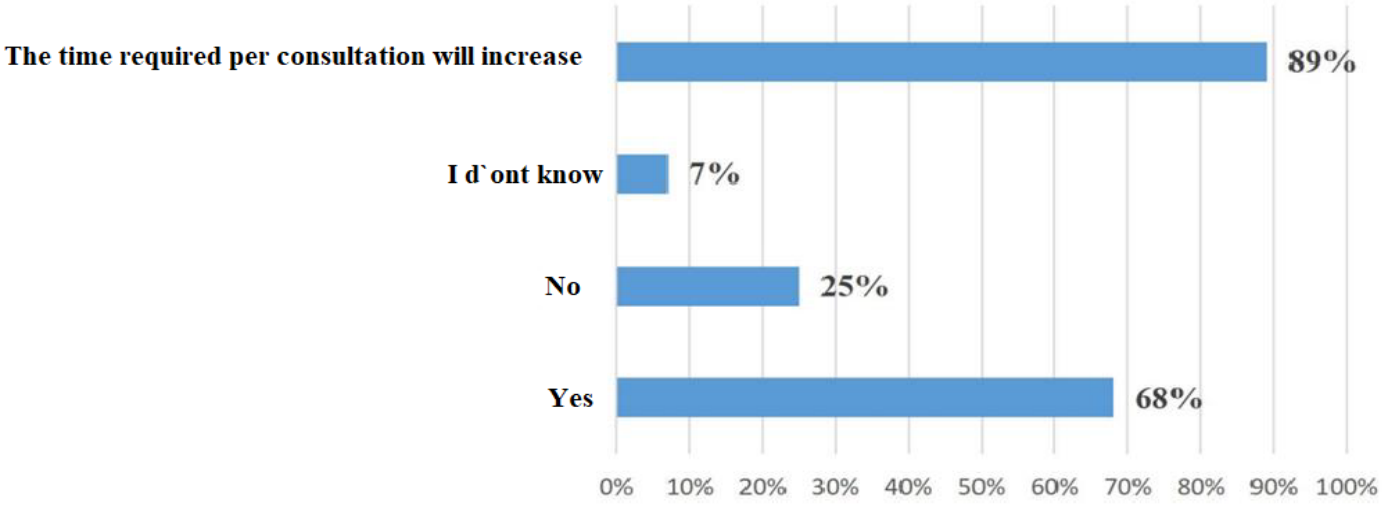
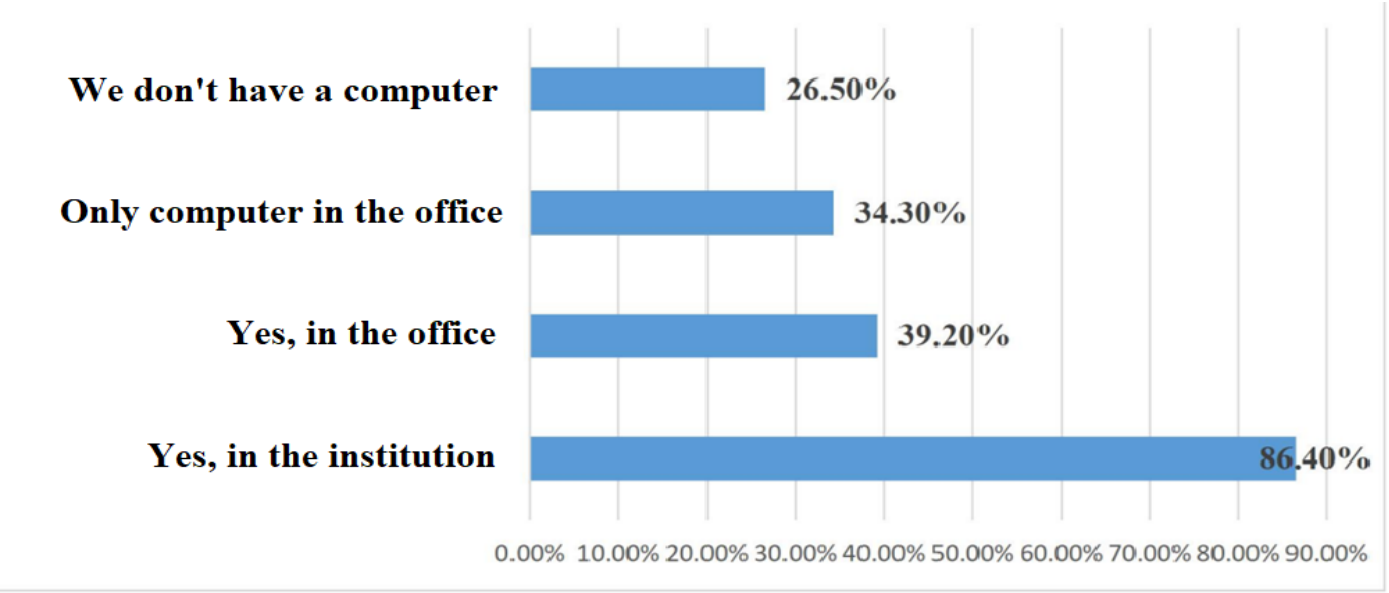


Figure 6. Existence of internet-connected computer



Investments in telehealth technologies are seen as investments with a distant and uncertain expected effect, impossible to measure or report immediately. The authorities are only concerned with the reduction and optimization of current expenses "The problem is not in money, the problem is in the vision...", "Telemedical equipment is not currently constraining...", "The budgets of the institutions would allow...", "The market it is monopolized, maintenance is very expensive, blocking any initiative for new purchases...", "Maintenance capacity is non-existent, this is the main problem..." "Equipment is purchased and used as soon as it works and is new... ", "Technologies are too new for our country, managers are not sure about the profitability and feasibility of investments..." , "The medical staff is of an advanced age, who will use it..." All the above-mentioned assumptions have been specified at the next stage of the study carried out by quantitative assessment.

The majority of respondents (90%) consider the implementation of digital technologies in screening very timely, necessary, including for communication with beneficiaries and ensuring methodological support for diagnosis and treatment through telemedicine without realizing the effort required to develop new user skills, which reflects the lack of information in the field.

At the same time, the same respondents express a controversial opinion regarding the previous finding that the time required per case will increase considerably, which is not currently possible due to existing standards, but direct communication, contact with the patient will suffer considerably following the implementation of digital technologies. (Figure 5)

The evaluation of medical equipment in the quantitative part of the study confirmed that in 80% of medical institutions they are equipped with computers and Internet access, but equipment compatible with telemedical technologies in colposcopy exists in only 20.6% of medical institutions, in the case of histopathology only

Figure 7. How to ensure access to the institutional Internet

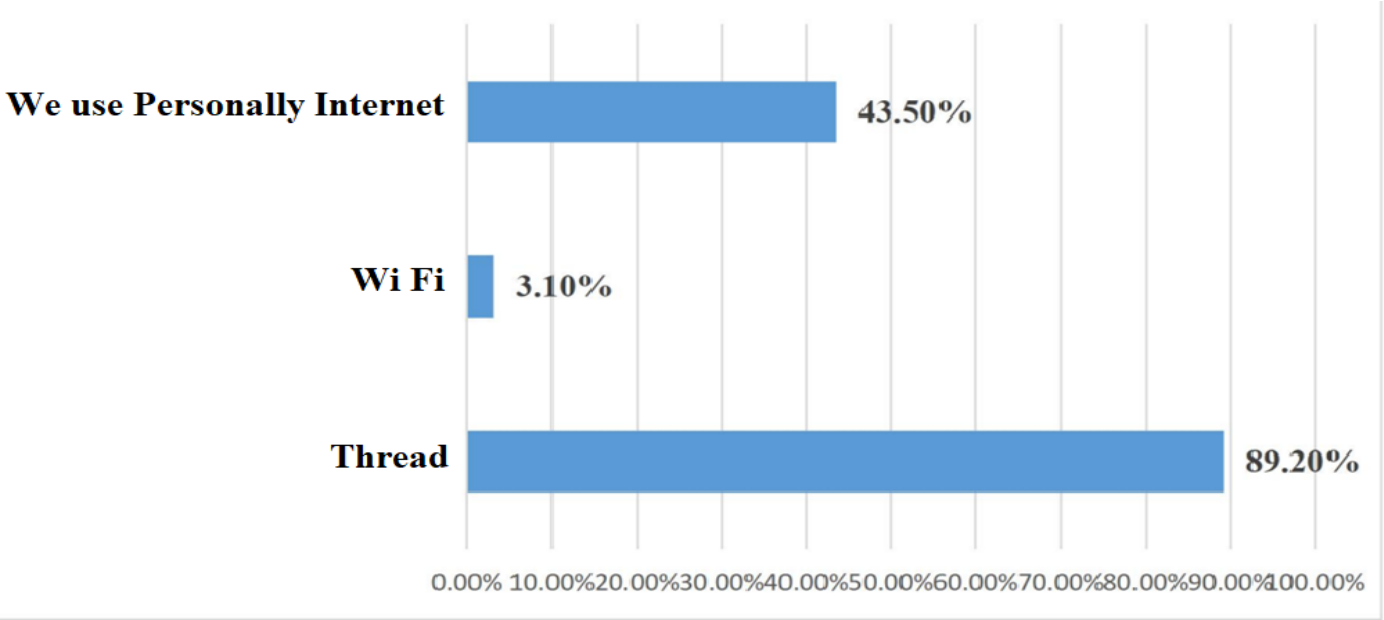
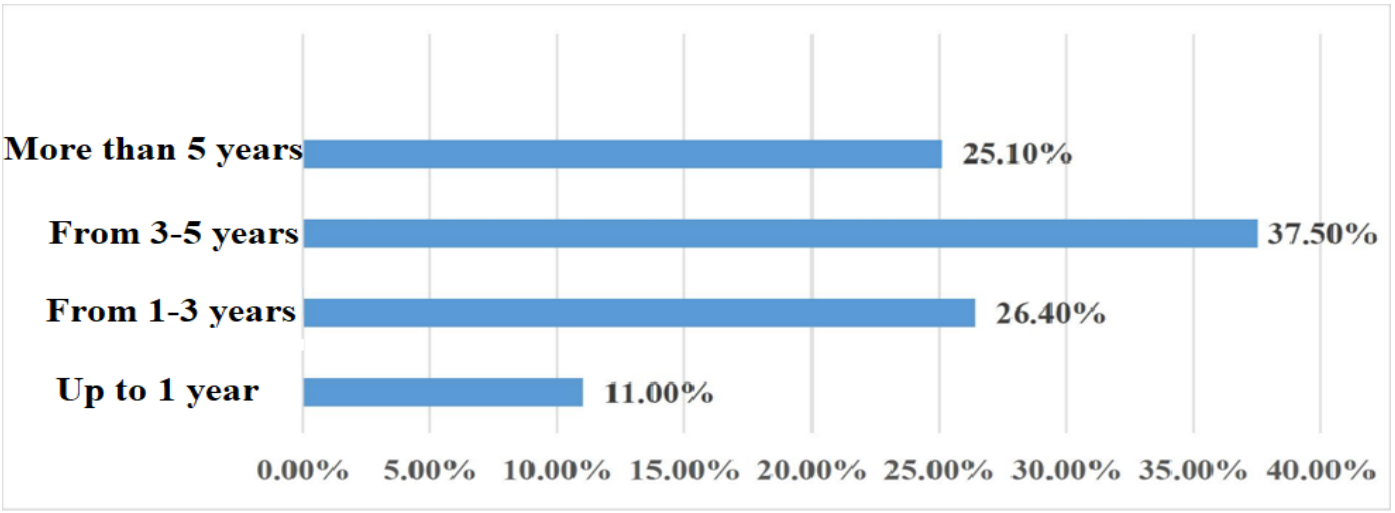


Figure 8. Average duration of implementation of medical technologies in cervix screening:



in 8, 8%, 30% of medical personnel in colposcopy offices do not know if the equipment contains a software for connecting to the computer for photo/video recording and in 65% this colposcope is not connected to the computer in the office. While this equipment allows photo and video recording in 55%, a third of these colposcopy offices do not use this performance of the equipment. (Figure 6)

Access to the Internet is via cable, connected to the personal computer, not provided by WiFi and not free in the patients' premises, the medical staff answered that they use the personal Internet during working hours including for communication in the interests of work. (Figure 7)

The average duration of implementation of telemedical technologies, according to the respondents, is 3-5 years in 37.5% of the answers. (Figure 8)

CONCLUSIONS. Following the analysis of the discussions in the in-depth interviews, the participants identified and formulated several findings, conclusions and proposals. In this article we present a summary of them. The implementation of telemedical technologies in the field of prevention and especially in cervical screening is an important and feasible integrated component of the digitization process in the health field. Telemedicine technologies will increase cost efficiency and improve the work environment, which in turn will increase the rate of performance indicators.

The development of a strategy and an implementation plan based on standardization of processes, coherence of actions and training of human resources would be a strictly necessary condition, which should be carried out during the planning period until the purchase and distribution of the equipment. The unbalanced, unstandardized, unstructured regulatory framework represents a major impediment to the implementation of telemedicine technologies in the field of health in general and in cervical screening in particular.

The reluctance of the medical staff can be overcome by strategic training planning, developing an institutional management strategy for innovation and info-health technologies, ensuring a continuous training process for users of digital products and resetting the human resources policy, including the promotion of IT specialists, who will be an essential support for the implementation of telemedical technologies. The lack of a dedicated structure responsible for the implementation of digital technologies in the field of health and the critical lack of IT specialists in medical institutions favors the stagnation of digitization processes in general and cervical screening in particular. Creating a dedicated structure, responsible for the implementation of digital technologies in health at the central level (e-GOV, MS) can be another solution; the created institution would be responsible for developing and promoting at MS level a digitization plan, which would reflect the objectives of the e-Health Strategy in the short, medium and long term and last but not least for the standardization and continuous updating of processes, procedures, forms medical statistics, depending on the compatibility requirements of digital solutions and the development of dedicated human resources.

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