PROJECT OBJECTIVES AND ASSUMPTIONS

INTRODUCTION

One of the distinctive phenomena in the demographic situation of the countries of the European Union is the population ageing process, which consists in the increasing growth of the number of elderly people aged 65 years or more in the entire population. Its most significant reasons include the gradual increase of life expectancy due to improved living conditions and progress in medicine, and the decreasing fertility rate.

In the light of the demographic classification of E. Rosset, Poland became one of the ageing countries in 1968, when the percentage of population aged 60 or more increased above 12% (Rosset 1959). In a forecast for the years 2008–2035, the Central Statistical Office (GUS) assumes that the percentage of people aged 65 years or more in 2035 will increase by ca. 10 percentage points as compared to 2007 and will amount to 23.2%. The value of the demographic dependency ratio will increase from 56 in 2007 to 73 in 2035 (GUS 2009). The age median of a statistical Pole will amount to ca. 45 years in 2030, with a tendency for further growth (GUS 2009).

On the one hand, a greater life expectancy is a success, as it proves the development of civilisation, and on the other, it constitutes a problem which is primarily economic in nature. The higher percentage of elderly people entails greater burdens for the pension system, increased costs of healthcare and various kinds of financial security measures due to the emergence of illnesses and disability (Social security... 2009). The phenomenon of population ageing is related to the need to develop strategic programmes for elderly people based on the real diagnosis of their health condition and socioeconomic situation. However, plans for initiatives addressed to the elderly should take into account the fact that this social group is not homogenous, as beside people who need help with basic existential needs and whose independence is often limited due to illnesses or disability caused by them, there are independent, active individuals who remain fully fit until very late. Broad-scale research is needed to be carried out to evaluate the health condition, quality of life and living conditions of Polish elderly people. Therefore, the implementation of the programme appears to be justified, taking into consideration the demographic tendencies operating in Poland, as well as the fact that up until now no such analyses have been carried out.

ORIGINS OF THE PROJECT

The project is a result of a competition for a multi-dimensional research study of the effects of the population ageing process, announced by the Ministry of Science and Higher Education in 2006. 18 projects were submitted for the competition, 6 of which were recommended for financing by the Committee on Research for the Development of Science of the Council for Science (Table 1). Four of them included a wide range of issues related to medicine, social and economic matters, and healthcare, although they suggested the study of different groups of respondents and a varied scope of research that reflected the research interests of the authors of proposals. Other projects were thematically limited to issues related to the physical activity and recreation of the elderly and research into the architectural environment of homes occupied by the elderly.

<table>
<thead>
<tr>
<th>Research institute – project leader</th>
<th>Subproject leader</th>
<th>Thematic scope</th>
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</thead>
<tbody>
<tr>
<td>Jagiellonian University in Krakow</td>
<td>Prof. Tomasz Grodzki MD</td>
<td>The entire scope as presented in the procurement, with emphasis on cardiac and sleeping disorders and access to healthcare services</td>
</tr>
<tr>
<td>Medical University of Silesia in Katowice</td>
<td>Prof. Andrzej Więcek MD</td>
<td>The entire scope as presented in the procurement, with emphasis on social issues, with emphasis on kidney disorders</td>
</tr>
<tr>
<td>Wrocław Medical University</td>
<td>Prof. Andrzej Milewicz MD</td>
<td>The entire scope as presented in the procurement, with emphasis on hormonal disorders and osteoporosis, and the evaluation of the quality of life</td>
</tr>
<tr>
<td>Józef Piłsudski University of Physical Education in Warsaw</td>
<td>Prof. Andrzej Dąbrowski PhD</td>
<td>The role of physical activities as part of preventive measures aimed at maintaining functional fitness</td>
</tr>
<tr>
<td>Silesian University of Technology in Gliwice</td>
<td>Prof. Adam Bartoszek PhD</td>
<td>Diverse urban environments and the requirements to adapt them to the activity and the needs of the elderly</td>
</tr>
<tr>
<td>International Institute of Molecular and Cell Biology in Warsaw</td>
<td>Prof. Piotr Błędowski PhD</td>
<td>The entire scope as presented in the procurement, with emphasis on the group of the eldest people, study of the social aspect and comparison with the „Polska Starość” (Polish Old Age) study</td>
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The Ministry of Science and Higher Education made the allocation of funds conditional on the creation of a consortium out of the selected teams and on the formulation of a joint research project. The latter was to include elements of all the research projects proposed yet to remain consistent in methodology and to cover the same research population every time. The uniformity of research was also enforced by limited financial resources which would not allow for the full implementation of all plans included in the six qualified projects.

The result was the largest multidisciplinary research project in Poland devoted primarily to the medical, biological, social and economic aspects of the demographic ageing of the population. Undoubtedly, the most significant value added of the PolSenior project is the capacity for a multidimensional analysis involving numerous factors, and therefore for combining the knowledge and experience of a number of research groups. This allows for creating a comprehensive description of the ageing of Polish society, which would be impossible with only fragmentary research. This is
because gerontology is an interdisciplinary science which seeks to gain the knowledge about ageing and old age via analyses carried out from different perspectives and with the use of diverse research tools. Only a multidimensional analysis of the obtained results allows for achieving a full picture of old age and of the tasks that ensue for the entire society, for public administration, families and non-governmental organisations.

The Ministry of Science and Higher Education decided to allocate funds to the consortium on 14 June 2007, and the implementation of the project was officially launched on 8 October. For the leader of the project, the Ministry assigned Piotr Błędowski, PhD, Professor at the Warsaw School of Economics, head of the Institute of Social Economy and President of the Polish Society of Gerontology. The coordination was entrusted to the International Institute of Molecular and Cell Biology in Warsaw – an institution experienced in carrying out multidisciplinary medical and social projects*. Małgorzata Mossakowska, PhD, from the IIMCB, became project coordinator.

PROJECT OBJECTIVES

The main objectives of the PolSenior project follow from the contents of the procurement from the Ministry of Science and Higher Education. The study includes an assessment of the health condition and social and economic situation of Polish population aged 65 or more, and a comparison with the group of people at the threshold of old age. Particular emphasis was put on risk factors related to disability and dependency, which is one of the major elements that influence the costs of social security and healthcare services. What is extremely important is the epidemiological assessment of the occurrence of age-related cognitive disorders, depression, increased risk of falls and unsatisfactory level of nourishment, as there are no representative data which would indicate the extent to which these conditions are common. Another objective was to assess the functional status – including physical fitness – with the use of scales common in geriatrics, which allows for comparing the results obtained with research carried out in other countries. Epidemiological data also include the popularity of neurological diseases, disorders of the cardiovascular, urinary and respiratory systems, and of thyroid diseases.

It is impossible to talk about the quality of life without investigating non-health related factors that influence satisfactory ageing. Therefore, the description of the social, economic and family status of senior citizens constitutes an element which is as important in the assessment of their life condition as the description of their health condition. The study was also aimed at defining the level of economic activity of senior citizens and indicating areas where motivating measures are needed. At the same time, the study was meant to allow for the identification of the needs of senior citizens. These, among others, include the need for care services. The increased need for them follows not only from the ever decreasing care potential of the family, but also from the growing need for care services that is caused not only to the increased number of individuals who require such assistance, but also to the systematic increase in the time when it is used. Another important element of the study was also the identification of the role of physical activity in rehabilitation and in restoring fitness to elderly persons and thus in preventing and delaying the period of disability.

One of the significant objectives of the project was to specify the living conditions and to indicate the most important architectural barriers that influence the diminished sense of security and the limited ability for elderly persons to move around on their own. That task was implemented both via an all-Poland questionnaire survey and thanks to a detailed analysis of various living environments of senior citizens in the area of the Śląskie Voivodeship in southern Poland.

It must be particularly emphasised that such an extensive study concerned with the evaluation of the quality of their lives by the elderly themselves has not been carried out in Poland before. This was achieved with the help of standardized questionnaires, which allows for comparisons with the results of other, also foreign studies.

One of the most important objectives of the project was to formulate recommendations for state and local self-government policies in respect of the elderly and for social and healthcare policies. The progressing ageing of the population makes it necessary to develop guidelines for such policies, indicate their priorities and to establish a hierarchy of objectives. The study was also meant to assist public administration institutions in developing detailed tasks that would influence the decrease of the social costs of unfavourable demographic processes by prolonging the period of professional activity of senior citizens and the development of special programmes to improve the quality of their lives. This would not be possible without the preparation of a diagnosis concerning the situation of elderly persons in the society and in the family. Such a diagnosis has been provided by the research carried out.

It must be added that apart from the applicative value of the implemented project, also its cognitive values were important. Among these, one should emphasise the possibility to compare the obtained results with the results of studies carried out earlier on all-Poland samples. Such a possibility arises, inter alia, for the comparison with the “Polska starość” (Polish Old Age) study (Synak 2002), especially in the part related to material living conditions and family situation with the study carried out in 1987 (Łoboszewicz 1991). Among other objectives of the project, one should also indicate the deepening of knowledge concerning the health condition and social situation of the eldest section of the population. The eldest group singled out included individuals aged 90 or more, and the adopted sample selection method assumed deliberate overrepresentation of very old individuals, which allowed for obtaining rich research material. It must be stressed that all research of elderly people – except research into 100-year-olds – carried out in Poland isolated a category of people aged 80 or more, at the most. However, the observation of the demographic ageing process in Western European countries demonstrates that as the average life expectancy grows and the number of people aged 90 or more increases, the structure of needs for health social security services changes (Barr 2011).

It is also the intention of the originators of the study and of those who implemented it to increase the interest of young geriatricians, as well as to make general practitioners and social services sensitive to the specific problems of elderly people. Unfortunately, these issues are not given enough attention in teaching curricula, as demonstrated by the lack of geriatrics as a compulsory subject in the teaching curricula of medical faculties in medical universities. Many doctors are still incorrectly convinced that any internist or GP is a geriatrician because many of his or her patients are elderly. However, comprehensive geriatric care, of which many regions in Poland are entirely deprived, is cheaper for the payer and more advantageous to the patient (Derejczyk 2008). Geriatric care is now in critical condition. Wrong financing of hospitalization in geriatric wards results in the decreased number of beds and in closing those unprofitable wards.

* Between 1999 and 2001, the IIMCB coordinated “PolStu99”, the first study of 100-year-olds in Poland, and the ordered grant Genetyczne i środowiskowe czynniki długowieczności polskich stulatków (Genetic and environmental factors of longevity in Polish 100-year-olds) – “PolStu2001”.
The implementation of the PolSenior study required close cooperation between many research teams and maintaining time discipline during the implementation of subsequent stages that involved:

1) the preparation of research tools,
2) the preparation of fieldwork (decision on sampling principles, selection of contractor for fieldwork, pilot study),
3) fieldwork,
4) elaboration of results in teams,
5) preparation of the monograph and the publication of detailed results.

ORGANIZATIONAL STRUCTURE

The organizational structure of the Consortium is presented in Diagram 1. All key decisions concerning the project were taken by the Scientific Council. The Council met at least twice a year in order to evaluate the progress of works and to take strategic decisions.

It is worth noting that the five sub-projects involved a total of 40 research groups. Adding the nurses who participated in fieldwork, persons engaged for the transport of samples to laboratories, and the administrative and technical personnel, it is easy to envisage the scale of the undertaking. Undoubtedly, the study under discussion deserves the name of the largest one in Polish gerontology and geriatrics not only owing to the number of people subject to it, but also owing to the number of those who participated in various stages of its implementation.

In order to raise the scientific rank of the study, the Scientific Council decided to establish an independent body meant to provide opinions on the implementation of the project as well as advice, to which outstanding authorities in the field of geriatrics, gerontology and epidemiology were invited (Table 2).

Table 2. Members of the International Advisory Committee of the PolSenior project

<table>
<thead>
<tr>
<th>Name and surname</th>
<th>Affiliation</th>
<th>Specialty</th>
</tr>
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<tbody>
<tr>
<td>Prof. Martin Bobak</td>
<td>Department of Epidemiology and Public Health, University College London</td>
<td>epidemiology</td>
</tr>
<tr>
<td>Prof. Alfonso Cruz-Jentoft</td>
<td>Servicio de Geriatría Hospital Universitario Ramón y Cajal, Madrid</td>
<td>geriatrics, gerontology</td>
</tr>
<tr>
<td>Prof. Jean-Pierre Michel</td>
<td>Geneva Medical School and University Hospitals, Department of Rehabilitation and Geriatrics</td>
<td>geriatrics</td>
</tr>
<tr>
<td>Prof. Gerhard Naegelie</td>
<td>Universität Dortmund, Institut für Gerontologie</td>
<td>economy, social gerontology</td>
</tr>
</tbody>
</table>

Diagram 1. Organisational outline of the PolSenior research project Consortium

RESEARCH SCOPE AND METHODOLOGY

Both the selection of the research population and the scope of the study are the result of a difficult compromise, as it was necessary to reconcile the interests of various research groups who had different objectives and emphasised different aspects of ageing. The conditions of the compromise were determined by two major objective factors – financial resources and the naturally limited abilities of respondents. It should be deemed significant success that each of the teams was able to carry out the research objectives set in the original projects, although not always to the extent expected.

The research population and sample selection

The research population was assumed to include ca. 5950 individuals in seven equivalent age cohorts with equal representation of both sexes in each of them. The first group comprised individuals on the threshold of old age – aged 55 to 59, and the remaining individuals aged 65 or more were grouped into five-year age brackets (65–69, 70–74, 75–79, 80–84, 85–89, and 90 years and more). Organisational, logistic and financial considerations necessitated the decision to draw the research population in bundles. The pattern for respondent selection was planned in such a way as to obtain a representative research population from all over Poland. Programme participants were selected with the use of a three-staged draw. In the first stage, localities were selected, in the second – streets in the cities and villages in rural areas. Urban centres were divided into five groups depending on the number of inhabitants:

- up to 20 000 inhabitants,
- 20 001 to 50 000 inhabitants,
- 50 001 to 200 000 inhabitants,
- 200 001 to 500 000 inhabitants,
- more than 500 000 inhabitants.

The third stage in the drawing consisted in determining actual respondents. The final drawing of addresses of respondents was carried out by the Ministry of Interior and Administration from the Universal Electronic System for Registration of the Population. The drawing was based on the age and sex specification of respondents for particular bundles, provided by the Consortium so as to preserve the predetermined structure of the research population. In order to ensure that the data obtained are up-to-date, the drawing was carried out successively – every time a sample for two or three voivodeships was drawn, depending on the planned beginning of fieldwork. The localities drawn for the study are shown in Map 1.
In the medical survey, the respondents were asked to disclose information about their health condition, including symptoms of cognitive disorders or depression. The nurses also conducted hearing and vision tests. The questionnaire survey included questions about past and diagnosed illnesses, as well as the frequency of consumption of selected products and dishes in various periods in life. A three-day consumption questionnaire was applied, and a scale for the assessment of the psychological condition of respondents was used. The socio-economic questionnaire included questions about the health of men and women, the family situation of respondents, household structure of the elderly, family capacity to provide for the care needs of respondents, their social activity, most common problems they struggle with, and social support they can count on, including the use of social security services. The study also addressed the issue of violence towards senior citizens.

Socio-economic questionnaire

The socio-economic questionnaire included questions related to the present and earlier professional activity of respondents and the factors that influenced the decision to prolong employment. It also covered the family situation of respondents, household structure of the elderly, family capacity to provide for the care needs of respondents, their social activity, most common problems they struggle with, and social support they can count on, including the use of social security services. The study also addressed the issue of violence towards senior citizens.

Questionnaires to be filled in independently

In addition to the surveys filled in by nurses, programme participants were asked to fill in on their own a questionnaire concerning the frequency of consumption of selected products and dishes in various periods in life, a three-day consumption questionnaire, and an abbreviated version of the quality of life survey (WHOQOL-BREF). Additionally, a sleeping-disorder questionnaire and psychological tests were applied (a test of statements and the SWLS).

Fieldwork and its organisation

Fieldwork was carried out by PBS DGA company in Sopot selected via a procurement procedure, specialising in medical projects, which has a network of professionally active nurses who cooperate with it across Poland. A majority of them were community nurses trained for the purposes of the programme not only in respect of the composition of questionnaires and their correct completion, but also in respect of the appropriate attitude towards elderly respondents, with their specific features taken into account. During the training, significant attention was paid to the use of ge-
riiatric scales and the correctness of taking measurements. Also, emphasis was put on the precision of the lists of medicines and on compiling them from nature, if possible.

Upon reception of addresses from the Ministry of Interior and Administration, letters with invitations to take part in the study were sent to respondents; the materials included made it also possible to get to know the scope of research. In case of absence of a respondent and the lack of information about him or her (change of address, hospital stay etc.), a given address was to be revisited twice.

During the first meeting the respondent or his or her caretaker were informed about the study and signed a form of conscious consent. The study involved three visits at respondents’ homes. The first visit was devoted to completing the medical questionnaire, the second one – to the socio-economic survey. Each of the visits was assumed to last approximately an hour, out of which 45 minutes were allocated for completing the questionnaire, and 15 minutes – to taking anthropometric and blood pressure measurements. The visits took place at convenient times of the day, indicated earlier by respondents. During the last visit the nurses took blood and urine samples from respondents. Due to the fact that this had to take place before the patients had eaten, sampling took place in the mornings.

Additional examination

As part of the project, medical examination was to be conducted in ten selected voivodeships on ca. 1000 respondents. The selection of voivodeships was dictated by the possibility for the examinations to be carried out by geriatricians or doctors in the process of specialization. Eventually, examinations were carried out in nine of them (dolnośląskie, kujawsko-pomorskie, lubelskie, małopolskie, mazowieckie, podlaskie, śląskie, wielkopolskie, and zachodniopomorskie).

During the visit, apart from the physical examination and anamnesis, the following examinations were carried out: electrocardiography (ECG), spirometry, pulse oximetry, Doppler echocardiography blood flow measurement, and pulse wave measurement. Physical examination and anamnesis were recorded in a purpose-designed questionnaire which allows for recording the examination in a formalised way. Doctors had at their disposal the results of laboratory tests and surveys carried out by nurses. However, researchers decided to duplicate some of the data, e.g. the MMSE test was carried out and the medicines were listed once again.

For patients who consented to geriatric examination, sleep apnea was measured using a disposable SleepStrip screener. The screener was provided and received from respondents by nurses during subsequent visits.

In addition, patients with diagnosed cognitive disorders were given the opportunity for further diagnostics in respect of dementia, which consisted in performing brain computed tomography and neurological and psychological consultation. This part of the project did not have research relevance, but followed from ethical premises. It is characteristic that the percentage of individuals who took advantage of this opportunity was scanty.

Individuals from the dolnośląskie, małopolskie, mazowieckie, śląskie and zachodniopomorskie voivodeships were provided with an opportunity of densitometry measurement (including the measurement of body composition and fat deposit). Despite the willingness of organisers to cover transportation costs, the interest in these measurements was slight.

**BIOLICAL MATERIAL BANKING AND DATABASE**

The biological material was transported in dry ice from local laboratories to a unit at the Mossakowski Medical Research Centre, Polish Academy of Science, where the samples were defrosted and assigned to the central laboratory, a laboratory at the Medical University of Silesia, and to individual research teams. All data obtained during the questionnaire survey, blood and urine sampling and medical examination are collected in a shared database maintained by the IMCBS. The database is successively completed with the results obtained by individual research teams and analyses carried out by them. The collection of all data in one place allows for an in-depth multifactor analysis of the obtained results, and facilitates formulating conclusions.

**ETHICAL AND LEGAL ASPECTS**

Each of the teams who filed projects with the Ministry of Science had the approval of bioethics committees. However, the creation of a joint project required obtaining approval for the entire study. Such an application was eventually filed with the bioethics committee of the Medical University of Silesia, the parent university of the largest project entered in the competition. The decision covered the entire project, including approval of the implementation of the questionnaire survey, measurements, biological material sampling, storage and future processing (except for genetic research, not included in the project). In the last case, the approval of relevant bioethics committees was needed.

In addition, also the information about the study presented to respondents, as well as the specimens of conscious consent forms were approved. The form for the consent to participate in the study included the possibility to express consent to blood sampling. There was a separate form for the consent to use the material in genetic research and to deposit it at the bank. It must be emphasised that the lack of consent to blood sampling did not affect the participation of the respondent in the study. The respondent or his or her caretaker expressed consent for each visit of a geriatrician.

The anonymity of respondents was guaranteed. Each participant was allocated a unique – on the scale of the entire study – respondent number, which ensures the confidentiality of the collected personal data. All questionnaires used during research implementation are encoded, as are blood and urine samples. Address information received from the Ministry of Interior and Administration is stored on external storage devices so as to prevent unauthorized access. Their storage was necessary due to the fact that laboratory test results were mailed and in the hope for future prospective studies, as well as for the repeated implementation of such a study in a few years’ time.

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