



Defining the Instruments for Zero-Measurement of Psychological Well-Being at Older Adults

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Abstract. Our team is working on discovering and implementing measurement instruments and practical solutions for enhancing the Psychological Well-Being of older adults. The aim is to investigate the need to ensure the continuity of social and economic activities; also, we aim to learn how to maintain, but better-improve older people’s intellectual, emotional and psychological well-being. The procedural objectives of the research consist of accumulating, structuring, and retaining statistical data obtained from interviewing the groups of older people from different countries with the use of quantitative and further qualitative investigation instruments (questionnaires, tests, interviews, etc.). They are investigated, selected, and proposed recipes for better psychological well-being and social behavior towards the continuity of spiritual, intellectual, and emotional activities in the society of older people. In conclusion, if we achieve to obtain the awareness of both older adults and the employers of the fact that the continuity of activities after the retirement age, and also the understanding that practicing the proposed recipes will abundantly raise their well being, they will not leave this world unfulfilled in terms of complete knowledge of the supply of the well-being for older people.

Keywords: Older adults · Well-being · Measurement instruments

1 Introduction

By 2050 [1], the number of people in the EU aged 65 and above is expected to grow by 70%, and the number of people aged over 80 by 170% will increase demand and costs for healthcare. Integrating ICT solutions into habitats and improved building design will allow us to live at home and stay active and productive for longer despite cognitive or physical impediments. Improving accessibility, functionality, and safety at home, at work, and in society, in general, requires combining many disciplines to develop solutions that integrate ICT, ergonomics, healthcare (psychological and physical), and community design.

2 Independence in Own Homes

In the assignment of AFEdeMy, within the Project “Independent Living in the rural areas of The Netherlands,” 7 students from the Hanze University for Applied Sciences

and the University of Groningen performed research in the municipality Oldambt [2] to investigate the problem: “what do older people from 80 years and older need in their daily life, mobility, social network, and well-being to remain independent in their own homes in the villages”. As a result, it was underlined [3] that “... there are several solutions to keep the elderly living longer at home, such as doorstep aids, wall brackets in the bathroom and the toilet, a second handrail a stairlift. Furthermore, the national government says that older people can live longer by adapting their current homes using new technologies. The last option is domotics (or home automation): this can make a home safer, easier to use, and can help older people stay at home for longer...”.

3 What Do the Older People Need to Continue Living in Their Own House?

Two Social Work students from the Hanzehogeschool have researched the needs of older people in the township Oldambt for the organization AFEdeMy [4]. The main goal of the research was to get to know what the more senior people need to continue living in their own house. The resource question is: What do older people of 80 years and older need in daily functioning, social participation, and mental well-being to keep living in their own house.

The needs of the respondents are very different. Most of them, 18 respondents, said that they have no requirements for support in any way. Most of them have an excellent social network who helps them where they need or are, despite their age, still vital and independent from others. The respondents that do need support most of the time want more contact and involvement with others. These are often people with a smaller social network and fewer skills to look for and find support in any way. Seven respondents said they feel lonely, and they said they want to go out more or have more contacts. Also, Wijnja’s (2018) research outcomes said that many older people in Oldambt feel lonely. However, overall seems the respondents were satisfied with their living situation. They gave themselves a seven or eight average.

The first recommendation involves better information giving from the township Oldambt to older people, so that they know where to find the facilities in the area, especially the social facilities. The other recommendations to SociaalWerkOldambt are to recruit more volunteers and make the organization better known and accessible for older people.

4 Mobility of the Older People

The everyday outdoor mobility of older people has received increasing attention in the academic world and policy-making [5]. There are two reasons for this. The first reason is the recent and projected growth of senior citizens in (and the impacts of this on) most Western societies. Secondly, research has shown that mobility outside of the home is strongly related to well-being in later life. Therefore, older adults’ experiences with outdoor mobility have been investigated by Bart Roelofs & Liselotte Vreelings supervised by Prof. Dr. Louise Meijering and commissioned by: AFEdeMy [2].

This report explores the outdoor mobility experiences of community-dwelling older people in Winschoten, the Netherlands. Specifically, it was investigated why outdoor mobility is important, what influences outdoor mobility and how they adapt to changes in mobility. In addition, it is connected to theories on age-friendly environments, outdoor mobility, independence, and well-being. The research consists of six in-depth interviews with older inhabitants of Winschoten.

The main findings indicate that outdoor mobility of older adults is diverse and subjective and is perceived to be important because it is closely related to independence. Furthermore, three interrelated dimensions are experienced to influence their outdoor mobility: personal, social, and environmental. Finally, older people seem to adapt to a decline in mobility by self-regulation. Therefore, we advise policymakers to adjust the living environment to meet the needs and capacities of older people, thus creating an age-friendly Winschoten.

5 The Age-Friendly Cities and Communities Questionnaire

The AFEdeMy is co-developer of The Age-Friendly Cities and Communities Questionnaire (AFCCQ) Project [6]. In early 2020, the municipality of The Hague awarded the consortium consisting of The Hague University of Applied Sciences, Hulsebosch Advies, and AFEdeMy to develop a questionnaire and run a representative survey on the perceived age-friendliness of the city among its older citizens. Part of this survey was the development of a validated questionnaire, which allows for an assessment of the perceived age-friendliness. The municipality also wanted a representative number of older Western and non-Western immigrants to be included in the sample to do justice to the super-diversity of the population of The Hague. Therefore, the consortium started to review scientific and public sources to check whether a default questionnaire was already available. The search delivered several examples of questionnaires that either lacked transparency on the development and validation or did not measure the construct of age-friendliness as a whole. Therefore, the consortium developed and validated a validated questionnaire, coined the Age-Friendly Cities and Communities Questionnaire.

The consortium used the Consensus-based Standards to select health Measurement Instruments (COSMIN) To develop the questionnaire. The development consisted of the following four phases: Development, Initial validation, Psychometric validation, and Instrument translation. The theoretical basis of the questionnaire was the Global Age-friendly Cities Guide, published by the World Health Organization in 2007, and its accompanying Checklist. This guide published a model of age-friendly cities and communities, consisting of eight domains: outdoor spaces and buildings; transportation; housing; social participation; respect and social inclusion; civic participation and employment; communication and information; and community support and health services. The features of the Checklist formed the foundation of the items for the questionnaire. Additionally, questions on technology and the financial situation were added based on the literature review.

The Age-Friendly Cities and Communities Questionnaire measures the views of older adults on the eight domains already defined by the WHO and on a relevant ninth

domain, namely their financial situation. The questionnaire is open for use on every geographical level and by every public authority, civil society organization, or any other who is interested. It might be necessary to validate the questionnaire culturally.

6 The Smart Healthy Age-Friendly Environments Network

In the middle of 2020, Carina Dantas and Willeke van Staalduinen have announced [7] that “The SHAFE Stakeholders Network is happy to release its Position Paper, developed in collaboration between SHAFE partners and the participants on the COST Action Net4AgeFriendly, to present recommendations that aim to promote healthier environments for all citizens and make environments accessible, sustainable and reachable for all, with the support of ICT”. The Smart Healthy Age-Friendly Environments Network will thus focus on the narrative, debate, disclosure, and knowledge translation of smart digital solutions and solutions to optimize individuals’ physical and social environments in a concerted manner, bringing together the domains of health and social care.

7 Psychological Well-Being of Retired Seniors

In October–November 2020, the COST CA16226 accepted a short term scientific mission (STSM) “Measurement, maintenance and improvement of psychological well-being of retired seniors” with the scope to research the psychology of older people in the conditions of continuous activity with the emphasis of their psychological well-being supported by intellectual and emotional activities. The host institution was The AFEdeMy. The researcher was PhD student Dumitru MICUȘA and mission coordinator Mrs. Willeke van STAALDUINEN.

7.1 Collaboration Between Netherlands and Republic of Moldova

The overarching aim of the STSM was to strengthen the collaboration between AFEdeMy (Netherlands) and ULIM (Republic of Moldova) to improve mutual capacity to raise awareness and exchange information on the state of the art of smart, healthy age-friendly environments on national and regional levels, particularly within the topics of Responsible Research and Innovation and addressing societal challenges.

This STSM aimed to exchange information accumulated in an international environment (MoldovaNetherlands) by observing and questioning older adults, processing the data obtained to define, maintain, and improve seniors’ psychological, intellectual, and emotional well-being.

To bring an instrument for measuring psychological well-being was the main object of this STSM, also monitoring the evolution of the defined psychological leaks in a multifunctional indoor environment. The scope is to meet the requirements of Europe’s aging population while promoting healthy and safe aging, to identify core challenges that older adults face when aging in the workplace.

This aim is allied to the objectives of the fourth Working Group of the COST Action, which works to improve smart support furniture and habitat environments according to user’s needs and further validated by these users (elderly and caretakers) for active aging.

After the mission, when the efficiency of our methodology is proved, to deliver to the host institution the new statistical method of research. In our turn, we also expect to obtain a new research method regarding the measurement of seniors' emotional/psychological/intellectual well-being, creating a portfolio of various methods to be applied to other samples during our empirical research.

7.2 Psychological Well-Being Questionnaire (PWBQ)

7.2.1 Research Methods

To test the conceptual framework, according to which the well-being of the older adults is positive, we have developed a scale method. It contains a Likert-type response scale in 7 steps – from –3 to 3. To measure the psychological well-being state at the moment of questioning, we built a Psychological Well-Being Questionnaire (PWBQ) with 30 items, five items for each of the six dimensions that we considered appropriate for the definition of psychological well-being:

- i. the feeling of being happy,
- ii. self-acceptance,
- iii. control over the environment,
- iv. autonomy,
- v. positive relationships with others,
- vi. purpose and meaning of life.

Moldovan and Dutch discussed and other investigative questionnaires about elders' psychological, intellectual, and emotional well-being.

Based on the questionnaires from Moldova, the questionnaires from AFEdeMy in the Netherlands, using other surveys, among other things the 36-Item Short Form Survey Instrument (SF-36) from the USA, was finished with the Psychological Well-Being Zero-Measurement instrument [9], which is ready to be applied where needed. You can find an example in Table 1 where you can notice that each of the six dimensions contains 5 questions related to the topic of the dimension.

7.2.2 Scoring

1st dimension. For scoring, we calculate the average for all 5 items. The maximum score is 3. The average score of the subjective feeling of happiness is about –0.5 to 1.0. Lower scores of –0.5 denote shared feelings of unhappiness, more significant than 1.0 - of happiness. The higher the scores are, the higher is the subjective appreciation of happiness.

2nd dimension. The scores are calculated the same as previously reported. Lower scores of –0.5 denote low self-acceptance: lack of recognition of merits, lack of positive qualities, lack of skills and aptitudes, dissatisfaction and self-disdain, more significant than 1.0 – high self-acceptance.

3rd dimension. The lower scores of –0.5 denote an inability to monitor affective states, behavior in various circumstances, the mood of others, the communication course,

Table 1. Items for measuring the subjective feeling of happiness (PWBQ).

	-3	-2	-1	0	1	2	3	
								1. Generally, I consider myself
A person not too happy								Very happy
								2. Compared to my colleagues / other people, I am
Less happy								Happier
								3. Some people are generally pleased. They enjoy life. No matter what happens to them, they take maximum advantage of everything. To what extent does this characterization describe you?
Not at all								To the greatest extent
								4. Some people are generally very unhappy. Although I am not depressed, I am never quite happy as I would be. To what extent does this characterization describe you?
To the greatest extent								Not at all
								5. Every morning, I wake up with a feeling of living a happy day?
Never								Always

more significant than 1.0 – social monitoring capacity and events according to their intentions and the expectations of others.

4th dimension. Just as before, small scores denote the lack of autonomy, self-confidence, and assertiveness, features that limit the person into actions, the high ones – the ability to manifest themselves genuinely, to show initiative, actively involved in various projects and activities.

5th dimension. Small scores characterize a person with poor communication and social networking; the high ones denote potential enough adaptation to new and communicable environments and people, capable of establishing and maintaining positive relationships with others.

6th dimension. High scores are accumulated by people who recognize and accept the experience, control their present and look with optimism for the future, see the meaning of life and personal existence. On the other hand, people who accumulate small scores do not have the meaning of life, they have few or even no objectives or goals, do not see the meaning of past experiences, present, and perspectives.

8 Questioning with the Use of PWBQ

8.1 In the Netherlands

The questionnaire PWBQ [9] was adapted to the Dutch language. With the help of the PWBQ questionnaire, a group of older adults from different collectives in the Netherlands was interviewed, and information was collected about psychological well-being.

The results on each of the 6 dimensions from 12 respondents from the Dutch space are listed below in Table 2 and graphically represented in Fig. 1.

Table 2. The results of Dutch respondents (PWBQ).

Psychological well-being dimensions	Interviewed person												Total
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	
Feeling of happiness	9	12	- 2	- 3	9	13	4	- 1	9	12	9	2	73
Self-acceptance	15	8	2	1	11	12	10	1	4	14	15	7	100
Control over environment	3	5	1	- 4	6	10	3	- 1	- 4	- 3	10	- 7	19
Autonomy	2	9	1	4	10	13	9	1	6	6	11	5	77
Positive relations with others	7	15	1	2	13	14	12	0	10	10	13	7	104
Purpose and meaning of life	14	12	5	1	6	5	11	3	5	9	9	5	85

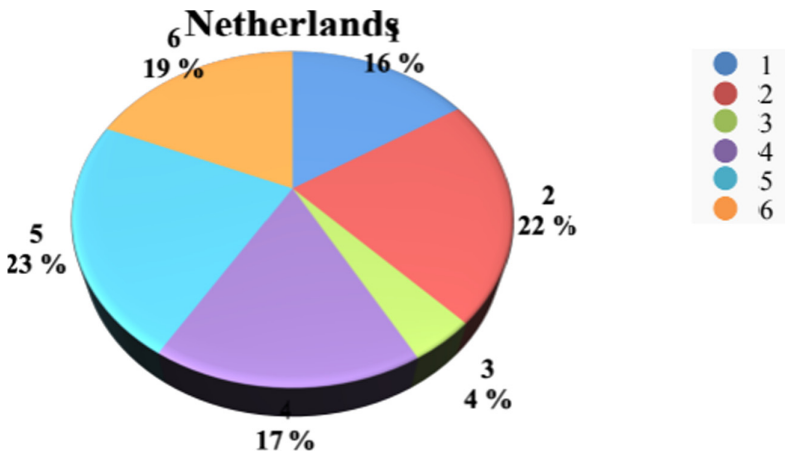


Fig. 1. Graphic representation of the results of Netherlands respondents (PWBQ).

8.2 In Moldova

The questionnaire PWBQ [9] was adapted to the Romanian language. With the help of the PWBQ questionnaire, a group of older adults from the Association “AESM Seniors” at the Academy of Economic Studies of Moldova (AESM) and associates was interviewed,

and the information was collected about psychological well-being. In Table 3, you can find listed the results of Moldovan respondents and a graphical representation of the given results in Fig. 2.

Table 3. The results of Moldovan respondents (PWBQ).

Psychological well-being dimensions	Interviewed Person												Total
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	
Feeling of happiness	15	2	10	8	8	10	15	6	8	7	5	10	104
Self-acceptance	13	8	14	10	2	10	15	15	2	10	5	8	112
Control over environment	11	- 8	11	8	2	5	15	13	2	7	- 1	5	70
Autonomy	12	- 1	10	8	- 2	10	15	12	- 2	12	7	10	91
Positive relations with others	14	7	8	10	0	9	15	13	0	12	3	12	103
Purpose and meaning of life	15	11	11	9	2	12	15	15	2	7	7	13	119

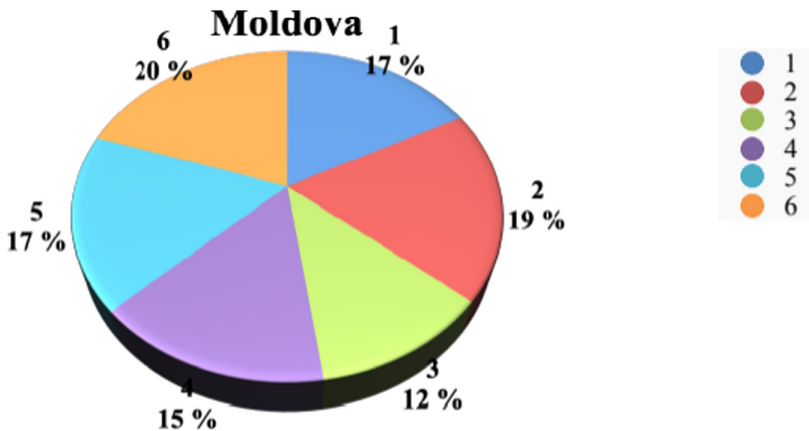


Fig. 2. Graphic representation of the results of Moldovan respondents (PWBQ).

Data from the Netherlands and Moldova were structured separately and jointly for analysis in terms of comparative evolution (Table 4, Fig. 3, Fig. 4).

Based on collected data on psychological well-being using the PWBQ questionnaire, the statistical methods of maintaining and improving the psychological excitement of the seniors were analyzed from different groups of seniors.

Collected data and analyzed methods will support the methodology and the decisions to be proposed to create a more productive, healthier, and more comfortable society for the elderly.

Also, the questionnaires, which have been implemented within the STSM, were based on the characteristics of the psychological well-being of the older adults in the sectors of psychological energy loss.

Access to local libraries and databases from the Hague, Amsterdam, Rotterdam, and AFEdemy allowed selecting and studying several work methods with investigative

Table 4. The results of Netherlands Moldovan respondents.

Dimensions	Country	
	Netherlands	Moldova
Feeling of happiness	73	104
Self-acceptance	100	112
Control over environment	19	70
Autonomy	77	91
Positive relations with others	104	103
Purpose and meaning of life	85	119

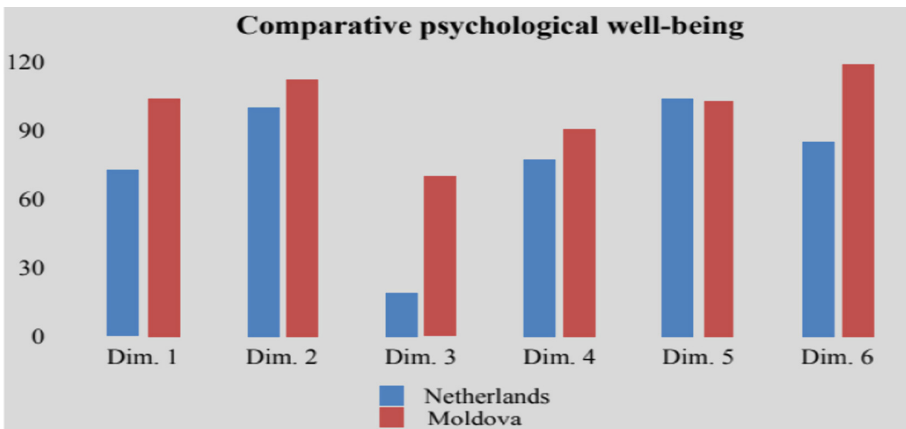


Fig. 3. Comparative data regarding psychological well-being Netherlands – Republic of Moldova.

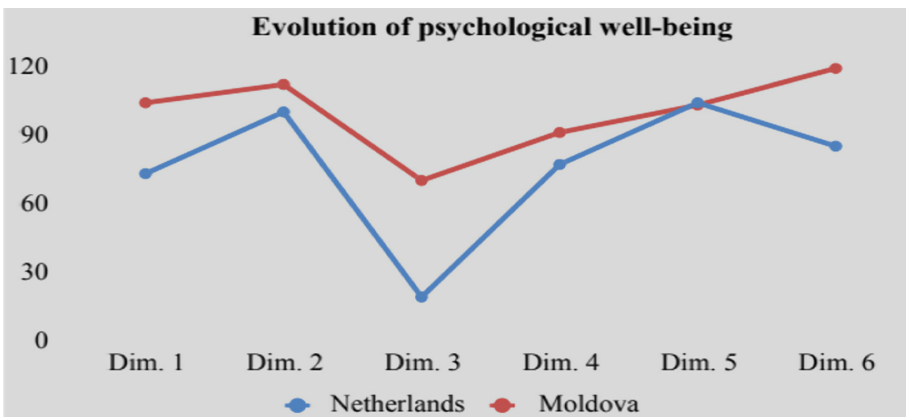


Fig. 4. Comparative data regarding the evolution of psychological well-being Netherlands – Republic of Moldova.

questionnaires. The host institution AFEdemy helped organize the groups of respondents and administer the questionnaire to the sample of respondents in Dutch space.

The information obtained from surveys resulting from the questioning seniors from selected Dutch collectives was processed, analyzed, and distributed on three age compartments to be subjected to processing using statistical methods of processing surveys. The respondents had a positive reaction to the survey, but with a remark that there are too many questionnaires to fill up everywhere nowadays (i.e., hospital, city hall, etc.). They would have much more pleasure from discussing personally with specialists sharing their stories with them. The specialists, instead, can observe from these discussions the needs of the seniors and bring them the appropriate IoT and ICT solutions.

Under the guidance of the host institution, AFEdemy was allowed to work with scientists from other Dutch institutions such as Prof. Joost van Hoof, professor of Urban Ageing from The University of Hague, and Elisabeth de Vries, and others, who helped a lot and gave suggestions on the structure of age-friendly societies and steps to take to its construction.

8.3 Portfolio of Methods for Measuring Different Aspects of Well-Being for Seniors

The STSM has been finished successfully with very good results, maybe even more than we've expected. The primary purpose of applying our instrument of zero-measurement of the psychological well being, by bringing it to the host institution for validation and appreciation, was fulfilled, so now the instrument is ready to be introduced in the portfolio of measurement instruments of the researchers from the field of Social Psychology and Sociology. Also, the host institution AFEdemy shared with us their latest Age-Friendly Cities and Communities Questionnaire, a representative survey on the perceived age-friendliness of the city among its older citizens. Part of this survey was the development of a validated questionnaire, which allows for an assessment of the perceived age-friendliness. This new instrument can be applied successfully in other countries and can also be included in our Portfolio of methods for measuring different aspects of well-being for seniors.

Interviews were held with some older adults from the Netherlands, who shared the experience of living in an age-friendly environment and some practical recommendations (for example, creating computer learning classes) for countries such as the Republic of Moldova, where age-friendly settings are not that developed. These recommendations are to be implemented.

Based on discussions with interviewees and their past experiences with different questionnaire-based surveys, the conclusion was that older respondents prefer more to participate in the interview-based surveys than filling up questionnaires. Again, it is because it gives a more personalized and qualitative response. But, even with observing these respondents' preferences, there is still no better way of questioning big groups of respondents than questionnaire-based surveys.

8.4 From Quantitative Results to Qualitative Results of Psychological Well-Being

Regarding the interviewees and representatives from the nursing homes, there is a very high level of healthcare and a suitable environment for the elderly living in the community. But, at the same time, there is still a lack of psychological services in these habitats, which is why there is a lack in measuring and maintaining psychological well-being.

A recommended solution would be to attract more psychologists to work in age-friendly habitats. This way, there would be the possibility to obtain more qualitative results through frequent interviews and conversations, rather than through the questionnaire method, which gives more quantitative results.

A better understanding of the personalized psychological needs of each individual would bring propulsion in the development of IoT Related Technology and its Impact on New ICT.

8.5 First Impressions from the International Collaboration

It has been a pleasure and an excellent collaboration with AFEdeMy, as we brought to the Republic of Moldova new solutions in building age-friendly environments.

The questionnaires of the elderly, assigned and implemented for different groups of older adults in the problems of the well-being of the elderly, serve to investigate and propose other methods of maintaining and improving the psychological health of the elderly.

As part of the Medical Outcomes Study (MOS), RAND developed the 36-Item Short-Form Health Survey (SF-36). The SF-36 is a set of generic, consistent, and manageable quality of life measures. These measures are based on patient self-reporting and are now widely used by managed care organizations for routine monitoring and evaluation of care outcomes in adult patients.

It was compiled a questionnaire with 30 items to measure the degree of psychological well-being, where five things for each of the six dimensions that we considered appropriate for defining psychological well-being, where the feeling of happiness, self-acceptance, environmental control, autonomy, positive relationships with others, purpose and meaning of life - The Psychological Well Being Questionnaire (PWBQ).

After examining the questionnaire results through the short-term scientific mission at the AFEdeMy Academy in Guada, the Netherlands, in October–November 2020, requires analysis of the individual's psychological situation to propose methods to maintain and ascend his well-being.

The activities of the individual to raise his psychological well-being are based, to a large extent, on the hormonal reflections of the individual. Therefore, it requires us to be aware of the hormonal reflections on which the individual's spiritual, emotional, and cognitive psychological state is based. They are component elements of the actions of the psychological survival of the elderly.

The repositories of the spiritual, intellectual, and physical procedures of intergenerational social activities represent the nucleus for elaborating the methods of the evolution of the individual's psychological well-being.

9 The Sustainability and Collaboration with Perspective

We consider this STSM was just a jumpstart of the collaboration between the Netherlands and the Republic of Moldova. For future collaborations, we express our willingness to involve Moldovan specialists in international research to develop better-personalized methods of questioning and afterward to bring solutions for the psychological assessment of older adults in the EU age-friendly habitats for SHELD-ON and AFEdemy, for improving the general level of well-being for elderly and bringing new ideas to IoT and ICT developers.

These questionnaires are also to be used on older adult samples from the Republic of Moldova with the development of different recipes for maintaining and improving the psychological well-being of the elderly. Finally, a joint estimate of the mixed survey results will be made using questionnaires of the two types. The respective conclusions will be made on the use of “Personnel Psychology” recipe warehouses, “Positive-Negative” recipe repository, together with the PWBQ recipe warehouses. These deposits will form the basis of future research into methods of maintaining and positive development of the psychological, intellectual, and emotional well-being of the elderly.

There will be investigated measures to improve the well-being of the elderly, which are primarily supported by such means as continuity of the life of the elderly through production and consumption activities, hormonal reflections, and psychological survival.

This continuing activity of the seniors has to be investigated with the thoroughgoing study of their creational and emotional, psychological performance. Therefore, most of the research is oriented to maintain and develop the seniors’ progress in their activities inside their habitat and the transition process from one seniority group to another.

The results of our investigations, partly coming from the mission work carried out through this STSM project, will be implemented in the network of all the educational institutions of the Republic of Moldova and in the network of the European universities to exchange the accumulated experience.

10 Conclusion

International organizations and collectives of older adults were selected to investigate the psychological well-being characteristics of the respondents.

A set of questionnaires were researched and selected, which were included in the portfolio of questionnaires measuring the different characteristics of human ecology. These questionnaires are also to be used on older adult samples from the Netherlands and the Republic of Moldova to develop other recipes for maintaining and improving the psychological well-being of the elderly.

The PWBQ questionnaire, used in the investigation of older individuals in international collectives, was accredited as a basic questionnaire in the measurements of the psychological well-being characteristics of the respondents. The primary purpose of applying our instrument of zero-measurement of the psychological well-being, by bringing it to the host institution for validation and appreciation, was fulfilled, so now the instrument is ready to be introduced in the portfolio of measurement instruments of

the researchers from the field of Social Psychology and Sociology. The databases collected in the measurement process were used for statistical analyses with sharing, comparison, and evolution methods. Based on collected data on psychological well-being using the PWBQ questionnaire, the statistical methods of maintaining and improving the psychological excitement of the seniors were analyzed from different groups of seniors.

Collected data and analyzed methods will support the methodology and the decisions to be proposed to create a more productive, healthier, and more comfortable society for the elderly.

These deposits will form the basis of future research into methods of maintaining and positive development of the psychological, intellectual, and emotional well-being of the elderly.

The statistical methods used allowed the quantitative-qualitative extrapolation of the characteristics of maintaining and developing the psychological well-being of older adults.

They are investigated, selected, and **proposed** recipes for better psychological well-being and social behavior towards the continuity of **spiritual, creative, and emotional** activities in the society of older people. Finally, a joint estimate of the mixed survey results will be made using questionnaires of the two types. The respective conclusions will be made on the use of “Personnel Psychology” recipe warehouses, “Positive-Negative” recipe repository, together with the PWBQ recipe warehouses.

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