The Herczeg Institute on Aging

Newsletter No. 20 – November 2020

Tel Aviv University

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Announcements by the institute

Join the Herczeg Institute's mailing list and Facebook page to receive regular updates on content, events, and activities.

Please forward this bulletin to anyone interested in the field of aging.

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- Letter to the readers -

Dear readers,

We are pleased to present you with the Herczeg Institute's new bulletin (no. 20). This bulletin is appearing at a challenging time for Israel's elderly population, due to the outbreak of the coronavirus. In these hard times we would like to express our condolences to the families who have lost a spouse, family member, or friend.

The bulletin is being published not long from the beginning of Prof. Silvia Koton's term as head of the Herczeg Institute. Prof. Koton (Department of Nursing, Sackler Faculty of Medicine) has a PhD in epidemiology and preventive medicine and is a registered nurse. She has replaced Prof. Dov Shmotkin (School of Psychology, Faculty of Social Sciences) who headed the institute for the last 8 years. More information on Prof. Koton is available in the section Introduction: Prof. Silvia Koton, Head of the Institute in this bulletin. There is also a separate interview with Prof. Shmotkin, at the conclusion of his term in office.

The restrictions on movement and gatherings in Israel and around the world due to the Covid-19 pandemic have also affected the activity of the Herczeg Institute, where important scientific, professional, and community activities planned for this year had to be postponed and the regular activity of the institute was reduced. At present, one of the main aims of the institute is to promote activity and knowledge on the impact of the virus and its many challenges. Accordingly, the current bulletin includes an interview with Dr. Isaac Sasson (Department of Sociology and Anthropology), a member of the institute's faculty, who is studying the coronavirus and its consequences. In addition, we are in the midst of planning additional activities adapted for the Covid period, where we will bring researchers from different faculties at Tel Aviv University for discussions on important topics, both with regard to the pandemic and to other issues. Further notice of this will be provided shortly.

The current bulletin also offers an article by Dr. Shahar Tiber (Faculty of Medicine and Faculty of Life Sciences), one of this year's recipients of the Herczeg Institute grants for outstanding doctoral theses on old age. Dr. Tiber's article focuses on changes in the auditory system in old age. We are glad to note that also Ms. Melody Kasher (Faculty of Medicine, recipient of a grant for excellence) and Mr. Gai Farchi (Faculty of the Humanities, recipient of an incentive grant) were awarded grants this year by the institute for doctoral theses on old age. For more details see page 5. You will also find a list of publications by the institute's researchers, published from October 2019 to September 2020.

We wish everyone a successful and productive year of activities, a swift return to routine and to full activity, and mainly good health.

As always, we gladly welcome any criticism and comments. Please remain updated by receiving notices of our activity through the institute's mailing list.

Sincerely,
The staff of the Herczeg Institute on Aging at Tel Aviv University

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- Introduction: Prof. Silvia Koton, Head of the Institute -

Prof. Silvia Koton, associate professor and head of doctoral studies at the Department of Nursing, School of Health Professions, Faculty of Medicine at Tel Aviv University, was appointed Head of the Herczeg Institute on Aging in October 2020 .

Prof. Koton is a registered nurse with a Bachelor's degree in nursing science, a Master's degree in occupational and environmental health, and a PhD in epidemiology and preventive medicine. She completed her postdoctoral training in the Centre for the Prevention of Stroke and Dementia at Oxford University, UK. In the past she served as Chair of the Department of Nursing (2014-2018) and as head of the undergraduate program in nursing (2014-2010) at Tel Aviv University, ran the Disease Registry Unit at the Ministry of Health's Israel Center for Disease Control (1996-2006), and served as epidemiological consultant in the combined center for stroke at the Sheba Medical Center, Tel Hashomer (2013-2018). She is also a member of faculty at the Sagol School of Neuroscience and a core faculty member at the Bioethics and Law Initiative in the Faculty of Medicine, both at Tel Aviv University. Prof. Koton serves as a member of the steering committee and the publications committee of the National Acute Stroke Israeli (NASIS) registry, took part in planning and establishing the NASIS project, and accompanied it from its initiation in 2004.

On the international sphere, Prof. Koton is adjunct faculty at the Johns Hopkins University Department of Epidemiology in the Bloomberg School of Public Health, as well as at the university's School of Nursing (Baltimore, Maryland, US). She is an active member of several working groups in the cohort study Atherosclerosis Risk in Communities (ARIC), including the ARIC Neurocognitive Study (ARIC-NCS), the ARIC Recurrent Cardiovascular Diseases, and the ARIC Aging and Physical Functioning. In 2019, the American Heart Association's Council on Epidemiology and Prevention granted Prof. Koton recognition as an international fellow of the association (FAHA).

Prof. Koton's research focuses on the epidemiology of cardiovascular diseases, with a special emphasis on stroke epidemiology, in addition to the study of old age, dementia, and mild cognitive disorder. Her studies are presented at international conferences and published in prestigious professional journals. Prof. Koton was awarded excellence awards for teaching, research, and outstanding publications by the Faculty of Medicine, Tel Aviv University. She was also awarded a research excellence award for epidemiology of cardiovascular diseases by the Johns Hopkins University and two prestigious awards by the American Heart Association: the Paul Dudley White International Scholar Award (in 2019 and 2020).

More information on Prof. Koton's professional course is available at https://med.tau.ac.il/profile/koton

Here are some personal words from Prof. Silvia Koton to our readers:

""The significant growth in the older population in many countries has implications for society at large. In recent decades, there is an increasing understanding of the considerable significance of expanding research on old age: Where in the past the study of old age focused on diseases and functional limitations, the need for research on old age with all its aspects and implications for the individual and society is now clear.

Although aging is a natural process, people differ widely in their physical, psychological, and social indicators in old age and in their pace of change in various life areas when transitioning from adulthood to old age. The study of aging and old age is complex and requires the use of diverse methods and collaboration between experts and researchers from different fields. The Herczeg Institute, managed jointly by the Faculty of Social Sciences and the Faculty of Medicine, encourages and promotes joint studies by researchers from different disciplines, which can provide a multi-professional view of topics relevant to old age. Our aim is to promote the physical, cognitive, mental, and emotional health of the elderly population through both research and activities for the general public. I believe that maintaining a creative, productive, and satisfying life helps ensure good quality of life and the continued growth and development of the individual in old age. That is the guiding principle of my professional and academic activity, and it will inform my actions as head of the Herczeg Institute on Aging".

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Winners of the Herczeg Institute grants for outstanding Tel Aviv University doctoral students in the fields of aging and old age for 2020 are:

1) **Ms. Melody Kasher** (Department of Anatomy and Anthropology, Faculty of Medicine) for her study on: *The genetic epidemiology of the association between arthritic diseases and osteoporosis*.
Supervisor: **Prof. Gregory Livshitz**

2) **Dr. Shahar Tiber** (Faculty of Medicine and George S. Wise Faculty of Life Sciences) for his study on: *VEGF (Vascular endothelial growth factor) as a potential treatment for age-related hearing loss*.
Supervisor: **Prof. Karen Avraham**

3) An incentive grant was awarded to: **Mr. Gai Farchi** (Shirley and Leslie Porter School of Cultural Sciences, Faculty of Humanities) for his study on: Future man: Post-humanism in contemporary French literature and philosophy.
Supervisor: **Prof. Eran Dorfman**

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- Article by a recipient of the Herczeg Institute 2020 grant -

Changes in the auditory system in old age

Dr. Shahar Tiber

Doctoral student in the combined medicine (MD) and life sciences (PhD) track
Faculty of Medicine and George S. Wise Faculty of Life Sciences, Tel Aviv University
Supervisor of the doctoral research: Prof. Karen Avraham

"I am now eighty years old. Can I tell the difference between what is enjoyable and what is not? Can your servant taste what he eats and drinks? Can I still hear the voices of male and female singers? Why should your servant be an added burden to my lord the king?" (2 Samuel 19:35)

Hearing loss in old age, termed age-related hearing loss, is so common that we tend to think of it as an integral, perhaps even harmless, part of aging. Studies estimate that about one third of those above 65 and about half of those above 75 suffer from significant hearing loss. Hence, age-related hearing loss is the most common form of hearing loss. Nevertheless, hearing loss has far-reaching consequences, from social isolation and compromised quality of life to an elevated risk of depression and dementia. Studies from recent years indicate that even a slight decline in hearing sensitivity (also called subclinical hearing loss) is enough to raise the risk of developing dementia, and that treating hearing loss (by hearing aids or cochlear implants, for example) reduces this risk. A meta-analysis by the Lancet medical journal showed that of the modifiable risk factors for dementia (such as smoking, physical activity, etc.), hearing loss is the highest weight, even more than a low level of education. Therefore, understanding the biological processes that lead to age-related hearing loss should be enhanced, and tools should be developed to prevent, or at least delay, these processes.

The auditory system is comprised of many components that operate with precise timing to collect sound waves from the environment, convert them into electrical signals, and send them to the hearing centers in the brain. This is how it happens: Within the auricle there is a canal that leads to the eardrum; behind the eardrum are three tiny bones that vibrate when stricken by sound waves; as a result, these bones generate motion in the fluids within a structure called the "cochlea"; this movement of the fluids causes a deflection of tiny hairs on cells called "hair cells", which stimulate the ends of the auditory nerve; from this moment, it takes only several tens of milliseconds at most for the stimulus to reach the hearing centers in the cerebral cortex, allowing us to hum to tunes on the radio or push the brake pedal in response to a truck horn.

Why does the auditory system age? Knowledge on aging processes of the human body is mostly descriptive; namely, it describes what changes but does not explain why the changes occur. In addition, it is hard to define what comes first; what is the cause and what the effect. There are many functional and structural changes in the auditory system in old age: loss of hair cells, nerve atrophy, changes in the brain's hearing centers, and reduced blood vessels in the cochlear wall. These blood vessels supply the cochlea and previous studies have

shown that damaging them specifically results in hearing loss. Our research hypothesis is that a reduction in the blood vessels that supply the cochlea has a major role in the aging of the auditory system in older adults and that their preservation might prevent hearing deterioration.

“A man is as old as his arteries” (Thomas Sydenham, 17th century English physician)

Descriptions of the aging of blood vessels appear as early as Leonardo da Vinci’s 15th century illustrations. Aging blood vessels are manifested in stiff arteries, structural changes in large blood vessels, and a decrease in the capillary networks that supply the body’s tissues. Since the blood vessels are responsible for supplying all the body’s tissues with oxygen and nutrients, a decline in the function of blood vessels is harmful to the body’s metabolism and might lead to accumulation of toxic substances in the tissues and damage to cellular functions.

Prof. Eli Keshet’s laboratory at the Hebrew University of Jerusalem has been investigating the field of angiogenesis (formation of blood vessels) for nearly four decades, focusing in the recently on a growth factor called VEGF (vascular endothelial growth factor) that supports capillary sprouting. Prof. Keshet recently showed that mice that were genetically engineered to produce a greater amount of this growth factor preserve the ability to form new blood vessels. Consequently, a delay in certain aging process was observed in these mice. For example, metabolic changes observed at older ages, reduced bone density, reduced muscle mass – all these appeared in the VEGF mice at a later stage or to a lesser extent. This leads to the hypothesis that many aging processes may share a common mechanism and that certain aging phenomena can be prevented by preservation of the blood vessels.

The auditory system of mice is very similar to that of humans regarding structure, function, and even gene expression. Studies conducted on the auditory system of mice have led to breakthroughs in our understanding of how its different components function. Similar changes to those observed among older humans were observed in older lab mice, whose life expectancy is significantly shorter than that of humans (about two years in laboratory conditions), making these mice an excellent model for studying the aging of the human auditory system.

At the current stage of the study, we are exploring whether the fact that these mice are more capable of producing blood capillaries in old age protects them from hearing loss. Several months ago, we began working with the VEGF mice and studying their auditory system in the laboratory of Prof. Karen Avraham, Dean of the Faculty of Medicine at Tel Aviv University and a world expert in the research of deafness and the auditory system. The project is led by Michal Timkovski, a six-year medical student in the six-year program, and myself, Shahar Tiber, a ninth-year student in the combined medical and research track (MD-PhD).

In this study we are studying the auditory function of mice at different ages using a series of physiological tests, such as measuring the response of the brainstem to sound stimuli at varying intensities and pitches (similar to the BERA test in humans), as well as behavioral tests and microscopic examinations of the cochlea. We estimate that a decline in the quality of the blood supply to the ear at an older age leads to metabolic changes and causes secondary damage to components of the auditory system and impaired function.

In recent years, we developed methods in Prof. Karen Avraham's laboratory for inserting genetic information into cells within the inner ear by using artificial viruses. Using this method we managed to prevent hearing loss in a mouse model of a type of genetic hearing loss that was discovered in Israeli Jews by Dr. Zippora Brownstein and Prof. Avraham. In the next stage of the project, we hope to use these methods to develop a treatment that will preserve the blood vessels in the cochlea and to examine the feasibility of a genetic treatment for age-related hearing loss in humans. The advantage of this potential treatment is that it is local and focused and may thus be more efficient and safer than drugs that affect all the entire body.

And in the meantime? As applies to all other medical conditions, the best treatment is prevention. Loud noises should be avoided, and protective means (such as ear plugs) used when necessary.

Suffering from a decline in hearing? Contact your general practitioner for counseling and treatment as necessary. For more information: https://www.nhs.uk/conditions/hearing-loss/

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– Interview –

Between past, present, and future in the Covid-19 crisis
Interview with Dr. Isaac Sasson

Dr. Isaac Sasson (lecturer at the Department of Sociology and Anthropology, Tel Aviv University, and faculty member at the Herczeg Institute) is a sociologist and demographer. He investigates social gaps in health and mortality and particularly gaps in life expectancy, by social status and education level. Since the outbreak of Covid-19, also known as "Corona", Dr. Sasson has been investigating rates of morbidity and subsequent mortality as well.

Dr. Isaac Sasson, hello and thank you very much for agreeing to this interview. Can you tell us a little about yourself and your studies on Covid-19?

My studies address inequality in health and longevity among different population groups. Naturally, in recent months the Covid-19 pandemic has caused many in this field to focus on this topic. Several universities, such as the Johns Hopkins University and the Washington University in Seattle, rapidly established databases regarding Covid-19, but surprisingly, they all disregard the age variable, which is one of the most fundamental demographic characteristics. Consequently, Tim Riffe and Enrique Acosta, two researchers from the Max Planck Institute for Demographic Research in Rostock, Germany, initiated a project called COVerACG-DB, aimed at amassing data on morbidity and mortality related to Covid-19 by age. They invited me and many others to join the initiative, and at present the project's international research team includes some 60 researchers and the databases of more than 80 countries. We utilize the official data of each country, requiring us to work with official organs such as Israel's Ministry of Health, which provided us with morbidity and mortality data by age. The data received from the health authorities in the different countries are harmonized and added to the COVerAGE-DB database to allow comparison between countries. The database is open to the community of researchers and I used it for my study on the association between age and Covid-19 mortality in OECD countries and in other wealthy countries.

I understand that the research findings have yet to be published, but can you share with us initial findings and initial insights?

There is a tendency to see Covid-19 as an illness of older adults. On one hand, age is indeed one of the most significant risk factors for Covid-19, such that this perception is not completely unfounded. On the other, the aging process naturally involves a rise in the risk of mortality, such that Covid-related mortality should be examined in a suitable context. The research aim was to compare patterns of Covid-related mortality by age with other causes of death related to old age, and to compare this pattern between countries.

The findings show that the risk of mortality from Covid rises with age, at a similar rate as the previously known aging process. Namely, according to our data, Covid-19 is not a "disease

of the elderly" any more than many other illnesses, including pneumonia and influenza. Nonetheless, it should be emphasized that the rate of death from Covid-19 is much higher on a relative basis than that known for pneumonia and seasonal flu. In summary, it can be said that the Covid-19 pandemic increased the risk for everyone, both young and old, at a similar rate, but did not change the fundamental association between aging and mortality. For instance, if the risk among older adults rose by 10% then the risk for young people rose by a similar proportion. A possible comparison can be made with the 1918 Spanish flu, which was much deadlier among those aged 20-40 than among older people.

After the outbreak of the virus in Israel, the government instructed that an extensive lockdown be implemented throughout the country, leading to a drop in the rate of confirmed cases, the critically ill, and the number of deaths from the illness. These measures rose once the lockdown was retracted, leading to another lockdown. At present, some of the restrictions have been removed and the intention is to promote a policy of resuming regular functioning, side by side with continued treatment of the pandemic. Based on your familiarity with morbidity and mortality data in other countries, where different methods of coping with the pandemic were implemented, do you think we can maintain low infection and mortality rates even when a considerable part of the Israeli economy is fully functioning?

The pandemic is still in its midst, such that it is hard to reach clearcut conclusions regarding the efficacy of any one policy. The current situation is changing frequently and the lockdown policy that seemed to us successful in April did not manage to prevent a rise in morbidity in subsequent months. The Swedes were the first to understand that this is a continuous crisis and therefore people's life routine must be preserved as much as possible, in a way that does not entail other costs (financial, psychological, social) that in the long term might exceed Covid's detrimental health results. Their policy was not implemented optimally, particularly at the beginning, when insufficient attention was given to long-term residential facilities, but in time they managed to establish an efficient system of tests and maintain an organized policy that ensured public trust. In my personal opinion that is the correct model, so long as it is supported by a judicious set of financial incentives and public cooperation.

Comprehensive lockdown is indeed effective in halting the illness, but it comes at a very high price and is not necessarily essential, as evident from the experience of other countries. Towards the end of the first lockdown I read Daniel Defoe's "A Journal of the Plague Year", where he describes the plague outbreak in 17th century London and the quarantine enforced there, as it is today. The current-day world is very different and it is hard not to wonder – having experienced the Enlightenment, the Scientific Revolution, and the information revolution – why lockdown has remained such a central tool for dealing with epidemics.

Recently, an article was published in the "New York Times" called: "338,000 missing deaths: tracking the true toll of the coronavirus outbreak". The article contains data gathered from 32 countries, including Israel, on mortality from the coronavirus, where you helped the article's authors locate and interpret data from Israel (provided by the Central Bureau of Statistics, CBS). The article claims that in many countries the mortality rate from coronavirus is higher than that reported to date and also that the general mortality rate (beyond that resulting from Covid) is also higher than in previous years. What can you say about these data?

The data on morbidity are being publicized at a delay in all countries because they must be gathered, and sometimes there is a discrepancy between the date of death and the date it is reported. In the last few months, the CBS made a significant effort to provide rapid access to morbidity data and these data are now available for about a month and a half retroactively. At the same time, the Ministry of Health is publicizing the number of deaths every week, but real time data are naturally less accurate and corrections are made later on when the reports are completed and the situation becomes clearer.

As of late August, the death rate recorded in Israel is not excessive relative to previous years, as the number of deaths resulting from Covid was relatively low and may have even been offset by a drop in deaths from other causes. In Israel nearly 4,000 deaths are recorded per month on average, such that an increase of several dozen is within the annual range and does not necessarily indicate a trend. In contrast, from September and on we have witnessed a significant rise in the number of deaths from Covid, several hundred per month, and I expect that when the CBS data for this period is publicized (in the next few weeks) we will see a rise in Israel's overall death rate.

The virus led to many restrictions on gatherings, as well as many changes in the activity of commercial industries and in national employment. These changes are affecting all parts of the population but we wish to focus on those aged 65 and older, many of whom are in risk groups for developing complications if they were to contract Covid-19. Although it can be assumed that this population is particularly meticulous about maintaining physical distancing, it might nonetheless lead to an increase in the sense of loneliness, which in turn might generate a rise in the emergence of depression and anxiety symptoms. In your opinion, to what degree are these risks significant for the elderly population?

Towards the end of the first lockdown, some philosophers claimed that there is good reason to require the elderly to bear the brunt of quarantines and social distancing. This was based on two considerations. The first is paternalistic, aiming to protect the elderly population. The second relates to the limited capacity of the healthcare system during an epidemic, with implications for anyone needing medical care. This is indeed a complex issue but the first justification at least seems to me irrelevant, as the Covid pandemic did not fundamentally change the association between age and mortality. In countries that were particularly strongly affected, such as the UK and the US, the effect of the Covid pandemic on life expectancy was assessed at a drop of one to two years in 2020 versus the previous year. Namely, it can be surmised that Covid returned us (momentarily) to the mortality rate of a decade or two ago without changing the age composition of the deceased. This situation

does not justify detracting from the autonomy of the elderly population, just as we don't discern between this group and the rest of the population in normal times.

Then again, we know that loneliness affects both quality of life and health. Loneliness is more common in the older population and during the Covid period this risk is even greater. The lengthier the crisis, the more the potential damage resulting from loneliness - not only to quality of life but rather also to health – may exceed that of the pandemic itself.

From a sociological-social respect, the virus has generated significant changes in how people meet, communicate, and work. In addition, it seems that the need to deal with the virus accelerated the development and use of technological solutions facilitating human conduct. Can you note several conspicuous sociological changes that occurred following the outbreak of the virus?

I have no doubt that this period will lead to far-reaching changes even after the pandemic comes to an end. There is a tendency to focus on the financial consequences that will certainly accompany us in the next few years, but the social and political consequences are even more significant. The current crisis is a social more than a health crisis and it has the potential to shake the global order. The social treaty between citizens and sovereign, social solidarity, the intergenerational contract, economic paradigms – all these are being undermined at present and will be open to renewed debate once the crisis dies down. Every social crisis encompasses opportunity for change, for good or for bad, because it undermines the existing order. As a sociologist, I anticipate that different actors will attempt to promote social, political, economic, and technological change within the liminal state formed. But it is too early to say where change will appear and where we will see preservation of the familiar.

Since the Covid pandemic is depicted through a biomedical prism, we tend to focus on the elderly population. But this is a formative experience for an entire generation, and here I am referring primarily to the young generation – children whose study routine is affected, young people taking their first steps in the labor market, and so on. The children of the Great Depression in 1929 US, for example, became more frugal adults because they grew up under the shadow of deprivation. Dutch citizens born during the massive hunger in the time of the Nazi occupation suffered from increased heart disease five decades later. While among older people this is a passing crisis, for the young it might be a formative experience (few social interactions, tensions within the family, and distance learning, if they learn at all) in a critical developmental period. Demographers call this type of process a "cohort effect". Only in several decades will we be able to understand the cohort effects of the current crisis.

Regarding technological solutions, the current crisis would undoubtedly have been different if it had occurred only 2-3 decades previously. But technology does not change the human condition and most of us crave unmediated human interaction. I hope that at least in this respect we will soon be able to resume our routine.

Clarification: The opinions expressed in the interview represent Dr. Isaac Sasson's personal views.

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– Interview –

Interview with Prof. Dov Shmotkin upon concluding his term of office as head of the Herczeg Institute

Dov Shmotkin is professor emeritus at the School of Psychological Sciences, a senior clinical psychologist, and an experienced gerontologist, who served for the past eight years (2012-2020) as head of the Herczeg Institute on Aging. In this interview, Prof. Shmotkin relates to his period of service at the institute and to his field of research.

Hello, Dov, and thank you for agreeing to this interview. You recently completed approximately eight years as head of the Herczeg Institute and your replacement is Prof. Silvia Koton. Indeed, you accompanied the institute as a researcher and activist since its establishment. Can you tell us about the work of the Herczeg Institute over the years?

I thank you very much for this opportunity to be interviewed at the conclusion of my tenure as head of the Herczeg Institute. First, I would like to warmly welcome the new head of the institute, Prof. Silvia Koton, and wish her much success. Prof. Koton has been productively active in the field of aging and related phenomena – in research, on the professional level, and on the community level, and I am very glad that she will now be leading the institute forward. During this time of transition, it is important to mention the work of all my predecessors at the head of the institute – Prof. Jacob (Jacky) Lomranz, Prof. Haim Hazan, Prof. Hava Golander, and Prof. Jiska Cohen-Mansfield. Each of them had a valuable contribution to Israeli gerontology and to the study of old age in Israel and in other countries. Each of them studied and operated in a variety of different fields related to healthy and pathological old age and their contributions shed light on phenomena and processes from psychological, social, anthropological, medical and health, nursing and therapeutic angles. I had the privilege of continuing their activity.

I was privileged to be at Prof. Jacky Lomranz's side when he established the Herczeg Institute, named for donors Mr. and Mrs. Herczeg, in 1992. Several years previously, Prof. Lomranz established the Unit of Adulthood and Aging at Tel Aviv University. With him and our partner, the late Nitza Eyal, we conducted at the time studies on psychological mechanisms that allow adjustment to old age, including subjective well-being (among others through representative surveys in Israel) and individuals' time perspective on their life course. With the establishment of the Herczeg Institute and the extension of the circle of research partners, the research topics became more multi-disciplinary. Already at that time,

it was important for us to emphasize that this is an institute for research of *aging and old age*, where by setting “aging” before “old age” we tried to convey the intent of studying processes that occur at times throughout a lengthy span of time along the adult life course.

Several years after the establishment of the institute, a unique research project known as CALAS (Cross-Sectional and Longitudinal Aging Study) received particular attention. This was after the late Prof. Baruch Modan, a high-achieving physician and scientist, granted the Herczeg Institute his epidemiological research on Israel’s elderly population aged 75 and older, after initiating and managing two extensive waves of data collection at the Sheba Medical Center’s Department of Clinical Epidemiology in Tel Hashomer. This was a pioneering longitudinal study on physical and mental health among an inclusive representative Israeli sample. The institute’s researchers and heads, myself included, took considerable action to promote the project and publicize its findings. Thus, the institute carried out a third wave of data collection from those research participants who were still alive. In productive collaboration with the Gertner Institute at Tel Hashomer, we concluded a national replication study (after it’s interruption with the death of Prof. Modan in 2001) and produced mortality data on the research participants, after a large majority of them had died. The research was mentioned in dozens of publications in leading journals and can serve as an example of the varied topics and disciplinary compilations characteristic of the work in other research channels within the Herczeg Institute over the years.

Another aspect of the Herczeg Institute’s activity has always been the link between academia and the community, particularly in spreading gerontological knowledge among different audiences and forming ties between academia and organs occupied with the needs and welfare of the elderly population. In this setting, the institute initiated and organized seminars, research conferences, lectures, workshops, and academic encounters where updated scientific and professional knowledge was conveyed. The institute’s different gatherings also facilitated debates on old age among groups that espoused various approaches and directions, such as academic researchers versus professionals in the field, or researchers and professionals from the fields of biology and medicine versus their contemporaries in the social sciences and the humanities. Throughout its years, the institute also held fascinating academic encounters with notable foreign researchers. Some of these encounters subsequently developed into collaborations in the form of workshops, conferences, and scientific publications.

Can you expand on your activity at the institute during your time as head?

In my tenure as head of the Herczeg Institute, the institute's work in all the channels I mentioned continued. The institute's faculty members further extended their important work in the different areas related to old age. Since I am unable to list here the many research topics of the institute's researchers (there is certainly room to interview them too) I shall make do with a short mention of the research work in which I myself was involved. My emphasis was on enhancing the research attention to aging processes in unique population groups. Just as I saw old age in general as a paradigm, albeit sometimes paradoxical, of endurance (survival to an advanced age) versus vulnerability (increased weakening with age), I also saw unique populations as a type of sub-paradigm of systems for coping and preparing for the end of life. Two such unique populations were conspicuous n the institute's work throughout its years of activity: the oldest old and Holocaust survivors. Data on the oldest old (people in their eighties and nineties) came primarily from the abovementioned CALAS study; data on Holocaust survivors was derived from a long list of studies conducted using various sampling and data processing methods. During my term of office, there was growing recognition at the institute that the era of research on the remaining Holocaust survivors is reaching its end. This necessitated attempts to rapidly complete studies of the survivors in areas treated to date only little or not at all (for example, their grasp of human evil – which might be reminiscent of that which they had witnessed during the terrible period of their life) or research directions with an integrative trend (such as studying the survivors' Holocaust trauma from the perspective of their entire life story). Further to the study of Holocaust survivors, research was also conducted on the survivors' children (the second generation) as well as on life trauma in general within the general population as well. In this matter, we were assisted to a great degree by the Herczeg Institute's involvement in the SHARE (Survey of Health, Ageing and Retirement in Europe) study on aging, the largest of its type in the past decade, run in Israel at the Hebrew University of Jerusalem by the Israel Gerontological Data Center. The main contribution of the Herczeg Institute faculty to the Israeli branch of this project was in building research modules on lifelong accumulating trauma, a survey of Holocaust-related experiences among members of the first and second generation, and experiencing tension and trauma related to combat situations.

Regarding the research on aging in unique population groups conducted within the institute in the last decade, I shall only mention the research on those living in conditions of abject poverty, on bereaved parents who in the course of their life lost a son or daughter to a traffic accident or illness, on older people at an advanced age who suffer from movement-restricting disabilities, and on those with different sexual orientations (such as homosexual

men) in the various older ages. The research on these special groups is continuing at present and it will undoubtedly provide fascinating insights on processes of old age when contending with challenges involving suffering or other hardships.

Another topic that I endeavored to advance was cultivating young researchers studying old age. Promising researchers are active in the different life sciences, where they are mostly laboring to develop models for understanding and treating illnesses related to aging processes (such as Alzheimer's, Parkinson, and others) and the genetic and biochemical foundations of old age in general. We are all anticipating great breakthroughs in these important areas. Nevertheless, I lament the relative paucity of young researchers of old age in the social sciences and the humanities. My initiative to establish at the Herczeg Institute an "incubator for doctoral students" that will include researchers of old age at the beginning of their academic course and allow debates between different disciplines on the essence of old age and its research methodologies, is still pending. In another channel, I strictly maintained the annual competition for Herczeg awards granted to outstanding doctoral students engaged in the research of old age. In this competition we selected outstanding doctoral students in an objective procedure involving top experts and managed to locate and highlight young researchers with extraordinary talents. In this context, I shall also mention that more than a decade ago I helped found the "Herczeg group" – young researchers who came together while still doctoral students or shortly afterwards and operated within the institute as a research group that initiated studies and research publications on old age. They are now influential senior academics involved in gerontological research at various universities. In addition, also surrounding the research mentioned on aging in unique population groups, the institute served as a meeting place for promising researchers who are showing much interest in research on old age.

Your field of research focuses on the individual's search for happiness and psychological well-being versus states of trauma and loss typical of old age. Can you tell us a little about this?

At the beginning of my academic course, my clinical research on psychological well-being and aging Holocaust survivors brought me closer to the world of old age. Since the issue of trauma underlies the research on Holocaust survivors, I explored the topic of trauma in old age. I discovered that most of the Holocaust survivors had managed, despite their trauma, to start families, develop careers, and live a life of satisfaction and realization. Paradoxically, the trauma existed concurrently with the psychological well-being, and this can indeed be

said about most people who survived some trauma in life. Among these people, although the memory of the trauma exists and even remains a source of threat and pain, they nonetheless have a surprising ability to function and to preserve their psychological well-being in many areas of life. I understood that I must further clarify the dialectic of vulnerability versus endurance, which exist and operate together. For instance, a study in which I tried to identify anchor periods in the life story of older people found that people are capable of ranking the level of happiness they reached in the happiest part of their life but also the suffering they experienced in the very same period, and vice versa: Regarding their most miserable period people indeed promptly indicate the suffering they experienced but can also identify happy parts. Thus, in old age people's functioning declines, they experience various losses, are ill more. and draw closer to death – but still to a large degree manage to maintain a sense of satisfaction that is not necessarily inferior to that of younger people. I tried to better understand this paradox through a theoretical model I built, which I called "searching for happiness in a hostile world". In this model, the adaptation systems known as subjective well-being and meaning in life have regulatory roles with regard to the mental system that I called "the hostile world scenario". This scenario is in fact the image that each of us has regarding the dangers and threats that might –at any given moment – endanger our welfare, our health, and our very life. Although the hostile world scenario encompasses a threat of tormenting events, it is in fact an adaptive system that must monitor the dangers that threaten us and accordingly counter-regulate the positive systems of well-being and meaning. In empirical studies conducted by my students and myself, we identified mutual regulatory mechanisms of positive and negative experiencing. In our studies of elderly people, it was precisely those in challenging and difficult life situations who demonstrated such regulatory mechanisms, such as amplification (positive functioning systems have stronger interrelationships in situations of hardship) and compensation (when one positive system weakens, another positive system has a stronger connection with elements that facilitate functioning). Hence, this model opens an extensive field for exploring coping connections between functional systems – particularly in dialectic situations of difficulty, trauma, and old age.

And finally, what message would you like to convey to the readers of the bulletin to mark the end of your tenure? And what are your plans for the future?

Regretfully, the conclusion of my term in office is marked by the Covid crisis. The crisis has posed a long list of threats to the welfare and well-being of individuals in the context of illness and health, as well as in the areas of financial status, family ties, social conduct, and

mental health. Much has been said about the vulnerability of the elderly population to the dangers of Covid itself, but also about what might happen in its vicinity – human separation, loss of personal independence, and harm to one's self-respect. All these threats are important parts of the concept that I developed and that I mentioned earlier – "the hostile world scenario", which is being realized extensively before our very eyes. Researchers of old age undoubtedly have a special mission at this time, to understand and clarify the essence of the threats we are encountering and ways of coping with them. For example, a survey conducted by my colleagues during the Covid period showed that those with an increased hostile world scenario demonstrate a stronger connection between the harm caused by the crisis (for instance, loneliness) and manifestations of anxiety. In contrast, the association between loneliness and anxiety is weakened among those who activate psychological responses against representations of the hostile world.

In my academic course at the Herczeg Institute and elsewhere, I enjoyed wonderful partners who joined with me to form various working teams. These included important researchers, students and former students, and professionals in academia and in the field. I owe them all my gratitude and appreciation for this partnership. I always believed that the topics of our research world have ethical and humanistic aspects as well. The processes of old age, accompanied as they are by a sense of fading and extinguishing, should be understood from an overall perspective of the entire life course and the meaning that can be attributed to the task of existence. Old age was and still is a riddle of human life and of the limits of self-realization and even of the growth within this life. In the future as well, I feel that I still have a desire and obligation to continue contributing through thought and activity to deciphering the amazing phenomenon of old age in human beings.

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(*) **Names in bold** are of faculty members at the Herczeg Institute on Aging.

– About the Institute –

The Herczeg Institute on Aging was established in 1992 at Tel Aviv University.

The Institute fosters interdisciplinary research, as evidenced by the joint direction of the Faculty of Social Sciences and the Faculty of Medicine. The presence of this institute on campus signifies the increasing importance of research on aging-related topics at the university.

The Herczeg Institute conducts and promotes an array of studies relating to aging and old age. These studies concern issues such as physical and mental health, health promotion, adaptation and resilience at old age, well-being and quality of life along the life span, cognitive and emotional aging processes, the elderly in society, ill- health at old age, dementia, problems in attending to the old, traumatic life events and the long-term impact of the Holocaust.

Additional goals of the Herczeg Institute include the dissemination of gerontological knowledge in the academia and the community, stimulating researchers of aging and old- age in the various disciplines with a particular emphasis on promoting young researchers in the field and maintaining relationships with decision makers and policy makers in areas related to aging and old age.

The Herczeg Institute is directed by **Prof. Silvia Koton**

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Dr. Lilach Lurie, PhD

Dr. Eliyahu Mizrahi, MD

Prof. Silvia Koton, PhD

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Mr. Tom Aival – Academic Coordinator

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