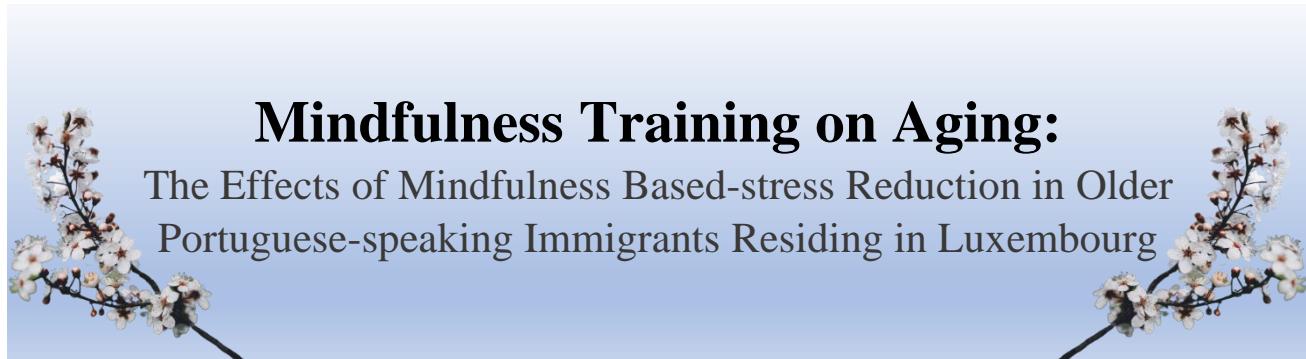


Abstract for the MEDITAGING Project Report



Project carried out by the University of Luxembourg in collaboration with Zitha

Funded by the National Research Fund, Luxembourg

Ref. App. ID 15240063

August 01, 2023

Project Team

MINDFULNESS TRAINING ON AGING: THE EFFECTS OF MINDFULNESS BASED-STRESS REDUCTION IN OLDER PORTUGUESE-SPEAKING IMMIGRANTS RESIDING IN LUXEMBOURG

FNR Beneficiary:

Ana Carolina Teixeira Santos,

PhD in Psychology, University of Luxembourg, Department of Social Sciences
Institute for Research on Socio-Economic Inequality (IRSEI).

Supervision:

- Anja Leist, Associate Professor, University of Luxembourg, Vice-head of the Institute for Research on Socio-Economic Inequality (IRSEI).
- Jean-Paul Steinmetz, PhD in Psychology, Zitha, Director of the Memory and Mobility Center

Collaborating institutions:

- Ville de Differdange
- Ville de Esch-sur-Alzette
- Portuguese Catholic Mission
 - Info-Zenter Demenz
 - Club Senior Prënzbierg
 - Senior Mosaïque Club
- Portuguese Consulate in Luxembourg

This is an abstract of the report that summarizes the activities conducted from July 2021 to August 2023 for the project titled "Mindfulness training on aging: the effects of mindfulness-based stress reduction in older Portuguese-speaking immigrants residing in Luxembourg," Ref. App. ID 15240063, in accordance with the contract signed with the National Research Fund (FNR).

The report outlines the main objectives successfully achieved during the course of this research and provides an overview of the executed activities. The project outputs consist of a completed bachelor's thesis, a submitted scientific manuscript, and two others currently in preparation. Additionally, the research findings have been presented in several lay and scientific conference presentations.

We thank the FNR for their valuable contribution to this project, which has allowed us to make significant strides in understanding the impact of group interventions on older Portuguese-speaking immigrants in Luxembourg. The beneficiary extends her gratitude to Zitha for the support, the resources provided, and the warm welcome.

Luxembourg, August 01, 2023.

Ana Carolina Teixeira Santos

Postdoctoral Researcher, University of Luxembourg, Department of Social Sciences - Institute for Research on Socio-Economic Inequality.

Abstract

In Luxembourg, the relationship between migration and aging is noteworthy, since the first-generation of immigrants from the 1960s/70s are older adults nowadays, from which 32% are Portuguese. These individuals often face less favorable socioeconomic conditions, which makes them more vulnerable to cognitive impairment. Thus, there is a critical need to validate interventions that promote healthy aging in this population. In this regard, mindfulness has emerged as a promising field, particularly the mindfulness-based stress reduction (MBSR) program, which has shown positive impacts on cognition, mood, sleep-related issues, and quality of life. However, few studies have investigated its potential to counteract age-related cognitive decline, particularly in vulnerable populations. Additionally, the few existing literature is based on comparisons with wait-list control groups. Including an active control condition, like the Health Promotion Program (HPP), is essential for conducting comprehensive investigations into the comparative effectiveness of MBSR with another intervention aimed at promoting healthy aging. This approach enables the isolation of mindfulness role on the intervention effects.

The MEDITAGING aimed to explore the feasibility and effects of MBSR in older Portuguese-speaking immigrants residing in Luxembourg. It was a two-arm randomized-double blinded-controlled study involving 89 older adults (mean age = 62.49 ± 5.78 , 63 [70.8%] women). Participants were randomized to the MBSR ($n = 44$) or an active control condition, the HPP ($n=45$). MBSR and HPP were conducted in group settings over eight weeks, featuring weekly meetings and additional home-based activities. The HPP, had the same structure of the MBSR but had no mindfulness and included different components such as lectures on dementia prevention, healthy habits, cognitive stimulation, sleeping, nutrition, watercolor painting, and physical activity. Assessments were conducted at baseline, immediately after the intervention, and between one to

three-month post-intervention. Assessors were blinded to group allocation. Semi-structured interviews were performed to evaluate feasibility and subjective effects. Primary outcomes were measures of executive functioning assessed with the Trail Making Test (TMT)- part B – part A, Stroop color word, and Letter-number sequencing tests, while secondary analysis comprised pre-post salivary cortisol as a surrogate measure to assess stress level, the Mini Mental State Examination (MMSE), as well as self-measures of quality of sleep (Pittsburgh Sleep Quality Index - PSQI), mindfulness trait (Mindfulness Attention and Awareness Scale - MAAS), perceived stress (Perceived Stress Scale - PSS), anxiety (Geriatric Anxiety Inventory - GAI), and depression (Geriatric Depression 5 Item Scale - GDS-5). Analyses were conducted using a modified intention to treat approach, i.e., all participants with at least three days of participation in the group-sessions and one post-intervention observation.

As a result of the qualitative part of this project, we found that both interventions are feasible for older immigrants. However, the dropout rates were high, primarily due to participants commuting between their home and host countries. Other frequently reported reasons for discontinuing participation in the groups were family demands (such as caring for grandchildren or a sick family member), interpersonal conflicts, or health conditions (such as chronic pain).

In general, participants reported their satisfaction in participating in the program. Often, they reported that it was the first time they participated in social activities in Luxembourg and that they are now motivated to join other activities in the future. They expressed that they are motivated to apply the learned techniques and continue to connect with other participants from their group, which reinforces their senses of belonging. This population is often regarded as difficult to recruit for scientific or societal projects. We believe that the success in the recruitment participants for the MEDITAGING is due to the significant effort made by the beneficiary to approach and engage

with people. Additionally, offering the activities in Portuguese was essential for making people feel comfortable to participate. Furthermore, the fact that we offered groups in different localities facilitated participants to attend sessions near their residence. Partner institutions acknowledge the merit of this project in reaching and bringing together so many Portuguese-speaking immigrants. Regarding the quantitative results, both groups showed significant improvement in Letter-number sequence task, GAI, MAAS, and PSS. Marginally significant improvements were also observed in the TMT. However, no superiority was observed in the mindfulness group, contrary to our initial hypothesis.

Keywords: Migrant health, older adults, MBSR, mindfulness-based interventions, health promotion program.

MAIN OUTPUTS OF THE PROJECT AND DISSEMINATIONS

As mentioned earlier, the construction and execution of this project required collaboration with various institutions. As part of the feedback process, we will make contacts to express our gratitude and communicate the project's closure to these institutions. Additionally, we will inform them that we will share the results through the publication of articles and other materials. A portion of the research results is already in the process of being published. However, a significant part of the data is being finalized and will be submitted to specialized journals. Below we present a list of the completed outcomes from MEDITAGING:

Dissemination to scientific audiences

1. Dr. Teixeira-Santos was an invited speaker in the [XIII International Symposium of Neuromodulation](#), on November 23th, 2021, where she presented the lecture “Mindfulness-based interventions: an integrative review” and presented the design of the MEDITAGING Study.
2. A systematic review was presented at a scientific conference: Teixeira-Santos, A.C., Pereira, D.R., Federspiel, C., Steinmetz, J.-P., Leist, A. K. (2022). A mini-review of the effects of mindfulness-based interventions inc cognitive measures in older adults. Poster presented at the [26th Nordic Congress of Gerontology](#), June 2022, Odense, Denmark.
3. A manuscript with the protocol is under review. This study was also presented in an oral presentation as follows: Teixeira-Santos, A.C., (2023). MEDITAGING: A Study Protocol of a RCT verifying the MBSR Effects on Older Portuguese-speaking Migrants. Oral presentation accepted at the IV International Congress of CINEICC, University of Coimbra, Portugal.
4. The quantitative paper on the effects of the MBSR intervention is being prepared to be submitted to a journal in the domains of clinical psychology or psychology of aging.

Communication activities

1. Dr. Teixeira-Santos participated in a communication to lay and professional audiences through Roche's [ADTaxi website](#) (not released yet) and in a [LinkedIn Live Event](#) panel discussion on Brain Health Risk Factors, hosted by Roche and supported by the World Young Leaders in Dementia network (WYLD) a.s.b.l. (mentioned in the grant application as a WYLD webinar). Activities were performed in Portuguese and English languages.
2. Dr. Teixeira-Santos participated with a [lay communication](#) under the title "Aging in good health! What can we do to age in good health?" on October 19th, 2022, at the City Hall of Esch-sur-Alzette.
3. Dr. Teixeira-Santos will give a lay communication under the title "In Search of Healthy Aging: Exploring Cognitive Functions and Neuroplasticity" in partnership with the Info-Zenter Demenz (planned to November 2023)

Media Coverage

1. Dr. Teixeira-Santos participated in the program Morabeza of [Radio Latina](#) (Luxembourg) on November 7th 2021, in Portuguese, in which she was interviewed about mindfulness and the MEDITAGING Project.
2. She also participated in the program of [Psicologia no BOM DIA](#), on November 26th 2021.
3. Dr. Teixeira-Santos gave an interview to the [Contacto Journal](#) on June 04, 2022 in Portuguese
4. We wrote an article for newsletters published on the Zitha website in French and on the website of Prof. Leist's research group in German and Portuguese ([here](#)).
5. The MEDITAGING study was mentioned in a lay-audience Journal article on dementia in July 2022 in German ([here](#)).

6. On the occasion of the World Alzheimer's Day in September 2021, RTL aired a feature on the MEDITAGING project in Luxembourgish ([link to episode](#))

Supervision of students

1. The student Catarina Godinho finalized her undergraduate studies in Psychology under the supervision of Dr. Teixeira-Santos and Prof. Anja Leist, with the thesis "Migration and Health in older adults: The cognitive and health profile of Lusophone immigrants in Luxembourg in comparison to local samples from Portugal". This work will be presented in a scientific event as follows: Godinho C., Teixeira-Santos A.C, Pinal D., Sampaio, A., Federspiel C., Steinmetz J-P, & Leist A.K. (2023) *Migration and health in older adults: the cognitive and healthy profile of lusophone immigrants in Luxembourg in comparison to local samples from Portugal*. Porto, Portugal.
2. The MEDITAGING Protocol was used as reference in masters and PhD classes by Professor Anja Leist.

Other Publications

Finally, Dr. Teixeira-Santos was able to publish many articles from her previous academic work and as external expert for the CRISP project led by Prof. Leist, as follows:

1. Pereira, D. R., Teixeira-Santos, A.C, Sampaio, A, & Pinheiro, A. P. (2022). Examining the effects of emotional valence and arousal on source memory: A meta-analysis of behavioral evidence. *Emotion*. doi: 10.1037/emo0001188
2. Teixeira-Santos, A. C., Moreira, C. S., Pereira, D.R., Pinal, D., Fregni, F., Leite, J., Carvalho, S., & Sampaio, A. (2022). Working memory training coupled with transcranial direct current stimulation in older adults: A randomized controlled experiment. *Front.Aging Neurosci.*, doi: 10.3389/fnagi.2022.827188.3.

3. Santos, B.D., Moreira, C. S., Teixeira-Santos, A. C., Carvalho, E., Pereira, M.G. (2022). HPV-related quality of life in diagnosed women: A longitudinal study. *Journal of Health Psychology*.
<https://doi.org/10.1177/13591053211073642.4>.
4. Ribeiro, F., Teixeira-Santos, A. C., Leist, A. K. (2022). Prevalence of dementia in Latin America and Caribbean countries: Systematic review and meta-analyses exploring age, sex, rurality, and education as possible determinants. *Ageing Research Reviews*.
doi:10.1016/j.arr.2022.101703.5.
5. Ribeiro, F., Teixeira-Santos, A. C., Leist, A. K. (2021). The prevalence of mild cognitive impairment in Latin America and Caribbean populations: a systematic review and metaanalysis. *Aging & Mental Health*. doi: 10.1080/13607863.2021.2003297.

ANNEXES

List of annexes

- 1. Ethics committee approval**
- 2. Flyers**



Prof. Dr. Anja Leist
Université du Luxembourg
Maison des Sciences Humaines
11, Porte des Sciences
L-4366 Esch-sur-Alzette

Esch-sur-Alzette, 21 October 2021

ERP 21-042 MEDITAGING

GZ/kk

Research project: Mindfulness training on aging: the effects of mindfulness (ERP 21-042 MEDITAGING)

Dear Prof. Dr. Leist,

The Ethics Review Panel of the University of Luxembourg received your request on 20 August 2021 and a revised version on 13 October 2021 concerning the approval of your project: **Mindfulness training on aging: the effects of mindfulness (ERP 21-042 MEDITAGING)**.

Your request included:

- application form
- consent form
- information sheet
- appendix

After examining all the documents, the Ethics Review Panel has decided to **approve** the amended project description and the related documents, in the form provided to the Ethics Review Panel.

Please note that the ERP has to be informed of any changes to the study that affect the parts that were subject to ethics approval.

Yours sincerely,

Dr. Gerben ZAAGSMA
Chair of the Ethics Review Panel

Ethics Review Panel of the University of Luxembourg

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cc: Ana Carolina Teixeira Santos

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Établissement public

Loi modifiée du 27 juin 2018
Mémorial A587 du 11 juillet 2018
TVA Intracom LU 19805732
N° R.C.S.L. – Luxembourg J20



Luxembourg, le 14 avril 2022

Université de Luxembourg
Belval campus
Prof. Dr Anja Leist
11 Porte des Sciences
4366 Esch-sur-Alzette

CB/MP
Ntr.réf : 0422-89
Avis numéro : 202112/03

Professeur,

Par la présente nous accusons bonne réception de votre courrier (reçu le 20 mars 2022) concernant l'étude intitulée « **MEDITAGING : mindfulness training on aging : the effects of mindfulness based-stress reduction in older Portuguese-speaking migrants residing in Luxembourg** » et par lequel nous sont parvenus les documents énumérés sur le formulaire (en annexe).

Nous vous confirmons, après examen de ces documents soumis en réponse aux remarques de la Direction de la Santé, que le CNER n'a pas d'objection à leur utilisation tels quels.

Veuillez croire, Professeur, à l'expression de nos salutations les plus distinguées.

A handwritten signature in black ink, appearing to read 'CB' followed by a stylized surname.

Dr Catherine Boisanté

Présidente



COMITÉ NATIONAL
D'ÉTHIQUE DE RECHERCHE

DECLARATION DU COMITE NATIONAL D'ETHIQUE DE RECHERCHE

Avis numéro :	202112/03		
Identification de l'investigateur :	Prof. Leist		
Identification du protocole :	MEDITAGING		
Les documents suivants ont été soumis au Comité National d'Ethique de Recherche			
Lettre d'accompagnement :	-Mail d'accompagnement de Dr Teixeira-Santos, PhD, dd 20-MAR-2022 -Lettre de réponse au Ministère de la Santé, de Dr Teixeira-Santos, PhD, dd 28-FEB-2022	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fiche synthétique :		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Protocole d'étude :	Protocole V3 dd MAR-2022 (EN) (TC)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Résumé du protocole d'étude :		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Brochure de l'investigateur :		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Feuilles d'information du patient et formulaires de consentement éclairé :			
Version française :	Feuillet d'information + ICF V2 dd FEB-2022 (TC)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Version allemande :	Feuillet d'information + ICF V2 dd FEB-2022 (TC)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Version portugaise :	Feuillet d'information + ICF V2 dd FEB-2022 (TC)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Modalités de recrutement des patients :		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Réparation/Indemnisation aux patients :		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Certificat d'assurance :		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Accord financier :		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Publicité à utiliser :		<input type="checkbox"/>	<input checked="" type="checkbox"/>
CV :		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Autres:	-Ces documents nous sont parvenus par e-mail de Dr Teixeira-Santos, PhD dd 20-MAR-2022 -Guide des entretiens dd 20-MAR-2022 -Data collection of saliva sample (EN/PT) -Saliva collections – Instructions for use (EN/PT)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Le Comité National d'Ethique de Recherche est organisé et travaille selon les règles établies par l'ICH concernant les bonnes pratiques cliniques et suit les dispositions de la directive 2001/20/CE du Parlement Européen et du Conseil du 4 avril 2001.			
Signature de la Présidente :	Nom en lettres capitales :	Date de la signature :	
	Dr Catherine BOISANTÉ	14/04/2022	



Invitation

Nous vous invitons à participer gratuitement à un projet de l'Université du Luxembourg qui vise à réduire le niveau de stress des personnes lusophones âgées de 55 ans et plus, résidant au Luxembourg ou dans les régions frontalières.

Deux programmes avec des techniques basées soit sur la pleine conscience soit sur le vieillissement actif et la promotion de la santé sont proposés, comprenant:

- 3 Entretiens individuels d'encadrement et d'évaluation psychologique
- 8 ateliers en groupe de 2heures30 par séance pendant 8 semaines

Lieux:

ZithaSenior Luxembourg – Gare, ZithaSenior Consdorf où Escher BiBSS - Esch-sur-Alzette.

- Début des séances: Février-Mars 2023.

Participation:

- avoir 55 ans ou plus
- savoir parler et lire en portugais
- ne pas avoir de maladie neurologique ou psychiatrique aiguë

La participation est gratuite.

Prenez soin de votre santé, de votre bien-être et participez au développement des connaissances en matière de promotion du vieillissement actif !

Inscriptions et informations:

email: anacarolina.santos@uni.lu Tél: 661 161 610

Modération:

Ana Carolina Santos, Psychologue,
Chercheuse à l'Université du Luxembourg,
formation à MBSR -
Université de San Diego

Réalisation:





PROJETO DE INVESTIGAÇÃO ATIVIDADES PARA SENIORES 55+ LUSÓFONOS

Convite

Convidamo-lo a participar num projeto gratuito da Universidade do Luxemburgo que visa reduzir o nível de stress das pessoas de língua portuguesa com 55 anos ou mais, residentes em Luxemburgo ou nas regiões fronteiriças.

Serão disponibilizados dois programas com técnicas baseadas em mindfulness ou envelhecimento ativo e promoção de saúde, incluindo:

- 3 entrevistas individuais de avaliação psicológica,
- 8 sessões de grupo de 2h e 30min (uma vez por semana)

Local:

ZithaSenior Luxembourg – Gare, ZithaSenior Consdorf ou Escher BiBSS - Esch-sur-Alzette.

- Início das sessões: Fev-Março 2023.

Participação:

- Ter idade igual ou superior a 55 anos,
- Saber ler em português,
- Não apresentar doença neurológica ou psiquiátrica aguda,

A participação é gratuita.

Cuide da sua saúde e participe no desenvolvimento de conhecimentos no âmbito da promoção do envelhecimento ativo!

Inscrições e informações:

email: anacarolina.santos@uni.lu Tel: 661 161 610

Moderação:

Ana Carolina Santos, Psicóloga
Investigadora da Universidade de Luxemburgo, formação em MBSR
Universidade de San Diego

Realização:



Abstract for the MEDITAGING Project Report

For further information, please feel free to contact us at [anacarolina.santos@uni.lu]

Project conducted by the University of Luxembourg in collaboration with Zitha

Funded by the National Research Fund, Luxembourg

Reference: ID 15240063

August 05, 2023