SEFAC

Social Engagement Framework for Addressing the Chronic Disease Challenge

SEFAC JOURNEY

Mindfulness training, social engagement and ICT support to empower citizens to build a healthy lifestyle and manage chronic diseases

Erasmus MC Universitair Medisch Centrum Rotterdam

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3rd Health Programme

Edited by Hein Raat, Stefania Macchione and Oscar Zanutto

SEFAC JOURNEY

ISBN: 978-94-6416-552-4

This book is part of the project '738202/SEFAC' which has received funding from the European Union's Third Health Programme (2014-2020).

Cover design: Nancy Karanasiou | VIDAVO
Lay-out: Publiss | www.publiss.nl
Printing: Ridderprint BV | www.ridderprint.nl

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Edited by: Hein Raat, Stefania Macchione and Oscar Zanutto

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LIST OF ABBREVIATIONS

APPCARE	APPropriate CARE paths for frail elderly patients
AULSS2	Azienda ULSS 2 Marca Trevigiana
BCSS	Behaviour Change Support Systems
BMI	Body Mass Index
CDSE	Chronic Disease Self-Efficacy instrument
CDSMP	Chronic Disease Self-Management Programme
CHD	Coronary Heart Disease
COPD	Chronic Obstructive Pulmonary Disease
COVID-19	COronaVIrus Disease 2019
CVD	Cardiovascular Disease
DALY	Disability-adjusted life year
EFFICHRONIC	Enhancing health systems sustainability by providing cost-eFFIciency data of evidenced based interventions for CHRONIC management in stratified population
ELISAN	European Local Inclusion and Social Action Network
EIP-AHA	European Innovation Partnership on Active and Healthy Ageing
EMA	Ecological Momentary Assessment
EMC	Erasmus University Medical Center
ENSA	European Network of Social Authorities
ESF	European Social Fund
EU	European Union
GSES	General Self-Efficacy scale
GP	General Practitioner
GROW	Goal, Reality, Options (Obstacles), Will (Way forward)
HALE	Healthy Life Expectancy
HCI	Human Computer Interface
HR-QoL	Health-Related Quality of Life
IAA model	Intention, Attention, and Attitude model
ICT	Information and Communication Technology
iOS	iPhone Operating System
IPAQ	International Physical Activity Questionnaire

ISO	International Organization for Standardization
ISRAA	Istituto per Servizi di Ricovero e Assistenza Anziani
IQ	Intelligence Quotient
IT	Information Technology
LE	Life Expectancy
MBSR	Mindfulness-Based Stress Reduction
MD	Medical Doctor
MEDRI	Sveulciliste U Rijeci, Medicinski Fakultet, University of Rijeka
MFF	Multiannual Financial Framework
MMR	Maternal Mortality Ratio
MSc	Master of Science
NGEU	Next Generation EU
NGO	Non-Governmental Organisation
NSES	Nutrition Self-Efficacy Scale
OSS	Oslo Social Support scale
PESES	Physical Exercise Self-Efficacy Scale
PERMA	Positive emotion, Engagement, Relations, Meaning, Accomplishment
PHQ	Patient Health Questionnaire
Polibienestar – UVEG	Polibienestar Research Insitute – University of Valencia
PROMIS	Programma Mattone Internazionale Salute
PSD	Persuasive System Design
R.A.I.N.	Recognise, Acknowledge, Investigate, Non-identify
SD	Standard Deviation
SDG	Sustainable Development Goal
SEFAC	Social Engagement Framework for Addressing the Chronic-disease-challenge
SF	Social Functioning
SMAQ	Short Medication Adherence Questionnaire
SMART	Specific, Measurable, Acceptable, Realistic and Timely
SOC	Sense Of Coherence

SUS	System Usability Scale
T2DM	Type 2 Diabetes Mellitus
TTM	TransTheoretical Model
UHCE	Urban Health Centers Europe
UK	United Kingdom
VALUECARE	VALUE-based methodology for integrated CARE supported by ICT
VIDAVO	VIDAVO S.A. (VIDAVO AE)
WHO	World Health Organisation
WP	Work Package
YMR	Youth Mortality Ratio

PREFACE

Author: Shanlian Hu, member of the SEFAC Advisory Board

Background

The Social Engagement Framework for Addressing the Chronic-disease Challenge (SEFAC) project was granted by the EU's (EU) Third Health Programme (2014-2020) HP-PJ-2016, and supported by the EU Member States, including Croatia, Italy, the Netherlands and United Kingdom (UK), which also involved many stakeholders:

- Istituto per Servizi di Ricovero e Assistenza Anziani (ISRAA)
- Sveulciliste U Rijeci, Medicinski Fakultet, University of Rijeka (MEDRI)
- VIDAVO S.A. (VIDAVO AE) (VIDAVO)
- Polibienestar Research Institute – University of Valencia (Polibienestar - UVEG)
- European Local Inclusion and Social Action Network (ELISAN)
- Age UK Cornwall (Age UK)
- Erasmus University Medical Center (EMC)

EMC is the coordinating institution. VIDAVO is pioneering an innovative solution for IT support of the care in the project.

General speaking, the health indicators in the four countries mentioned above are better than the average of whole EU member countries (Table 1), especially the life expectancy at birth, healthy life expectancy at birth, maternal mortality ratio, children mortality rate <5 years old, infant mortality rate and probability of dying from Cardiovascular Disease (CVD), cancer, Type 2 Diabetes Mellitus (T2DM), the prevalence rate of risk factors, such as total alcohol consumption per capita (litres of pure alcohol) and age-standardized prevalence of tobacco smoking among person aged 15 years and older (%).

Table 1. Some health indicators in the four SEFAC project countries (2019)

	Croatia	Italy	Netherlands	UK	EU
No. of population(x000s)	4,189	59,360	17,036	66,182	919,458
LE at birth	78.2	82.7	81.6	81.4	77.5
HALE at birth	69.0	73.2	72.1	71.9	68.4
MMR (1/100,000)	8	4	7	9	16
<5YMR (‰)	5	3	4	4	9
Neonatal mortality (‰)	3	2	2	3	5
Probability of dying from CVD, Cancer, T2DM	16.7	9.5	11.2	10.9	16.7
Total alcohol per capita (>age 15)	8.9	7.5	8.7	11.5	9.8
Tobacco smoking rate (>age 15)	37.1	23.8	25.9	22.4	29.4

(Source: World Health Statistics 2019: Monitoring health for the SDGs (Sustainable Development Goals)
LE = Life Expectancy, HALE = Healthy Life Expectancy, MMR = Maternal Mortality Ratio, YMR = Youth Mortality Ratio, CVD = Cardiovascular Disease, T2DM = Type 2 Diabetes Mellitus

The aim of the SEFAC project is to empower citizens ≥ 50 years who are at risk for or with T2DM and CVD, to self-manage their chronic conditions through the SEFAC intervention in the duration of six months. The SEFAC consortium developed the intervention model for health promotion and prevention that consists of workshops, social engagement (professionals and volunteers) with the information and communication technology (ICT) support. The intervention study was designed by a pre- and post-comparison. The results of the evaluation support the hypothesis that SEFAC can contribute to improve indicators of 'self-efficacy' among the participants; and that SEFAC can contribute to a favorable change regarding 'sedentary behaviours', 'social support', 'mental well-being', and 'health-related quality of life'. Therefore, I expect that the SEFAC intervention can contribute to the reduction of the burden of major chronic diseases and can help to increase the sustainability of health systems.

The study sites are selected from four cities, i.e., Rijeka in Croatia, Treviso in Italy, Rotterdam in the Netherlands and Camborne, Cornwall in the UK. The situation of demographic and health status is showed in Table 2.

Table 2. The demographic and health profile in four SEFAC pilot sites

	Rijeka, Kotar county, Croatia	Treviso, Veneto city, Italy	Rotterdam, Netherlands	Cornwall county, UK
No. of population	128,624	84,999	651,446	568,210
% of elderly aged >65 years	29.1	25.6	15.0	22.9
Birth rate (‰)	6.82	7.20	13.1(2012)	
Death rate (‰)	13.85	12.20	9.1(2012)	
Death rate (%) in CVD cases aged >65 years	23.32		28.0	
Partnership	Community Health Centre of Primorje	ISRAA, public local health authority, senior provider	Erasmus University Medical Center	Age UK Cornwall

CVD = Cardiovascular Disease

Study design

SEFAC project has two major target groups: the primary target group is citizens in the four pilot sites with specific inclusion criteria who are a patient with T2DM and CVD, or who are at a relatively high risk for these conditions. The secondary target group consists of other stakeholders (pharmacies, social clubs, social care and primary health care volunteers, General Practitioners (GPs), professionals, health/fitness centres) who are closely involved or support the SEFAC implementation.

Before the implementation of the SEFAC project, an educational workshop was organised by ISRAA and Age UK Cornwall. For this workshop, a Train the Trainers handbook was developed, as well as a Healthy lifestyle coaching protocol and a protocol on how to implement an effective social engagement model for the prevention and self-management of major chronic diseases. Meanwhile, VIDAVO provided a training on how to use the SEFAC ICT tool (i.e. the SEFAC app).

As mentioned before, the pilot studies were conducted in four European regions, Cornwall in UK, Rijeka in Croatia, Rotterdam in the Netherlands, and Treviso in Italy. The sample size of citizens reached through public events

is circa 250 people in each site. Each site included circa 50 citizens who are 'At Risk'. These citizens have an increased risk to develop a major chronic condition, including obesity, unhealthy diet, physical inactivity, stress, harmful levels of alcohol consumption and tobacco use. Furthermore, each pilot site also included circa 50 citizens who have a chronic condition; circa 20 citizens with CVD and circa 20 with T2DM (Table 3). The inclusion criteria are; over the age of 50 years, and living in their own house and community. The SEFAC participants (after providing informed consent for the study) attended a 7-week lifestyle programme based on mindfulness, and were followed during six months after finishing the SEFAC programme for the evaluation. The programme included a 'social engagement model' with support by volunteers to promote self-management and adopt healthier lifestyles.

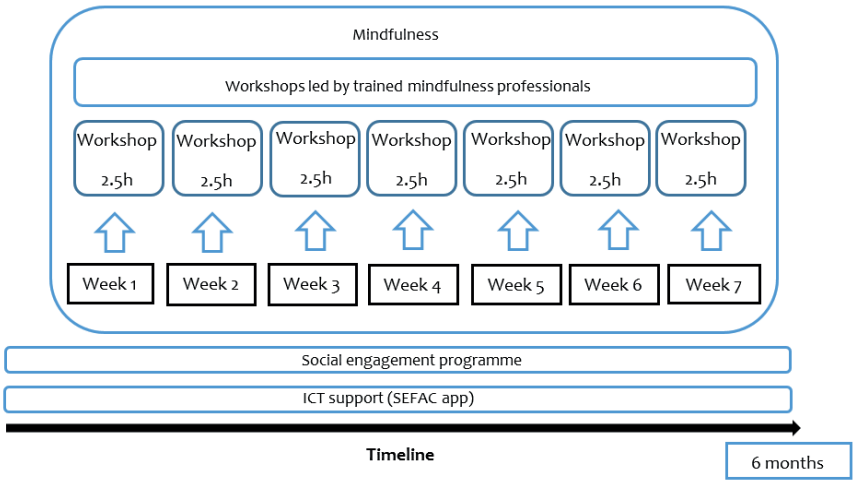
Table 3. Target numbers of SEFAC interventions in four pilot sites

		PILOT SITES			
		Cornwall	**Rijeka**	**Rotterdam**	**Treviso**
Citizens reached through public events		250	250	250	250
Citizens participated in SEFAC interventions	Citizens at risk	50	50	50	50
	Citizens with CVD	20	20	20	20
	Citizens with T2DM	20	20	20	20

CVD = Cardiovascular Disease, T2DM = Type 2 Diabetes Mellitus

The modules of the workshop programme have seven units within seven 'meetings' within seven weeks (Figure 1). The content includes training mind and body for well-being, healthy habits, healthy mindset, healthy eating, healthy physical activity, healthy relationships and living healthy with a chronic condition. Each module takes 2.5 hours and is led by trained (mindfulness) professionals.

Figure 1. The timeline of SEFAC intervention



Evaluation of SEFAC

The evaluation approaches were divided into two areas:

Internal evaluation which is used as a process evaluation, i.e., evaluation of the pilot sites implementation by those who implemented the pilots.

External evaluation which is targeted at the experiences and perceptions of the stakeholders, including professionals, trainers, volunteers and other stakeholders. Both evaluation methods used a questionnaire survey. The indicators include perceived effectiveness, perceived efficiency, perceived utility and perceived sustainability. Different aspects of the SEFAC intervention are included in the different questionnaires. A global indication of the results are shown in Table 4. All indicators showed a positive perception, that means higher than 4.0 on a 1 to 5 scale..

Table 4. The indication of the average score in both internal and external evaluation

Indicators	Contents	Average score	
		Internal evaluation (n=19)	External evaluation (n=19)
Perceived effectiveness	Meet objectives, training resource sufficient, useful handbook, using app	4.4	4.0
Perceived efficiency	Training plan, adequate participants number of professionals sufficient, using app	4.6	4.3
Perceived utility	Improve & change lifestyle, plan is useful for other professionals	4.6	4.0
Perceived sustainability	Continue to use app after training, improvement will last	4.4	4.1

During the interviews the professionals and volunteers were asked about barriers and facilitators of the intervention, they appreciated the good organization and mindfulness training plan.

Finally, an intervention study was conducted with, at the beginning a baseline measurement (T_0), and with a follow-up measurement after circa six months (T_1). It is a single arm study where the scores (because of the pre- and post- design) were compared by descriptive statistics. Multiple questionnaires were used to perform the effectiveness analysis and the cost-effectiveness analysis (Table 5).

Table 5. The instruments used in the economic evaluation of SEFAC project

Domains	Instruments used in the (cost-effectiveness) analyses
Self-management	General self-efficacy scale (GSES); Chronic disease self-efficacy instrument (CDSE-6)
Healthy lifestyle behaviour	Physical exercise self-efficacy scale (PESES); Nutrition self-efficacy scale (NSES); International physical activity questionnaire (IPAQ); Smoking (AUDIT-C)
Social support	3-item Oslo social support scale (OSS-3)
Stress	10-item perceived stress scale (PSS-10)
Depression	8-item patient health questionnaire depression scale (PHQ-8)
Sleep & fatigue	Visual analogue scale (0-10)
Adherence to medications	Short Medication Adherence Questionnaire (SMAQ)
Health related quality of life	SF-12, EQ-5D-5L

In addition, cost data were also collected including social cost savings, i.e., doctor appointments, emergency visits, hospital admissions, productivity losses, absenteeism and unpaid work etc. The final SEFAC results have been described in detail in Chapter 7.

Discussion

The SEFAC project has made a great contribution to the EU's Health Programme, its experience and lessons can be adopted to many countries and regions throughout the world.

The research findings support the importance of social participation and self-management in the prevention and treatment of chronic diseases.

The SEFAC project takes a community approach to promoting health and reducing the burden of chronic diseases. It is set up to empower the people to take action to control their own health. Trainers and volunteers are trained to use the "social engagement toolkit" and it will in turn help families and care givers, social workers, GPs, pharmacists and other stakeholders to put mindfulness and self-management into practice. The training enables participants to consciously develop healthy habits and healthy lifestyles, which is considered to be the most cost-effective intervention in the prevention and treatment of chronic diseases.

The SEFAC project is a multi-centre study which was conducted in four member countries. It has a very good basis with a published project design (Zhang et al., 2019). During the study period, regular consortium and advisory board meetings were held in the participating countries and by video meetings. Each country team presented the progress of study, and some topics and common issues discussed in the meetings or teleconference, such as mindfulness, involvement of volunteers, and the SEFAC app topics. Several issues of SEFAC newsletter were published to guide the progress of the intervention. The study protocol was first published in BMC Public Health Journal Open Access in 2019.

SEFAC has been built upon a solid theoretical background. The most relevant measure in the prevention and treatment of chronic diseases

is social participation (social inclusion) and self-management. The mindfulness concept will focus on awareness, attention and memory, engaged in everyday life, and psychological change will decrease worry-related anxiety and depressive symptoms. To make healthy habits, many psychological models are used to strengthen the effects of behaviour change, i.e., salutogenic approach, mindfulness-based intervention, positive psychology of habit-formation, person-centred care approach, health coaching model. The social network and group meetings will positively influence the maintenance of a healthy lifestyle. Even if the SEFAC intervention is finished after six months, the self-management skills and risk behaviour is changed in the group of participants.

A limitation of the project is that the sample size is not large enough to show the statistical significance of relatively small effects. Furthermore, to some extent, a long-lasting change of lifestyle maybe needs more time before it occurs. The current observation study with six months follow-up is too short to be able to observe big and long-lasting changes. So, a recommendation for future studies is to allow a longer period of time for follow-up. Also, in the future, some objective indicators are required to measure the improvement with chronic conditions, such as blood pressure reduction for hypertension, glycosylated haemoglobin (HbA1c) for T2DM.

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Introduction to the SEFAC project: promoting self-management and healthy lifestyles to prevent and manage chronic conditions with involvement of volunteers and elements of mindfulness

CHAPTER 1

Authors:

Elena Curtopassi, Hein Raat, Siok Swan Tan, Xuxi Zhang

1.1 Prevention and management of chronic conditions in the EU

Prevention and management of chronic conditions are important challenges in realizing the sustainability of health systems in Europe and throughout the world, due to their significant morbidity and mortality, social impact, and economic implications. Healthy lifestyles including healthy diet, regular exercise, medication management and monitoring clinical and metabolic parameters may be effective in better management and control of chronic conditions. Common chronic conditions traditionally include CVDs, diabetes, cancer and chronic lung diseases (such as asthma and Chronic Obstructive Pulmonary Disease (COPD)). However, Human Immunodeficiency Virus and Acquired Immunodeficiency Syndrome, mental disorders (such as depressive disorders, schizophrenia and dementia) and disabilities (such as sight impairment) additionally have become among the most common chronic conditions in recent years.

The proportion of people in the EU aged 65 years and older, affected by chronic conditions, is predicted to increase from 15.0% in 2000 to 23.5% in 2030. The proportion of those aged 80 years and older is even expected to more than double from 3.0% in 2000 to 6.4% in 2030 (Pomerleau, Knai and Nolte, 2008; Kinsella and Phillips, 2005). The proportion of people with dementia is expected to increase most dramatically. When no effective prevention and management actions are taken, the number of Europeans aged 60 years and older with dementia is estimated to rise from 7.7 million in 2001 to 15.9 million in 2040. The predicted increase varies between 31% and 51% in different regions (Ferri et al., 2005).

Chronic conditions contribute to a great share of the global health burden. To measure burden of disease, the World Health Organisation (WHO) developed the disability-adjusted life year (DALY) as a measure to quantify the impact of disability and premature death on a population. One DALY equals one year of healthy life lost (WHO, 2005). The measure relies on the assumption that chronic disease effects are most appropriately reflected by the time either spent disabled by disease or lost due to premature death. Predictions on the future burden of disease show that the most common chronic conditions will continue to be the greatest contributors to disability and mortality. The percentage of DALYs associated with chronic conditions

is estimated to rise from 86% in 2005 to 89% in 2030 (Suhrcke et al. 2006; Mathers and Loncar 2005). The WHO has predicted that deaths related to diabetes across all ages in Europe are expected to rise from about 166,000 in 2009 to over 209,000 in 2030; deaths related to COPD are expected to rise by about 20% between 2008 and 2030. DALYs, reduced life expectancy and mortality resulting from chronic conditions are assumed to depress economic growth (Suhrcke et al. 2006). The healthcare costs of chronic conditions have reached 6.8% of the GDP in some European countries. Additionally, chronic conditions affect the working population by reducing their productivity and competitiveness. Chronic diseases also have a negative impact on the quality of life and social and economic indicators in families and communities. They have a negative impact on employment, causing fewer hours worked, early retirements, barriers to employment, as well as altered patterns of social participation (Hirschberg, M., 2012). Within the context of the overloaded healthcare and welfare systems, the ability of citizens with a chronic condition to take care of themselves for as long as possible has become increasingly important. Complex responses to (self)management and long-term care coordinated by several health professionals are required, including the access to medical care, medications, specialized medical devices, an increasing demand for social care and other services that contribute to the social determinants of health, such as housing, education and recreation.

Risk factors for the major chronic conditions are well known and established, and they explain the majority of morbidity and deaths across the world. They can be divided into non-modifiable and modifiable risk factors. Non-modifiable risk factors include age, sex and genetics. Ageing is a strong risk factor for many chronic conditions. However, 68% of DALYs lost to chronic conditions occurred among the (younger) working population in 2002. In the same year, chronic conditions were estimated to account for 72% of all deaths below the age of 60. In 2012, of the total amount of deaths due to major chronic conditions more than 40% were estimated to be premature, affecting people below the age of 70 (WHO, 2005). Hence, chronic conditions are not only a problem for the elderly.

Fortunately, chronic conditions can be prevented or controlled by reducing modifiable risk factors. Modifiable risk factors can be effectively addressed

at both the individual patient and population level. At the individual patient level, modifiable risk factors include an unhealthy diet (in particular low fruit and vegetable intake and an excessive energy intake), physical inactivity, excessive alcohol consumption, uncontrolled high blood pressure, high blood glucose, hyperlipidaemia and tobacco use. At the population level, modifiable risk factors include globalisation, urbanisation and population ageing; these factors are occurring worldwide, resulting in negative health–related effects. Globalisation and urbanization, besides the opportunities for economic growth and for the spread of ideas and knowledge, may have a negative effect because people are more exposed to products, technologies and marketing of unhealthy goods and they are encouraged to adopt 'Western lifestyles', leading to 'diseases of civilization' (Pedro Carrera-Bastos et al, 2011).

1.2 Overview of ongoing actions in the EU to promote healthy lifestyles and to prevent and manage chronic conditions

European health systems are in need of reform, to keep up with demographic and social change, and to enable European countries to make healthcare services more sustainable and encourage innovation in health, improve public health and provide protection from cross border health threats, such as epidemics and pandemics.

Let's consider the general framework and perspective for the next years at European and International level.

With a new Parliament and European Commission from 2019-2024 several milestones are under development in the field of healthy aging. The transition was already set with the annual Convention for Inclusive Growth 2019. It is an action-oriented platform bringing together civil society organisations and policymakers to discuss how to achieve inclusive growth. Its fourth edition took place in Brussels on the 20th of May 2019. Its objective has been to focus on the future of Social Europe post 2020, providing the structure of EU work on social and economic inclusion in the decade ahead. The SEFAC social engagement model was presented to the participants to boost the exchange of best practices in the area of social inclusion.

With the breaking out of the COVID-19 crisis a special meeting of the European Council was held from the 17th to the 21st of July 2020. After difficult negotiations in very difficult times for all Europeans, the final decision of the Council ended in success for all 27 member states and the people that live in them. EU leaders have agreed to a comprehensive package which combines the multiannual financial framework (MFF) and an extraordinary recovery effort under the Next Generation EU (NGEU) instrument. After months of negotiations, on the 10th November 2020 the European Parliament and Council reached an agreement on the Multiannual Financial Framework and Next Generation EU package. Despite the initial resistance from Hungary and Poland, the long-term budget was eventually adopted by the European Council on the 17th December 2020.

The COVID-19 crisis is first and foremost a human tragedy. Beyond continued efforts to tackle the health dimension of COVID-19, the EU is prioritising the social dimension of COVID-19 notably by implementing the European Pillar of Social Rights. The new President of the European Commission, Ursula von der Leyen, is committed to its delivery (including health care in the chapter about social protection and inclusion). The SEFAC project is taking specific care of this joint inclusive dimension in the social and health care field. Indeed, it is a social engagement framework for addressing the disease and it is meant to help empower people taking control over their own health and, by this action, the community as a whole is strengthened. The SEFAC project is looking to implement in particular chapter III on social protection and inclusion, Principle 16 "Health care - Everyone has the right to timely access to affordable, preventive and curative health care of good quality."

The new Multiannual Financial Framework, reinforced by NGEU, will be the main instrument for implementing the recovery package to tackle the socio-economic consequences of the COVID-19 pandemic. The size of the MFF will allow the EU to fulfil its long-term objectives and preserve the full capacity of the recovery plan.

1.2.1 Recovery fund

NGEU will support the European States to face the challenges posed by the COVID-19 pandemic. Under the agreement the Commission will be able to borrow up to €750 billion on the markets.

The amounts available under NGEU will be allocated to seven individual programmes:

- Recovery and Resilience Facility (RFF)
- ReactEU
- Horizon Europe
- InvestEU
- Rural Development
- Just Transition Fund
- RescEU

The pandemic with the COVID-19 virus in 2020 and 2021 has also been particularly painful for older people, who are hit hardest by the virus and are among the most secluded in their homes. Within this period of challenge, opportunities also emerge among the SEFAC partners and here is the testimony of ISRAA:

"In this period of pandemic, we have noted that more intimate relationships were developed with the online exchange between the citizens and the trainers. Indeed, with this type of communication the person feels freer to speak in an intimate way about his or her problems. Therefore, the relationship is strengthened when compared to the face to face meeting. We also noticed that, beside the mindfulness training, online group sessions have offered a meeting point and an informal area for new friendships and relations that provided warm bonds among the elderly".

Moreover, with COVID-19, patients affected by chronic diseases are among the most vulnerable. Awareness about the preventive measures and the importance of vaccination could be done among the groups that were set up within the SEFAC project.

The SEFAC consortium is welcoming the new EU4Health 2021-2027 as a vision for a healthier EU. The areas of intervention are similar to the previous programme (2014-2020), but the budget is 10 times bigger, and 12% of it has to be spent outside the EU. EU4Health is EU's response to COVID-19, which has had a major impact on medical and healthcare staff, patients and health systems in Europe. By investing €5.1 billion, therefore becoming the largest health programme ever in monetary terms, EU4Health will provide funding to EU countries, health organisations and non-governmental organisations (NGOs). The new EU4Health 2021-2027 programme will contribute to modernise the EU health systems and to make sure that every EU citizen has proper access to quality healthcare. As stated by Vice-President Margaritis Schinas (European Commission) after the Parliament's approval of EU4Health, "The crisis hit us all symmetrically, with no discrimination. But at the same time, we were faced with an asymmetry between citizens' expectations and the limited EU responsibilities on health issues. With today's agreement, we are making the first decisive step to bridge this gap. We are strengthening our policy responses in the areas where Europe has traditionally been weak or with limited competences, like health. The new EU4Health Programme approved today represents one of the most explicit and tangible replies to COVID-19: we now have in our hands a health instrument to address a health crisis." Funding will be open for applications in 2021.

In particular, the SEFAC consortium sees very favourably the prevention approach taken by the EU and recalls the importance to address the needs of vulnerable groups like patients affected by chronic diseases. The challenge will now be to deliver change and impact with the new funding opportunities.

Among the specific objectives pursued by EU4Health, some are particularly relevant to the goals of the SEFAC project. These are:

- Strengthening the effectiveness, accessibility, sustainability and resilience of health systems, including by supporting digital transformation, the uptake of digital tools and services, systemic reforms, implementation of new care models and universal health coverage, and address inequalities in health;
- Addressing long-term challenges for health care systems such as inequality in health status among population groups, countries and regions, and access to affordable, preventive and curative health care of good quality;
- Supporting actions aimed at strengthening health system's ability to foster disease prevention and health promotion, patient rights and cross-border healthcare, and promote the excellence of medical and healthcare professionals;
- Supporting the development, implementation and enforcement of Union health legislation and provide high-quality, comparable and reliable data to underpin policy making and monitoring, and promote the use of health impact assessments of relevant policies;
- Supporting integrated work among Member States, and in particular their health systems, including the implementation of high-impact prevention practices, and scaling up networking through the European Reference Networks and other transnational networks.

The SEFAC consortium intends to follow-up the successful interventions about disease prevention and management, by training mind and body with the support of ICT. In this sense, the long-term care approach stimulating disease prevention and health promotion in an aging population of the new EU4Health 2021-2027 is perfectly on line with SEFAC objectives and follow up.

1.2.2 More funding for health policies

Other EU programmes will provide additional investments in the health sector to complement EU4Health:

- European Social Fund Plus (ESF+) to support vulnerable groups in accessing healthcare;
- European Regional and Development Fund to improve regional health infrastructure;
- Horizon Europe for health research, in particular through the actions financed within the first cluster of the second pillar, focusing also on life-long good health and environmental and social health determinants;
- Union Civil Protection Mechanism/rescEU to create stockpiles for emergency medical supplies;
- Digital Europe and Connecting Europe Facility for creating the digital infrastructure needed for digital health tools;
- InvestEU for strategic investments aimed at providing critical healthcare and support the manufacturing capacities, as well as at supporting critical infrastructure, whether physical or virtual, including in the fields of health and secure digital communication;
- The European Commission, on January 27th, presented a Green Paper on Ageing with the aim to investigate the consequences of demographic changes on societies. It also covers areas as health and healthy lifestyles, lifelong learning, and care systems responding to the needs of an older population. Moreover, the paper refers to the importance of finding sustainable solutions for welfare systems and strengthening intergenerational solidarity.

Undoubtedly, synergies and complementarity are made among the new EU programmes and this will allow opportunity to build bridges in actions combining research, innovation and concrete action implementation.

1.2.3 The last Health program and its follow up

Within the last programming period, the EU's Third Health Programme (2014-2020 Support to Member States and stakeholders to address the chronic disease challenge) was set up to help EU countries respond effectively to economic and demographic challenges facing their health systems and enable citizens to stay healthy for longer.

In response to the call of the EU's Third Health Programme, several project initiatives have been evaluated and bridges have been made with the SEFAC, Social Engagement Framework for Addressing the Chronic disease challenge, project. The Urban Health Centers Europe (UHCE) project was one of those initiatives. The project aimed to improve the management of multi-morbidity of older citizens using integrated care pathways that focus on adherence to treatment and prevention of falls and frailty in community-dwelling older people. Country-adapted integrated care pathways were implemented in primary care and community settings in five European countries (the United Kingdom, Greece, Croatia, the Netherlands and Spain). The experience and the partnership developed have been helping to lay the basis of the SEFAC project.

Another initiative evaluated within the EU's Third Health Programme was the APPropriate CARE paths for frail elderly patients (APPCARE) project. This project aimed at creating a new model for the management of frail elderly people to demonstrate how an innovative and comprehensive management of complex and co-morbid clinical situations may maintain patient's functional status in its clinical trajectory. A country-adapted model for hospital, preventive and coordinated care for frail patients was set up and implemented in three European countries (the Netherlands, Italy and Spain). In the APPCARE Final conference, organised at the Committee of the Regions in Brussels (23rd May 2019) with, among others, the contribution of the Covenant on Demographic Change, of the Conference of International Non-Governmental Organisations of the Council of Europe, PROMIS (Programma Mattone Internazionale Salute) and the European Network of Social Authorities (ENSA), coordinated elderly health & social care approaches and models were brought together for follow up and transferability with a specific focus on SEFAC.

The Enhancing health systems sustainability by providing cost-eFFIciency data of evidenced based interventions for CHRONIC management in stratified population (EFFICHRONIC) project, intended to empower individuals to self-manage chronic conditions through the Chronic Disease Self-Management Programme (CDSMP) intervention; a series of 6 workshops in which citizens with a chronic condition and/or their caregiver learn to achieve greater self-management of the chronic condition. The intervention was implemented in five European countries (the United Kingdom, the Netherlands, Italy, France and Spain). Synergies have been made with SEFAC due to the similarity of the target groups.

The Social Engagement Framework for Addressing the Chronic-disease-challenge (SEFAC) project was also part of The EU's Third Health Programme. The SEFAC project intended to empower citizens, at risk with diabetes and/or cardiovascular diseases (Chapter 2), by improving their ability to self-manage their chronic condition for as long as possible. The project was set up to identify, disseminate and promote the uptake of evidence-based interventions for cost-effective health promotion, disease prevention and supportive environments by addressing modifiable risk factors at the individual level. Identified interventions included 1. the Age UK Cornwall Social engagement model for the detection of isolated people: volunteers and guided conversation as key factors (Chapter 3), 2. mindfulness training (Chapter 4) and 3. the SEFAC app: how to improve self-management with technological support (Chapter 5). The SEFAC project supported these interventions in European regions (Chapter 6), in alignment with national/EU efforts to reduce the burden of the most common chronic conditions and to increase the sustainability of health systems. The project additionally contributes to the following actions of European Innovation Partnership on Active and Healthy Ageing (EIP-AHA): 'Personal health management" and 'To establish multi-stakeholder's collaboration'. The SEFAC project is also fully aligned with the suggestions of the "Innovation for Active & Healthy Ageing" (European Summit on Innovation for Active and Healthy Ageing – Brussels March 2015) published in "Work stream 3: Health and Care Innovation" and will contribute to the common efforts to reach those targets. The SEFAC interventions will be evaluated (Chapter 7), disseminated and promoted to facilitate the implementation and scaling-up of good practices at the local, regional and European level and to

contribute to informed decision-making about approaches regarding the chronic disease challenge at the national and at the European level.

1.2.4 Horizon 2020

The EU has been supporting healthy ageing and lifestyles adoption also through the EU Research and Innovation programme, Horizon 2020, with nearly 80 billion of funding available over 7 years till 2020. The project VALUE-based methodology for integrated CARE supported by ICT (VALUECARE) funded under this program started on the 1st of December, 2019 and will last 4 years. It was inspired by the experiences of most of the SEFAC partners to face the challenge of independent living of the senior population. VALUECARE will deliver efficient outcome-based integrated (health and social) care to older people facing cognitive impairment, frailty and multiple chronic health conditions in order to improve their quality of life (and of their families) as well as the sustainability of the health and social care systems in Europe. In the final conference of the SEFAC project to be held in Treviso a bridge will developed between the two projects.

1.2.5 On the international scene

Let's highlight the very specific inputs given through the collaboration with the city of Shanghai that has been developed in the framework of the SEFAC project. The cities of Rotterdam and Shanghai are twinned and a selected expert member of the SEFAC advisory Board is Shanlian Hu. MD. MSc. Professor from the School of Public Health, Fudan University. He allowed exchanges and benefits from an Overview on Policy Intervention regarding Chronic Diseases in Shanghai. Moreover, in collaboration with the University of Applied Sciences of Rotterdam, cooperation links are also established with Shanghai through a series of webinars on the topic of healthy aging, among which the one on EGlobal Challenges in Healthy Ageing' - Innovations through collaboration.

Under the key challenge of "building a society for all ages", with the support of the United Nations, the Review of Madrid International Plan of Action on Ageing in 2022 is in the pipeline. The focus is on older persons and development; advancing health and well-being into old age; and ensuring and enabling supportive environments.

Furthermore, it is to be highlighted, still in this area, that the United Nations is working at the Open-Ended Working Group on Ageing for the purpose of strengthening the protection of the human rights of older persons.

Another essential action to be enhanced in the field at global level is the World Health Organisation Decade on Healthy Ageing. The Decade provides an opportunity to align actions and collaborate across sectors and stakeholders to foster healthy ageing. The Decade of Healthy Ageing (2020-2030) is an opportunity to bring together governments, civil society, international agencies, professionals, academia, the media, and the private sector for ten years of concerted, catalytic and collaborative action to improve the lives of older people, their families, and the communities in which they live. It is the second action plan of the WHO Global strategy on ageing and health, building on the United Nations Madrid International Plan of Action on Ageing and aligned with the United Nations Agenda 2030 on the Sustainable Development Goals (SDGs).

Still in the field of the SDGs and targeting SDG 11 (to make cities inclusive, safe, resilient and sustainable), through the partnership of the ELISAN network, the project "Inclusive cities for Sustainable Families" builds an open world alliance oriented to bring families as agent of development in the field of health.

Below are two examples of active EU networks fighting for social engagement in a society for all ages where links have been made:

- AGE Platform Europe is a rights-based Network, of some 120 senior persons' NGOs in Europe, representing some 40 million persons aged 50, advocating for +/- 200 million citizens aged 50+ in EU, and building together a society for all ages.
- The Covenant on Demographic Change: Promoting age-friendly environments in Europe. The way the physical and social environments are planned and designed can have a major impact on the health and quality of life of an ageing population providing: opportunities for social participation, opportunities for physical activity, and quality services (accessibility, affordability).

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Diabetes and cardiovascular diseases as a challenge to overcome thanks to the integrative model of health

CHAPTER 2

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2.1 The theoretical background

As health professionals, we are committed to playing our part in making people and communities healthier and happier, and in creating tools and resources designed to help develop and maintain healthy lifestyles. The integrative model of healthy lifestyle explained in the following pages, is based on the psychology of habit formation, Salutogenic and Person Centred Care approach, Mindfulness Based Interventions, Positive Psychology, Health Coaching and Change Theory.

"In every moment,
each of us is trying to meet our needs
in the best way we know how."

-Marshall Rosenberg-

2.1.1 Making healthy habits: the psychology of habit-formation

The major health risk behaviours - lack of exercise or physical activity, poor nutrition, tobacco use, and drinking too much alcohol-cause much of the illness, suffering, and early death related to chronic diseases and conditions. The powerful and difficult question that people face every day is "How can I change them? Is it possible to change an unhealthy behaviour without relapsing in the bad habit?"

The core principle of implementing healthy behaviour change is making the healthy choice the easy choice. Understanding what are the barriers that individuals face when trying to live a healthy lifestyle is important to design effective health promotion interventions.

It is important to advise patients on what to change and why (for example, reducing saturated fat intake to reduce the risk of heart attack). Psychologically, such advice is designed to engage conscious deliberative motivational processes, however, the effects are typically short-lived because motivation and attention wane. Brief advice on how to change, engaging automatic processes, may offer a valuable alternative with potential for long-term impact.

Literature increasingly demonstrates the relevance of habit-formation principles to health.

Habit is a recurrent, unconscious pattern of behaviour acquired through frequent repetition (Duhigg, 2013). Smoking, drinking coffee every morning, going to the gym are all habits, bad or good ones. Habits are our brain's way of saving energy. They give it a rest from having to make difficult decisions by putting some things on autopilot.

The habit concept may provide a mechanism for establishing new behaviours, and so healthy habit formation is a desired outcome for many interventions. Habits also represent a potential challenge for changing ingrained unhealthy behaviours, which may be resistant to motivational shifts.

Simple advice on how to turn healthy actions into habits — externally-triggered automatic responses to frequently encountered contexts — offers a useful option to change behaviours. Advice for creating habits is easy for clinicians to deliver and easy for patients to implement: repeat a chosen behaviour in the same context, until it becomes automatic and effortless.

Many health goals are served only by repeated action. For example, losing (or maintaining) weight can be achieved by consistently eating a healthy diet and/or taking frequent physical activity to ensure a negative (or neutral) energy balance.

Where used to promote achievement of such goals, 'behaviour change' refers to a long-term process characterised by initiation of a new health-promoting behaviour, and maintenance (i.e., repetition) of this behaviour over time (Gardner, 2012).

The habit concept yields potential applications for this process. Often, the effectiveness of behaviour change interventions is constrained because, when an active intervention period ends, so too does engagement with the target behaviour, and short-term behavioural gains are lost in the long-term. The formation of healthy habits may make healthy behaviours more resistant to unhealthy lapses, and so aid maintenance beyond the intervention period.

2.1.2 Salutogenic Approach

In the health promotion field, the term salutogenesis is associated with a variety of meanings that Aaron Antonovsky introduced in his 1979 book Health, Stress and Coping (Antonovsky, 1979).

Antonovsky coined the term salutogenesis by combining Latin salus = health and Greek genesis = origin focusing on what makes certain people resilient as they face the stressors of daily life.

Antonovsky summarises the essence of the salutogenic orientation in contrast to the pathogenic orientation.

- In contrast to the dichotomous classification of pathogenesis into healthy or not, salutogenesis conceptualises a healthy/dis-ease continuum
- In contrast to pathogenesis' risk factors, salutogenesis illuminates salutary factors that actively promote health
- In contrast to focusing on a "particular pathology, disability or characteristic" of a person, salutogenesis might work with a community of persons and "must relate to all aspects of the person"

The Salutogenic model for health is the study of health and determinants of health in the human context (Antonovsky, 1987).

The ability to comprehend the whole of a stressful situation and the capacity to use the resources available was called sense of coherence (SOC). SOC reflects a person's view of life and capacity to respond to stressful situations. It is a global orientation to view the life as structured, manageable, and meaningful or coherent. It is a personal way of thinking, being, and acting, with an inner trust, which leads people to identify, benefit, use, and re-use the resources at their disposal. Three elements - comprehensibility, manageability, and meaningfulness, forms the SOC.

"We are coming to understand health not as the absence of disease, but rather as the process by which individuals maintain their SOC (i.e. sense that life is comprehensible, manageable, and meaningful) and ability to function in the face of changes in themselves and their relationships with their environment" (Antonovsky, 1987).

However, salutogenesis is more than the measurement of the SOC. Today there are several concepts within the salutogenic framework, all of them having a salutogenic approach, having a starting point in viewing health as a resource for life and directing actions towards solutions. Today we are talking about a salutogenic umbrella.

The umbrella covers diverse positive health conceptions such as quality of life, flourishing and well-being. Seen in this light, salutogenesis might be defined simply as processes wherein people's and community's resources are engaged to further individual and collective health and well-being.

2.1.3 Person Centred Care approach

Person-centred care is a way of thinking and doing things that sees the people using health and social services as equal partners in planning, developing and monitoring care to make sure it meets their needs. This means putting people and their families at the centre of decisions and seeing them as experts, working alongside professionals to get the best outcome (McCormack et al., 2011).

A person-centred approach means that support/care staff do all that they can to carry out the wishes of the people they are supporting/caring for. The individual's needs and desires are the most important thing and the organisation that is supporting them and its staff should keep this in mind at all times.

This might be shown through sharing decisions with patients and helping people manage their health, but person-centred care is not just about activities. It is as much about the way professionals and patients think about care and their relationships as the actual services available.

Research has found that the following components or underlying principles of person-centred care may be most important for affecting outcomes, including (Rosenzveig et al., 2014):

- Getting to know the patient as a person and recognising their individuality
- Seeing the patient as an expert about their own health and care
- Sharing power and responsibility
- Taking a holistic approach to assessing people's needs and providing care
- Including families where appropriate
- Making sure that services are accessible, flexible and easy to navigate
- Looking at people's whole experience of care to promote coordination and continuity
- Making sure that the physical, cultural and psychosocial environment of health services supports person-centred care
- Making sure that staff are supportive, well trained in communication and striving to put people at the centre of their care

2.1.4 Positive Psychology

Positive psychology is "the scientific study of what makes life most worth living", or "the scientific study of positive human functioning and flourishing on multiple levels that include the biological, personal, relational, institutional, cultural, and global dimensions of life" (Seligman, 2012).

Positive psychology began as a new domain of psychology in 1998 when Martin Seligman chose it as the theme for his term as president of the American Psychological Association.

Positive psychology goes beyond the treatment of depression and anxiety. The exercises include the systematic practice of kindness, gratitude to others, counting your blessings, and exploiting your strengths rather than attacking your weaknesses. It also teaches resilience and optimism. These two characteristics are apparently better predictors of a person's educational achievement than their IQ (Alberts, 2013).

2.1.5 Happiness and well-being: what's the difference?

Being happy is great. However, happiness is only a small part of overall well-being, that is the topic of positive psychology.

Happiness often just refers to positive emotions, like joy, awe, contentment, love and excitement, Well-being is much broader than just happy emotions.

The positive psychology framework for well-being is called Positive emotion, Engagement, Relations, Meaning, Accomplishment (PERMA).

The PERMA model was designed by Martin Seligman with five core elements that Seligman believes can help people reach a life of fulfilment, happiness, and meaning (Seligman, 2018).

These elements are:
P - Positive Emotion: Being able to focus on positive emotions is more than just smiling, it is the ability to be optimistic and view the past, present, and future in a positive perspective. In everyone's life, there are highs and lows, focusing on the lows increase your chances of developing depression, instead, you should focus on the high and positive aspects of life. Distinguishing between pleasure and enjoyment is important in this element of the model. Pleasure is connected to satisfying bodily needs for survival; such as thirst, hunger, and sleep. Whereas enjoyment comes from intellectual stimulation and creativity. This type of positive emotion is needed, as when someone enjoys the tasks in their lives, they are more likely to persevere and battle challenges through creative and alternative solutions.

E – Engagement: Engagement in the activities in our lives is important for us to learn, grow and nurture our personal happiness. We all need something in our lives that entirely absorbs us into the present moment, creating a 'flow' of blissful immersion into the task or activity. This type of 'flow' of engagement is important to stretch our intelligence, skills, and emotional capabilities.

R – Relationships: Relationships and social connections are one of the most important aspect of life. Humans are social animals that thrive on connection, love, intimacy, and a strong emotional and physical interaction with other humans. Building positive relationships with your parents,

siblings, peers, and friends are important to spread love and joy. Having strong relationships gives you support in difficult times.

M – Meaning: Having a purpose and meaning to why each of us is on this earth is important to living a life of happiness and fulfilment. Rather than the pursuit of pleasure and material wealth, there is an actual meaning to our life. Such meaning gives people a reason for their life and that there is a greater purpose to life.

A – Accomplishments: Having goals and ambition in life can help us to achieve things that can give us a sense of accomplishment. You should set realistic goals and put all the effort to achieve them, in this way, you will reach a sense of satisfaction and pride at the end.

> "The content itself — happiness, flow, meaning, love, gratitude, accomplishment, growth, better relationships — constitutes human flourishing. Learning that you can have more of these things is life changing. Glimpsing the vision of a flourishing human future is life changing."
>
> -Martin Seligman-

2.1.6 Change behaviour theory

There are several models of behaviour change, but the one most widely applied and tested in health settings is the Transtheoretical Model (TTM) (Prochaska, 1994). First developed in the 1980s by alcoholism researchers James O. Prochaska and Carlo C. DiClemente, TTM presumes that at any given time, a person is in one of five stages of change:

- Precontemplation. Not yet acknowledging that there is a problem behaviour that needs to be changed.
- Contemplation. Acknowledging that there is a problem but not yet ready or sure of wanting to make a change.
- Preparation. Getting ready to change.
- Action. Changing behaviour.
- Maintenance. Maintaining the behaviour change.

The idea is that people move from one stage to the next. Each stage is a preparation for the following one, so hurrying through or skipping stages is likely to result in setbacks. Also, different strategies are needed at different stages. For example, a smoker who's at the precontemplation stage —that is, not even thinking about quitting smoking —probably isn't ready to make a list of alternatives to smoking!

Processes of Change are the covert and overt activities that we use to progress through the stages. Ten processes of change are considered the variables that people need to apply, or be engaged in, to move from stage to stage. The first five are classified as Experiential Processes and are used primarily for the early stage transitions. The last five are labelled Behavioural Processes and are used primarily for later stage transitions (Prochaska,2016). Let's look at three examples:

Example 1. Quit smoking

I. Processes of Change: Experiential

1.Consciousness Raising [Increasing awareness]

I recall information people had given me on how to stop smoking

2.Dramatic Relief [Emotional arousal]

I react emotionally to warnings about smoking cigarettes

3.Environmental Re-evaluation [Social reappraisal]

I consider the view that smoking can be harmful to the environment

4.Social Liberation [Environmental opportunities]

I find society changing in ways that make it easier for the non-smoker

5.Self Re-evaluation [Self reappraisal]

My dependency on cigarettes makes me feel disappointed in myself

II. Processes of Change: Behavioural

6.Stimulus Control [Re-engineering]

I remove things from my home that remind me of smoking

7.Helping Relationship [Supporting]

I have someone who listens when I need to talk about my smoking

8.Counter Conditioning [Substituting]

I find that doing other things with my hands is a good substitute for smoking

9.Reinforcement Management [Rewarding]

I reward myself when I don't smoke

10.Self Liberation [Committing]

I make commitments not to smoke

Mindfulness

Mindfulness, the practice of being aware of what's happening or what you're experiencing in the present moment, can help to step out of the autopilot mode (Didonna, 2012).

Practicing Mindfulness, people will find a help to:

- Stay in touch with the present moment and be less caught up in negative thoughts;
- Deepen their awareness and respond more skilfully to events in their life;
- Reduce and maintain at low levels; anxiety, depression and stress.

There is an increasing body of evidence that supports the idea that practicing gratitude, mindfulness meditation, and reframing negative thoughts into positive affirmations all work to physically change your brain and strengthen positive states of mind (Han, 1998).

Helping people understand the benefits of such practices on health and flourishing has important implications for the level of well-being.

Diverse factors play a role in this level, such as relationships, lifestyle behaviours, emotional outlook, positive environment, mind–body connection, and use of technology. They can help each person achieve the fullness of life, vitality, and flourishing that characterises a high level of well-being.

A dedicated chapter will explain in depth the Mindfulness approach and practices.

Health Coaching

The International Coach Federation defines coaching as partnering with clients in a thought-provoking and creative process that inspires them to maximize their personal and professional potential (Moore, 2015).

The focus of coaching is on strengths, what is right with them and on creating what is best. The goal of the coaching is to help people to move closer to a desired outcome, to a desired regulatory goal.

Having goals ensures the coaching process is solution-focused and developmental instead of remedial. Without specific goals people would be likely to focus on their deficits and problems, as this is default mode for the brain.

The Goal, Reality, Options (Obstacles), Will (Way forward) (GROW) coaching model is a tried and tested coaching model to structure coaching sessions. The model was originally developed in the 1980s by business coaches Graham Alexander, Alan Fine, and Sir John Whitmore.

GROW (Whitmore, 2009) stands for:
Goal: defining the goal of the coaching trajectory. That includes long term (the central theme of the trajectory) and short term (the goal for every session). Goals need to be SMART: Specific, Measurable, Acceptable, Realistic and Timely.

Example questions to identify the goal are:

- What's important to you when it comes to [theme]?
- What will reaching the goal give you?
- What do you want to achieve in [theme]?
- How will you know you've reached your goal?
- How will you know the problem has been solved?

Current Reality: The coach's role here is to stimulate self-evaluation with the client, and to identify the obstacles that have been holding the client back.

Example questions to discover the reality of the client:

- What's happening to you now?
- What, when, with whom and how often?
- What is the result of that?
- Why is this theme a problem?
- What are concrete examples of this problem?
- What's been going wrong so far?
- How do you manage to fail? Teach me how to do it.
- What went well?
- Is this always a problem or are there situations in which it isn't?
- What are the defining factors? What can make the difference?
- What have you done so far?

Options (or Obstacles): this step is to generate ideas that can contribute to the solution of the problem. Try to start a creative brainstorming process without censure or conditionality. Generate solutions, then structure it to evaluate every option. If needed, you can also offer some suggestions.

Example questions to generate options:

- What else could you do?
- What would you do if [obstacle] didn't stop you?
- Imagine you already reached your goal. How did you do it?
- What if this obstacle wasn't there anymore?
- What else do you need to reach your goal? Where can you get it?
- Which criteria will you use to evaluate this option?
- What are the pros and cons of this option?

Will (or Way Forward): The fourth and last step of the GROW coaching model is the choice of one option. This is converted into a concrete plan of action. Then the coachee's motivation to follow this plan is maximised.

Example questions to maximise the will:

- What exactly will you do to reach your goal, and when?
- Which of these options will you take?
- What concrete step can you take now?
- What steps come after?
- Are all obstacles taken into account?
- How will you overcome your obstacles?
- How motivated are you, on a scale from 1 to 10, to go for this option?
- What do you need to get to a 10? Where can you get it?
- How can your surroundings support you?
- Will this plan get you to your goal?
- Will it solve the underlying problem, too?

A good way of thinking about the GROW Model is to think about how you'd plan a journey. First, you decide where you are going (the goal), and establish where you currently are (your current reality). You then explore various routes (the options) to your destination. In the final step, establishing the will, you ensure that you're committed to making the journey, and are prepared for the obstacles that you could meet on the way.

2.2 Intervention model

According to Encyclopaedia of Public Health (Rich, 2008) "an intervention is an intended, planned, and targeted operation in a system or process which aims at removing or preventing undesirable phenomenon. In the context of health promotion and prevention, an intervention is a planned and systematically implemented activity taking place in current social structures, which aims at changing knowledge, attitude or behaviour of a person, an organization, or a population. For this goal, an intervention can also target determinants of health behaviour, e.g. the physical environment and political context."

Considering the above mentioned, the SEFAC consortium developed the intervention model for health promotion and prevention that consists of workshops, social engagement (volunteers) and ICT support. The main goal of the interventions was to reduce the burden of major chronic disease and to increase the sustainability of health systems.

In order to have effective interventions in the community throughout the SEFAC project two major target groups were detected: the primary target group are end users i.e. citizens in the four pilot sites with specific inclusion criteria (discussed below) that are either at high risk of developing T2DM and/or CHD or patients with T2DM and/or CHD. The secondary target group consists of other stakeholders (pharmacies, social clubs, social care and primary health care) who are closely involved in the SEFAC implementation. The secondary target group was gathered within SEFAC Alliance with the main purpose of SEFAC project support (inclusion of volunteers, inclusion of participants) and dissemination.

The intervention model consisted of two phases – preparatory phase and implementation.

2.2.1 Preparatory phase

Before the implementation of the innovative SEFAC model in pilot sites, all pilot site team members attended the educational workshops organised by ISRAA and Age UK Cornwall.

Educational workshops held by ISRAA were about contents, methods and timing to build up and running a training course; including a healthy lifestyle coaching protocol. The general goal was about providing guidelines on how to implement and deliver SEFAC Citizens Training Changing Lifestyle Program. Educational workshops were based on Training of Trainers Handbook, which is a tool designed to prepare trainers who already have skills in health prevention and promotion programme and in delivering training for citizens.

Age UK Cornwall held the SEFAC Volunteers Training with the main purpose to educate partners from pilot sites how to recruit and motivate volunteers in implementation of the innovative SEFAC model. For the development of the SEFAC model, citizens and local community stakeholders were

involved using the social engagement tools. Stakeholders and volunteers' cooperation contributed in reaching the highest possible number of people and to ensure implementation of an effective and efficient social engagement model for the prevention and self – management of major chronic diseases.

In each pilot site a SEFAC Alliance has been set up in order to reach the objectives of the SEFAC project (to empower people to take control of their own health) and the choice has been made to get the involvement of the local communities.

SEFAC Alliance is the group of representatives of the main local target groups with which each single pilot is operating: patients at risk, GPs, Pharmacies, volunteers, professionals, health/fitness centres, etc.

The General SEFAC Alliance will thus gather the Local Alliances representatives of Rijeka, Treviso, Rotterdam and Cornwall and will be one of the outputs of the project that will ensure its sustainability after it ends.
Since the SEFAC project involves ICT support, all partners from pilot sites attended training for the SEFAC ICT held by VIDAVO. In this training, the pilot site trainers were educated about the use of the SEFAC ICT tool, the functionalities provided according to the user's role and the monitored condition and also overcoming first level technical support in order for them to be able to handle first level technical issues that the end-users might face. After the first education session for the pilot sites trainers was held, VIDAVO enabled further support through webinars. The trainers of the pilot sites conveyed all their knowledge to stakeholders and volunteers, so that they could help and encourage participants in using the SEFAC app.

2.2.2 Recruitment of participants and implementation of the SEFAC model

The primary end users were divided in two groups:
A) The 'AT RISK' sub-group: In each pilot site 250 citizens were invited (so 4*250=1000 altogether) to join community events with information on the prevention of major chronic diseases. For the intensive follow up SEFAC intervention activities (net) 50 citizens were invited in each pilot site who have a high risk of developing Type II Diabetes (T2DM) and/or Coronary Heart Disease (CHD) in the next 10 years.

So, at each pilot site, (net) 50 participants (so 4*50=200 altogether) with an increased risk to develop a major chronic condition were included in the SEFAC activities, after having received information, and after having provided informed consent.

B) The 'CHRONIC disease' sub-group: It consisted of 40 citizens per pilot site (so 4*40=160 altogether) who have already been diagnosed with T2DM and/or CHD.

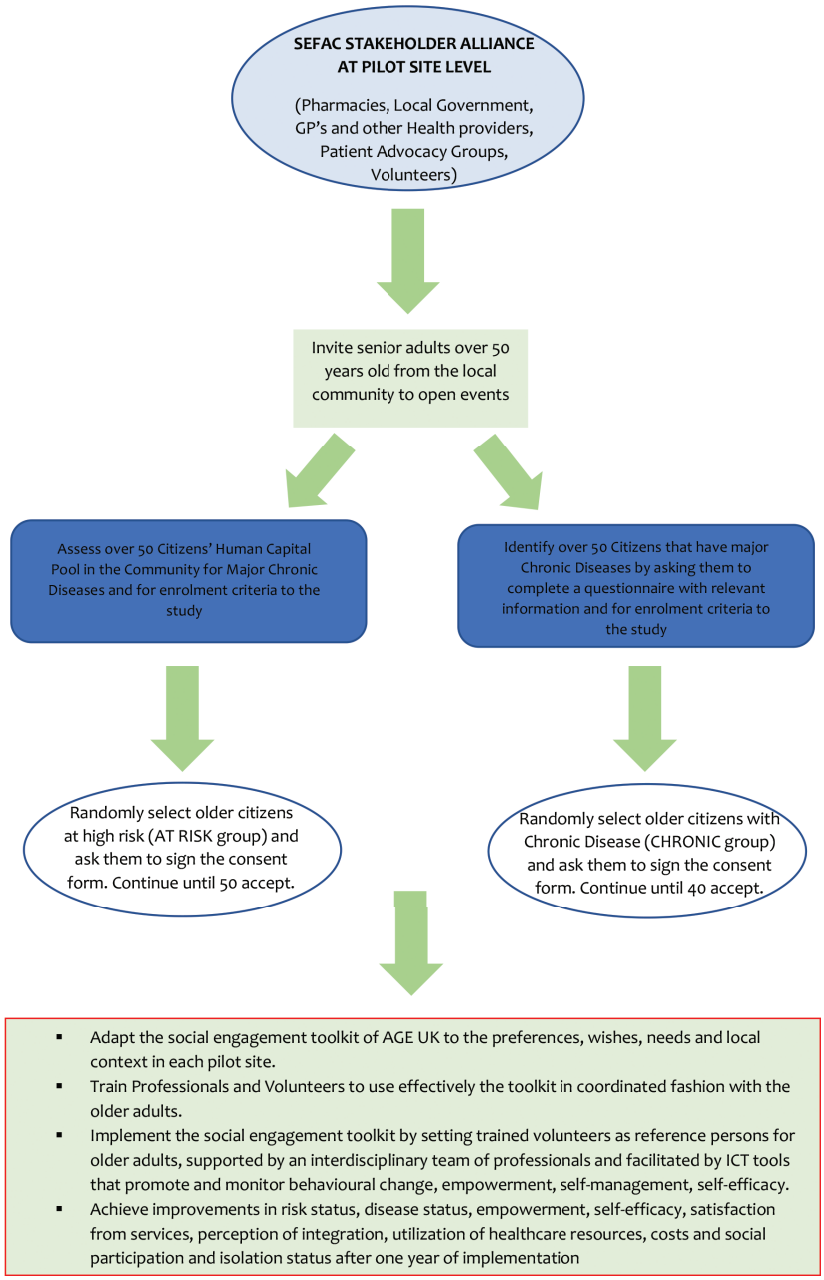
2.2.3 Inclusion criteria

The project is aimed at citizens in the community over the age of (circa) 50 years, living in the community (in their own house) and not in institutional settings, and some of them are expected to be employed, not diagnosed with mild or serious cognitive impairment, not terminally ill or scheduled to enter secondary or tertiary care settings for a long period of time. (Please note that SEFAC is intended to contribute for people to live and age, actively and healthily, while living in their own house and while keeping their employment)

The aim was to reach 250 citizens through public events (50 years and older) in each pilot site, from which 90 citizens at risk (n=50) or having (n=40) a major chronic disease (CVD and T2DM) in each pilot site will participate in SEFAC interventions.

Included Barticipants attended the 7-week programme. At the first workshop, participants filled out the informed consent and SEFAC questionnaires (T0). In order to monitor and track lifestyle changes of the participants, evaluation SEFAC questionnaires (T1) were conducted six months after the first workshop.

Figure 2. Recruitment of participants and inclusion in the SEFAC model



2.2.4 Implementation of the SEFAC model

Participants went through a 7-week programme based on the 'START FROM YOURSELF WORKBOOK - A lifestyle Changing Program'. Every participant received a copy of this workbook, so they could track the progress of the workshops as well as access to the SEFAC app. The 7-week programme is in more detailed described in chapter 6.

The interventions in group ´AT RISK´ are of a preventive nature and aim at decreasing the risk factors that are modifiable: obesity, unhealthy diet, physical inactivity, stress, harmful levels of alcohol consumption, and tobacco use. The aim is that in this group the risk for developing T2DM and or CHD in the next decade will decrease significantly, also after the intervention has stopped. In this group of participants, by using the social engagement model and with intensive support by volunteers (and peers), the intervention aims to increase social bonds in general social networks (e.g. by attending clubs and societies and hence being more socially active in the community) and decrease modifiable risk factors by adoption of healthier lifestyles in terms of healthier nutrition patterns, increase in physical activity, decrease in the consumption of alcohol and tobacco, decrease in anxiety and depression status, decrease in obesity, decrease in glucose levels and frequency of hypertension.

The participants from 'CHRONIC disease' sub-group are registered with GPs or other health services and the aim of the study in this group is to support these participants through the social engagement model with intensive support by volunteers (and peers) to a) self-manage and monitor their disease through a personal care plan; b) empower them and increase their self-efficacy; and c) adopt healthier life styles with regard to modifiable factors having a burden on disease progress (as many of the risk factor mentioned above) in order to achieve better health outcomes and to save system resources by a decreased and more effective utilisation of services.

Both groups had available SEFAC mobile application for additional support. The SEFAC mobile application is a multi – modular tool that has been developed for the Android operating system. The application aims to support change of lifestyle behaviours among people with and without chronic conditions, according to the stage of change the individual is in,

at a particular point in time. Participants were encouraged to engage in the practices, lessons, tips and reflections offered through the application. In each pilot site it has been proved to be useful to spend more time presenting the application during the workshops; how to install and use the application supporting the personal mindfulness experience.

2.3 How can we integrate social and health care services?

2.3.1 Need of integration, humans as a whole

Thinking about wellbeing and people's health as a unicum in which lifestyle, attitudes and behaviours take on a specific and unrepeatable behavioural architecture, it is necessary that health and social services act together for a single common purpose - personalised health outcomes. According to this care approach (Toby, L. et al., 2003) it is necessary to consider the combination of all the main factors involved in older care in a holistic and integrated way. The integration of services concerns different levels of connection that need to be put together and connected within a general design in which the person is at the centre. The dimensions on which this integration needs to operate are listed below.

2.3.2 The Integrated Care gains

There is a great amount of evidence on the positive outcomes of integrated care in functional and health variables.

A systematic review (Nolte & Pitchforth, 2014) showed a significant reduction in the readmission for several chronic conditions, as well as the hospitalisation. There was also a reduction in medical consultations and attendance to the emergency services, as well as a decreased length of stay in the hospital. In addition, there were other health outcomes found to be positively influenced by an integrated approach, such as the reduction of sleep problems, agitation and aggressive behaviour. Among other positive effects of integrated care, there was also highlighted an improvement in cognitive function and psychological well-being, healthier lifestyle habits adoption and significant decrease in social problems and pain intensity.

2.3.3 The economic impact of the integrated care approach

The economic impact of integrated care has been studied in-depth particularly for older adults during the last decade. They have been mostly focused on the reduction of health or social services' cost (hospitalisation and institutionalisation) compared with alternative care pathways where prevention and increased quality of life have been efficiently promoted by integration of health and social services, with ICT being an enabler for data sharing and coordination of care. A recent systematic review highlighted that integrated care had an effect on postponing institutionalisation, on patient health status, which improved and on the decrease of inpatient and specialist services' use. Perceived independence was also improved and the quality of care received was rated higher than usual care (Kirst et al., 2017). Linked to the economic impact, the review emphasized the reduction in hospital and nursing home admissions, as well as an increase self-management of the chronic disease. More concretely, an integrated care model, including remote patient ICT-supported monitoring, significantly reduced the number of hospitalisations for patients suffering for any cause, while the cost reduction derived from the decrease of hospitalisation, also supposed a quality-adjusted life years gain of 0.06 (Desmedt et al., 2016). The aboved mentioned review by Nolte & Pitchforth (2014) observed an average reduction per patient of $2,406 after an integrated care intervention (from $21,022 to $14,910) for all hospital services costs, with an average reduction in emergency care-related costs per patient of $1,938 (from $4,124 to $2,195). In addition, the integrated careapproach improves health behaviour-related outcomes, and mainly treatment compliance and medication adherence (attachment to the recommendations, including exercise, diet and self-caring, and adherence to the medications, respectively), as it has been demonstrated by the ALICE study (Mira et al., 2014) impacting in the costs associated to a certain condition, illness or disorder. To sum up, most studies reported important cost savings resulting from the implementation of various examples of integrated care, explained by avoided hospital costs or from reduced hospital and emergency room utilization.

2.3.4 How is it possible to promote integration between services?

The integration between social and health services to guarantee the most appropriate care for the person, has its foundation in the mentality of the individual, even before the recomposition of dynamics and relations between services.

In fact, there cannot be integration without cooperation. This implies that each party knows how to put the person's needs at the centre and perceive itself as functional to the creation of value in the process of care. The greatest challenge is making all the subjects related to a person, have cooperative behaviour. This is not simple and not even taken for granted because human beings tend to compete rather than to cooperate.

In order to promote cooperative attitudes, it is necessary that a subject, outside the parties involved, promotes the construction of an overall vision where the person is at the centre of the process. In the SEFAC project, the experience produced by the partners and the local team members of the pilot project, has highlighted how the creation of a stakeholders local network, strongly engaged in the path of social change, enhances the creation of participants' opportunities in self-care management. The two processes are the empowerment of people at risk of chronicity and the potential for articulating the response by care providers and associations to create systemic value in the transformation of services.

With this scenario, the clarity and the speed of information flows, and the synthesis promoted by stakeholders who are involved in responding to the person's needs, is essential in achieving a real and effective integration between all of the parties.

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Social engagement model for the detection of isolated people: volunteers and guided conversation as key factors

CHAPTER 3

Authors:

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3.1 Introduction

3.1.1 Background

The objective of the social engagement model for the detection of isolated people, using volunteers and the guided conversation, is to review methodologies, for identifying people at risk of co-morbidities, responding with community-based services. The selected methodologies that will be presented in this chapter are Care Navigation, Guided conversations and the engagement of volunteers, their role and how to support and recruit them. All partners of the SEFAC project have tested this model of working in their pilot sites and their individual experiences are reflected in other chapters in this book. The demographic of each partner country involved (the Netherlands, Italy, Croatia and the UK) and the varying levels of existing networks of voluntary organisations, provided the opportunity to find solutions to the delivery of this type of model.

Facing a chronic disease, this chapter focuses on the importance of targeting the social needs of the individual to achieve well-being and quality of life. This is the starting point of the Social Engagement model of SEFAC, together with the relationship between people, regions and communities as enshrined in the Pillars of Social Rights, where a closer cooperation between social partners, civil society and other stakeholders is essential.

Moreover, the Social Engagement model for the detection of isolated people is closely connected to Goal 3 of the SDGs: "Ensuring healthy lives and promoting well-being for all at all ages". The toolkit with the methods described represent a good practice providing society, organisations and countries with a practical concrete tool to improve healthy living. This example has the potential to feed the local/global portals of SDGs. Before the COVID-19 pandemic, and even more now, more effort was needed to fight against chronic diseases, which increasingly affect middle aged people due mainly to poor lifestyle choices. Projects like SEFAC are created to help reduce this burden by making people more resilient to chronic diseases.

3.1.2 Overview

There are a number of ingredients to this programme built on an "asset-based" model; that is to build on the strengths that people bring themselves, focusing on what people can do, not on what they cannot.

These key ingredients are:

- Supporting people to take control of their well-being
- Knowing your teams and communities
- Valuing and measuring what matters
- The importance of story and journeys
- Sharing information and risk
- Learning, reflecting and reshaping the programme based on evidence and engagement

These ingredients sit at the heart of the Care Navigation programme and are reflected throughout this model.

3.1.3 Structure

The aim of this chapter is to:

1. Provide organisations with sufficient technical knowledge to deliver the Care Navigation and recruit volunteers to deliver a Guided Conversation.
2. Provide access to the resource materials needed to deliver a Guided Conversation to a high standard.

This chapter is divided into 3 Modules:

- Module 1 – Understanding Care Navigation. An introduction to an engagement model to support isolated older people and volunteers. This is called Care Navigation.
- Module 2 – Delivering the Guided Conversation. The development of practical skills in engaging and motivating older people.
- Module 3 - Recruiting and supporting volunteers. The role and management of volunteers within the programme.

The Modules are built from experience of developing the Care Navigation programme and Guided Conversation developed between Age UK Cornwall, a charity supporting older people, and Veor General Practice, a practice of 6,000 patients in the Camborne area of Cornwall. This model of working is one of the most effective in dealing with the chronic disease challenge and has been adopted by Health and Social Care bodies across the UK and further afield. By using this model, the SEFAC project allows the possibility to offer people-centred community services that help people to build self-confidence, identify their goals and reach their dreams.

Effective implementation of this model of working requires a change of approach that is reflected in the language we use:

FRAMEWORK: Community, Volunteer, Peer Support, Life Stories

GOALS: Well-being, taking control, self-care, smart goals, social engagement, connection

SKILLS: Reflection, empathy, verbal and non-verbal communication

MODEL: Evidence approach, individual approach, solution focussed, flexible, asset based

3.2 Understanding Care Navigation

3.2.1 Principles for Social Engagement

Before embarking on engagement, there is a need for clarity about the intention and purpose for social engagement. Here are some questions for organisations to ask themselves.

What impact do you want to have? Are you clear what you are trying to achieve with the engagement and intervention? It is essential that organisations and those promoting the Guided Conversation do not raise expectations, are clear about the intent and the steps.

What matters to people? The Guided Conversation is built on what matters to the individual, not what matters to an organisation or trying to "fit" someone into a specific intervention or care pathway. This has to be led by the participant and be for the participant.

What matters to the organisation? Why is the organisation embarking on this programme? If there is a very narrow definition of what the programme might achieve or need, it is likely that the agenda of the organisation and the needs of the individual will not match. This will raise expectations and frustrations on the part of both the participant and the organisation managing the programme. Guided conversations are fluid, what matters in one person's life will not matter in another. As a consequence, the programme also needs to be ready to adapt and flex according to individual needs.

Who should have the conversation? This is a crucial component. Our experience is that a Guided Conversation can be done by anyone, but it is best done by individuals who have the skills and are able to take a person-centred approach, rather than a focus on a clinical or medical pathway.

How do you know it's working? How will the programme be measured and what does success look like for both the participant and the organisation involved? The goals for the individual might be very small, for example, to be able to meet more people, to be able to leave their home and shop for themselves. The goals of the organisation might be extremely large, to reduce expenditure in clinical intention, to decrease dependency on medical staff. It is likely that there will be different measurements seen through different lenses – this is fine providing they are all reflected in the evaluation. You could meet the needs of the individual for example but not reduce expenditure in their clinical pathway – that is fine too!

3.2.2 Identifying the starting point for Care Navigation

The intention of the programme and the needs of the organisation will determine the cohort of people within the engagement model. It will also determine the skills needed to undertake the care navigation.

Different cohorts of people can be demonstrated based on a pyramid health management model with four levels from top to bottom: Case Management, Disease Management, Supported Self-care and Prevention and Welness Promotion.

In our experience, Care Navigation and Guided Conversations can take place at all levels within the pyramid. However, for our programme, we focussed on the bottom two areas of the pyramid: supported self-care and prevention.

3.2.3 Understanding risk and escalation in the Care Navigation Process

In developing a Care Navigation process, the organisation needs to consider risk and escalation. The Guided Conversation can make visible the need to work as part of a wider team to achieve the goals of the individual, there is a need to consider safeguarding concerns and to understand who forms part of the team around the participant.

In the Veor General Practice, there is a team around the person consisting of the community, volunteers, pharmacist prescribers, community nursing teams, nurse prescriber and the GP. The individual, their community and the volunteer sector all form part of the team moving between team members depending on the level of need and risk presented by the individual participant. In this way, the team wraps around the participant with the most appropriate team member taking responsibility when needed.

The operating model for the Veor practice includes step up to clinical support where needed and step down, back into self-management and community-based support as the default position. Wherever possible, we are striving to move people down the stairs and back to the default position but where needed, clinical support steps in quickly and appropriately.

3.3 Delivering the Guided Conversation

3.3.1 It starts with a conversation…

The Guided Conversation is just that, a conversation between equals! It is guided by the participant not by the organisation or the Care Navigator. It is built on the basis of motivational interviewing and effective listening with the role of the Care Navigator to the story of the individual, supporting them to identify short term goals and working with them to agree next steps.

It is not just the conversation that the Care Navigator is focusing on, they are also looking for clues in expression, posture, the tone of the conversation as well as the words used. Good verbal, non-verbal and communication and listening skills is an essential component for Care Navigation.

3.3.2 Core principles of the guided conversation

The conversation needs to be person-centred, shaped around the participant and what they say – or don't say. It is working from the basis of an asset and strengths model, valuing the participants knowledge and understanding of their own circumstances and health. It should be solution focused, reflecting their issues and recognising the participants goals.
The aim is to connect people together around the participant, starting with their family, their social networks and their community and always checking that what is heard, is what the participant meant. Using techniques of re-affirmation to replay what is understood and jointly agree ways forward.

3.3.3 Approaching a Guided Conversation

A Guided Conversation is an inquiring conversation, listening to what is said and what is not. Testing out what has been heard. It is fine for the Care Navigator to reflect their own knowledge and beliefs but only to emphasise what has been said and understood, not as a way of "leading" the conversation.

At the end of the conversation, it is essential that there is a summary affirming the next steps, framing what has been heard and agreeing what is to be actioned. This can take the form of a 'support plan' which will seek to involve the individual with an appropriate voluntary and community service in their locality.

The framing of questions is a skill that all Care Navigators need to learn. Questions should be open and catalytic – so take the conversation somewhere, that surfaces what is unknown, unarticulated or not yet known. Some tips for the Guided Conversation:

- Try to avoid closed questions that only require a yes, or no response as they can close a conversation down quickly.
- Do not be afraid to clarify a question to establish the story or the facts.
- Always be aware and try to avoid leading questions or questions that hide your own idea of what the solution might be.
- Don't follow a checklist and don't try and write everything down – it will inhibit the conversational flow. Practice remembering key points and re-affirming them with the individual.
- Practice before you do it!

3.3.4 Motivational interviewing

Motivational interviewing has been well-reviewed and researched as a method for a conversation that is built on mutual trust and offers a framework for an authentic adult to adult conversation. Empathy is important, but sympathy and pity are not.

Reflecting that you understand what someone is saying does not require you to have "felt" what the individual is feeling, it is enough to recognise their feelings and show warmth and caring towards them.

If someone is resistant to change, it can be a barrier to moving forward but can't be ignored. If possible, the Guided Conversation should offer an opportunity to evoke and make visible the reasons for and against change, understanding what has been tried before, perhaps why it failed and what might be different now. Care Navigation and the Guided Conversation

are focussing on how a participant can be supported to believe they are able to make a change and then co-design what those changes might be and how.

3.3.5 Understanding and rolling with resistance

Some tips for dealing with resistance when it is encountered:

- Trying to avoid moralistic judgements and negative reactions, for example "I can see why that failed…"
- Trying to change a course by offering your own experience, for example "well, what happened to me was…"
- Avoid storytelling to emphasise or get the participant to agree with an action such as "that reminds me of a time when…"
- Minimising someone's experience might lead to them not being authentic with you for example, "well, it doesn't sound all that bad…"
- Empathy is fine, but commiserating or false sympathy can result in mistrust so try and avoid reactions such as, "oh poor you…"
- It is important to try and evoke facts and the context but to avoid the conversation looking like an interrogation, avoid questions like, "when did this happen…?"

Prochaska and DiClemente, can provide a useful context to understanding someone's resistance to change but also their starting point in the change process. Someone who is most resistant is not even in the pre-contemplation stage.

3.3.6 Goal setting

Prochaska and DiClemente's Stages of Change is also useful for the goal setting part of the Guided Conversation. For any of us, setting and achieving goals may be an iterative process. We have a go, we fail, we learn and then we try again. It will be the same for participants, many of whom might have tried to reach a goal before; losing weight for example. The more times you have tried, the less likely you are to try again. Therefore, re-framing a goal that has been set before, making it smaller, focussing on something practical that can be achieved is essential.

Goals have to motivate not disengage, and so it is important that the goals are important to the participant and that there is a value to achieving them. If the participant has little interest in the outcome, or they are irrelevant to their wider lifestyle, then the chances of them being achieved are limited. Goals need to be written down and agreed.

Goals must be SMART:
Specific – it must be well defined. Vague or general goals don't give sufficient direction. Goals need to show the way to an outcome so encourage a participant to make a goal as easy as possible to understand.

Measurable – precise amounts, dates, moments are important for motivation. To simply define a goal as "to lose weight", is too large. To agree a goal, which is "to lose 1lb a week for 4 weeks", feels smaller and more achievable.

Achievable – make sure it is entirely possible for the participant to achieve the goal they have set. Goals might be easy in the first instance to build confidence and motivation and gain in traction as they are achieved. The trick is to make each step towards an outcome a step in the right direction no matter how small. As confidence builds, goals can be more challenging and so bring greater satisfaction as they are "ticked-off".

Realistic – Goals have to be aligned to the outcome the participant is seeking. For example, someone who wants to walk their dog on a beach, but has mobility and balance challenges, might be encouraged to start with appropriate exercise a couple of times a week; perhaps a volunteer could join them to increase motivation and participation? If goals are too widely scattered or inconsistent, time will be wasted, and motivation lost.

Time-Bound – goals must have a deadline. If deadlines are missed, then it is important to review and learn, go back to the Stages of Change to check where the participant is at. Without a timescale it is difficult for the participant to measure their own success.
Some tips for Care Navigators:

- Think about setting a goal for yourself in your life or think about a goal you have set previously and not succeed. Question why,

is there learning from that experience that might help you support participants.

- Set goals in writing – it makes it more visible and alive.
- Frame goals positively – they should be motivating, and asset based rather than negative.
- Encourage the participant to share their goals with their social network, to engage others to support them.
- With permission, share the goals of the participant with the wider team, everyone is invested in helping the participant reach their goal.
- Encourage the participant to visibly put their goals in places they can see them and where they are most useful, we all get distracted and a reminder can be helpful.
- If the participant doesn't or can't meet their goal, reframe it, be encouraging and roll with the resistance!

3.4 Recruiting and Supporting Volunteers

3.4.1 Recruiting Volunteers

Volunteers are just people. They have different expectations, varied skills, capacity and ambitions about their volunteering role. Volunteering is a voluntary act of an individual or group freely giving time and labour for community service. Many volunteers are specifically trained in the areas they work, others provide support on an ad-hoc basis.

Volunteering can be:

- Formal – recruited for a specific task or role using a role description and a process that might include applications, references and criminal records check.
- Transient – the COVID-19 period demonstrates the role of transient volunteers. Often these are individuals or groups within communities coming together for a specific, often short-term purpose. They generally are not recruited but responsive, overseeing a project, a crisis or a task.

- Informal. The majority of volunteers are informal. These are the people in your community that just help others without really thinking about it. They collect a neighbours shopping, call in to check on someone, just offering low key, but essential contact and connection.

Within this programme, a formal approach was used with a role description providing information on the programme, induction training and support were included to ensure that everyone knew what they are signing up to. As the Guided Conversation is important to participants, it is as important in recruiting volunteers. It is essential to match the expectations and skills of the task, to those of the volunteer.

3.4.2 Managing Volunteers

Utilising the skills of volunteers to support the Care Navigation process is important because it offers a level of observation, ongoing support and peer engagement that a Care Navigator will be unable to maintain. But to give their time and energy, volunteers need to be supported.

Time needs to be spent on engagement, to understand the story of the volunteer and their role in the programme. In our approach, paid staff provided the Care Navigation role with volunteers recruited to underpin the ongoing support of the individual.

Volunteers formed part of the team around the participant focussing on;

- Making welfare calls in between visits or activities
- Building confidence by providing companionship to someone attending a group for the first time
- Offering volunteer driving support, providing affordable transport for the participant to join in an activity
- Developing and running peer support activities such as coffee mornings, knitting and art groups
- Providing support with form filling, benefit advice and simple administration tasks
- Providing one to one support for individuals who need additional help to participate or communicate

Some tips for supporting volunteers:

- It is important to give adequate support to volunteers. As with paid staff they need the chance to give and receive feedback, to be able to ask questions and be given sufficient guidance and training to undertake their role well. Support for volunteers can be given in a number of ways depending on the role and the need of the volunteer, these include:
- Informal catch-ups – formal meetings are not always appropriate and so just taking time out to chat with a volunteer as part of the activity might provide sufficient opportunity to chat informally and feedback.
- Group supervision – as the name suggests, there might be an opportunity to bring a group of volunteers together to share experiences and discuss any concerns as a group. This is an opportunity to discuss issues they have faced and learn from each other but can inhibit individual contributions so are often based as a blended approach with one to one support.
- Buddying/peer support – this can also complement one to one support and is often used for induction and training of new volunteers. Connecting people together who are doing similar roles is also a good way for volunteers to create their own support network.

"The best way to find yourself is to lose yourself
in the service of others"

-Mahatma Ghandi-

Following this model of Care Navigation, Guided Conversation and the recruitment of volunteers, participants will be able to follow a person-centred approach, focussed on the needs of the individual, and the organisation, rather than a clinical or medical pathway. Moreover, they will be ready to design and prepare for scaling up a successful Social Engagement Framework for chronic diseases prevention and management at a community level. Furthermore, they will have developed the skills needed to engage and motivate volunteers to support isolated older people to reach their goals, take control of their own health and well-being.

With the challenges that the recent COVID-19 pandemic has presented to us, there is opportunity to implement the model described in this chapter, which will demonstrate the value of volunteering and community engagement as part of the response to this and future pandemics.

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Mindfulness training

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CHAPTER 4

4.1 Summary

This chapter presents the use of Mindfulness in the SEFAC project. This is a practice of being aware of what's happening, or what is being experienced in the present moment, and can help people to step out of the autopilot mode. The goal is to briefly introduce this concept and then its use and purpose.

The following pages are not a deep and exhaustive explanation of Mindfulness' technique, because the beneficiaries are both professionals and the end-users of the project. In addition, Mindfulness is not a simple psychological technique and to understand it would require a much broader study.

4.2 The Mindfulness concept

In 1980 Jon Kabat-Zinn described the Mindfulness concept for the first time as: "the awareness that emerges by way of paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment" (Zinn, 1994).

Nowadays, Mindfulness has a broader definition. It is a present moment awareness, that means:

- Paying attention to our thoughts, emotions, and feelings in the body as they are happening and adopting an attitude of curiosity and compassion
- Focusing attention on the present moment in a non-judgmental and accepting way avoiding rumination and worries

There are a lot of benefits in practicing Mindfulness, such as:

- Being more present and engaged in everyday life
- Stepping out of autopilot
- Noticing the direct experiences
- Regulating emotions
- Learning to respond rather than react to or avoid difficulties
- Relating to ourselves and others with kindness, warmth and compassion

- Reducing worry episodes and decreasing worry-related anxiety and depressive symptoms

There are also some obstacles such as:

- Desire
- Anger
- Restlessness
- Sleeplessness
- Doubt

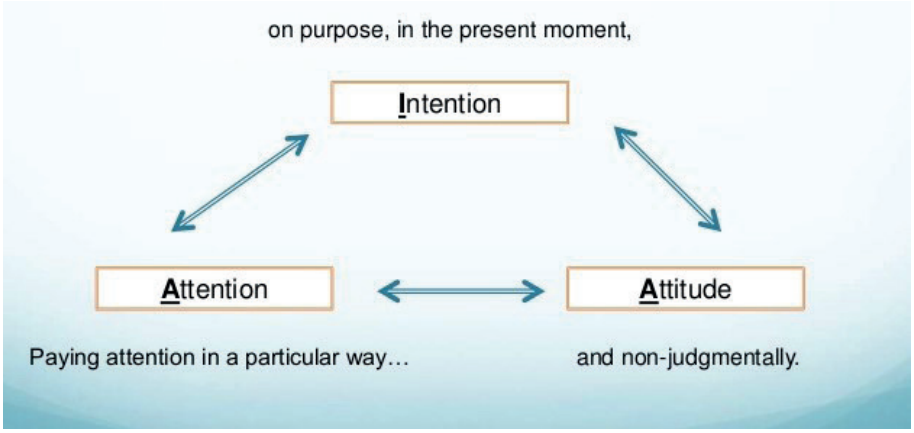
These problems are common, predictable, and prevalent, so recognising them is very important for loosening the grip.

When people practice Mindfulness, they must also consider the way that awareness works. For this reason, Shapiro in 2006 presented the Intention, Attention, and Attitude (IAA) model. In this theory, there are three axioms: intention, attention and attitude.

Mindfulness is the awareness that arises out of intentionally paying attention in an open, kind and discerning way (Shapiro et al., 2006):

- Intention: is a fundamental aspect. Mindfulness is an incredible tool for positive growth and people can consciously harness it to increase their experience of positive emotions, passion, strengths, meaning, hope, compassion, autonomy and other positive psychological variables.
- Attention: its regulation is the most important form of self-control. Often people do not live in the present moment because they are not focused on thoughts or emotions. The intention with Mindfulness is to train and stabilise the attention in the present moment.
- Attitude: there are some attitudes that play an important role, such as: beginner's mind, patience, nonjudgment, no striving, acceptance, letting go, letting be or allowing, self-reliance.

Figure 3. The IAA model



In conclusion, the principal goal of Mindfulness is to eliminate unnecessary suffering by cultivating a deep understanding of how the mind works and the nature of the material world. The participants work actively with their mental state in order to dwell peacefully in the midst of whatever happens (Didonna, 2012).

4.3 The use and benefits of Mindfulness in SEFAC

The workshops of the SEFAC project with the end users are organised into two different parts: the presentation of a topic and a Mindfulness exercise. The two macro session topics are well-being and health. These go deeper by talking about routine, physical activity, nutrition, interpersonal relationships and illness.

After a discussion and sharing on these topics, SEFAC oversees the use of Mindfulness: the exercises are useful for the participants because they can help them to change their habits and mental attitudes towards healthy lifestyles. Indeed, this technique is a way for the end users to become more aware in their everyday life. The objective and the benefit are to stop the autopilot and stay in the present moment with the emotions and the feelings. This is a very important step for people who want to prevent, or suffer from, a chronic disease. Working on healthy habits in all the fields of life (nutrition, physical activity, relationships and mood) is a good way to prevent chronic conditions. Letting go of the autopilot, being guided not by the habits but by

the awareness in our lives, letting go every form of rumination and anxiety, make the opportunity to change the lifestyle easier. Practicing mindfulness in nutrition, for example, means paying attention not only to the taste of what we are eating, but also to the colours, the origin of food, the consistency, and in this way, a coloured salad, crunchy, with different types of healthy food, becomes more attractive and easier to eat, while appreciating all these aspects. This is an example on how Mindfulness has been used during the workshops in order to change people's lifestyles.

The choice of Mindfulness practice is directly related to the topic of the workshop: for example, when talking about nutrition the practice is mindful eating, for physical activity it is mindful walking, for changing habits it is a body scan, and for illness it is the Recognise, Acknowledge, Investigate, Non-identify (R.A.I.N.) practice.

In the SEFAC project the Mindfulness practices are not used as psychotherapy techniques but as an instrument that wants to help people in their life: the goal is that participants use it when they feel the need, for example for stress or simply because they want to switch off their mind. The best conclusion would be that people fully integrate Mindfulness into their lives as a real lifestyle approach.

4.4 Examples of Mindfulness exercises

In Mindfulness practices the posture is very important because the mind and the body are connected, and for this reason the state of awareness arises spontaneously when physical posture and mental attitude support each other (Didonna & Bien, 2012). There are two main positions: sitting and kneeling and the most important thing is that the position allows the mind to enter deeply into the process of meditation.

Moreover, there are two types of practices: formal and informal. These are an inherent part of Mindfulness interventions and performed during group sessions under the supervision of a trainer. Whereas the informal exercises aim to enhance mindful awareness during everyday activities. They require a single focus of attention and the ability to gently turn back to the object of attention following distraction.

During the SEFAC workshops, the trainers present some formal exercises, such as:

- Three-minute breathing space: is a very brief meditation that can help integrate Mindfulness into everyday life. It enables people to disrupt automatic patterns of thinking and behaviour and increase acceptance-based coping. In SEFAC the aim was to start motivating people to self-management and awareness of their physical and psychological health.
- Body scan: involves bringing awareness to each part of the body. During the exercise, the participants pay attention to different physical sensations because it is important to recognise that the body is always here and now. When they are attuned to how the body feels, they can begin to identify how it changes with different emotions. This last point is important, because in SEFAC this exercise was used to help participants to decrease the barriers of beliefs and no healthy habits. The final aim was to motivate healthy lifestyles.
- Self-compassion break: is a Mindfulness practice that aims at cultivating an atmosphere of kindness within the mind. This is important when it starts becoming aware of the present moment, in particular if during the practice negative emotions or thoughts appear.

There are three different kindness flow directions:

- Flow of kindness from self to other
- Flow of kindness from other to self
- Flow of kindness from self to self

This practice, based on self-awareness, linked to the SEFAC project, wanted to help the participants break down the autopilot mode that often guided their actions.

- Mindful eating: is a Mindfulness meditation that can help to bring people out the autopilot. It means bringing attention to experience, on a moment-to-moment basis. The technique consists in eating

a raisin focusing on the different characteristics of the food like the colour, the taste, the smell and the solidity. This exercise was used during the SEFAC project workshops to help people to be more aware of their daily nutrition and motivate them to change it to a healthier one.

- Mindful movement/walking: are two practices, but at this time, we consider them as only one, because they have the same objectives. The Mindful movement practices can provide a good bridge between still, seated meditation and the activity of daily life. On one hand, these practices can help to bring awareness to the sensations in the body. On the other hand, the movements can help to stay focused on the present moment and to take responsibility for the body. This use of this practice in SEFAC had the same purpose as the mindful eating. The starting point was to work on healthier lifestyles, so awareness on movements or walking was aimed at motivating people to engage in constant physical activity and consequently also to change misconceptions about it, or unhealthy habits put in place.
- R.A.I.N. Practice: the term R.A.I.N is an acronym of:
  - R- Recognize what is happening: this starts in the moment when people are focusing attention on an emotion or a sensation.
  - Allow life to be just as it is: "letting be" the thoughts, emotions, feelings or sensations Allowing is intrinsic to healing, and realising this can give rise to a conscious intention to "let be."
  - Investigate inner experience with kindness: calling on natural interest and directing a more focused attention to the present experience.
  - N- Non indentation: means that sense of who we are is not fused with, or defined by, any limited set of emotions, sensations or stories.

This practice is very powerful and could provoke strong reactions due to the things that are stimulated. As a matter of fact, the participants have to focus on their emotions and feelings, bringing to mind a moment of difficulty. As far as the SEFAC project is concerned, this technique aimed at helping end-users to self-manage their health and once again to motivate them to adopt a healthier lifestyle.

4.5 Mindfulness and the SEFAC project: the connection

The goal of the SEFAC project was not to teach Mindfulness to the participants, the purpose was to work on chronic diseases prevention. Mindfulness represented a tool through which people acquired more awareness about their personal situation.

Following the guidelines of the EU, people who are more than 50 years old are more at risk of chronic diseases, but SEFAC was a prevention project, so not all participants had a chronic disease. Someone participated because they were interested in the topics of health and well-being, which as mentioned in a previous paragraph covered several aspects.

Being more aware, living in the present moment, knowing and recognising one's own emotions and sensations are certainly the most appreciated effects of Mindfulness. Often participants said they had never felt or experienced certain things: for example, in the Mindful eating exercise someone said they had never eaten such a good raisin.

Moreover, during the discussions with the participants, at the end of the workshops, it emerged that working with awareness motivated them to implement healthier behaviours and they themselves highlighted these small changes. The results of the project in terms of usability and replicability will be further discussed in chapter 7.

In conclusion, the connection between Mindfulness and SEFAC made the participants more aware of their own well-being, because this prompted people to enact healthier behaviours. It is commonly believed that healthier attitudes mean following a diet or exercising more. SEFAC with Mindfulness teaches that it is not simply that: the habits and beliefs influence daily living. So, having better organised goals and achieving them allows people to break down beliefs they create.

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SEFAC app - Improving self-management in chronic disease patients with technological support

CHAPTER 5

Authors:

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5.1 Summary

This chapter reflects the experience gained in the SEFAC mobile health app design, development and implementation phases for supporting behaviour change of chronic patients with either T2DM or CVDs as well as for healthy individuals at risk of developing those conditions in the 4 SEFAC pilot sites. It starts by introducing the reader to the 'Intention – Behaviour' Gap for lifestyle change, why health professionals should consider it when designing a lifestyle change and what they should be aware of in order to succeed in bridging it and supporting behaviour change in chronic patients. Acknowledging that this is not the norm in healthcare systems today, the need for mobile health, lifestyle change support apps is introduced. Following this section, the characteristics of Behavioural Change Support Systems, such as the SEFAC app, and their role as useful self–management chaperons for persons with chronic diseases are discussed in more detail. The particular phases in the SEFAC app design and the functionalities for aiding the patients move to a higher stage of change and maintain a lifestyle change - which is a major issue in behavioural change interventions - are further described. Last but not least, the results of the usability assessment of the app through use of the System Usability Scale (SUS) are briefly discussed and some of the results of the Google Analytics for measuring user interaction and engagement with the SEFAC app are presented. The app has been available via Google Play since October 2018.

5.2 Bridging Theory to Actual Practice in Lifestyle Behavioural Change Programs for Chronic Disease Management: the situation without m-health apps

Knowing what happens in the real world, and why, is very important when designing and developing mobile health apps. It is common that health practitioners experience, in the majority of cases, positive intentions by patients to change risky lifestyle behaviours (Ajzen, 1991) that can support prevention, treatment and even reversion of major chronic diseases, hence creating value for patients. However, in practice, people don't behave according to their intentions when it comes specifically to lifestyle changes such as physical activity, and this is referred to as the Intention - Behaviour Gap (Rhodes et al., 2013). Intentions only account for about 40% of the variation in the health behaviour (Ajzen, 1991) and this is meaningful, as

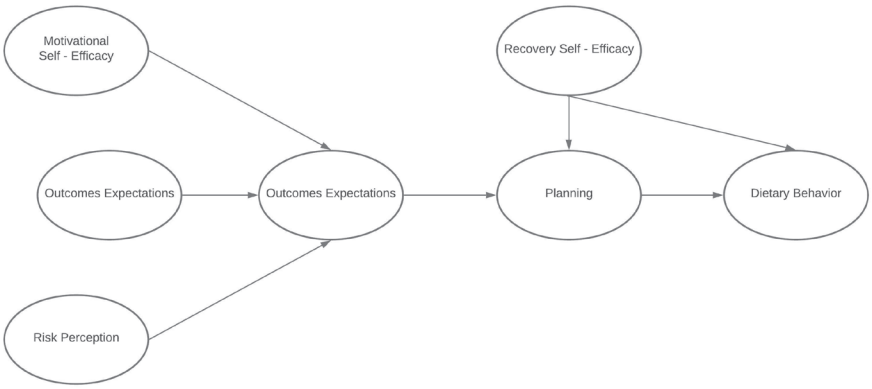
intenders may encounter unpredictable barriers and may be challenged by temptations along the way to behaviour change. Other factors post-intentionally are, therefore, important in closing the intention – behaviour gap and help translate intentions into actions.

According to the Health Action Process Attempt model (Schwarzer, 1992), these factors are recovery self–efficacy for a desired lifestyle change (e.g. jogging 4 times a week), a strategic plan and related goal setting to execute and maybe most importantly, maintain the difficult tasks successfully.

Especially recovery self-efficacy (addressing the experience of a failure and recovery when a setback occurs that might derail an individual from the desired lifestyle change task or action) is a very important factor in continuation of the process of the desired lifestyle change. People with high recovery self–efficacy levels, are able to respond better to setbacks during the process of achieving a task or an action related to a lifestyle change such as getting more regular exercise, because they perceive the setback as a minor incidence that will not totally disrupt this process of a new, healthy habit creation and because they are confident that they are capable of finding ways to control the damage done and to restore hope.

Even with high levels of recovery self–efficacy recorded during the transition period from intention to lifestyle behaviour change that corresponds to the phases of change described in the Transtheoretical Model before mentioned in this book, individuals increase chances of success in their endeavour if they have a plan describing when, where and how they can reach their goal (s) (Schwarzer, 2007). The when's, where's and how's can be perceived as situational 'cues' that when encountered, can stimulate the behaviour almost automatically and this notion has been reinforced by various meta-analyses, revealing moderate to high population effect sizes for the planning–behavioural relationship (Sheeran, 2002). A possible structural relationship model in the case of dietary behaviour is presented below, adopted from (Sheeran, 2002).

Figure 4. A possible structural relationship model in the case of dietary behaviour adopted from Sheeran, 2002



From the side of the health practitioners, although theory describes the factors that drive the lifestyle change process, in actual settings they encounter many problems in translating theory into practice and help patients to bridge the intention–behaviour gap and to proceed along the transformation path towards new and healthy habit formation.

A major issue for lifestyle professionals, therefore, is how to successfully "prescribe" effective lifestyle changes (Ferries, 2016). It would make sense that they incorporate behaviour change education as part of the integrated care protocol framework that they advocate for their patients and that patients implement changes in their lives and communities, in alignment with the Person Centred approach and the Salutogenesis approach discussed in the earlier chapters of this book. They should be taught how to approach and encourage healthier behaviours to prevent disease, or their progression, as well as consider what variables encourage people to change their lifestyle, and sustain that change for overall health and wellness, especially in primary health care settings. Receiving training in understanding the emotional and affective responses of the patient will help the practitioner to guide him through a more positive outlook. In addition, the professional must be in a position to understand the process the patient goes through in order to achieve the lifestyle change. This means that the health professional must help the patient set proper action goals that are in line with the Be goals (be healthy, be in a good physical

condition, be physically attractive etc.), as well as provide understanding and resources to go through potential barriers that could stop the SMART Action goals from being implemented.

In general, such training is not available to health care professionals in the majority of European public health systems and the role of innovative information technologies like lifestyle habit changing mobile apps is becoming more important, as they can be useful companions for patients when they start their chronic disease self–management journey.

5.3 Behaviour Change Support Systems for effective lifestyle behavioural change in chronic disease management

A conceptual basis for designing a specific ICT artifact, such as the SEFAC app, to bring about and maintain behaviour change in an individual, some elements of which were adopted during the SEFAC app design and development, will be presented in more detail in this section.

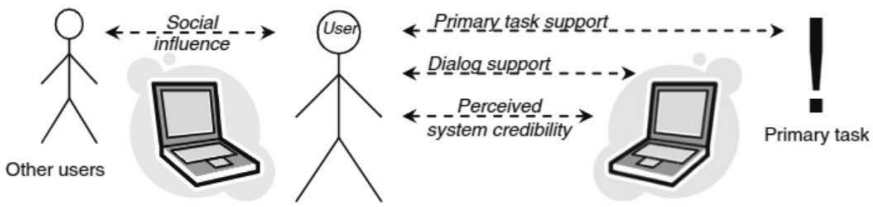
Research in the application of information technology (IT) to effectively implement behaviour change in individuals has increased over the last decade, and particularly in the area of health prevention and promotion and personal well-being. There is ample evidence regarding their effectiveness in increasing the knowledge of users, awareness and changing attitudes and behaviour in the aforementioned areas. This kind of technology, known as Behaviour Change Support Systems (BCSS), aims at measuring and demonstrating a behaviour change being caused by an IT artifact (Oinas-Kukkonen, 2013) such as a mobile application, an online platform, etc. that entails human and computer interaction. In its essence, such a technology is a medical intervention itself since it attempts to change the way people take up prevention and promotion services, by "creating a positive behaviour change measured by behavioural and psychological outcomes and enhancing knowledge, awareness and understanding via providing sound health related material and interactive web-based components" (Lehto & Oinas-Kukkonen, 2015), without deception or coercion.

Designing such a complex socio-technical innovation, requires a sound knowledge of the problem domain, robust understanding of behavioural

change theories, an interdisciplinary team of care professionals for the design process and strategies of persuasive systems design. More specifically, a BCSS, needs to conform to a design framework that can be used as a tool by designers and intervention developers and as an evaluation framework for understanding and explaining the users' needs and these needs are fulfilled through the BCSS. Such a framework, is the PSD model, conceived by Harri Oinas-Kukkonen (Oinas-Kukkonen, 2013). The theoretical backbones of the PSD model include many behavioural change models and more specifically, the theory of planned behaviour (Ajzen, 1991), the social learning theory and the social cognitive theory (Bandura, 1977), the stages of change model described in chapter 2 of this book (Prochaska & DiClemente, 1982) and the goal-setting theory which was also used in SEFAC app design and development (Locke, 1968).

According to the PSD model, there are 4 categories of persuasive features used to evaluate BCSS such as the SEFAC app; these are primary task support (supporting the user's primary task and goals), computer-human dialogue support (reinforcing the interaction between the user and the system), perceived credibility, and social support and influence (the system motivates users by leveraging social features). The schematic is presented in figure 5 below:

Figure 5. Categories of Persuasive Features of a BCSS, adopted from Oinas-Kukkonen, 2013



Under the Primary Task Support Category, fall various features as follows:

Reduction, means that the system reduces a complex behaviour into simpler tasks so that the patient does not undertake a large cognitive effort to complete the target behaviour. This is important because if a BCSS guides the user through a process, it may have more opportunities to achieve

persuade the user. An example is when the system supports the execution of an exercise plan based on self-set goals and individual wishes.

Self–monitoring, is the feature of the system that allows for the patient to review past experiences and achievements and hence supports achievement of their own goals. For example, a personal diary with weight loss milestones. Frequent use of this feature also allows for better achievement of self–set goals.

Personalisation means adding personalised content and services for users, e.g. the possibility to include a specific feature, matching the individual preferences, in a personal dashboard.

Rehearsal is about enabling people through the virtual world, to change their attitudes or behaviour in the real world, for example a video in the app that shows how to perform an exercise so people can undertake it in reality. Simulation as a feature of a BCSS, allows people to observe the simulated impact of their behaviours both in short and long-term. For example, a user dashboard where patients can view immediate and projected impacts of their health behaviour hence making the benefit of adopting health behaviours more visible.

Tailoring is about developing the content of the IT artifact, to meet the potential needs, interests, usage context or personality of the end user. An example is tailored reinforcement messages and personalised feedback to manage aerobic exercise in adults.

Tunnelling is a feature that enhances the behavioural change process since the end user is led through a predetermined sequence of steps towards goal achievement. An example here is a guided tour of the modules of a mindfulness app like SEFAC.

Regarding the Dialogue Support, this includes the main principles that keep the end user active and motivated to continue to use the IT artifact and to perform the behaviour "prescribed". These main elements of the Human Computer Interface (HCI) are praise, rewards, reminders, suggestion and social role. An example of a suggestion in a BCSS would be "please eat 2

vegetables raw with your main meal". A persuasive system should remind users of their target behaviour during the intervention.

Social role is when the HCI is adopting a social role e.g. a health professional or a doctor to become more persuasive. For example, a dialogue is initiated with the end user and the system presents a character called John, a virtual nutritionist that the end user can ask about expert advice on healthy diet. A persuasive system could praise end users via words, images, symbols, or sounds based on their behaviours (e.g., sending a message such as "Well done'', or ''Congratulations'', ''you achieved your goal!"). Furthermore, the system can reward the user for achieving, for example, self-set goals by awarding him a title e.g. "you are a golden ninja in managing your diet". Last but not least, under Dialogue Support falls Reminders, a persuasive system should remind users of their target behaviour during the intervention.

Credibility Support is about supporting the end users' perceptions of credibility via showing trustworthiness and expertise. Even surface credibility can influence interaction of the end user with the system and real-world feel, i.e. information on the system on who are the people behind the system, further increases the credibility of the system and enhances persuasion.

Last but not least, the social support category that refers a series of facets designed to motivate the end user by leveraging social influence. For example, the system may allow the individual to observe others performing the behaviour while using the system, known as social learning. A closely related principle is social comparison where end users may become more motivated to carry out a behaviour if they can compare their achievements with other end users in the system.

In any case the PSD model is not meant to be an exhaustive list of persuasive features so new elements may be added in the future but it is important in designing systems that influence behaviour change and at the same time have persuasive potential.

A tabular form of the features of a BCSS is presented in figure 6 below.

Figure 6. Persuasive features of a BCSS to change behaviours related to physical activity and exercise adopted from Bandura, 1977

Primary Task Support	
Reduction	System should reduce effort users expend when performing target behavior
Tunnelling	Systems should guide users in attitude change process by providing means for action that brings them closer to target behavior
Tailoring	System should provide tailored info for user groups
Personalization	System should offer personalized content and services for users
Self-Monitoring	System should offer personalized content and services or status
Simulation	System should provide means for observing the link between cause & effect with regard to behaviour
Rehearsal	System should provide means for rehearsing target behaviour
Dialogue Support	
Praise	System should use praise via words, images, symbols, sounds to provide users feedback based on behaviors
Rewards	System should provide virtual regards for users to give credit for performing target behaviors
Reminders	System should remind users of their target behaviour or steps towards it while using the system
Suggestion	System should suggest users carry out behaviors while using the system
Similarity	System should imitate its users in some specific way
Linking	System should have a look & feel that appeals to users
Social Role	System should adopt a social role
Credibility Support	
Trustworthiness	System should provide info that is trustful, fair and unbiased
Expertise	System should provide info showing knowledge, experience and competence
Surface Credibility	System should have competent feel and look
Real World Feel	System should provide info of the organization/actual people behind its contents & services
Authority	System should refer to people in the role of authority

3rd Party Endorsements	System should provide endorsements from respected sources
Verifiability	System should provide means to verify accuracy of site content via outside sources
	Social Support
Social Learning	System should provide means to observe others performing their target behaviors to see outcome of their behavior
Social Comparison	System should provide means for comparing performance with the performance of others
Normative Influence	System should provide means for gathering people who have the same goal and make them feel norms
Social Facilitation	System should provide means foe discerning others who are performing the behavior
Cooperation	System should provide means for cooperation
Competition	System should provide means for competing with others
Recognition	System should provide public recognition for users who perform their target behaviors

5.4 Design process of the SEFAC mobile app for lifestyle change

In this section we focus on the design phase of the mobile application and how it is adapted to the SEFAC project methodology and guidelines and models of behavioural change. We focused on the PSD model described above and the SEFAC intervention model described elsewhere in this book. The main theme behind the app design was that an effective behavioural change can be obtained by helping people to set personalised goals and providing personalised feedback taking into account the different stages of change theory. Increasing the emotional awareness and making lifestyle changes related to nutrition, exercise, physical activity using digital tools using mindfulness approaches was also at the core of the app design and development process.

The SEFAC app was developed to increase the emotional awareness of the individual, help patients with designing a plan, setting goals, changing and maintaining harmful lifestyle habits, helping with stepping out of comfort zones, becoming more mindful by acknowledging inner thoughts and

feelings, getting inspired to perform trainings of mind and body during the day, practicing mindfulness practices with videos and learning to pause mindfully using a mind bell.

The development of the app is based on two methodologies:

- The user centred design steps, which focus on putting users at the centre of product design and development.
- The agile methodology, which advocates adaptive planning, continuous improvement, and encourages rapid and flexible response to change.

Taking into account the age of the user and the specifications of SECAC model, the design and development of the app focused on these four elements:

1. Visibility: Users should be able to see from the beginning what they can do with the product, what is it about, how they can use it.
2. Accessibility: Users should be able to find information easily and quickly.
3. Legibility: Text should be easy to read. As simple as that.
4. Language: Short sentences are preferred here. The easier the phrase and the words, the better.

Based on the PSD model, the following persuasive features were used in design of the app:

- Self-monitoring. The app helps the end user to start a new goal and track progress toward accomplishment as well as mood.
- Praise: The app praises the end user e.g. via daily tips for healthier eating habits, as a way to provide positive feedback.
- Reminders. Reminding end users of their target behaviour or activation of the Mindbell for raising awareness during the use of the application.

- Rewards. The app allocated titles and thumbnails on a ninja accomplishment scale to end users if they achieve a goal. For example, high self-efficacy (you are a good ninja! thumbnail of a ninja with black belt). Based on the result the app shows a ninja also with white belt: low achiever, red belt: moderate achiever.

The app contains seven different design domains, based on the overall SEFAC intervention methodology.

1. Mood
2. My Learning
3. Practices
4. Inspire me
5. My Journal
6. Mindbell
7. My Healthy Lifestyle

Each domain was developed based on the methodologies described earlier in this book. Once the end user is assigned to the intervention group of the SEFAC pilot site, he/she will be guided by the care manager on how to download the app from the Google store. Upon downloading the app for the first time, end users are immediately asked if they want to participate in the Ecological Momentary Assessmen (EMA) questionnaire, for raising awareness. If yes, then the app alerts the users through push notifications three times a day and for five consecutive days to self-report the social behaviour (following that, three times per week for a twelve-week period). The EMA raises current awareness related to the place - where are you? the company - who is with you? and the emotion - are you happy etc?. After that the end user chooses freely the domain that they want to start working with, and start creating their daily action plan.

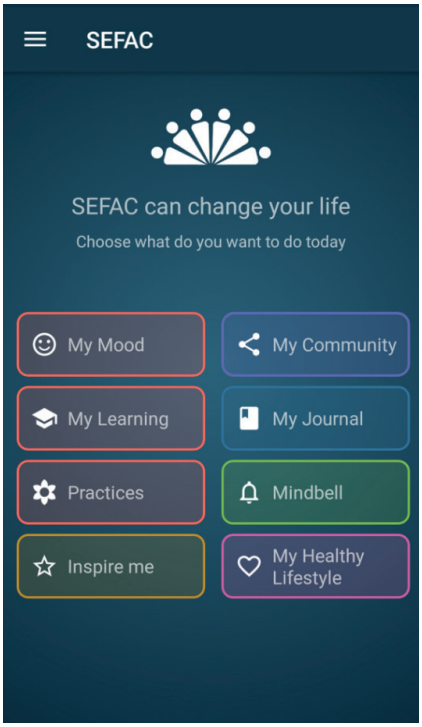


Figure 7. SEFAC app - First screen of the app

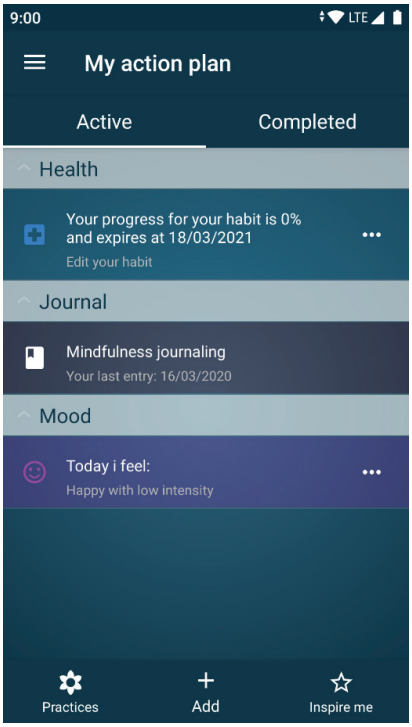


Figure 8. SEFAC app - My action plan screen

Below the domains are explained in more detail:

5.4.1 Mood

The 'My mood' domain is based on emotional intelligence and contains two components "track the mood" and "measure the intensity". The user chooses from a wide range of emotions, positive and negative, which appear as mood icon images. After that, they are asked to choose the intensity of the emotion and add an optional note. Then the end user is directed to the action plan, where they can move on to the other domains of the app.

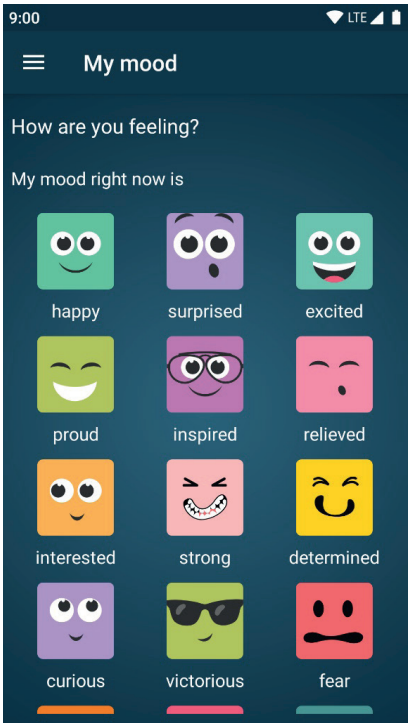


Figure 9. SEFAC app - Choose a feeling

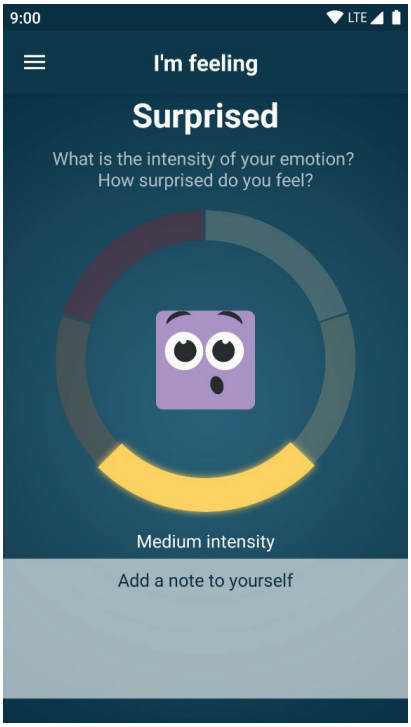


Figure 10. SEFAC app - Choose the intensity

5.4.2 My learning

The transtheoretical model acts as a central guideline to the 'My learning' domain of the app and more specifically, to tailor the lessons based on the user's stage of change. For measuring the readiness level to implement change, a change assessment scale is used with five-items and five response options; from Strongly agree to Strongly disagree related to readiness level. End users are categorised into one of the four stages of behaviour change and the app "unlocks" the appropriate lessons to them. Each stage of change contains eight lessons; the precontemplation stage focuses on habit; the Contemplation stage focuses on pro's and con's of change; the action change focuses on goals and coping skills; the maintenance change focuses on mindset and resilience.

Table 6. Readiness stages

Readiness Stages			
Pre-contemplation	Contemplation	Action	Maintenance
8 Lessons HABIT	8 Lessons PROs and CONs of CHANGE	8 Lessons GOALS and COPING SKILLS	8 Lessons MINDSET and RESILIENCE

The 'My learning' domain is a dynamic process and is characterised by different motivational levels.

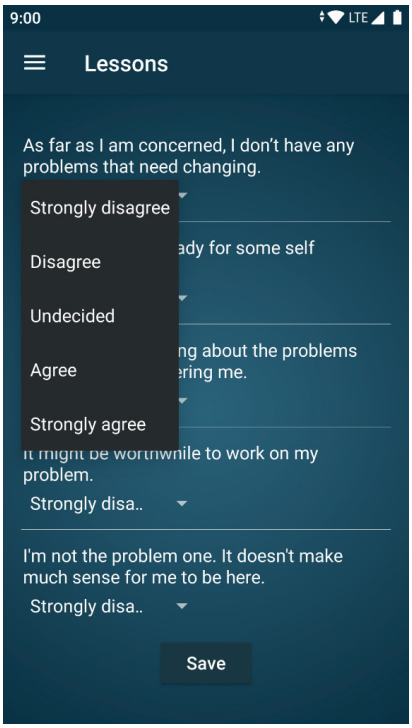


Figure 11. SEFAC app
- Change assessment scale

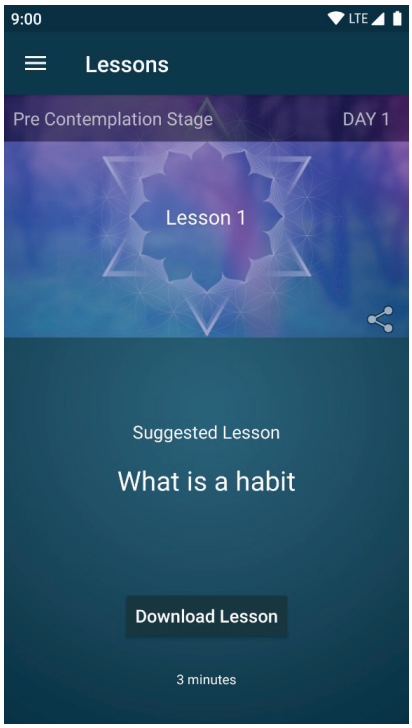


Figure 12. SEFAC app
- Precontemplation stage – Day 1

The idea is that endusers move from one stage to the next. Each stage is a preparation for the following one, so hurrying through or skipping stages is likely to result in setbacks. Also, different strategies are needed at different stages. For example, a smoker who's at the precontemplation stage —that is, not even thinking about quitting smoking —probably isn't ready to make a list of alternatives to smoking! Processes of Change are the covert and overt activities that we use to progress through the stages. Eight processes of change are defined on the app as the variables that people need to apply, or be engaged in, to move from stage to stage. The first four are classified as Experiential Processes and are used primarily for the early-stage transitions. The last four are labelled Behavioural Processes and are used primarily for later stage transitions. The app appears one lesson per week for eight weeks, after that the user is asked to re-test the readiness level before moving on to another stage. The list of lessons is shown in table 7.

Table 7. Lessons for stages of change

	PRE-CONTEMPLATION	CONTEMPLATION	ACTION	MAINTENANCE
Lesson 1	What is a habit	How to break a bad habit	Setting SMART goals	Self-compassion
Lesson 2	What is health	How to overcome barriers to change	The willpower instinct	Resilience
Lesson 3	What is a healthy mind	How to manage stress	Change mind about stress	Positive emotion
Lesson 4	What is well-being	How to improve self-efficacy	Develop Grit for long term goals	Engagement
Lesson 5	What is Mindfulness	How to take in the good	Develop a Grit Mindset	Relationships
Lesson 6	What is a Growth Mindset	How to develop a Growth Mindset	Develop Life Skills for a Healthy Life	Meaning
Lesson 7	Why attention matters	How to strengthen Emotional Intelligence	Develop practices for happiness	Accomplishment
Lesson 8	Why training the mind	How to train the mind for living well	Design your life	Gratitude

5.4.3 Practices

In this domain, based on positive psychology, the user can select between 8 guided audio meditation practices on mindfulness. The audio meditation is a practice of becoming aware of what's happening or what you're experiencing in the present moment. It's about being here and now without judgment and critical feelings. This is a capacity that all human beings possess. Whenever you bring awareness to what you're directly experiencing via your senses, or to your state of mind via your thoughts and emotions, you're being mindful.

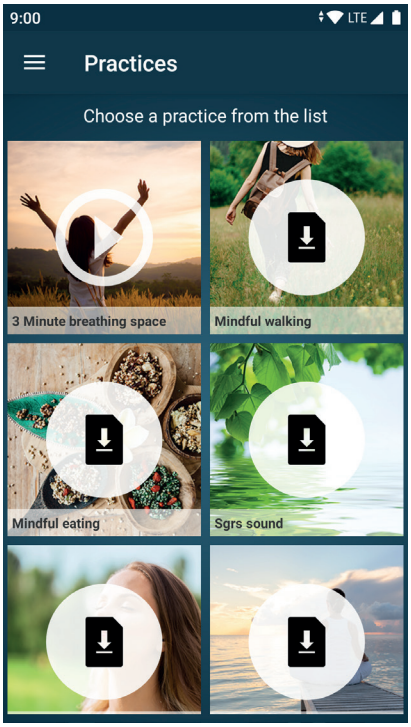


Figure 13. SEFAC app - Practices

- 3 minutes breathing
- Kindness for others and for self
- Self-compassion break
- SGRS breath
- SGRS sound
- Mindful eating
- Mindful walking
- Bodyscan

5.4.4 Inspire me

The purpose is to inspire and motivate the user. This displays a variety of tips and reflections for raising awareness. Contains ninety tips on:

- Relationships
- Healthy mindset
- Healthy life
- Habits
- Mindful eating
- Mindfulness
- Tips on training mind and body for health and wellbeing
- Physical activity
- Relationships

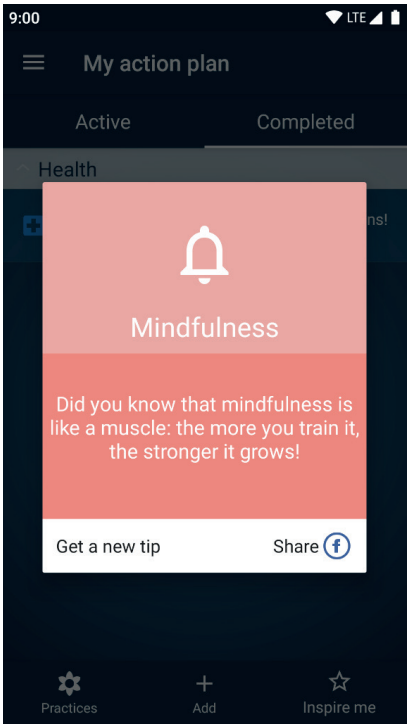


Figure 14. SEFAC app - Mindfulness tip

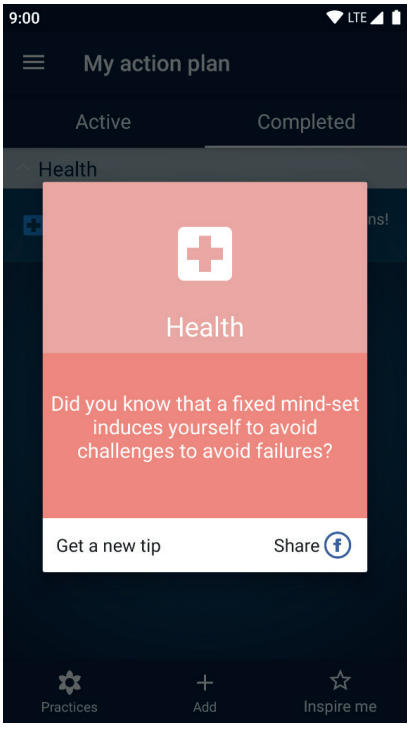


Figure 15. SEFAC app - Health tip

5.4.5 My journal

The user needs to complete three sentences everyday:

- The happiest or most pleasant moment today was...
- Today I noticed something new about...
- My mood, feeling and thought about these moments were...

After completion, a motivational message appears.

This section was designed based on the IAA model of mindfulness, described earlier in the book, and helps the user to focus attention in the present moment.

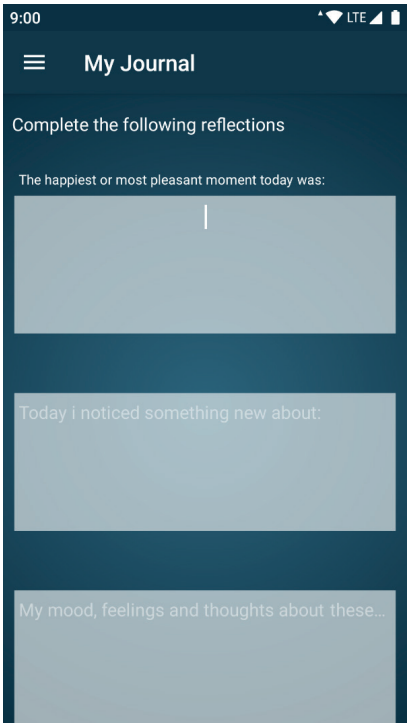


Figure 16. SEFAC app - My journal screen

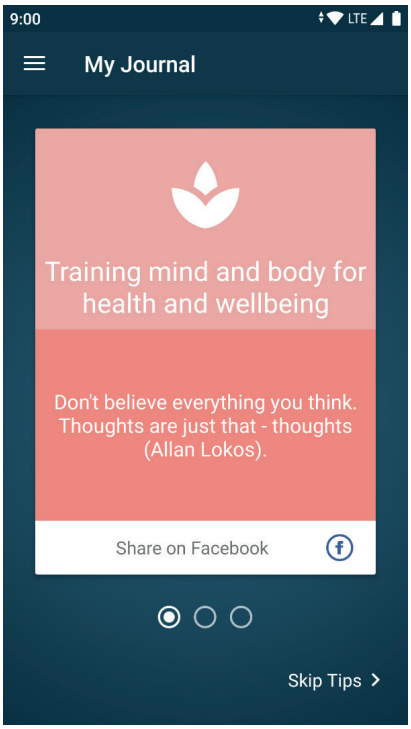


Figure 17. SEFAC app - Tips

5.4.6 Mindbell

The user can set a reminder for breath awareness and meditation.

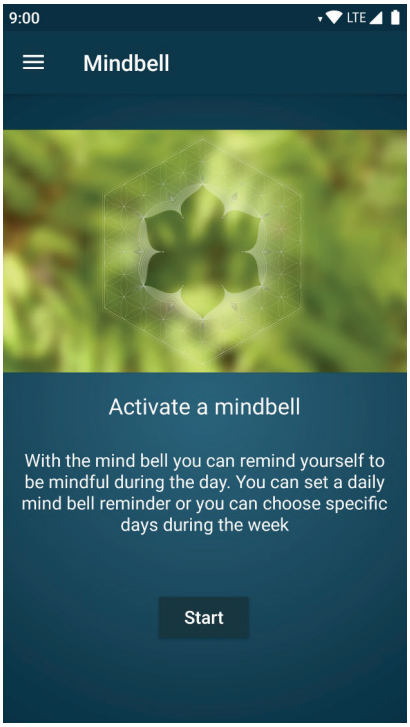


Figure 18. SEFAC app - Information screen of mindbell

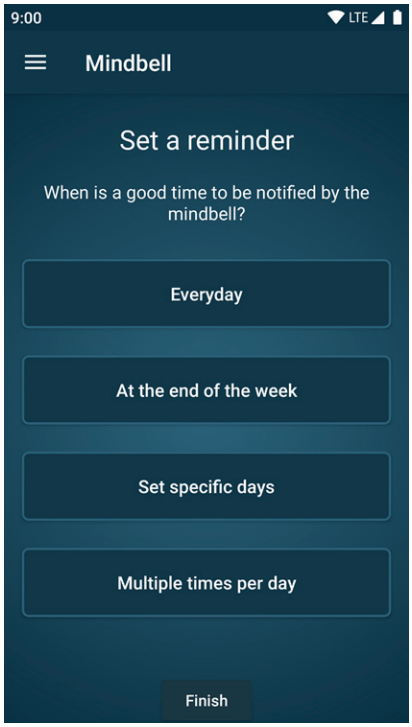


Figure 19. SEFAC app - Set a reminder

5.4.7 My healthy lifestyle

This section adapts the SMART approach and goal setting theory for helping the user to design a plan and change a bad habit. The app focuses on four domains:

- Nutrition
- Health
- Physical Activity
- Relationships

Each step contains a motivational message for prompting the user to move on to the next step.

For each option, four tools are provided:

- Measure your self-efficacy. It is conducted with a self-completed questionnaire and measures the self-efficacy. Based on the results the app rewards the end user with a ninja thumbnail and a title e.g. “you are a good ninja”.
- Step out of your comfort zone. A self-completed Likert scale is used to measure readiness, willingness, confidence of change.
- Set a smart goal. It is a weekly goal and the end user chooses a desired outcome.
- Change a habit: It is a self-completed questionnaire and the end user is guided to answer questions based on the three-step loop procedure.

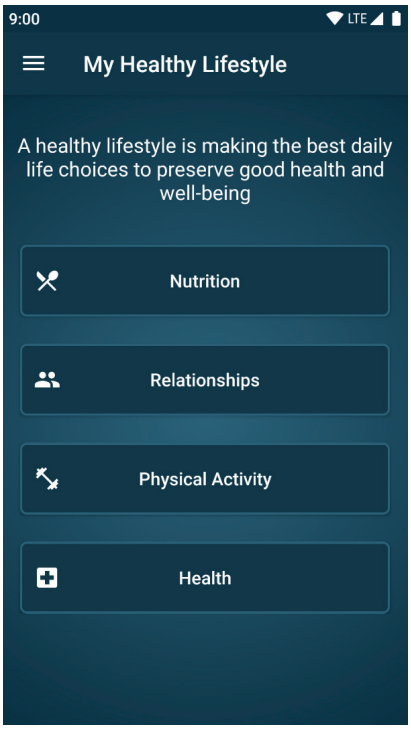


Figure 20. SEFAC app
- My healthy lifestyle first screen

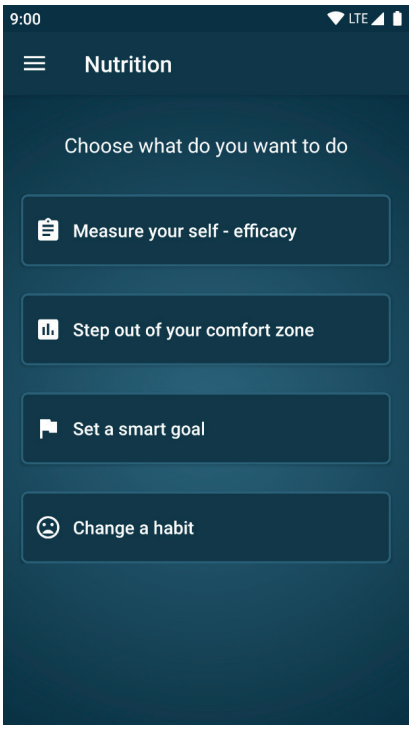


Figure 21. SEFAC app - Evaluation tools

5.4.7.1 Self-efficacy

Self-efficacy is a persons' belief in their own ability to organise and execute the course of action required to achieve given goals and resist the temptation to relapse to a previous stage of change.

The self-efficacy scale is adapted to each domain (nutrition, health, physical activity, relationship) and consists of five questions with four response options; Not at all hard; a little hard; Moderately hard; very hard; The total score is calculated by finding the sum of the all items. The evaluation results could be: high self-efficacy, moderate self-efficacy, low self-efficacy; Based on the score different colour ninja thumbnails appear.

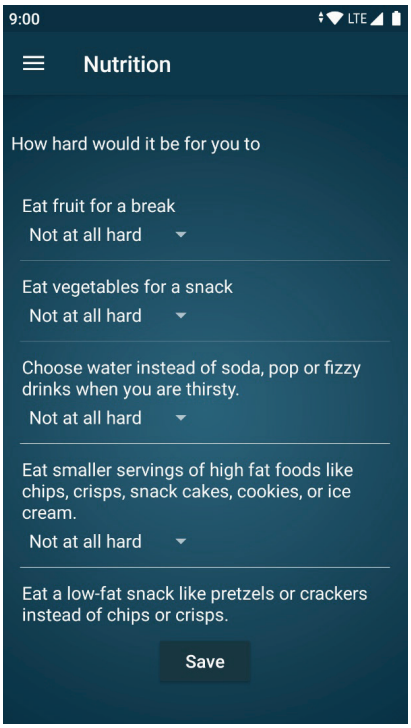


Figure 22. SEFAC app - Self-efficacy scale

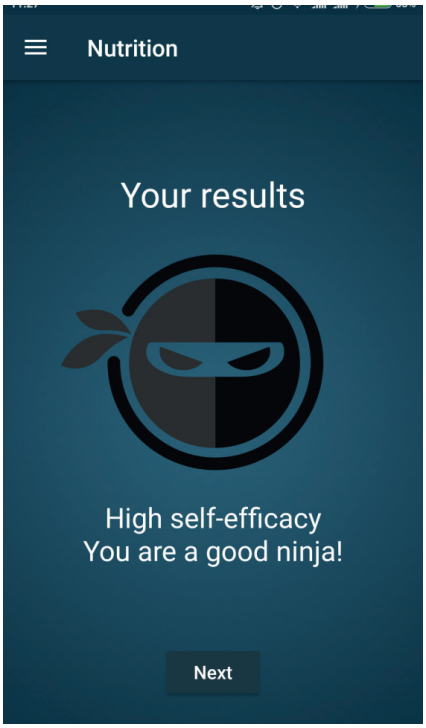


Figure 23. SEFAC app - Self-efficacy results

5.4.7.2 Step out of comfort zone

The step out of comfort zone domain, measures readiness, willingness, and confidence for change.

A ten-point Likert scale is used for each of three questions as follows:

1. Willingness: How important is it to make a change right now? On a scale of 1-10, how important is it to you to step out of your comfort zone at this time? Ranging from 1 (not important at all) to intermediate degrees 5 (about as important as everything) to most important thing of the life (10);
2. Confidence: How confident are you at being able to make change right now? On a scale of 1-10, how confident are you that you can step out of your comfort zone at this time? Ranging from 1 (I don't think I achieve my goal to intermediate degrees 5 (I have 50% chance of achieving my goal) to most confident 10 (I will definitely achieve my goal).
3. Readiness: After exploring importance and confidence it may be helpful to ask your readiness to change right now. On a scale of 1-10, how ready are you to step out of your comfort zone at this time? Ranging from 1 (I am not ready to change) to intermediate degrees 5 (I am almost ready to change) to 10 (I am very ready to change).

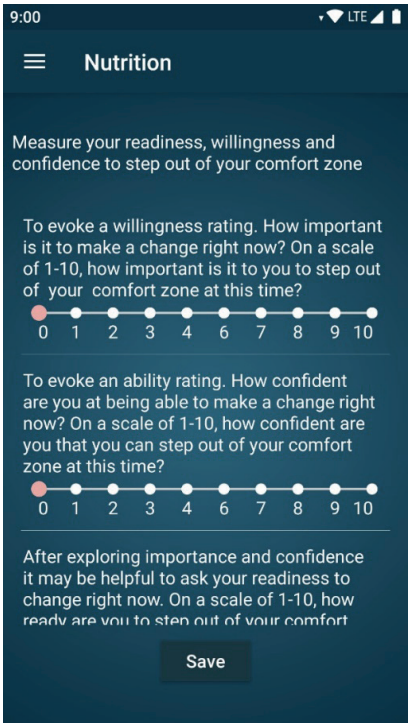


Figure 24. SEFAC app - Step out of comfort

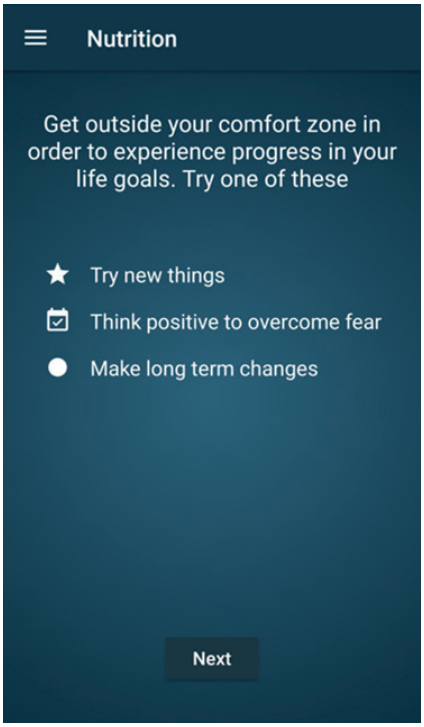


Figure 25. SEFAC app - Results zone evaluation tool

5.4.7.3 Set a smart goal

The process of setting a goal is based on a set of coaching questions to help people achieve their goals and move their thinking into a positive direction. The user can set a free-text goal for each area.

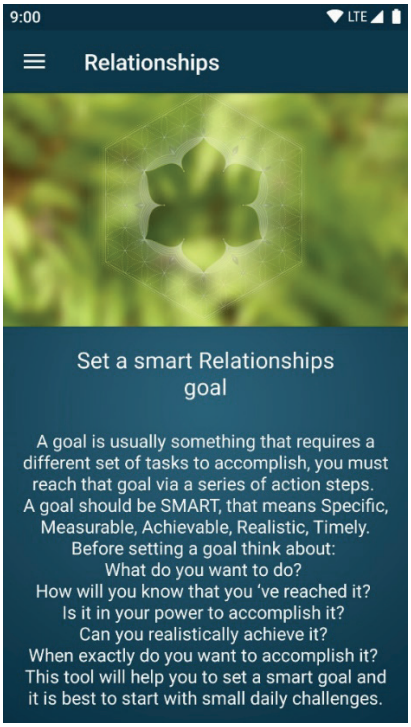


Figure 26. SEFAC app - Information screen

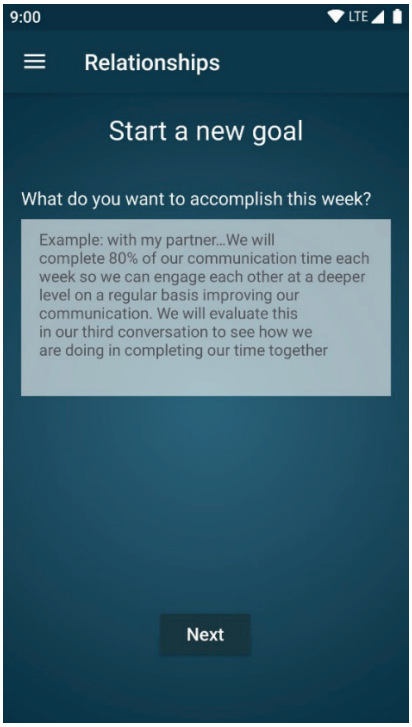


Figure 27. SEFAC app - Set a relationship goal

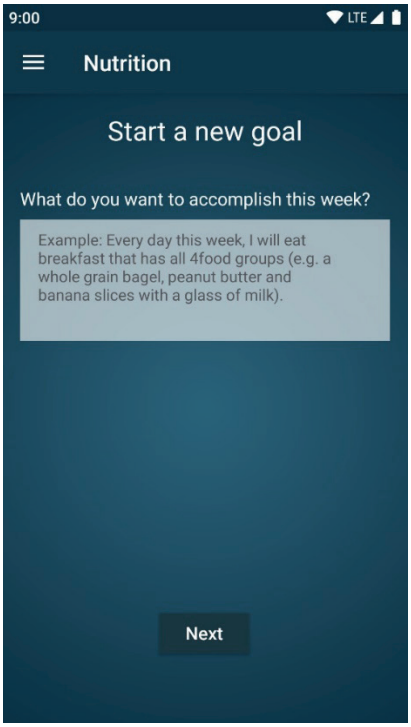


Figure 28. SEFAC app - set a nutritional goal

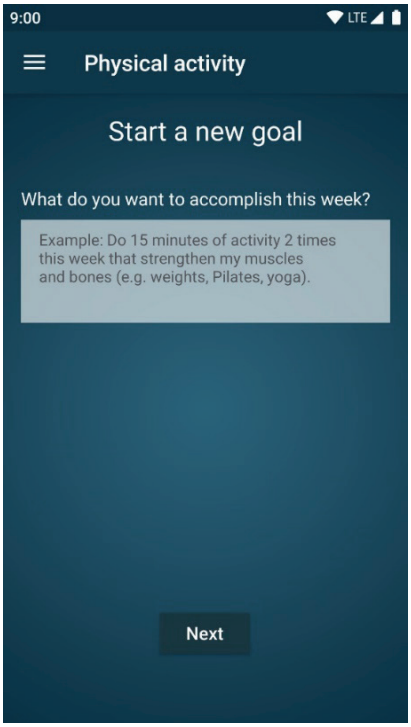


Figure 29. SEFAC app - Set a physical goal

5.4.7.4 Change a habit

The user is guided to answer questions based on a three-step loop as described in previous chapters:

- Identify the habit you want to change
- Identify the cue
- Identify the routine
- Identify the reward

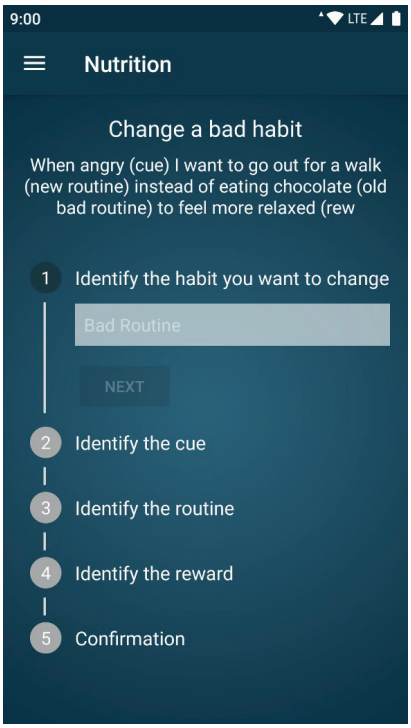


Figure 30. SEFAC app - Three-step loop scale

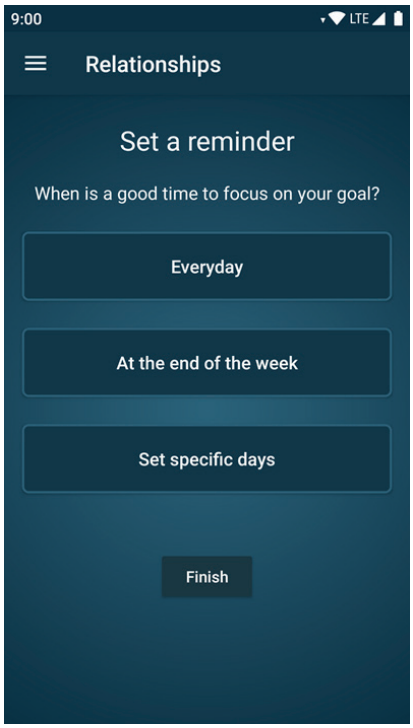


Figure 31. SEFAC app
- Set a reminder for the goal

At the first screen a set of activities is presented to the user to be performed during the day. The end user can also see the active and completed activities and goals. The end user can activate an activity by choosing one of the below sections:

1. Mood
2. My Learning
3. Practices
4. Inspire me
5. My Journal
6. Mindbell
7. My Healthy Lifestyle

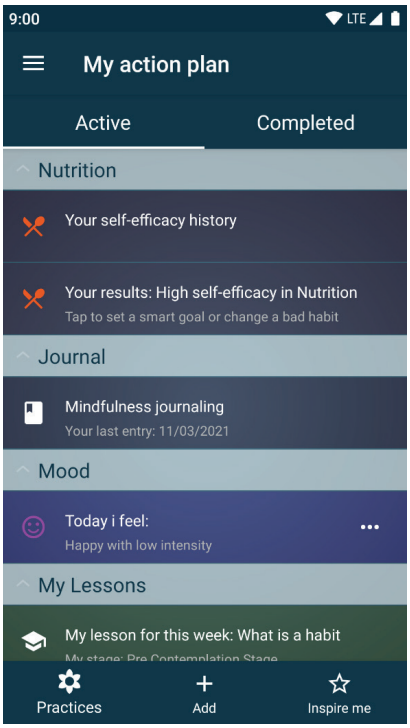


Figure 32. SEFAC app - Action plan list

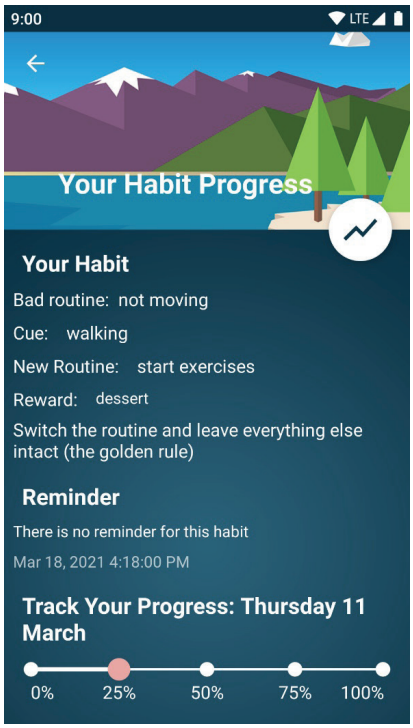


Figure 33. SEFAC app - Action plan progress

5.5 Evaluating the usability of the SEFAC app

According to the ISO 9241-11 standard "Usability is the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use".

In the SEFAC app we incorporated the SUS, a simple, easy to use and reliable psychometric instrument to measure the usability of a system, in the case of the SEFAC project, the SEFAC app, with which the end user interacts. The tool has a high internal validity (Cronbach = 0,85) and it is already validated in Italian, English and Dutch. For the Croatian SUS version, translation and back translation was used in order for the Croatian end users to use the SEFAC app.

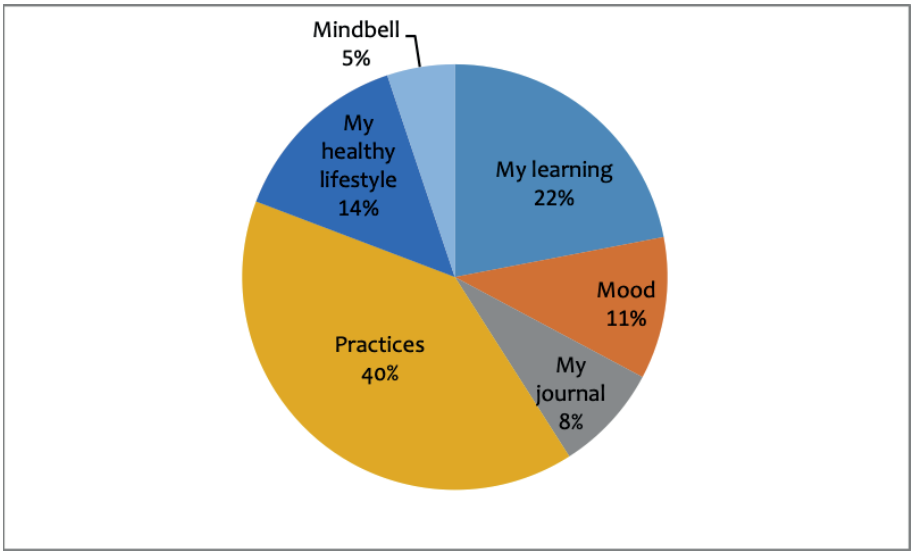
The end user answers 10 questions ranging from 0 (strongly disagree) to 5 (strongly agree).

1. I think that I would like to use this system frequently.
2. I found the system unnecessarily complex.
3. I thought the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

For use in the SEFAC app, we changed the word "system" to mobile app. Also, we changed in question 8, the word cumbersome with awkward. For more information about the scoring process please refer to (Bangor et al., 2009). SUS appears in the SEFAC app via push notification eight days after first login, intended to gather information on the usability of the app and the overall user reaction to its use (satisfaction).

The results showed that the app was able to meet usability characteristics like efficient usage and simple navigation. However, the results also highlighted the lack of confidence in the use of the app and the learning difficulties for the end users to use it very quickly. In addition, a remarkably high percentage found the app cumbersome to use. Google Analytics was used for measuring user interaction and engagement of the SEFAC app and the results (figure 8), showed that the patients used the app daily for twenty to thirty minutes and the most used domains in the app were the practices, my learning, my healthy lifestyle and my mood.

Figure 34. Most used items on the app



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A PILOT STORY - SEFAC IN ACTION IN 4 EU CITIES

CHAPTER 6

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6.1. Introduction and background

The SEFAC model was implemented as pilot actions in four European regions: Cornwall (United Kingdom), Rijeka (Croatia), Rotterdam (The Netherlands) and Treviso (Italy). The pilot actions in these varied regions represent the Central – Eastern (Croatia), Mediterranean (Italy), and Nordic (The Netherlands; United Kingdom) welfare models. This guarantees that a variety of situations and cultures, as well as the variety of social and health care systems, which are found in the EU, are properly represented. A generic template for implementation of the SEFAC model in European regions was developed and adapted to local preferences and context in the four European regions.

Figure 35. The four pilot sites in the SEFAC project

Cornwall, UK | Rijeka, Croatia | Rotterdam, the Netherlands | Treviso, Italy

Cornwall is a county in the most western part of the South West Peninsula of the island of Great Britain. Cornwall has a population of 568,210 and an area of 3,563 km^2. Cornwall's population was 537,400 in the 2011 census, with a population density of 144 people per km^2. Cornwall has a relatively high retired population, with 22.9% of pensionable age. This may be due partly to Cornwall's rural and coastal geography increasing its popularity as a retirement location and partly to outward migration of younger residents to more economically diverse areas. About 19% (16,800) of children live in low–income families. The rate of alcohol related harm, or self-harm, hospital stays is worse than the average for England. The rate of smoking related deaths higher than the average for England. This represents 1,036 deaths per year. Estimated levels of adult excess weight are worse than the England average. The rate of people killed and seriously injured on roads is worse than average. Rates of sexually transmitted infections and

tuberculosis are higher than average. Rates of statutory homelessness, violent crime, long term unemployment, early deaths from cardiovascular diseases and early deaths from cancer are higher than average.

Age UK Cornwall & Isles of Scilly is the largest charity, committed to the support of people over the age of 50, in Cornwall and the Isles of Scilly. Founded in 1972, it has become a leader in the field of older people's services and is involved in various projects designed to enable people to live independently for as long as is practically possible. The Newquay Pathfinder project, started in 2011, has become the flagship of its further work in Penwith and East Cornwall, under the banner of Living Well – an approach that has now received national and international recognition. Age UK Cornwall is a brand partner of Age UK, a national charity committed to being the voice of older people to the government, statutory health and social care providers and various influential institutions.

Rijeka is the centre of Primorje – Gorski Kotar County, located in Western Croatia, 131 km southwest of the capital, Zagreb, on the northern coast of Kvarner Bay. In the census of 2011, the city had a population of 128,624. There were 37,401 people older than 65 which accounts for 29.1%. The birth–rate for Rijeka in 2017 was 6.82 and mortality rate was 13.85. Average age for Rijeka is 44.5 years. All this data indicates an aging population and the need for innovative and sustainable health care and social welfare models. The leading causes of death in the population over 50 years are cardiovascular, followed by malignant diseases. Demand for health care of population 65+ is focused on CVDs (23.32%), respiratory system diseases (13.56%), loco–motor system diseases (12.69%), eye diseases (7.42%) and genital system diseases (6.86%).

The Community Health Center of Primorje – Gorski Kotar County, located in the city of Rijeka, is a health institution that provides health services in the entire county (a total of 3,582 km^2, 14 cities, 22 municipalities and 536 settlements). There are total of 30 GPs and 30 dentists situated in the Community Health Center of Primorje – Gorski Kotar County as well as 55 private GPs, 128 private dentists, 23 specialist ambulances, a clinical hospital, and many other special health centres for laboratory diagnostic, public health, home care, pharmacies, etc. Institutional social care is

organised on a county level. There are also four public retirement homes (nursing homes). Outpatient care is focused on home care, food preparation and home delivery, help in housework, hygiene etc.

Rotterdam is a municipality in the province of South-Holland. It is the second largest city in the Netherlands and is Europe's largest port. As of November 2019, Rotterdam has a population of 651,446 of which 49% are men and 51% are women. About 15% of population is 65 years of age or older. Rotterdam has a birth–rate of 13.1 and mortality rate of 9.1. In 2012, the leading causes of death of the total population (all ages) in Rotterdam were cancer (29%), cardiovascular diseases (28%) and respiratory organ diseases (10%).

EMC is the largest university medical centre in the Netherlands and includes health science departments. The Department of Public Health is one of them and conducts research into a variety of issues in the field of public health and healthcare. It contributes to the development and implementation of (preventive) intervention strategies and the evaluation of the effects of this strategy for the healthy growth of the population.

Treviso is a city located in the northeast region of Veneto in Italy, 30 km from Venice, the Regional county seat. According to data from Istituto Nazionale di Statistica (The national institute of statistics), Treviso´s population is about 84,999; 40,557 men and 44,442 women, with an average age of 46.6 years old. There are 21,887 people older than 65 which is 25.6% of the total population. Birth–rate is 7.2 and mortality rate is 12.2. The leading causes of death of population over 50 are cardiovascular diseases followed by malignant diseases. The most common diseases among seniors, which are 65 years and older, are: multi–chronic diseases (49.6%), severe chronic diseases (44.7%), loc–motor system diseases (23.1%) and severe sensory limitations (15.2%).

ISRAA is a public senior provider that meets a wide range of possible needs of seniors: 600 seniors with dementia in home care, 850 living in 4 nursing homes and two day-care centres completely dedicated to seniors suffering from different types and level of dementia. In addition, Borgo Mazzini Smart Cohousing provides 32 flats for autonomous seniors. At the moment, there are 700 employees: 70 nurses, 350 carers, 15 psychologists, 17 physical

rehabilitation trainers, 12 GPs and 21 care managers. Azienda ULSS 2 Marca Trevigiana (AULSS2) is a local health authority in Veneto Region that provides health and social service to all the inhabitants of Treviso province. Moreover, it gives people all-encompassing support with particular regard to health and social protection action. Finally, in recent years, AULSS2 developed homecare solutions to reach dependent patients, multiple disease affected patients, and people living in vulnerable conditions, to give wholesome and solid answers to their needs.

Figure 36. Location of the four EU pilot sites (Image adapted from Safety4SEA, 2017)

6.2 Pilot preparation: Local stakeholder alliance

In order to have the same approach in the implementation process of the innovative SEFAC model in each pilot site, all partners attended the educational workshops organised by two project partners (ISRAA and Age UK Cornwall).

Educational workshops led by ISRAA were about the content, methods, and timing to build up and run a training course, including a healthy lifestyle coaching protocol. The general goal was about providing guidelines on how to implement and deliver the SEFAC Citizens Training Changing Lifestyle Program (Buranello et al., 2018). Educational workshops were based on the Training of Trainers Handbook (Buranello et al, 2018), which is a tool designed to prepare trainers who already have skills in health prevention and promotion program, and in delivering training for citizens.

Age UK Cornwall led the SEFAC Volunteers Training (Roose, 2014) with the main purpose of educating partners from pilot sites on how to recruit and motivate volunteers in the implementation of the innovative SEFAC model. By participating in the educational workshops, partners gained basic knowledge in the field of mindfulness, healthy habits, and healthy lifestyles as well as care navigation and managing volunteers. The knowledge gained from the educational workshops was conveyed to stakeholders and volunteers through local staff training in each pilot site.

Since the SEFAC project involves ICT support, all partners from pilot sites attended training for the SEFAC ICT[1] tool held by VIDAVO. In this training, the pilot site trainers were educated in the use of the SEFAC ICT tool (mobile application), the functionalities provided according to the user's role and the monitored condition, as well as overcoming the first level technical support in order to be able to handle technical issues that the end – users might face. After the first training session for the pilot sites trainers was held, VIDAVO enabled further support through webinars. The trainers of the pilot sites conveyed their knowledge to included stakeholders and volunteers, so that they could help and encourage participants in using the SEFAC mobile application.

In each pilot site, a local SEFAC stakeholder alliance was set up in order to reach the objectives of the SEFAC project and the choice was made to involve the local community. The Local SEFAC Stakeholder Alliance is the

1 The SEFAC app is a multi-modular tool that has been developed for the android operating system. The app aims to support change of lifestyle behaviours among people with and without chronic conditions, according to the stage of change the individual is in at a particular point in time. Participants are encouraged to engage in the practices, lessons, tips, and reflections offered through the application.

group of representatives of the main local target groups within each single pilot: citizens, GPs, nurses, pharmacies, volunteers, health professionals, social workers, health/fitness centres, healthcare institutions, etc. Stakeholders had a crucial role by inviting and mobilizing citizens to participate in local open events to promote the project, enhance the screening for participants that are at risk of developing a chronic disease (CVD or T2DM), or those that have one already, promote healthy and active lifestyle and to exchange ideas on the role of changing harmful habits into healthy everyday practices.

Local staff training involved transforming stakeholders and volunteers into experts in terms of supporting thematic groups, aimed at raising awareness, and transforming harmful behaviours, regarding lifestyle, to become healthier and more proactive. Stakeholders and volunteers' cooperation contributed to reaching the highest possible number of people and to implement an effective and efficient social engagement model for the prevention and self–management of major chronic diseases.

The General SEFAC Alliance has gathered the Local Alliances representatives of Rijeka, Treviso, Rotterdam, and Cornwall as one of the outputs of the project that can ensure its sustainability after it ends.

The preparatory phase in each pilot site for the implementation of the SEFAC model was similar, but not the same because of the cultural, social, and geographical context of four European regions.

In Cornwall, UK, SEFAC was promoted within Veor Surgery, a personal and modern family doctor service in Camborne. Additional time and efforts had to be made to introduce mindfulness activities with the help of SEFAC trainers with a generic background; elements of mindfulness were incorporated through art classes into the SEFAC activities. As working with volunteers is the 'core businesses of Age UK Cornwall & Isles of Scilly, no volunteers needed to be recruited for SEFAC specifically. Guidance on the SEFAC approach was given to volunteers within routine work processes. Participants were supported by an Age UK Cornwall volunteer who works within a multi–disciplinary team including the GP, district nurse, matron, and social workers.

Regarding the Rijeka pilot site, local staff training was held with the main purpose to inform and educate our relevant stakeholders about the implementation of SEFAC project and the most important activities that will be conducted in the pilot site. The stakeholders involved were Community Health Centre of Primorje – Gorski Kotar County, City of Rijeka, Teaching Institute of Public Health, Primorsko – Goranska County, Faculty of Health Studies, SMART – Civil Society development association, Thalassotherapia Opatija – Special Hospital for Medical Rehabilitation of Patients Suffering from Heart, Lung and Rheumatic Diseases and Primorje – Gorski Kotar County (Administrative Department of Social Policy and Youth and Administrative Department of Health). Patronage nurses were recruited in the SEFAC interventions in collaboration with the Community Health Centre of Primorje – Gorski Kotar County. Their role included screening of citizens aged 50+ with a cardiovascular disease and/or diabetes, and citizens at risk in developing chronic disease, motivating the citizens to participate in the SEFAC project, attending the workshops, measuring blood pressure and blood glucose of the participants, helping the participants to complete the informed consent and questionnaires, communication with the participants on weekly basis and monitoring their progress through the seven–week programme and active cooperation with volunteers. In collaboration with SMART – Association for the Development of Civil Society, volunteers were recruited. The volunteers were also recruited with the support of the Rijeka pilot site project team. With the good experience from previous European projects, we included undergraduate Physiotherapy students as volunteers in order to practice mindful physical activity as a part of the workshops. Rijeka pilot site project team organised the initial meeting with volunteers, guided by the Training of Trainers Handbook with the aim of introducing the SEFAC project to the volunteers. According to the before-mentioned manual, learning outcomes were to understand the key principles of the innovative SEFAC model, explain the goals of SEFAC Citizens Training Changing Lifestyle Program, develop an understanding of the roles and responsibilities in the SEFAC project and use facilitation skills to deliver effective training. The main tasks of volunteers were attending the workshops, helping with the organisation of the workshops, attending the public events, disseminating the project activities, supporting and encouraging the participants to change their lifestyle, and to practice mindfulness.

Before the implementation phase in the Rotterdam pilot site, the project was presented to different healthcare providers. A stable team of three mindfulness trainers was formed and they were responsible for the mindfulness training. Each trainer is certified as a Mindful Based Healthy Living trainer and have their own practice (Mindful Netwerk). They had active input in developing the SEFAC intervention in Rotterdam. The project team from Rotterdam pilot site did not engage volunteers. Instead, they established the buddy system as the "social engagement" model that was briefly explained during the first introductory session of the mindfulness training. In the Netherlands, contact with a buddy is more accessible than contact with a volunteer. A one–to – one contact with a volunteer does not fit in well into the Dutch culture in which the problems are solved by the persons themselves. The buddy system is based on the relationship between two participants who participated in mindfulness sessions. They were linked to each other and guided each other through the SEFAC intervention. Participants were asked to contact their buddy every week, but it was up to them to decide how, when, and where. With the buddy system, you get a buddy, but at the same time you are a buddy for someone else (reciprocity). Furthermore, the advantage of buddies within the group is that they support each other in going through the SEFAC program. They face the same obstacles and help each other, which was seen during the workshops. The advantage of the buddy system, instead of contact with a volunteer, is that it is easier to organise, and it strengthens mutual support between participants.

Like the other before-mentioned pilot sites, local staff training in Treviso pilot site was held with the main purpose to give the future trainers all the instruments to train the volunteers and participants and to inform the local stakeholders about the implementation of the SEFAC project. At the beginning of the SEFAC project, the project team from Treviso pilot site organised several meetings with main local stakeholders in order to create an alliance that could help to promote a healthy and active lifestyle and exchange ideas on the role of changing harmful habits into healthy everyday practices. Most voluntary organisations, and associations that work on chronic condition and prevention in general, gave ISRAA their support to recruit volunteers and participants and helped by inviting citizens to participate in public events. Involved stakeholders were Italian Red Cross of Treviso (Treviso CRI),

Associazione Diabetici Treviso, Volontarinsieme Treviso, Lasciamo Il Segno, Federfarma Treviso, Informatici Senza Frontiere, Associazione Di Volontariato Natale Mazzolá, Sant'egidio, Auser, Strada Facendo, AULSS2, and Coni Treviso. The Treviso pilot site team did not engage patronage nurses. On the other hand, they had a stable team of psychologists and psychotherapists who are mindfulness trainers and are experts in working with groups of citizens. In collaboration with Volontarinsieme Treviso and Associazione Di Volontariato Natale Mazzolá, volunteers were recruited. Before the implementation phase, ISRAA team organised training for volunteers that consisted of 5 meetings conducted by psychologists in order to understand the key principles of the innovative SEFAC model, the goals of the SEFAC intervention phase, their roles, and responsibilities in the SEFAC project and how to use facilitation skills to deliver effective training. The main tasks of volunteers were attending the workshops, helping with the organization of the workshops, attending the public events, disseminating the project activities, supporting, and encouraging the participants to change their lifestyle and to practice mindfulness. Volunteers also organised additional informal meetings with participants without professional trainers in order to have a space for discussion or for doing group mindfulness practices after the end of the workshops.

6.3 SEFAC deployment via workshops

The target number per pilot site was to reach 250 citizens (in total 1,000) through local public events and World Cafes (50 years and older). The aim of the local public events and World Cafes was to promote screening of citizens at risk of developing a major chronic disease and those that have one, to promote healthy and active lifestyles and to exchange ideas on the role of changing harmful habits into healthy everyday practices.

From those 250 citizens which were included in the open events, 90 citizens at risk (n=50) and those who have a major chronic disease (CVD or T2DM) (n=40) in each pilot site participated in the SEFAC interventions (Zhang et al., 2019). In total, 360 participants were included in the interventions in all pilot sites. The inclusion criteria for participating in the SEFAC interventions were citizens in the community over the age of 50 years, living independently in their own house and not in an institutional setting, some of them were

expected to be employed, not diagnosed with mild or serious cognitive impairment, not terminally ill or scheduled to enter secondary or tertiary care setting for a long period of time.

Included participants attended the seven–week programme based on Start from yourself workbook – A lifestyle Changing Program (Buranello et al., 2018). At the first workshop, participants filled out the informed consent and the SEFAC questionnaire (T0). Besides that, every participant got the workbook "Start from yourself – A lifestyle Changing Program" so they could track the progress of the workshops as well as access to the SEFAC mobile application. The SEFAC mobile application is a multi–modular tool that has been developed for the Android operating system. The application aims to support change of lifestyle behaviours among people with and without chronic conditions, according to the stage of change the individual is in at a particular point in time. Participants were encouraged to engage in the practices, lessons, tips, and reflections offered through the application. In each pilot site it proved to be useful to spend more time presenting the application during the workshops; how to install and use the application supporting the personal mindfulness experience.

In order to monitor and track lifestyle changes of the participants, evaluation SEFAC questionnaires (T1) were conducted six months after the first workshop.

The seven–week program was designed to help citizens to become more aware of their habits and lifestyle, to skilfully manage difficulties related to their health and to achieve a self-care and self–management toolbox to face the challenges in everyday life. The program is structured into six weeks for people at risk of developing cardiovascular diseases and type 2 diabetes mellitus and into seven weeks for people living with one of these chronic conditions.

The first workshop "Training mind and body for well-being" introduced to the participants the practice of mindfulness and how it improves emotional and social intelligence as well as develops empathy and compassion. The participants also got insight in the process of managing their stress, ecognising the autopilot in everyday life and they learnt about the protective and risk factors.

"Healthy habits", the second workshop, encouraged the participants to be more aware about their habits. The trainers presented the three-step loop of a habit process and the way how the participant can overcome the resistance, procrastination, and stress of changing a habit with mindfulness practices in order to maintain awareness of their thoughts, feelings, bodily sensations, and surrounding environment, without judging them.

The third workshop "Healthy mindset" was about two main types of mindset: fixed and growth mindset. The trainers and volunteers encouraged the participants to develop skills for building up a growth mindset which can help them to focus on making concerted efforts in achieving personal success.

On the fourth workshop, "Healthy eating", participants learnt about mindful eating, the concept of healthy diet regarding their chronic conditions and they had the opportunity to try mindful eating and to learn the skills how to implement in everyday life.

The focus of the fifth workshop "Healthy physical activity" was on the importance and influence of physical activity on health. The trainers explained to the participants that setting SMART goals represents the tool which can clarify their ideas, focus their efforts, use their time and resources productively, as well as increase their chances of achieving what they want in life.

"Healthy relationships", the sixth workshop, was about how healthy relationships are a vital component of health and well-being. The trainers and volunteers brought to the participants the term of emotional intelligence which is the skill or the ability of individuals to acknowledge, manage and communicate their emotions and other people's emotions.

The seventh workshop "Healthy life with chronic conditions" was for people living with one of the chronic conditions that are in focus of the SEFAC project. The trainers and volunteers encouraged the participants to take control of their life by being actively involved in managing their health and becoming a proactive self-manager.

Figure 37. Modules of the 7-week workshop

Time 2 hours	UNIT 1 TRAINING MIND AND BODY FOR WELL-BEING	UNIT 2 HEALTHY HABITS	UNIT 3 HEALTHY MINDSET	UNIT 4 HEALTHY EATING
	Programme overview. Group presentation. The automatic pilot of the mind Am I on autopilot? Primary and secondary suffering	Reviewing home assignments Habit loop Health factors Risk and protective factors The three-minute breathing space	Reviewing home assignments Beliefs and mindset Stages of change Readiness to change Self-compassion break	Reviewing home assignments Mindful eating Emotional eating awareness Emotional and craving eating Stress definition
	Break 15 minutes			
	Mindfulness: intention, attention and attitude. Recognising the unsettle mind Settling the mind MINDFUL ATTITUDE: non judgment	Habit change worksheet Body scan MINDFUL ATTITUDE: Beginner's mind	Self-compassion test Settling Grounding Resting Support Sound MINDFUL ATTITUDE: compassion and trust	Perceived stress scale Self-efficacy awareness Settling Grounding Resting Support Sound MINDFUL ATTITUDE: patience
	Home assignments	Home assignments	Home assignments	Home assignments
Time 2 hours	**UNIT 5 HEALTHY PHYSICAL ACTIVITY**	**UNIT 6 HEALTHY RELATIONSHIPS**	**UNIT 7 HEALTHY LIFE WITH CHRONIC CONDITIONS**	
	Reviewing home assignments Mindful movements Why and how stay active Physical activity awareness Setting SMART goal and GROW Model	Reviewing home assignments Why relationships are important for well-being Emotional intelligence Emotions list Mindful communication	Reviewing home assignments What are chronic conditions What is self-management My self-management skills	
	Break 15 minutes			
	Setting SMART goal exercise Mindful walking MINDFUL ATTITUDE: non striving	STOP practice Loving kindness practice MINDFUL ATTITUDE: acceptance	Embracing vulnerability My level of resilience The three-minute breathing space Self-compassion break MINDFUL ATTITUDE: letting go and letting be	
	Home assignments	Mindful based living	Mindful based living	

In the Cornwall pilot site, participants were identified and recruited through different approaches within Veor Surgery: specific activities (such as coffee meetings) and a risk stratification tool (ARTMusics). Recruited participants were linked to volunteers of Age UK Cornwall & Isles of Scilly, the largest charity in Cornwall and the Isles of Scilly committed to the support of people over the age of 50. Elements of mindfulness were incorporated through art classes into the SEFAC activities. The county of Cornwall has a population impacted with severe deprivation. The relatively low socio-economic status of the participants represented a challenge in filling out the questionnaires and working with the SEFAC mobile application. In order to cope with this newly encountered situation, the team from Cornwall pilot site planned and scheduled face-to-face meetings with each of the participants to complete the baseline questionnaire.

The project team from Rijeka pilot site, with the support of stakeholders and volunteers, organised several public events which proved to be the most productive approach for engaging participants in the SEFAC project, besides conferences, pitch events, fairs, and exhibitions. Patronage nurses were also included in the recruitment of participants at regular blood pressure and blood glucose check-up sessions in pensioner's clubs across the Rijeka pilot site. Participants went through the seven–week programme with the support of patronage nurses and volunteers. They helped the participants to fill out the informed consent and SEFAC questionnaire. Besides that, every participant got the workbook "Start from yourself – A lifestyle Changing Program" so they could track the progress of the workshops as well as access to the SEFAC app. The progress of the workshops was tracked with signature lists, pictures, and reports. Added value to the SEFAC intervention in Rijeka pilot site was the follow-up, that included the Participant tracing form made by the project team from Rijeka pilot site. The follow-ups were organised six, twelve and eighteen weeks after the end of workshops in order to additionally monitor the progress of participants, especially in the field of mindfulness practice, SEFAC mobile application and lifestyle changes. During the follow-ups, patronage nurses conducted measurement of blood pressure and blood glucose of the participants.

Total number of participants included in the SEFAC intervention was 147 from which 132 females and 15 males. The average age of the participants was 69,1. Sixty-three participants were healthy while 84 were at risk of developing major chronic diseases, 61 with cardiovascular diseases and 23 with type 2 diabetes mellitus. The total of participants with a long-lasting partner relationship was 77 (52.4%) which could be associated with motivation for participation in the SEFAC programme.

In total, 13 participants dropped out during the SEFAC intervention in Rijeka pilot site. Seven of them dropped out before the SEFAC workshops even began and six of them dropped out after the first workshop. The main reasons of dropping out were disinterest in content of the SEFAC intervention, lack of time and going to work abroad.

In the Rotterdam pilot site, the recruitment strategy included advertisements (posters) in local supermarkets, social media, Erasmus MC intranet (screensaver) and door-to-door flyers in targeted apartment buildings. Each interested person filled out a short checklist to make sure that they met the SEFAC inclusion criteria. If the person met the criteria, a personal telephone call was scheduled before participation in the mindfulness training, to briefly discuss any existing depressive conditions. The first introductory session aimed to make sure that the participants fully understood the aims of the SEFAC programme, including the buddy system and the mobile application. The added value to the seven–week programme was that the patronage mindfulness trainers provided additional content regarding the practice of mindfulness. The content was related to the automatic pilot (Attention to the body), the ability to be present (Attention to breathing), the skills to deal with impediments (Allow what is there), the principle that emotions are human (Thoughts are not facts), the possibility to take care of yourself (Silence) and the motivation to apply what the participant has learnt (How to proceed). The project team from the Rotterdam pilot site organised additional maintenance sessions, once a month, for participants who had already finished the seven–week programme in order to participate in extra mindfulness sessions.

Total number of participants included in the SEFAC intervention was 85 from which 56 females and 29 males. The average age of the participants

was 63.9 years. Thirty-seven participants were healthy while 48 were at risk of developing major chronic diseases, 23 with cardiovascular disease, 19 with type 2 diabetes mellitus and 6 with cardiovascular disease and type 2 diabetes mellitus. The total of participants with a long-lasting partner relationship was 46 (55.4%), which could be account for the motivation to participate in the SEFAC programme.

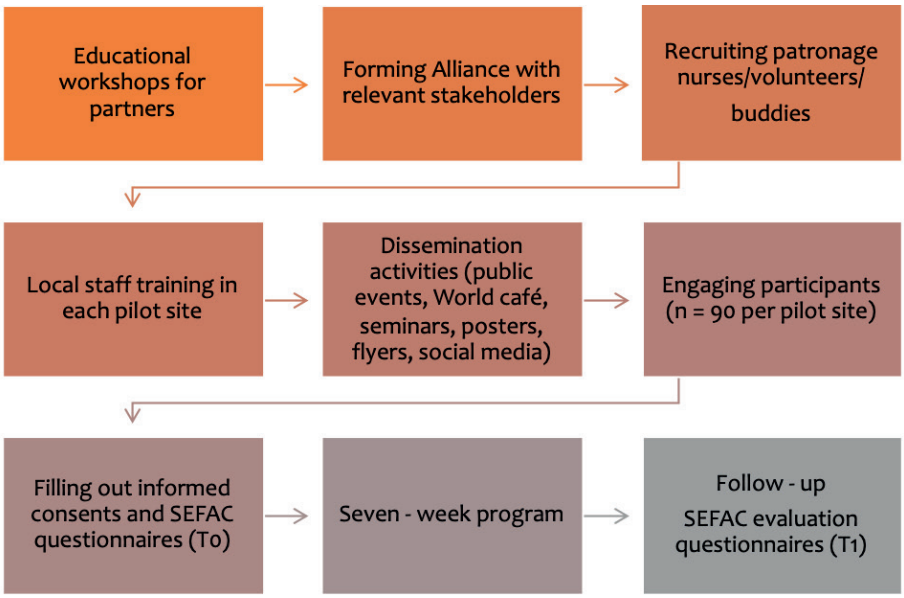
In total, 21 participants dropped out during the SEFAC intervention in Rotterdam pilot site. The reasons are not attending more than 4 workshops, passing away and no response to invitation for follow-up.

In the Treviso pilot site, the ISRAA team, with the support of stakeholders and volunteers, organised several public events to engage participants, especially World cafes, took many opportunities to disseminate information to engage citizens and went to some events to have the opportunity to advertise the project. Participants went through the seven–week programme based on the workbook "Start from yourself – A lifestyle Changing Program". During the first workshop, with the support of volunteers, ISRAA trainers supported participants to fill out informed consents and SEFAC questionnaires. Every participant got a short version of the workbook, translated into Italian, so they could track the progress of the workshops, as well as access the SEFAC mobile application. The progress of the workshops was tracked with signature lists and pictures. During each workshop, the first part was dedicated to theory and group discussion and the second part to mindfulness practice and group activities based on a design thinking idea. Added value to the intervention was that volunteers continued to organize meetings with the participants after the seven–week programme. The meetings were organised once a month, in order to encourage participants to practice mindfulness and to share their lifestyle changes.

Total number of participants included in the SEFAC intervention was 93 from which 71 females and 22 males. The average age of the participants was 68. Thirty-nine participants were healthy while 54 were at risk of developing major chronic diseases, 50 with cardiovascular diseases and 4 with type 2 diabetes mellitus. The total of participants with a long-lasting partner relationship was 51 (54.8%) which could account for the motivation to participate in the SEFAC programME.

In total, 23 participants dropped out during the SEFAC intervention in the Treviso pilot site. The correct reason for dropout is not known, but the follow-up questionnaire was not filled out.

Figure 38. Chronology of implementation phase activities in four EU pilot sites



Some research shows that women are more likely to join social studies because of social support and influence of family, friends, and the community. That research also suggests that women will join an intervention because they want to raise their knowledge and have better access to health care services and treatments. Women are more motivated in changing their lifestyle and maintain their own health, in contrast to men. The focus of the SEFAC project was to adapt the social engagement model for the prevention and self-management of major chronic diseases and implement a community–based intervention. In particular, it was developed to introduce a new approach in chronic disease prevention, self–management, using group and individual approaches, face-to-face and online, supported by user friendly ICT tools. The SEFAC mobile application gave the participants an easy and quick access to their health behaviour and health status, the possibility to set up targets regarding health promotion activities, management of chronic diseases and achievement of targets

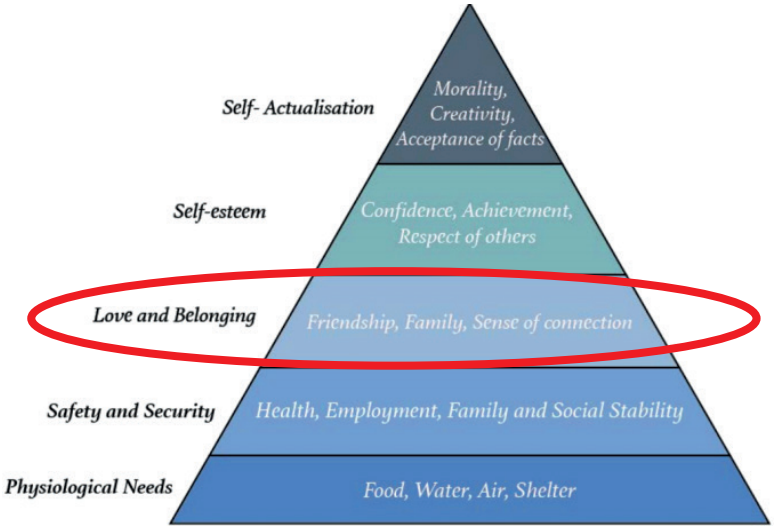
set in the (preventive) care plan. This was possible due to involvement of volunteers within a broad community approach, initiated by social and health care, with the aim to reduce the burden of a major chronic disease and provide evidence to health policy makers in order to propose reforms towards more effective and efficient models of chronic care prevention and management.

6.4 Belonging and emotions to improve motivation

Belonging is a strong and unavoidable feeling in human nature. On the other hand, the need to belong is a major source of human motivation. Belonging, or not, is a consequence of personal choice or the choice of society. Not all people are the same; some need more, some less. Not all people have the same interests during their life path, nor do they belong to the same group, but the feeling of belonging helps them to identify their reason for existence. 'Belongingness' is such a fundamental human motivation that without it some could feel severe consequences of not belonging, such as difficulties in communication or relationship with their environment. The sense of belonging to a group is one of the basic needs of every human being. Belonging means that people feel connected and accepted in the family, with friends, in a religious community, or in the society in which they live. It implies a relationship that is stronger than a simple acquaintance. The need to belong includes receiving and paying attention to others.

Maslow's hierarchy of needs was developed to describe the needs that motivate people throughout their lives. It was developed to explain five stages of needs that motivate human behaviour. The third stage within the hierarchy of needs comprises the need for social relatedness or love and belongingness (Figure 39). Once the first two steps (physiological and safety needs) have been met, an individual can work to fulfil the need to belong and to be loved, as well as desire for warm relationships (these include friendship, mutual love, acceptance in family relationships or sex life). These are all social needs. According to Maslow, if the first two needs are not met, then the individual cannot fully love someone else.

Figure 39. Maslow's hierarchy of need *adopted from Lau Hwei, 2017.*



The need to belong, as a fundamental psychological motivation, is the lead thought of many theories. According to Baumeister and Leary (1995), all human beings need a certain minimum quantity of regular, satisfying social interactions. Inability to meet this need results in loneliness, mental distress, and a strong desire to form new relationships. Several psychologists have proposed that there are individual differences in people's motivation to belong as well as differences in character. People with a strong motivation to belong are less satisfied with their relationships and tend to be relatively lonely.

Creating social relationships and connecting with other people is a huge part of what shapes us throughout our lives. Whether people are introverted or extroverted, maintaining a socially active lifestyle can affect mental, physical, and emotional well-being. In fact, staying engaged in social interactions can be just as effective as physical exercise, in improving mood and overall health. For example, "loners" are people who avoid or do not actively seek human interaction; they prefer to be alone. Introverts, on the other hand, prefer to keep their thoughts and feelings to themselves rather than talk openly. This does not necessarily mean that introverts prefer to be alone, but their thoughtful and reflective nature causes them to be quieter. A loner differs from an introvert in that the loner chooses to be alone and avoids socialising while the introvert feels drained after

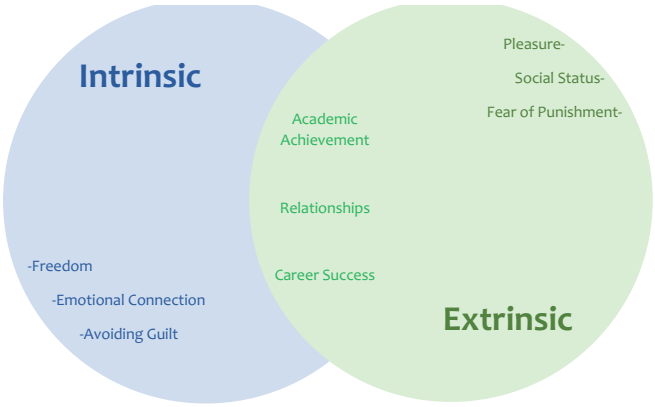
socialising and need some time to recharge. The word ″Loner″, when used in the context of aging, often carries a negative connotation. The accepted rationale that all people should be social creatures is erroneous; being a loner is not always a negative position. Loners can be independent, creative, and happy people in their own way.

In later life, participation in interest groups gives people a sense of belonging, reduces loneliness and affects their purposefulness of life. Belonging appears to have multiple and strong effects on emotional patterns and on cognitive processes. The desire of belonging is so universal that it is found across all cultures and different types of people.

6.4.1 Motivation is the driving force of each individual

According to different models, there are two types of motivation: intrinsic and extrinsic. The first is the one that satisfies the motive for self-realisation through learning that produces satisfaction regardless of possible material and social rewards. The aim of extrinsically motivated learning is to acquire necessary competences to successfully achieve economic and social motives (Paustović, 1999) (Figure 13). The assumption is that people are most motivated by their curiosity, interests and, at the same time, the thing that gives them amusement and enjoyment. Despite this, people sometimes endure long-term suffering, that is not at all interesting or fun, in order to achieve the set goals.

Figure 40. Types of motivation adopted from Convertize (n.d.).



Psychologists point out individual differences in people's motivation for belonging. During aging, values and priorities change, as well as motivation for education, participation in group activities and different social events. Unlike younger people, the elderly are dominated by intrinsic motives in their period of maturity, which means that they learn for themselves. This is because they want to learn something new and interesting for them. We should not neglect the social character because they participate in the community, socialise, and meet new people. It is an intrinsic motivation that manifests itself in satisfaction, self-affirmation, new creative possibilities, raising the quality of life and a better understanding of the world around them.

6.4.2 Needs of elderly

The most common needs of the elderly are material condition, health, nutrition, housing, transportation, work, retirement roles and activities, education, and a satisfying state of mind. People know how to achieve their dreams and certain goals without the help of others. Nevertheless, they find thousands of reasons not to aspire to them. Some of these reasons are lack of money, time, skills, patience, courage, but there are many others. They are often troubled with health problems, sometimes depressed because of loss of abilities, or missing their loved ones. Self-motivation is a person's inner drive, one of the things with the help of which an individual persists in achieving their set goals, despite the inevitable obstacles and problems. Today, we can find many people who lack motivation without being ready for a change. People may be aware of the need for change, but they do not have the will or energy to change the existing situation.

Motivating someone else is not so simple and easy, primarily because it is difficult to find personal motives, and even more difficult to find a driver for another person who has opposite beliefs.

However, by and large, people are social beings and one of the most powerful factors in motivating them is consistency. Consistency plays an important role in increasing participation. People should be invited to attend different events on a regular basis and the community should continually search for different ways to motivate and convince them to participate.

6.4.3 Motivation for the SEFAC project

In the SEFAC project intervention, we were supposed to motivate older people to participate in the seven–week mindfulness workshop programme. Since this is a long period, various motivational techniques were used, as well as the help of our volunteers and patronage nurses.

During the conversation with the participants, encouragement was the key component to motivate them to participate in the workshops. Additionally, a personal approach to each person was required because not all people are the same and everyone does not have the same life stories, experiences, and the desire to change. Recruiting the elderly required all the necessary knowledge and motivational skills. Semi-structured interviews were conducted in order to ask participants open-ended questions regarding the benefits, barriers, and value of participating in mindfulness interventions. Encouraging the elderly to participate in scheduled activities was challenging. The most important thing was to identify the existing barriers, whether perceived or real, that might prevent them from getting involved into the programme. Some researchers (Schaie & Willis, 2016), (Diehl et al. 1995) argue that older people begin to accept the stereotype over time as an accurate description of themselves. In fact, some seniors avoid social interaction because they think they are boring, refuse to learn a new skill because they believe that they are incapable, etc.

How to motivate inactive elderly people? Thinking "out of the box"!

Recruiting the elderly required all the necessary knowledge and motivational skills. Some of them agreed to participate in the seven–week mindfulness workshop programme because they were curious, some for personal growth and some for adopting a healthy lifestyle. The participants were interested in how they could improve themselves in seeking new life values. Although the level of education influences personal attitudes towards additional education and society in general, it helps them to better understand aging and improves their quality of life.

Based on the responses, older adults may need more incentive to begin and maintain behavioural changes than for their own health benefit (Parra et al., 2019).

6.4.4 Feedback from SEFAC workshop leaders/volunteers/trainers:

Treviso: "Our participants are pensioners, but also people that are still working. Because of their proactivity and curiosity, they wanted to learn new skills in order to control their health, improve their lifestyles, to be more aware of their everyday habits and to learn how to manage stressful situations. They were both motivated by the new approach of mindfulness and the psychological and motivational approach which may improve their health."

Rotterdam: "Find and maintain a healthy lifestyle."

Rijeka: "Our participants are mostly pensioners that are included in the activities in the city of Rijeka. Because of their proactivity, even in the third age, they wanted to learn new skills in order to control their chronic diseases and conditions, to be more aware of their everyday habits and to learn how to manage stressful situations. The most intriguing term that was mentioned to them during several open events was mindfulness and they were very curious about this new approach which may improve their health."

Involvement in workshops or other group activities can help older people to re-establish broader social contacts, rethink their lives, acquire new roles, meet new people, and adopt new information. Involvement in workshops encourages older people to live a more active lifestyle that makes them happier, changes their attitudes towards learning as an important component in their life and breaks down prejudices against older people, not only in society, but also in terms of personal assessment.

Feedback from the elderly who participated in the group workshops:

- "I am thrilled with the SEFAC project which has brought a lot of positive changes in my life. Thanks to the project, I have adopted new habits that affect my physical and mental readiness for life challenges. I feel REJUVENATED! Thank you!"
- "I feel more relaxed and aware of things around me."
- "I think the social part is huge, hanging out with people who are doing the same thing as you. Everyone needs new information about healthy lifestyle."
- "Looking at sights and sounds around me…my receptors are working"

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Evaluation of results and lessons learnt

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CHAPTER 7

7.1. Introduction

The subject of this chapter is to present the evaluation of the SEFAC project. In particular, this chapter will describe how the SEFAC project has reached its objectives.

On the one hand, the assessment of the SEFAC pilot sites implementation will be presented together with an evaluation of the experiences and perceptions of the stakeholders involved in the SEFAC intervention. On the other hand, the results of the SEFAC intervention, in terms of effectiveness and cost-effectiveness, will be presented. Finally, the lessons learnt from the SEFAC project will be provided.

More information on the SEFAC evaluation can be found in the following outcomes of the project: Deliverable 3.1. Report describing how the consortium reaches the 7 objectives of SEFAC; Deliverable 8.1. Report with the synthesis of the results regarding characteristics of citizens and impact of the training results; Deliverable 9.1. Toolbox for SEFAC implementation in EU cities.

7.2 Evaluation methodology

Evaluation is a process that critically examines a project or intervention. It involves collecting and analysing information about the activities conducted, the characteristics and outcomes. Its purpose is to make judgments about a project or intervention to improve its effectiveness, and/or to inform decisions (Patton, 1987). The evaluation results can be used to improve the design and implementation (formative evaluation) of the project or intervention, and also to demonstrate its impact (summative evaluation).

In particular, the formative evaluation is an ongoing process that allows for feedback to be implemented during a project or intervention cycle as part of the monitoring and quality assurance of partnership performance, whereas the summative evaluation is focused on an evaluation of the overall objectives and outcomes of the project or intervention, in order to determine its effectiveness (Taras, 2005).

In terms of project performance, the SEFAC evaluation has followed both connected perspectives, namely formative and summative project evaluation. Therefore, an intermediate evaluation (a type of formative evaluation that it is conducted during the implementation phase) of the SEFAC project was conducted in order to validate that the goals of the project were being achieved and to improve the action, if necessary, by means of identification and subsequent remediation of problem areas. Then, towards the end of the project, a final evaluation (summative evaluation) was performed in order to measure whether project goals and objectives were met within the SEFAC project.

With respect to the evaluation of the SEFAC intervention, this has mainly followed a summative evaluation. The implementation and the effectiveness of the SEFAC intervention in the pilot sites were measured towards the end of the project in order to analyse the impact of the SEFAC model.

Regarding the methodological approach, both an internal evaluation approach and an external evaluation approach, based on qualitative and quantitative methods, were selected to evaluate how the SEFAC project and intervention have reached their objectives. The internal evaluation approach (Owen et al., 1999) is the appraisal process performed by the institution

or individuals responsible for the activities being evaluated. In this regard, the evaluation of the project performance and the SEFAC intervention implementation were based on an internal approach. Concretely, these evaluations were conducted by project partners and pilot site leaders. An external evaluation approach was used to capture the experiences and perceptions of the stakeholders involved in the SEFAC intervention. The external evaluation is the assessment performed by stakeholders from outside the consortium, who are involved in the project as participants or professionals but are not responsible for the activities being evaluated. In particular, those external stakeholders involved in the SEFAC intervention were: participants, professionals, trainers and volunteers, who were invited to provide their experiences and perceptions on the SEFAC intervention.

Based on the above-mentioned methodology, in the following sections the results from the SEFAC evaluation are presented. In particular, results on: 1) the SEFAC project performance evaluation (section 7.2); 2) the evaluation of the SEFAC intervention (section 7.3), including the assessment of the pilot site implementation, the experiences and perceptions of the stakeholders involved in the SEFAC intervention, and the results of the effectiveness of the SEFAC intervention.

7.3 Evaluation of the SEFAC project performance

The objective of this evaluation was to ensure that the study design and the methodologies used were adequate to the objectives pursued. More specifically, it was aimed to evaluate the achievement of the specific project objectives, to ensure that time-schedules were met and that the project outcomes were completed following the best quality standards. With this aim in mind, an internal evaluation approach was followed, in which project partners were responsible for conducting the performance evaluation.

Project performance was assessed in terms of effectiveness (measurement of results) and quality (quality assurance), allowing to evaluate whether the project goals were met and to ensure that those were met to the highest standard.

In regard to effectiveness, it measured the extent to which the project's objectives were achieved, or were expected to be achieved, taking into account their relative importance (OECD, 2002). The SEFAC project performance in terms of effectiveness was measured according to the following indicators:

- Objectives: process, outputs, outcome (achievement %, means of verification, deviations, reasons for deviations, corrective actions)
- Milestones (achievement %, means of verification, delay, reasons for delay)
- Deliverables (achievement %, delay, reasons for delay)

The compliance and the extent to which the effectiveness criteria were accomplished was measured through an 'Effectiveness Evaluation Checklist' designed for each Work Package (WP) in the frame of the project. Each WP leader filled in the Evaluation Checklist, and delays and recommendations were included in the evaluation reports, based on the provided feedback.

Regarding quality, it measured quality of the SEFAC project outputs (deliverables). Each deliverable was evaluated against specific quality criteria (quality control) in order to ensure that the proper quality standards were met (quality assurance). The quality standards used within the SEFAC project were based on the United Nations Evaluation Group Standards for Evaluation in the UN System (UNEG, 2005). Thus, the SEFAC project performance in terms of quality of the project outputs (deliverables) was evaluated against the following specific quality criteria:

- Well structured, logical and clear report
- Clear and full description of the 'object' of the report
- The report's purpose, objectives and scope are fully explained
- Appropriate and sound methodology
- Findings, conclusions, recommendations and lessons learnt are based on evidence and sound analysis

That is to say, the project outputs were evaluated as highly satisfactory when they: provided a clear and complete assessment of the object of the evaluation; were based on evidence; were compiled and analysed in accordance with standards; and generated conclusions and recommendations deemed to be credible and thus a sound basis for decision-making.

In order to evaluate the deliverables against the selected quality criteria, a Quality Evaluation Questionnaire was designed, including quantitative information and qualitative feedback. Before submission, each deliverable was peer reviewed by one senior representative of each partner. This ex-ante evaluation of the deliverable ensured that the quality standards were met before submission.

This section presents the main conclusions on the intermediate performance evaluation of the SEFAC project. Firstly, performance was measured in terms of effectiveness using the Effectiveness Evaluation Checklist, including the level of achievement of the project results and milestones as well as the release of the due deliverables. The intermediate results on effectiveness showed that in general terms, the collected data indicated that the project was being implemented as planned. All project objectives and milestones were achieved on time, with the exception of WP6 on the Development of ICT tool to support the implementation of the SEFAC model in which more delays were found. In particular, the evaluation of the intermediate project effectiveness found that:

- WP1 on Coordination achieved its objectives and milestones on time and the SEFAC project was managed and coordinated as planned through meetings, teleconferences, mailing among partners, periodic follow up and monitoring.
- In regard to WP2 on Dissemination, its dissemination activities (newsletters, leaflets, website, and social media accounts) were performed as planned and reached the expected audience. However, the submission of the Deliverable 2.1 on the Dissemination plan was delayed.
- WP3 on Evaluation was achieved as planned and on time both the agreed-upon plan for the evaluation of the project (SEFAC evaluation framework), and the intermediate project evaluation.

- WP4 on the Design and preparing for Scaling up a successful Social Engagement Framework for chronic diseases prevention and management at community level presented a slight delay on the achievement of some of its objectives, milestones and deliverables. Namely, the delivery of the toolkit for the community-based intervention based on the social engagement according to the Living well pathways was delayed due to an in-depth joint review by the consortium partners.
- The expected objectives and milestones related to WP5 on the Creating a training plan for healthy lifestyle behaviour adoption were achieved on time. But the Deliverable 5.1 on Train the trainers' toolkit manual, including health lifestyle coaching protocol, was slightly delayed in its submission to the European Commission.
- WP6 on the Development of ICT tool to support the implementation of the SEFAC model was the WP in which more delays were found. In particular, delays on the drawing up of specifications for the SEFAC ICT services were found and also on the design and development of the SEFAC ICT tool (app). Therefore, the Deliverable 6.1 SEFAC ICT Tool was submitted with a delay to the European Commission.
- Regarding WP7 on Pilot site SEFAC implementation, all the preparatory activities, that were needed to achieve a proper pilot implementation, were started on time.
- In regard to WP8 on Evaluation of the SEFAC model to address the prevention and intervention of major chronic disease and WP9 on SEFAC toolbox and policy briefs, preparatory actions needed to achieve their objectives, milestones and deliverable were started by the time the intermediate evaluation was conducted.

Corrective actions within the project workflow were taken when needed in order to ensure that all project objectives, milestones and deliverables were achieved by the end of the project.

The results of the intermediate quality evaluation allowed the identification of improvement areas in each of the deliverables analysed. The improvement areas identified were used as a reference for the next project deliverables, in order to improve the output quality. In regard to the quality criteria, the following results were found from the intermediate quality evaluation of the deliverables:

- Well structured, logical and clear report: The deliverables were in general well structured, logical and clear. The following improvement areas were identified: all deliverables should clearly indicate the WP of reference and the funding programme, including the project grant number and the European Commission logo; an Executive Summary might be also included, for an easy reading.
- Clear and full description of the 'subject' of the report: A clear and full description of the subject of the report was included as part of all the reviewed deliverables. The following improvement area was identified: all deliverables should include a description of relevant stakeholders, and their potential contributions.
- The evaluation's purpose, objectives and scope were fully explained: Purpose, objectives and scope were generally very well explained in all the reviewed deliverables.
- Appropriate and sound methodology: Scientific deliverables presented in general an appropriate and sound methodology. The following improvement areas were identified: the rationale for selecting methods and their limitations based on commonly accepted best practice should be included.
- Findings, conclusions, recommendations and lessons learnt were based on evidence and sound analysis: Conclusions included in the deliverables were very useful for further developments within and beyond the project lifespan.

7.4 Evaluation of the SEFAC intervention

The evaluation of the SEFAC intervention included: 1) the assessment of pilot sites implementation; 2) the evaluation of the experiences and perceptions of the stakeholders involved in the SEFAC intervention; 3) the evaluation of the effectiveness of the SEFAC intervention.

7.4.1 Evaluation of pilot sites implementation (internal evaluation)

The assessment of pilot sites implementation was aimed at ensuring that the pilot studies within the SEFAC project were well-organised and implemented according to high standards. A total of four SEFAC pilot interventions were conducted in four European countries (Rijeka, Croatia; Treviso, Italy; Rotterdam, the Netherlands; and Cornwall, United Kingdom). This chapter provides the evaluation results from Rijeka, Treviso and Rotterdam pilot sites.

In order to capture the particularities among SEFAC pilot sites, the pilot site implementation was evaluated following an internal evaluation approach. Based on this approach, pilot site leaders were responsible for the assessment of the particularities of pilot studies.

A specific short questionnaire was designed to be filled in by pilot site leaders from each participating country. Pilot site leaders were responsible for the pilot site implementation of the SEFAC intervention. This questionnaire collected relevant information on the implementation of the SEFAC intervention in each pilot site. In particular, the following aspects were collected: Inclusion criteria, Recruitment procedures, Participants characteristics (at-risk or patients), Number of participants included in the pilot site, Average number of participants per workshop, Number of workshops, Average duration of workshops, Content of workshops (mindfulness, volunteers – social engagement, SEFAC app, others), and Stakeholders involved in the pilot site implementation.

The results of this evaluation showed that all pilot sites (with the exception of Cornwall from which data were not available) set the following inclusion criteria for participants: ≥50 years of age at risk of developing cardiovascular disease (CVD) and/or type II diabetes mellitus (T2DM) or with established CVD and/or T2DM.

Regarding the recruitment procedures, referral from friends, family and co-workers was used in all pilot sites. Referral from health care professionals was used in one pilot site (Rijeka). And finally, advertising through social media, posters, open events conferences, pitch events, fairs, and exhibitions was also used in all pilot sites.

About the participants' characteristics, both participants at risk and participants with a diagnosis of CVD and/or T2DM were included in all pilot sites. The number of participants included in each pilot site ranged from 106 to 149, and the average number of participants per workshop ranged from 11 to 12.

In regard to the workshops, in each pilot study, a total of 7 sessions were conducted with each group of participants, and the average duration of each session ranged from 2 to 2.5 hours. Regarding the content of sessions, all pilots started the intervention with an initial orientation session on the objectives of the intervention. The content of the other six sessions slightly varied in each pilot site. For instance, the sessions in Treviso and Rijeka combined the mindfulness contents and the healthy lifestyle contents. The weekly group sessions were based on six main themes regarding healthy lifestyle and how to integrate them in everyday life (Healthy habits, Healthy mindset, Healthy eating, Healthy physical activity, Healthy relationships and Healthy life with chronic condition). In addition, participants practiced main mindfulness practices at every session. After every session, participants were encouraged to use the SEFAC app. In Rotterdam, the pilot intervention was mainly focused on mindfulness practice. Participants built a foundation of mindfulness skills following an adapted Mindfulness-Based Stress Reduction (MBSR) programme. During these sessions, participants practiced body scan exercises, sitting meditation and mindful movement, and shared their experiences of mindfulness and their insights into automatic patterns and how to apply mindfulness to everyday situations. The SEFAC app was introduced sometime after the sessions had started. In Rotterdam, the SEFAC app was also used and evaluated by participants who did not join the SEFAC workshops. Furthermore, social support was also provided in the sessions, as well as outside the sessions by pairing participants as buddies.

The stakeholders involved in the implementation of the pilot intervention varied within pilot sites. In Treviso, volunteers and the trainer as part of the social engagement team supported the group in each session. In Rijeka, all sessions were led by Rijeka pilot site team members with the support of volunteers and patronage nurses (social engagement). In Rotterdam, qualified mindfulness trainers led the sessions. Therefore, as expected, each pilot site presented specific particularities, and the SEFAC interventions were flexible enough to be adapted to each pilot context.

7.4.2 Evaluation of the experiences and perceptions of the stakeholders in regard to the SEFAC intervention (external evaluation)

The evaluation of the experiences and perceptions of the stakeholders involved in the SEFAC intervention was performed using an external evaluation approach based on quantitative (questionnaire) and qualitative (structured-interviews) methods.

The external evaluation process included: 1) an evaluation of the experiences and perceptions of the professionals, trainers, volunteers, and other relevant stakeholders involved in the SEFAC pilot studies; 2) an evaluation of the participants' experiences and perception on the SEFAC pilot site studies.

In particular, the following evaluation criteria were assessed as part of the external evaluation: Perceived effectiveness (the extent to which the SEFAC training and intervention achieved its specific objectives and goals according to the stakeholders); Perceived efficiency (the extent to which the SEFAC training and intervention used its resources efficiently, and provided value for money according to the stakeholders); Perceived utility (the extent to which the SEFAC training and intervention had a potential impact on the main target groups specified, according to older citizens, professionals, managers and policy makers); Perceived sustainability (the extent to which the SEFAC training and intervention led to sustainable changes or benefits that will last after the project has been completed according to the stakeholders).

Specific questionnaires and interviews based on these criteria were developed in order to gather the relevant information from different stakeholders, external to the project consortium.

7.4.2.1 Evaluation of professionals, trainers and volunteers' experiences and perceptions

A consultation of relevant external stakeholders involved in the SEFAC interventions was organised in order to ensure that the pilot studies within the project were well-organised and their implementation was done according to the high standards established.

The stakeholders external to the project consortium were: professionals, trainers, and volunteers who were actively involved in the pilot implementation of the SEFAC intervention in each pilot site. In order to gather information from these stakeholders, questionnaires, and structured interviews were developed. On the one hand, the evaluation of the experiences and perceptions on the SEFAC intervention of professionals, trainers, and volunteers was conducted through specific questionnaires. On the other hand, the evaluation of the pilot implementation was assessed using structured interviews with these stakeholders.

Regarding the evaluation of the experiences and perceptions of professionals, trainers and volunteers, specific questionnaires were designed to collect information on the following established criteria: perceived effectiveness, perceived efficiency, perceived utility, and perceived sustainability. In particular, questions on the training plan received prior to the SEFAC intervention and on the SEFAC pilot intervention implementation were posed to the external stakeholders. The training plan for stakeholders is the process to give trainers (professionals and volunteers) the background knowledge, skills, and practical experience to build up and running a training course on awareness empowerment and behavioural changes according to a healthy lifestyle for citizens.

A total of 19 professionals and volunteers completed the questionnaire on the training experience and the implementation of the SEFAC intervention (6 respondents from Rijeka, 5 respondents from Rotterdam, and 8 respondents from Treviso). The analysis of the stakeholders' responses

to the questionnaires on perceived effectiveness, perceived efficiency, perceived utility, and perceived sustainability of the SEFAC intervention resulted in the following conclusions:

- The training plan delivered to professionals and volunteers prior to their involvement in the SEFAC pilot was adequate and useful.
- In terms of perceived effectiveness, the extent to which the training achieved its specific objectives and goals, the results indicated a positive perception of the effectiveness of the training and the SEFAC intervention.
- In terms of perceived efficiency, the extent to which the training used its resources efficiently, and provided value for money, the results showed a positive perception of the efficiency of both the training and the SEFAC intervention.
- In terms of perceived utility, the extent to which the training has a potential impact on the main target groups specified, the analysis indicated a positive perception of both the training and intervention utility in the sense of being adequately oriented to the target population.
- In terms of perceived sustainability, the extent to which the training offers sustainable changes or benefits that will last after the project has been completed, the results showed a positive perception of the training and intervention sustainability in the sense of offering an adequate content that can be used after the project.

Furthermore, the following conclusions on the development of the training plan were also highlighted by the professionals and volunteers receiving the training prior to the pilot intervention:

- Professionals and volunteers emphasised the good organisation of the training plan, the support received from the organisers in each pilot site and the access and content of the training resources.
- No barriers were found in any of the pilot sites for the development of the training.

Finally, in regard to the SEFAC intervention, the following conclusions were extracted from professionals and volunteers' responses:

- The SEFAC intervention seemed to be efficient in improving the lifestyle among participants. Particularly, the intervention was useful to raise awareness among participant on their everyday habits.
- Workshops were the most important and useful tool to help participants/citizens to change their lifestyle into a healthier one, in contrast to the handbook and the SEFAC app.
- Mindfulness was found to be helpful to overcome stress, as it provided relaxation.
- Collaboration between different stakeholders and their enthusiasm and willingness to help were mentioned as facilitators.
- The use of the app, the bureaucratic burden, and the recruitment process were identified as barriers.

In addition, the evaluation of the pilot implementation was assessed using structured interviews with relevant stakeholders external to the project consortium. In particular, interviews with professionals, trainers, and volunteers were conducted in each pilot site.

A total of 5 group interviews, involving a total of 18 volunteers, trainers and professionals involved in the SEFAC project, were carried out in Treviso, Rijeka and Rotterdam. From the qualitative analysis of the structured interviews with professionals, trainers, and volunteers, the following results were extracted:

- The SEFAC intervention was perceived as beneficial for the community in which it was implemented.
- The SEFAC intervention was found to be a great opportunity to connect citizens, to promote volunteering activities, and to give support to older adults.
- Stakeholders reported several reasons that motivated them to be involved in the SEFAC intervention. Among these, were gratitude, to overcome a negative experience, to help others, or to teach mindfulness.

- Their role as volunteers or trainers involved in the intervention was to serve as support in the sessions, to guide the group sessions. In the particular case of mindfulness trainers, to train participants in mindfulness practice. And in the case of nurses, to check participants' health (e.g. blood pressure).
- Trainers and volunteers' communication with participants was frequent, at least once a week at the sessions. However, some of them reported that after the workshop ended, the contact with most participants was lost.
- Regarding their opinion on the SEFAC intervention, most of them agreed that the intervention was too short, and extra time as well as extra support (e.g. family or other organisations) could be helpful to change habits.
- Professionals, trainers, and volunteers involved in the intervention informed that participants were willing to continue the programme after 7 weeks.
- Most of stakeholders agreed that a continuation of the SEFAC intervention would be really positive.

7.4.2.2 Evaluation of participants' experiences and perceptions

Following the interviews with stakeholders involved in the SEFAC intervention, group interviews were also conducted with participants. The purpose of interviewing participants was to capture their experiences and perceptions of the SEFAC intervention.

A total of 3 group interviews, one per pilot site (with the exception of Cornwall), were conducted with 9 participants in the SEFAC intervention. The following conclusions on the implementation of the SEFAC intervention were collected from participants' interviews:

- In general, the SEFAC intervention was characterised as a positive experience, which they would recommend to other people.
- Most participants joined the SEFAC workshops because of curiosity and interest in improving their health and habits.
- The SEFAC handbook was seen as very useful and most participants used it every day for different purposes (homework practices, tests, reflections).

- The SEFAC app was used by half of the participants for keeping track of their progress or for the mindfulness practices (audios). The other half did not use the app or they just used it sometimes. A major concern with the SEFAC app was that is has not been developed for the iPhone Operating System (iOS).
- Regarding the practice of mindfulness, participants informed that they practice it. Each participant mentioned different uses and practises of mindfulness (guided meditations using the app, mindful walking, etc.).

Regarding the results or changes experienced after the SEFAC intervention, participants mentioned several benefits:

- Some participants reported changing small habits, such as walking more, eating lunch with more engagement or better sleep.
- Also changes in participants' feelings were described, such as better emotional control and being more conscious of living in the present.
- Some participants mentioned that more time is needed to convert these changes into habits.

7.4.2.3 Participant satisfaction

At baseline (T0) and at follow-up (T1), participants of the SEFAC intervention were asked to complete a questionnaire with questions regarding general characteristics and regarding relevant outcome measures. The follow-up questionnaire also included questions about their satisfaction with the SEFAC programme overall and with its three specific elements (mindfulness training, social engagement and the SEFAC app) as well as their experiences during the months following participation. In general, the majority of the participants considered the SEFAC programme beneficial and worthwhile (>81.2%). Overall, 75% or more of the participants reported that the three components of the programme stimulated them to work on a healthy lifestyle. More than 75% of the participants reported an improvement in self-awareness. More than two-thirds of the study population expected lasting benefits of the SEFAC programme. The mean satisfaction score was 8.2 on a scale from 1 to 10. In particular, participants' satisfaction with the

programme was lower in the Netherlands (7.5 out of 10) as compared to Croatia (9.0 out of 10) and Italy (7.7 out of 10); all pilot sites rated the SEFAC intervention on average above 7.5.

7.4.3 Evaluation of the effectiveness of SEFAC model

7.4.3.1 Design, setting and procedures

The evaluation study of the SEFAC programme had a pre-post design. Participants were recruited in accordance with the capacity, organisational factors, and contextual factors of each of the pilot sites. The target population consisted of community-dwelling citizens of 50 years and older with CVD and/or T2DM or at increased risk of developing CVD and/or T2DM. Citizens were not eligible to participate in the study if they were diagnosed with mild or serious cognitive impairment, were terminally ill or scheduled to enter secondary or tertiary care settings for a long period of time, not able to comprehend the information provided in the local language, or not able to make an informed decision regarding participation in the study. The objectives and the design of the study were described in a design paper (Zhang et al., 2019).

7.4.3.2 Data collection and measures

As mentioned before, data was collected by a self-reported questionnaire at both the first session (baseline, T0) and circa six months later (follow-up, T1). The topics of the questions (outcome measures) were: self-efficacy, lifestyle (physical exercise, sedentary behaviour, healthy eating, alcohol use and smoking), mental well-being (depression, stress, sleeping problems, fatigue), adherence to medication, social support, health-related quality of life (HR-QoL), health care utilisation, absence from paid work, and inability to perform unpaid work. In addition, various sociodemographic characteristics were measured, including age, sex, country of birth, marital status, household composition, educational level, income, and employment situation.

7.4.3.3 Statistical analysis

Descriptive statistics (mean (SD) and number of participants (%)) were used to summarise participants' characteristics in the total study sample and in each pilot site. Sociodemographic characteristics at baseline were compared between the pilot sites using one-way analysis of variance for continuous variables and chi-square tests for categorical variables.

To analyse the effectiveness of the SEFAC intervention, changes in the outcome measures between baseline and follow-up were examined. These changes were tested for statistical significance by means of the paired t-test (for continuous variables with a normal distribution) or the McNemar test (for categorical variables) for both the total study population and each of the pilot sites separately.

To analyse the cost-effectiveness of the SEFAC intervention, an exploratory analysis was performed from a health care perspective and societal perspective. For the health care perspective, health care costs for individual participants were determined by multiplying resource use (doctor appointments, emergency room visits, and hospitalised nights) with corresponding unit prices. For the societal perspective, productivity losses of individual participants (lost productivity at paid and unpaid work) followed from multiplying reported absence from paid work or reported inability to perform unpaid work (in hours) with corresponding hourly costs. Health utility values were obtained through items from the EQ-5D-5L instrument.

7.5 Results

7.5.1 Study population characteristics

Among the pilot sites of Croatia, Italy, and the Netherlands, 371 participants were recruited, of which 343 participants attended at least four of the seven mindfulness training sessions. A total of 325 participants completed both the baseline and follow-up questionnaire. This sample was used for the analyses described below. The pilot site of Cornwall, UK had a focus on social engagement; the evaluation is ongoing.

Baseline sociodemographic characteristics of the 325 participants: the mean age was 67 (SD 7.9) years, and 80% of the participants were female.

Comparison between pilot sites showed that the site's samples differed somewhat in all characteristics except for household composition. For example, there were more male participants in the Netherlands and few participants of foreign origin in Italy. One-third of the Croatian study population was widowed, as compared to 5% of the Dutch participants. The educational level and income of the Dutch sample was higher than of the Italian and Croatian samples. Participants in Croatia and Italy most often had a paid job, whereas half of the Dutch participants did not have a paid job. The mean Body Mass Index (BMI) of the total sample was 27 (SD 4.5), indicating overweight, with the highest mean BMI in the Netherlands. Overall, one-third of the study population had CVD and/or T2DM, while the other two-thirds had one or more risk factors. This distribution differed between study sites: half of the Dutch participants had CVD and/or T2DM as compared to 25% of the Croatian and Italian participants.

7.5.2 Effects of the SEFAC programme

We compared the outcome measures at baseline (T0) and follow-up (T1) of participants with both baseline and follow-up data (n=325). Over a period of six months, participants of the SEFAC programme experienced an increase in self-efficacy as assessed with four different instruments. In terms of healthy lifestyle, the participants reported more swimming and less sitting, but no significant changes in other lifestyle factors. The mental well-being of the participants improved over the six months: there was a significant reduction in depression rates. They also experienced a decrease in stress and sleep problems; though fatigue levels were unchanged. No significant change over time was observed for medication adherence. Social support increased. Moreover, physical and mental HR-QoL increased as well as health utility and self-rated overall health.

7.5.3 Cost-effectiveness

The cost-effectiveness of the SEFAC programme was studied from both a health care perspective and societal perspective. It was estimated that the changes in health care utilisation over the 6 months resulted in a mean saving of 55 euro per participant in the total sample of Croatian, Italian, and Dutch participants. Further, it was estimated that changes in productivity

losses at paid and unpaid work resulted in a mean saving of 789 euro per participant in the total sample. So together, the estimated societal cost savings of the SEFAC programme were on average 844 euro per participant. The health utility increased significantly. An important note here is that the number of participants reporting absence from work or inability to perform unpaid work were very small, indicating that these cost-effectiveness results should be interpreted with caution.

7.6 Lessons learnt from SEFAC

In general, from the SEFAC project evaluation the following lessons can be learned:

- The evaluation data supports the hypothesis that the SEFAC programme is successful to improve self-efficacy, sedentary behaviour, mental well-being, social support, and HR-QoL.
- The evaluation data did not confirm that the SEFAC programme improved physical exercise, healthy eating, alcohol use, smoking, and medication adherence.
- Additional strategies or longer duration of the intervention may be required to enhance self-management skills for facilitating a healthy lifestyle and thereby, preventing and managing (risk factors of) CVD and T2DM.
- Combining mindfulness training with a lifestyle intervention might have great potential to improve the outcomes of chronic lifestyle-related diseases.
- Of the three components of the SEFAC programme (mindfulness training, social engagement, and the SEFAC app), participant's satisfaction was highest with the mindfulness training. ICT support, such as the SEFAC app, needs clear guidance in order to be a successful tool. Given the rapid technological developments in digital therapeutics, it is worthwhile considering effective, existing apps, which promote mindfulness or lifestyle behaviour changes.
- Future studies with objective outcome measures of lifestyle factors and physical health, such as BMI, blood pressure, blood glucose, and blood cholesterol, are recommended.

- The SEFAC self-management programme, with a mindfulness component, social engagement, and ICT support, is recommended to be tested in a randomised controlled trial design in a heterogeneous population with a prolonged follow-up period.

The site-specific implementation approaches of the SEFAC programme provided additional valuable insights:

- The Croatian pilot site successfully involved patronage nurses, and assisted and monitored the participants after the initial series workshops. The site also provided tablet use for the SEFAC app, and practiced the use of the SEFAC app during the workshops.
- The Italian pilot site involved social engagement, and supported the programme by trained psychologists and therapists with experience in mindfulness training.
- The Dutch pilot site involved certified mindfulness trainers to offer the SEFAC workshops, and arranged social support through a buddy system. The SEFAC app was also introduced and tested as a tool, independent of the workshops.
- The UK pilot site applied social engagement following the experiences with the Newquay Pathfinder Program.

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This book describes the SEFAC project that was supported by the European Union's Third Health Programme. In four European cities, SEFAC developed and evaluated a training for citizens with (a risk for) chronic conditions to improve self-management. The book describes the social engagement framework, the SEFAC courses based on mindfulness, and the SEFAC app. These tools can be used to promote self-management and healthy lifestyles. We invite social and health professionals to use these results.