ISRCTN14905838 https://doi.org/10.1186/ISRCTN14905838

WELLBASED: Improving health, wellbeing and equality by evidenced-based urban policies for tackling energy poverty

Submission date	**Recruitment status**	[X] Prospectively registered
15/02/2022	No longer recruiting	[X] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
21/02/2022	Completed	[_] Results
Last Edited	**Condition category**	[_] Individual participant data
03/03/2026	Other	[X] Record updated in last year

Plain English summary of protocol

Background and aim
Nearly 11% of the European population lives in energy poverty. They struggle to afford their basic energy needs. They often live in poorly maintained building stocks and cannot adequately keep their home warm in winter and cool in summer. Energy poverty is a multidimensional problem caused by rising energy prices, low incomes, and poor energy efficiency of housing. People living in energy poverty maintain poorer health and wellbeing than non-energy poor citizens. In the WELLBASED project, six pilot sites (Valencia (Spain), Heerlen (Netherlands), Leeds (UK), Edirne (Turkey), Obuda (Hungary), and Jelgava (Latvia)) will implement and evaluate the WELLBASED urban program. The program is based on the socio-ecological model and adopted to each pilot site, the aim is to support people living in energy poverty and improve health and well-being. The study aims to recruit 1750 participants across the different pilot cities. The study' s findings should help to propose EU-wide solutions to policy-makers and city practitioners with regard to energy poverty and its impact on health.

Who can participate?
Vulnerable adults aged 18 or older who live in energy poverty conditions at one of the pilot sites.

What does the study involve?
Participants are invited to participate in the study at a communal center, a public space or when visited at home. Participants are allocated to one of two groups. The intervention group participates in the WELLBASED Urban Program. The other group is the control group. The WELLBASED Urban Program is a comprehensive urban programme based on the four layers of the social-ecological model. It includes actions related to the individual citizen (e.g. energy-audits, energy-behavior), the social and community networks (e.g. training of professionals), the living and working conditions (e.g. building improvements) and the socio-economic, cultural and environmental dimension (e.g. policy recommendations) to improve citizens' health and well-being. Actions are implemented for a period of 12 months. At baseline, 6 months, 12 months and 18 months participants in both groups complete self-report questionnaires assessing socio-demographic characteristics, energy poverty and health and well-being outcomes. In the intervention group, peak flow, blood pressure, SpO2, and heart rate are monitored monthly, and

sleep quality every three months. Sensors installed inside homes of the participants measure CO2, humidity, and temperature. In addition, in the intervention group twenty participants of each site are asked to participate in two interviews, at the beginning and towards the end of the study. During the interviews, people's experiences of challenges associated with energy poverty and health and with the WELLBASED program are discussed.

What are the possible benefits and risks of participating?
Participants in the intervention group will receive the benefits of the WELLBASED urban program and contribute to better health and wellbeing for people living in energy poverty. As this is a non-invasive study, no significant risks for participants are foreseen.

Where is the study run from?
Erasmus Univesity Medical Center (the Netherlands).
The WELLBASED project coordinator is Las Naves (Spain).

When is the study starting and how long is it expected to run for?
November 2021 to September 2024

Who is funding the study?
European Union's Horizon 2020 research and innovation programme under grant agreement No 945097.

Who is the main contact?
Dr. Amy van Grieken, a.vangrieken@erasmusmc.nl
Merel Stevens (researcher), m.stevens@erasmusmc.nl
Noemi Garcia (project coördinator), noemi.garcia@lasnaves.com

Contact information

Type(s)
Scientific

Contact name
Dr Amy van Grieken

ORCID ID
https://orcid.org/0000-0001-6767-9159

Contact details
Molenwaterplein 40
Rotterdam
Netherlands
3015 GD
+31 107043498
a.vangrieken@erasmusmc.nl

Type(s)
Public

Contact name
Mrs Merel Stevens

Contact details
Wytemaweg 80
Rotterdam
Netherlands
3000 CA
-
m.stevens@erasmusmc.nl

Additional identifiers

Protocol serial number
945097

Study information

Scientific Title
A comprehensive urban programme to reduce energy poverty and its effects on health and wellbeing of citizens in six European cities unable to afford their basic energy needs

Acronym
WELLBASED

Study objectives
The hypothesis of this study is that vulnerable people living in energy poverty who participate in the WELLBASED programme have more favourable results with regard to indicators of health, wellbeing and quality of life in comparison to the participants in the control condition.

Ethics approval required
Old ethics approval format

Ethics approval(s)
1. Approved 03/11/2021, Ethics committee for research with medicines of the university clinical hospital of Valencia (Avenida Blasco Ibáñez 17, 46010 Valencia, Spain; +34 96 197 39 76; ceic_hcv@gva.es), ref: 2021/316
2. Approved 04/07/2022, Ethics committee University of Leeds - AREA (Faculties of Business, Environment and Social Sciences, Leeds, UK; no telephone provided; ResearchEthics@leeds.ac.uk), ref: AREA 21-070
3. Approved 19/04/2022, Central Medical Ethics committee (Brīvības iela 72 k-1, LV 1011, Rīga, Latvia; +371 67876000; vm@vm.gov.lv), ref: Nr. 01-29.1.2/2267
4. Approved 21/03/2022, Medical Ethical Committee of Erasmus Medical Center (P.O. Box 2040, 3000 CA Rotterdam, Room Ae-337, the Netherlands), ref: MEC-2022-0150
5. Approved 06/04/2022, Trakya University Edirne Clinical Studies Ethical Committee (Turkey; no telephone provided; no email address provided), ref: 07/01
6. Approved 11/07/2022, Committee Name Egészségügyi Tudományos Tanács Tudományos és Kutatásetikai Bizottsága, ETT TUKEB (Scientific and Research Ethics Committee of the Medical Research Council, Ministry of Health, Medical Research Council Arany János u. 6-8 Budapest, H-1051 Hungary; +36 13119651; szolanka.jozsefne@eum.hu), ref. 332/2022

Primary study design

Interventional

Study design
Multisite pre-post controlled study design

Study type(s)
Quality of life

Health condition(s) or problem(s) studied
Energy poverty

Interventions
In the intervention group the WELLBASED Urban Programme is implemented. In the control group no intervention activities are implemented.

The WELLBASED Urban Program is a comprehensive urban programme based on the four layers of the social ecological model. It includes actions related to the individual citizen (e.g. energy-audits, energy-behavior), the social and community networks (e.g. training of professionals), the living and working conditions (e.g. building improvements) and the socio-economic, cultural and environmental dimension (e.g. policy recommendations) to improve citizens' health and well-being. Actions are implemented for a period of 12 months.

Data using self-report questionnaires will be collected at baseline (start of the implementation of the intervention in the intervention group), 6 months, 12 months and 18 months in both intervention and control group. Additional data is collected in the intervention group using mixed methods research.

Intervention Type
Behavioural

Primary outcome(s)
Current primary outcome measure as of 28/03/2023:
Health-related quality of life (HR-QoL) score measured using the EQ5D-5L scores at baseline, 6, 12, and 18 months

Previous primary outcome measure:
Health-related quality of life (HR-QoL) score measured using the Short-Form Health Survey 12 (SF-12) scores at baseline, 6, 12, and 18 months

Key secondary outcome(s)
Current secondary outcome measures as of 28/03/2023:
Measured at baseline, 6, 12 and 18 months:
1. Mental health measured using the Depression Anxiety Stress Scales 18 (DASS-18)
2. Self-perceived health measured using the EQ5D-5L
3. Frailty measured in older adults using the Brief Self-Administered Multidimensional Prognostic Index Short Form (Brief SELFY-MPI-SF)
4. Subjective comfort in households measured using the European Statistics on Income and Living conditions survey (EU-SILC)
5. Comorbidities measured using the ICHOM Overall Adult Health set
6. Lifestyle behaviour: BMI, and smoking status measured using the ICHOM Overall Adult Health set

7. Lifestyle behaviour: Physical activity measured using One item of the Internal Physical Activity Questionnaire (IPAQ)
8. Health care use measured using the Modified SMRC Health Care Utilization questionnaire
9. Energy poverty indicators measured using the European Statistics on Income and Living conditions survey (EU-SILC)
10. Attitudes measured using a self-reported scale
11. Energy consumption adopted from smart energy meters or self-report in the questionnaire
12. Household income spent on energy reported by the participant

In the intervention group, additional outcomes are collected:
13. Health monitoring: Peak flow, SpO2, heart rate and blood pressure will be measured every month
14. Sleep quality index measured using the Pittsburgh Sleep Quality Index every 3 months
15. Household conditions temperature, humidity and CO2 measured in real-time using home sensors
16. Impressions, comments, experience and subjective perceptions captured in a focus group and individual interviews

Previous secondary outcome measures:
Measured at baseline, 6, 12 and 18 months
1. Satisfaction with life measured using the Satisfaction with Life (SWL) scale (
2. Mental health measured using the Depression Anxiety Stress Scales 18 (DASS-18)
3. Self-perceived health measured using the Short Form Health Survey 12 (SF-12)
4. Frailty measured in older adults using the Self-Administered Multidimensional Prognostic Index Short Form (SELFY-MPI-SF)
5. Subjective comfort in households measured using the European Statistics on Income and Living conditions survey (EU-SILC)
6. Comorbidities measured using the ICHOM Overall Adult Health set
7. Lifestyle behaviour: BMI, alcohol consumption, smoking status measured using the ICHOM Overall Adult Health set
8. Lifestyle behaviour: Physical activity measured using One item of the Internal Physical Activity Questionnaire (IPAQ)
9. Loneliness measured using the UCLA 3-item Loneliness Scale
10. Control over life and social support measured using the Adult Social Care Outcomes Toolkit
11. Health care use measured using the Modified SMRC Health Care Utilization questionnaire
12. Energy poverty indicators measured using the European Statistics on Income and Living conditions survey (EU-SILC)
13. Attitudes measured using a self-reported scale.
14. Energy consumption adopted from energy providers or smart energy meters.
15. Household income spent on energy reported by the participant.

In the intervention group, additional outcomes are collected:
16. Health-monitoring: Peak flow, SpO2, and blood pressure will be measured every month.
17. Sleep quality index measured using the Pittsburgh Sleep Quality Index every 3 months.
18. Household conditions temperature, humidity and air quality measured real-time using home sensors.
19. Impressions, comments, experience and subjective perceptions captured in focus group and individual interviews.

Completion date
01/09/2024

Eligibility

Key inclusion criteria
1. Aged ≥18 years old
2. In a vulnerable situation (unemployed, low income, single parents, parents with dependent children, seniors (65+) with dependency conditions, seniors (65+) living along, people with disabilities attended by social services, belonging to a minority, migrant situation, etc.),
3. Living in energy poverty conditions
4. Belonging to the recruitment sites identified by the pilot partners for the study

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 Years

Upper age limit
100 Years

Sex
All

Total final enrolment
1340

Key exclusion criteria
1. Cannot adequately participate in the intervention actions proposed in the pilot (e.g. intellectual disabilities, severe language limitations)
2. Illegally connected to the electricity grid.

Date of first enrolment
01/09/2022

Date of final enrolment
30/06/2023

Locations

Countries of recruitment
United Kingdom

England

Hungary

Latvia

Netherlands

Spain

Türkiye

Study participating centre
Leeds City Council
Civic Hall
Calverley Street
Leeds
England
LS1 1UR

Study participating centre
Municipality of Heerlen
Geleenstraat 25
Heerlen
Netherlands
6400 AA

Study participating centre
Municipality of Edirne
Babademirtaş Mh., Mimar Sinan Cd. No:1, 22000 Edirne Merkez/Edirne, Turkey
Edirne
Türkiye
22000

Study participating centre
València Clima i Energia
Carrer de Joan Verdeguer, 16
València
Spain
46024

Study participating centre
INCLIVA
C. de Menéndez y Pelayo, 4, 46010 Valencia, Spain
Valencia

Spain
46010

Study participating centre
Óbuda-Békásmegyer Municipality
Óbuda-Békásmegyer
Budapest
Hungary
-

Study participating centre
Jelgava Municipality Operative Information Center
11 Liela Str., Jelgava, LV-3001
Jelgava
Latvia
LV-3001

Sponsor information

Organisation
European Commission

ROR
https://ror.org/00k4n6c32

Funder(s)

Funder type
Government

Funder Name
European Union’s Horizon 2020 research and innovation programme under grant agreement No 945097.

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol article		19/08/2022	22/08/2022	Yes	No
Other publications		09/12/2025	03/03/2026	Yes	No
Study website		11/11/2025	11/11/2025	No	Yes