RECETAS

Building Healthier and Better Socially Connected Communities Through Nature

Executive Summary

Loneliness is increasingly recognised as a Social Determinant of Health, referring to the social conditions that shape health and well-being. These determinants often interact and result in health inequities, meaning unfair and avoidable health disparities between individuals or population groups.

Loneliness contributes to many mental health disorders and, especially through the biological impact of chronic stress, also to poorer physical health. Its effect is increasingly recognised to be comparable to well known determinants of health such as smoking or obesity. The World Health Organisation therefore urges to "treat social health with the same urgency as physical and mental health".

Addressing loneliness therefore requires tackling its underlying systemic causes. Discrimination, stigmatisation, inequities or poor accessibility of infrastructure are known to lead to social exclusion. At the same time, practical interventions are needed to support individuals experiencing loneliness.

This policy brief therefore first offers an overview of loneliness as a public health issue and its implications for health systems. It later introduces Social Prescribing and Nature-Based Social Prescribing (NBSP) as innovative approaches that identify individuals at risk of loneliness and connect them with relevant non-medical activities.

The core concept of social prescribing is to connect healthcare providers, social services and communities in order to offer individuals more holistic support.

The RECETAS Horizon 2020 project aimed to produce evidence on the feasibility and the effectiveness of NBSP in several cities and on various vulnerable populations. The Prague study, conducted by Charles University researchers, focused on older adults living in non-institutional settings.

Given the demographic ageing of the Czech population, an increasing disease burden and pressure on the healthcare system is to be expected. Experts therefore highlight the need for practical and coordinated preventive responses.

The final part of this policy brief therefore suggests concrete steps on how NBSP could be progressively integrated into preventive health strategies and implemented at the municipal level in Prague and other Czech municipalities.

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I. Loneliness as a Public Health Problem: A Necessary Policy Focus

1. Loneliness as a social determinant of health

Over the last decade, loneliness has increasingly been recognised as a major social determinant of health. In 2023, the prestigious medical journal The Lancet described loneliness as an "epidemic"(Danielkiewicz, 2023), while the World Health Organisation (WHO) named the problem a "global public health concern" (World Health Organisation, 2025). Although loneliness is not a new phenomenon, the COVID-19 pandemic and the restrictive measures introduced to protect populations have brought the issue to the spotlight in public health debates (EU Loneliness Survey, 2022, de Jong Gierveld, 1998).

Social determinants of health are the social conditions in which people develop, evolve and age. They include factors such as people's economic situation, access to education and health care, socio-cultural environment and exposure to violence or discrimination.

The causal link from social determinants to health outcomes operates through multiple mechanisms, both direct and indirect. Different types of social determinants of health furthermore interact with each other and contribute to health disparities, understood as unfair and avoidable health inequalities between population groups.

In this context, social isolation and loneliness are considered to be social determinants of health. According to the WHO's definition, social isolation is an objective lack of necessary social ties, while, on the other hand, loneliness is one's subjective distressing feeling of not having as much social connection as one would consider fulfilling (WHO, 2025). Indeed, being alone does not necessarily cause feelings of loneliness, and most of us already happen to feel lonely while being surrounded by people. Both social isolation and loneliness can arise from multiple causes, which can be both individual and societal (Barjaková et al., 2022).

While robust evidence precisely proving causal relationships is scarce, it is generally accepted as a fact that **some population groups such as migrants, people with disabilities, people experiencing poverty or people with certain personality traits such as neuroticism tend to be more vulnerable to it** (EU Loneliness Survey, 2022, Barjaková et al., 2022). Marriage, partnership and living arrangements also play a major role, and interestingly especially for men (Barjaková et al., 2022). The complex relationship between all these characteristics and loneliness can moreover be bidirectional (Barjaková et al., 2022).

Furthermore, loneliness affects individuals from all genders and ages. While not all studies necessarily found that they on average report feeling more lonely, **older adults are in fact more often socially isolated** (EU Loneliness Survey, 2022). A recent systematic review of the literature found that spousal loss, poorer health and sensory impairments seem to be among the main risk factors of loneliness among this population group (Hajek et al., 2025). Urban design, accessibility of infrastructures, the increasing digitalisation of our world and the participation of older adults in society have also been often proposed as strong drivers of the isolation they can experience (de Jong Gierveld, 1998, Wang et al., 2025).

Worldwide, according to the WHO, 1 in 6 people are affected by loneliness. The EU Loneliness Survey, conducted in 2022, found that 35% of European citizens report feeling lonely occasionally and that 13% of them were feeling lonely most of the time during the previous few months (EU Loneliness Survey, 2022).

In Prague, as in other European cities, older adults represent a significant part of the population. As of 2023, residents aged 50 to 79 account for approximately 32% of the population of Prague, which is approximately 420,000 individuals from this age group living in the city (Czech Statistical Office, 2024). Almost one third (29%) of these individuals live alone (SCaC, 2022), which is, as mentioned above, a factor strongly associated with increased vulnerability to loneliness.

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According to the 2022 Prague survey on aging, 4% of adults aged 50+ report feeling lonely "often" and an additional 22% experience loneliness "occasionally". This corresponds to an estimated **18,000 individuals in Prague**, **only among older adults, experiencing frequent loneliness**. According to this survey, feelings of loneliness are significantly more prevalent among those living alone and among women (SCaC,2022).

2. The impact of loneliness on health

A report from the United Nations estimated that, worldwide, through various mechanisms, loneliness is responsible for an average of **100 deaths every hour** (WHO, 2025).

A lack of sufficient social bonds removes an important protective factor against adverse life events and weakens individuals' coping capacity. This situation can lead to a downhill spiral where health and social challenges interact in a negative feedback loop. Different types of social determinants of health moreover typically interact and can exacerbate each other, which often leads to a multifaceted cumulative disadvantage (Wang et al., 2025, Barjaková et al., 2022).

As a result of the psychological distress it causes, loneliness also severely impacts mental health and can play a role in the development of many psychiatric diseases. Evidence from meta-analytical studies indicates that loneliness increases the risk of developing depression by more than 40%. While subjective feelings of loneliness could in theory be the result of depression, a systematic review noted that most of the studies which investigated the issue found that a baseline of loneliness is associated with subsequent development of depressive disorders. This suggests that loneliness may play a causal role in the occurrence of depression (Mann et al., 2022).

Social isolation and loneliness also affect physical health directly and increase the **risk of developing multiple chronic conditions**. The chronic stress they generate can in turn negatively affect health through various physiological and behavioral pathways.

Beyond its psychological effects, loneliness is increasingly recognised as a factor influencing physical health outcomes. Longitudinal studies suggest that loneliness may contribute to an increased risk of dementia later in life, independently of objective social isolation. In the context of Prague's ageing population, and the resulting increase in the share of residents at risk of dementia, these findings point to a potentially **growing burden for health and long-term care systems**.

Furthermore, through various physiological and behavioral pathways, social isolation and loneliness also affect physical health and increase the risk of developing multiple chronic conditions. The chronic stress associated with loneliness is increasingly recognised as an important pathway linking social distress to poor physical health outcomes.

Taken together, these elements highlight that **loneliness is not only a social experience but also a risk factor for both mental and physical health, with growing implications for healthcare systems and public health policy**. Given the ageing of Prague's population and the resulting increase in the share of the population at risk for dementia, this represents a substantial future burden for health and long-term care systems."

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3. Burden on health system and economic implications

As a result of these health impacts, **loneliness is associated with increased use of primary care services, higher rates of hospitalisation and greater demand for long-term care**. In Prague, research documents psychosocial vulnerability and demand for support among older residents (SCaC, 2022). Municipal planning documents further indicate sustained demand and capacity planning for home-based social services in the context of demographic ageing (HMP, 2023).

Importantly, **loneliness is not an inevitable consequence of aging but a modifiable social determinant of health**. International research has provided substantial evidence that loneliness represents a legitimate and modifiable factor which can be a target for preventive, community-based public health interventions. Given the measurable health, social and economic consequences of loneliness in Prague, addressing it requires systemic, preventive and cross-sectoral public policy responses.

4. Why current public policies fall short in loneliness: the need to re-defining loneliness as a public health problem

While loneliness and social isolation are part of the upstream causal pathways of many diseases, they are rarely addressed as such in public health practice. In the European Union, only a few countries formally include these determinants as a part of their public health policies. It is however becoming increasingly clear that they deserve greater attention and should be integrated more systematically in policy making discussions (WHO, 2025). The WHO calls for all relevant sectors to treat “social health with the same urgency as physical and mental health”.

Although social determinants of health are increasingly recognised in research and policy debates, health systems remain largely organised around biomedical approaches.

In addition, each medical specialty functions in institutional silos, and health systems often operate separately from other relevant public services. However, many factors such as the education system, cultural institutions or social services play a role in the population's social health. Coordination between health, social, and environmental sectors is still limited in most public policy frameworks.

5. Why public policies fall short in loneliness: addressing its macro level roots

Beyond institutional limitations described above, social isolation and loneliness tend to be perceived as an individual problem rather than a societal one. However, they themselves stem from multiple underlying **systemic factors**. Vulnerable populations are generally at higher risk of loneliness. Especially, characteristics such as low socioeconomic status, disability, poor health status or migration put individuals at higher risk of experiencing loneliness.

The stigmatisation and discriminations which often affect minorities or people with specific **health conditions** can also drive loneliness by causing social exclusion. Public policies on loneliness therefore naturally fall short where public policies addressing these underlying issues themselves fall short.

Furthermore, **urban design and planning can also play a major role in loneliness** by enabling or preventing individuals from connecting. Accessibility of public spaces, transport and buildings can indeed have a direct effect on the opportunities that population groups with specific needs have to meet other people. It must moreover be kept in mind that barriers can be visible, such as physical obstacles, or **invisible**, such as communication barriers that prevent participation in public activities and access to public natural spaces.

Extreme weather conditions, such as icy cold, snow and ice in winter, or harsh sun and heat in the summer can reduce people with vulnerable health and seniors’ mobility, which subsequently increase isolation risks. As a result of global climate change it is to be expected that summers’ heat waves and extreme weather events such as storms will become increasingly both frequent and severe in the coming decades.

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Urban design and infrastructures should therefore be prepared for these changes and for the impact it will have on vulnerable populations.

Finally, loneliness can itself carry its own stigmatising meanings. Lonely people can be perceived or portrayed in a stigmatising manner. They can also have internalised the stigma and their loneliness became accompanied by a sense of shame or responsibility. As a result, individuals may be reluctant to admit loneliness and therefore to seek assistance in improving their situation.

There isn't therefore one simple and straightforward solution to resolve loneliness as a public health issue. It rather requires addressing each of its multiple upstream societal causes such as socioeconomic inequalities, discrimination or faulty urban design. A **holistic understanding** of the phenomenon which takes into account its complexity is therefore necessary (Barjaková et al., 2022). Moreover, as determinants of loneliness vary between individuals and further interact, addressing each risk factor as an isolated problem may be insufficient in many cases (Barjaková et al., 2022). Solutions should also be carefully rooted in empirical knowledge as incorrect assumptions on loneliness are common (Barjaková et al., 2022).

These structural drivers highlight the need for **coordinated policy responses** that go beyond healthcare systems and address loneliness through **social, urban and community-based** approaches.

II. RECETAS Evidence and the Czech Policy Gap

Through social prescribing, **healthcare or social professionals can refer patients to non-medical community-based activities aimed at improving wellbeing** by addressing social, emotional or practical needs. The implementation of social prescribing can rely on several models.

One of the ways to connect patients and prescribers with community-based activities to create the role of link workers, directly integrated into healthcare centers. The mission of link workers is to connect the patients to with the relevant local services, enabling them to take part in prescribed activities, such as social services, counselling or community-based activities such as cultural activities, mental health support groups, outdoor or volunteering activities.

Experts involved in social prescribing recently reported on global developments in this area in 17 countries, including Australia, Canada, Spain, Denmark, Finland, the USA, and others.

Regarding implementation and administrative framework, several methods exist in countries which have already included social prescribing in their public health strategy. In the United Kingdom, social prescribing is embedded within primary care, supported by publicly funded link workers coordinating referrals between health services and community organisations (NHS England, 2019). On the other hand, health services don't necessarily have to be the only entrance to such services. In a pilot intervention in Marseilles in the context of the RECETAS project, "prescribers" were the social services.

Nature-Based Social Prescribing extends this approach by integrating structured group activities in natural environments. Previous research suggests that such interventions can strengthen social relationships and support well-being (Vert et al., 2024). Systematic reviews demonstrate that exposure to green space reduces stress, improves mental wellbeing, supports physical activity and strengthens social bonds (Hartig et al., 2014; Twohig-Bennett & Jones, 2018; Sachs et al., 2024). Early findings confirm that nature serves as a "third facilitator," supporting social interaction and stress reduction (Vert et al., 2024). NBSP therefore combines preventive health intervention, community engagement and the use of existing urban infrastructure.

This makes NBSP a promising tool for addressing loneliness through preventive and community-based interventions.

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1. Early evidence from the Prague social prescribing pilot intervention

The RECETAS project (Horizon 2020) tests Nature-Based Social Prescribing (NBSP) as a preventive and scalable response to this challenge in six cities, including Prague (Coll-Planas et al., 2024). In Prague, the RECETAS project focused on **older adults living in urban areas**. The experiments started in the context of the COVID-19 pandemic. For many, this major public health crisis worsened the preexisting mobility limitations and lack of social contacts, resulting in increased distress.

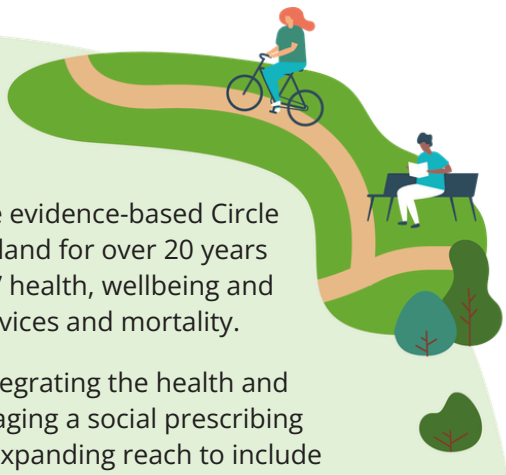
Nature-based group activities therefore emerged as a relevant intervention in this context. Moreover, despite increasing urbanisation, Prague offers an ideal setting to test such interventions in an urban environment thanks to its wealth of parks and riverfronts. For these reasons, a randomized controlled trial was conducted by researchers from Charles University from 2021 to 2026.

Cities involved in the RECETAS project focused on various vulnerable populations such as older adults, people with low socioeconomic status, LGBTQIA+ or asylum seekers. In Prague, the population of interest was adults older than 65 years, living in non-institutional settings and experiencing loneliness.

Researchers intentionally didn't define loneliness in any objective nor quantitative manner, but rather as a subjective perception of a distressing lack of social contacts. As loneliness is a subjective experience, the inclusion criterion relied on the participant's own assessment of their situation.

However, as their isolation inherently made them harder to reach, gathering participants required a significant effort and extensive collaboration with healthcare facilities, social services and local media. Various channels were used to reach out to thousands of people. After detailed screening, 322 participants were included in the study.

The core intervention, "Friends in Nature," adapts the proven Finnish "Circle of Friends" peer support model for urban green spaces (Pitkälä et al., 2026). The Friends in Nature intervention, based on the Finnish Circle of Friends model (Pitkälä et al., 2009), was adapted in Prague through a participatory process and implemented within the RECETAS framework (Coll-Planas et al., 2024).



Friends in Nature's Methodology

The core intervention, Friends in Nature, builds on the evidence-based Circle of Friends model, developed and implemented in Finland for over 20 years which has been shown to improve lonely older adults' health, wellbeing and cognition and to reduce their use of healthcare services and mortality.

RECETAS adapted this proven model by systematically integrating the health and social benefits of exposure to natural environments, leveraging a social prescribing framework to facilitate adoption and implementation, and expanding reach to include people over 18 years of age.

Friends in Nature follows a community-based, empowerment-oriented design, and person-centred model, combining a fixed number of weekly group sessions with nature based activities from a co-created local menu.

Groups are supported by trained facilitators whose role is to guide group dynamics while progressively transferring decision-making power to participants, fostering autonomy and the durability of social connections.

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Among the 322 participants, half underwent the intervention, while the other half was offered standard support. Both groups were regularly asked to fill detailed surveys, in order for the researchers to be able to accurately assess the effectiveness of the intervention on their physical, mental and social well-being.

As activities took place in Prague's green spaces and outskirts, implementation also required attention to accessibility and safety for older participants.

While the final study data are currently under evaluation, the Prague pilot has already demonstrated:

- operational feasibility in an urban setting,
- stakeholder engagement and local capacity,
- strong participants interest,
- clearly identifiable systemic barriers to implementation.

The main constraint is therefore not a lack of local capacity, but **absence of institutional embedding**. The evidence and institutional analysis presented above indicate that **Prague does not lack activities, infrastructure or community actors**. It lacks an **operational framework capable of systematically linking them**.

The following chapter outlines policy steps necessary to institutionalize Nature-Based Social Prescribing in Prague and, subsequently, in the Czech Republic.

2. Czech strategies: alignment without operational tools

The Czech Republic already possesses a strong strategic framework supporting prevention and community-based care, including Health Strategy 2030 (MZČR, 2020), the National Action Plan for Mental Health 2020–2030 (MZČR, 2020a), and Prague's Strategic Plan and Community Plan for Social Services (HMP, 2022; HMP, 2023).
These policies emphasize mental health promotion, prevention, intersectoral cooperation and the importance of green infrastructure.

However, they do not provide concrete operational procedures specifically linking healthcare, social services and community actors in everyday practice. By its holistic nature, Nature Based Social Prescribing inherently offers a practical mechanism capable of bridging these sectors.

3. The Prague context: structural risk and underused potential

Building on the demographic and social vulnerability patterns described above, Prague represents a relevant setting for preventive interventions addressing loneliness.

Loneliness is therefore not a marginal phenomenon but rather structurally embedded in demographic and urban change. On the other hand, Prague benefits from a **wealth of green spaces** and from an **active community sector**, including numerous NGOs focused on older adults.

Mapping conducted within the RECETAS project moreover identified a broad range of already existing nature-oriented activities (WP3 RECETAS Prague Final Report, 2024).

However, keys barriers to the implementation of nature based social prescribing remain:

- lack of coordination across sectors,
- absence of a formal referral mechanism,
- limited linkage to primary healthcare,
- fragmented information flows,
- absence of long-term evaluation and stable funding.

This lack of systematic solutions creates a clear implementation gap between the strategic objectives of municipal and national policies and their practical application. Nature-Based Social Prescribing offers a practical mechanism capable of addressing this gap by systematically linking healthcare providers, social services and community-based activities.

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III. Policy Proposals: From Pilot Project to Systemic Prevention

The analysis presented above highlights a clear implementation gap. While Czech national and municipal strategies emphasize prevention, mental health promotion and intersectoral cooperation, concrete operational mechanisms linking healthcare, social services and community-based activities remain limited. The Prague RECETAS pilot demonstrates that Nature-Based Social Prescribing (NBSP) is operationally feasible in the local context. The following policy steps outline how this approach could be progressively institutionalized in Prague and potentially scaled within the Czech public health system.

1. Municipal piloting and recognition of social prescribing within prevention policy

Social prescribing could first be **formally recognized and piloted within municipal prevention and public health strategies**. Municipalities represent a particularly suitable level for piloting such approaches, as they already coordinate social services, community initiatives and many local public health activities.

Such recognition would align operational practice with existing strategic commitments including Health Strategy 2030 and the National Action Plan for Mental Health (MZČR, 2020; MZČR, 2020a), while allowing local authorities to pilot concrete implementation mechanisms.

Recognition does not require immediate legislative change and could begin through municipal pilot implementation, potentially supported by methodological guidance from national health authorities.

Prague represents a particularly suitable setting for such an initiative, as the RECETAS project has already piloted Nature-Based Social Prescribing interventions in the city and demonstrated their operational feasibility in the local context.

Building on this existing experience would allow Prague to move from a research-based intervention toward a **structured preventive policy instrument**.

Initial implementation could therefore be led at the municipal level, integrating social prescribing into existing prevention, mental health and community care initiatives. Prague could serve as an early implementation site, while other municipalities interested in preventive innovation could adopt similar pilot approaches.

2. Integration into primary care and preventive services

Loneliness should be recognized as a psychosocial risk factor within preventive healthcare consultations. Healthcare professionals could be supported through **targeted training and awareness-raising** to identify individuals experiencing social isolation.

Through **structured referral pathways**, healthcare providers could connect individuals to relevant community-based programs, including nature-based activities.

Nature-Based Social Prescribing should complement clinical care rather than replace it, strengthening preventive and community-based support for patients.

3. Establishment of a coordination mechanism

International experience shows that effective social prescribing systems require coordination mechanisms linking healthcare providers, social services and community organizations (NHS England, 2019; WHO Europe, 2023).
Municipal pilot implementation would therefore require a coordination mechanism responsible for facilitating referrals and linking key actors involved in prevention and community care.

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The coordination mechanism could connect:

- primary healthcare providers,
- social services,
- community organizations,
- municipal authorities.

In practice, this function could take the form of a dedicated coordinator or "link worker", supporting communication between institutions and helping individuals navigate available community-based activities.

The model does not necessarily require a fixed institutional structure. A competency-based coordination model could allow responsibilities to be distributed according to existing institutional capacities and local conditions. This flexible approach would allow municipalities to adapt the coordination function to their specific context.

Where appropriate, coordination could be anchored within existing municipal structures responsible for social and community services. In Prague, for example, this role could be situated **within the Prague City Hall Department of Social Affairs**.

Such coordination would allow community activities to be more systematically connected to healthcare and social care pathways through structured referral processes.

4. Development of information and evaluation infrastructure

A **database of verified nature-based and community activities** should be established to support referral pathways and coordination across sectors. At the municipal level, this database could be developed and maintained by institutions responsible for coordinating social and community services. In Prague, for example, this role could be undertaken by the Prague City Hall Department of Social Affairs.

This database should be shared with patients, healthcare professionals, social workers and other prescribers. By centralizing information from local organizations and nature-related initiatives in a single, shared interface, the platform gives prescribers real-time visibility into effective practices, while allowing facilitators to easily manage participation and impact reports.

Evaluation mechanisms should monitor participation rates, wellbeing indicators and potential system-level impacts.

While the final results of the Prague RCT outcome data are forthcoming, early institutionalization can proceed in parallel with evaluation, positioning Prague as a potential frontrunner in preventive innovation.

5. Mobilizing urban green infrastructure

Urban green spaces represent an important yet often underused resource for preventive health interventions.

Nature-Based Social Prescribing could therefore be supported through urban planning and green infrastructure strategies that promote **accessible and inclusive outdoor environments**.

This may include different kinds of actions :

- Mobility and territorial planning: improving accessibility of parks and riverbanks for older adults, strengthening the connectivity of natural areas through public transportation,
- Social policies : supporting community activities in green spaces,
- Governance : strengthening cooperation between public health actors and urban planning institutions.

In Prague, such cooperation could involve the Municipality of Prague, and other institutions such as the Prague Institute of Planning and Development (IPR Prague), which already works on urban planning and public space development.

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6. Stable and diversified funding mechanisms

Long-term sustainability requires moving beyond project-based funding toward stable and diversified financing mechanisms.

Potential funding sources include:

- municipal prevention budgets,
- national public health and mental health programs
- public health grants and research funding,
- potential future involvement of health insurance funds.

Investment in preventive interventions addressing loneliness may contribute to reducing long-term healthcare and social care costs. In the context of demographic ageing, preventive investment may reduce future pressure on healthcare and social support systems.

Conclusion

In the Czech context, the key policy challenge is not whether loneliness is a problem, but how to address it constructively, systematically through preventive and coordinated public policies.

Systemic social issues which lead to loneliness are deep and complex problems which must be themselves addressed. In order to act preventively, it is indeed necessary to address the multiple systemic factors which lead to social exclusion. These include social phenomena such as discrimination, stigmatization and inequities. Social Prescribing offers an evidence-informed, operationally feasible tool capable of translating strategic commitments into a practical preventive action at an individual level.

Prague and the Czech Republic moreover already possess clear strategic goals in terms of public health, strong community capacity and sufficient urban green spaces. Nature-Based Social Prescribing has already been operationalized through an academic pilot intervention in Prague, but what remains missing is its formal implementation. For this purpose, systematic steps to connect institutions and organizations providing medical and social care is essential. The experimentation of social prescribing at local scale in Prague could be a first step. The creation of a coordination mechanism to better connect community-based activities and healthcare workers, the development of an updated database of available activities, and the establishment of an evaluation mechanism are important first tools to be developed.

Delaying public health policies addressing social determinants of health such as loneliness risks losing the opportunity to translate research innovation into sustainable public policy. In the context of demographic aging, rising economic inequalities and climate change, inaction is likely to have consequences and therefore increase pressure on the system.

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