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Lucie Cattaneo , Alexandre Daguzan , Gabriela García Velez , Stephanie Gentile *

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Conceptualizing a Community-Based Response to Loneliness: The Representational Anchoring of Nature-Based Social Prescription by Professionals in Marseille, Insights from the RECETAS Project

Lucie Cattaneo[1], Alexandre Daguzan[1], Gabriela García Vélez[3] and Stéphanie Gentile[1,2]

[1] Service d'Evaluation Médicale, Hôpital sainte Marguerite, 270 Bd de Sainte-Marguerite, 13009 Marseille Assistance Publique des Hôpitaux de Marseille

[2] Aix Marseille Université, School of medicine, SSA, RITMES,

[3] CPM research group, Faculty of Architecture and Urbanism, University of Cuenca, Ecuador

* Correspondence: stephanie.gentile@ap-hm.fr

Abstract: Background: Urban loneliness is rising worldwide and is a recognised public-health threat. Nature-Based Social Prescriptions (NBSP), guided group activities in natural settings, are being piloted in six cities through the EU project RECETAS. However, in new contexts such as Marseille, its implementation is constrained by professionals' limited knowledge of the concept. **Objectives:** (i) Exploring how professionals in Marseille (France) conceptualise NBSP; (ii) Identifying perceived facilitators and barriers to implementing NBSP among residents facing social isolation and loneliness. **Methods:** Twelve semi-structured interviews were conducted with health, social-care and urban-environment professionals selected via network mapping and snowball sampling. Verbatim transcripts underwent inductive thematic analysis informed by Social Representation Theory, with double coding to enhance reliability. **Results:** Five analytic themes emerged: (1) a holistic health paradigm linking nature, community and wellbeing; (2) stark ecological inequities with limited green-space access in deprived districts; (3) work challenges due to the urgent needs of individuals facing significant socio-economic challenges in demanding contexts; (4) a key tension between a perceived top-down process and a preference for participatory approaches; (5) drivers and obstacles: strong professional endorsement of NBSP meets significant systemic and institutional constraints. **Conclusions:** Professionals endorse NBSP as a promising approach against loneliness provided programmes tackle structural inequities and adopt participatory governance. Results inform the Marseille RECETAS pilot and contribute to global discussions on environmentally anchored health promotion.

Keywords: loneliness; social isolation; nature-based social prescription; social representations; qualitative research; urban inequalities; participatory approaches; health promotion; health inequalities

Introduction

Loneliness, defined as the perceived gap between desired and actual social relationships, has become a major public-health determinant [1]. In France, the proportion of adults who report feeling lonely "often or almost every day" rose from 19 % in 2020 to 29 % in 2022 [2]. This rise mirrors global trends driven by rapid urbanisation, fragmentation of family ties and, more recently, COVID-19 distancing measures. Chronic loneliness is linked to a 26 % increase in all-cause mortality and is an established risk factor for cardiovascular disease, depression and cognitive decline [3]. Yet despite robust evidence, loneliness receives limited institutional recognition and is still framed largely as an individual shortcoming [4]. In France in particular, loneliness remains a stigmatized experience, often

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explained by presumed individual deficits such as poor social skills or personal inadequacy, rather than understood as the result of adverse social, economic, or environmental conditions [2,4-6].

This gap calls for innovative responses grounded in a systemic understanding of loneliness. One such response is social prescribing, as exemplified by its development within the UK National Health Service (NHS) [7]. Social prescribing, which connects patients with non-medical community activities such as creative workshops, walking groups or volunteering, has been shown to improve subjective well-being, bolster self-esteem, and reduce social isolation and loneliness [8]. A promising extension, Nature-Based Social Prescription (NBSP), aims to strengthen well-being and social cohesion by harnessing the health benefits of natural environments: reducing stress, creating opportunities for social connection, and fostering a sense of community belonging [9]. Rooted in the framework of the social determinants of health (SDH), NBSP is especially relevant in urban settings marked by deprivation, unequal access to care and territorial fragmentation.

Marseille, France's second-largest city and a major Mediterranean port, is characterised by a sharp socio-territorial divide, with socio-economically disadvantaged neighbourhoods concentrated in its northern districts, whereas the southern districts are comparatively more well-resourced. The 1st, 2nd, 3rd, 14th, and 15th arrondissements concentrate most of the city's 38 Priority Neighbourhoods (Quartiers Prioritaires de la Ville, QPV), officially designated areas identified on the basis of income and other socio-economic indicators, which receive targeted public interventions to reduce territorial inequalities. In these districts, poverty rates reach or exceed 39% [10], a figure significantly higher than the national average of 14.6% [11]. The 3rd arrondissement is currently the poorest in France, with one resident in two living below the poverty line. These neighbourhoods, in a city historically shaped by successive waves of migration, are now home largely to residents of North-African, sub-Saharan-African, and Comorian origin.[12]. They face intersecting forms of disadvantage, including economic hardship, territorial stigmatisation, language barriers, and limited familiarity with administrative systems, all of which constrain the development of social support networks and reinforce structural isolation [13]. However, individuals facing various forms of precarity (such as available income, access to decent housing, education, social protection, and the quality of social and family ties) do not constitute a homogeneous group in Marseille, where more than one in four inhabitants lives below the poverty line (approximately 200,000 people). Isolated individuals are overrepresented among specific demographics: young people, low-income older adults, people with disabilities or illnesses facing mobility challenges, and single-parent families in highly precarious situations with school-aged children [14].

Mobility-related inequalities further compound these challenges. Although Marseille is five times larger in area than Lyon (France's third-largest metropolitan area), it has only 30 kilometers of metro and tram infrastructure, compared to 73 kilometers in Lyon. This limited public transport provision contributes to uneven access to services and opportunities. In the most deprived neighbourhoods, 40 percent of households do not own a private vehicle, compared to 22 % city-wide [15], further restricting access to employment and social participation. As a result, Marseille can be considered a segregated and fragmented city, where France's wealthiest and poorest populations co-exist in distinct districts [14]. Environmental inequalities exacerbate these challenges. Although the Calanques National Park covers 20 percent of Marseille's territory, the city provides 5 square meters of green space per inhabitant [16]. This represents six times less than in Lyon and falls well below World Health Organization (WHO) recommendations, which set a minimum of 9 square meters and an ideal target of 50 square meters per person [17]. These inequalities in access and mobility are particularly amplified for vulnerable populations in the city's northern districts and for those experiencing intersecting forms of precarity, making nature both physically and symbolically distant despite its well-documented health and social benefits.

In this context, loneliness in Marseille cannot be reduced to a psychological state. It is a predictable outcome of systemic social, territorial and environmental injustice. This intersection is precisely where the European project RECETAS (*Reimagining Environments for Connection and Engagement: Testing Actions for Social Prescribing in Natural Spaces*) operates. Launched in 2021,

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RECETAS pilots NBSP interventions in six cities: Marseille, Melbourne, Helsinki, Barcelona, Prague and Cuenca. The project's central aim is to reduce loneliness in urban settings by testing and evaluating an innovative intervention based on NBSP [18]. In Marseille, the intervention targets residents of deprived neighbourhoods, many of whom live in precarious conditions and face migration-related structural barriers. These populations are particularly at risk of chronic loneliness due to overlapping forms of exclusion rooted in their lived experiences of multiple precarities. To adapt the intervention to this local context, RECETAS designed a co-creative process with local actors, structured in three progressive phases: diagnosis, participatory diagnosis, and co-creation [19]. The initial diagnosis phase sought to build a foundational understanding of the local context, its challenges, and the network of actors capable of proposing nature-based solutions.

The present study is situated within this initial diagnosis phase, a pre-implementation stage when NBSP was still largely unknown. A 2021 mapping of actors conducted in 2021 as part of RECETAS showed that 89% of professionals in Marseille were unfamiliar with the term. When faced with a socially unfamiliar object such as NBSP, the process of anchoring, a key mechanism of Social Representation Theory (SRT), provides a particularly relevant analytical framework [20]. According to Moscovici, this theory describes how social groups appropriate new objects through a developmental process based on two interdependent mechanisms: objectification and anchoring [21]. While objectification transforms the abstract notion of NBSP into a simplified, concrete image, anchoring embeds this new image within pre-existing knowledge, values and practices, making the unfamiliar concept familiar and functional within a social group. Analysing this anchoring process is therefore a strategic step to better understand how a community health innovation is appropriated amongst professionals within an ecosystem of precarity, and to anticipate its potential pathways of adoption, reshaping, or resistance. Therefore, the aim of this study is to explore how practitioners in health, social care, and urban-environment sectors initially conceptualized NBSP, and to identify the facilitators and barriers they anticipate in its implementation.

Methods

1. Study design

This study adopts an exploratory qualitative approach. The methodology is grounded in a constructivist and interpretivist epistemological stance, which holds that knowledge is co-constructed through interaction and shaped by social and professional contexts. This positioning aligns with the theoretical framework of Social Representation Theory, particularly the process of anchoring, through which a new social object, such as NBSP, is made meaningful based on pre-existing knowledge and shared understandings held by individuals, for instance, regarding conceptions of health and nature [22]. Based on the principle that this knowledge is mobilized by actors and accessible through individual discourse, an inductive approach using research interviews makes it possible to explore the categories and meanings used to construct the concept of NBSP [23]. The holistic nature of qualitative inquiry is especially well suited to capturing the complexity involved in integrating an emerging concept such as Nature-Based Social Prescription (NBSP) across different professional domains, where disciplinary boundaries, limited institutional recognition, and unfamiliarity with the approach may challenge its implementation. The study is reported in accordance with the COREQ (Consolidated Criteria for Reporting Qualitative Research) checklist [24].

2. Participants and recruitment

Participant recruitment was based on a 2021 mapping of local actors. This mapping took the form of a Social Network Analysis (SNA), conducted in collaboration with Visible Network Labs via the PARTNER platform. Its objective was to understand how organizations in the pilot cities were addressing loneliness and well-being through social prescribing and nature-based activities. For the Marseille context, this analysis identified a network of 392 organizations, from which the 12

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professionals were ultimately selected to participate in this study based on the inclusion criteria (see Table 1).

Drawing on the Marseille dataset, the sample was constructed using purposive sampling, supplemented by a snowball sampling technique [25], to ensure sectoral diversity (health, social work, urban planning, environmental NGOs). The inclusion criteria were twofold: (1) representing key NBSP domains (health, social action, urban nature) and (2) holding either a decision-making or operational role, in order to capture representations across different hierarchical levels. This sample size was sufficient to reach thematic saturation, defined as the point at which no significant new data emerged regarding the main themes [26].

Table 1. Distribution of the sample according to professional affiliation.

Interview	*Profession*	*Organization*
1	Educator	Social support drop-in center
2	Coordinator	Local non-profit association
3	General practitioner	Primary healthcare unit
4	Manager	Regional public health agency
5	Head of service	Shelter and social reintegration center
6	Project officer	Municipal urban agriculture initiative
7	Project officer	Municipal urban agriculture initiative
8	Coordinator	Public health and urban health programme
9	General practitioner	Hospital-based healthcare unit
10	Project officer	Regional public health agency
11	Coordinator	Municipal environmental department
12	Volunteer, Association President	Community gardening association

Data collection

Twelve semi-structured interviews (SSI) were conducted in person, each lasting between 45 and 75 minutes. All professionals were informed of the study's objectives and the voluntary nature of their participation. They were also informed that no nominative data (direct or indirect) would be collected. Verbal informed consent was obtained prior to each interview, in accordance with ethical standards for minimal-risk qualitative research [27]. The interviews were conducted by a health psychologist trained in qualitative methods and discourse analysis, ensuring both methodological consistency and sensitivity to the personal and professional dimensions explored. Each interview began with a free-association task in which professionals were asked to spontaneously cite four words or ideas that came to mind upon hearing the term "Nature-Based Social Prescription". This technique, commonly used in research on social representations, is designed to elicit immediate associations and latent representations prior to engaging in a guided discussion [23]. Unlike some approaches that analyze these evocations in isolation, it was decided to incorporate them directly into the broader thematic analysis, consistent with a holistic interpretation of meaning construction on a new social object such as NBSP.

The remainder of the interview followed a semi-structured guide organized around five thematic areas: (1) professional role and positioning; (2) professional experiences with the target populations; (3) perceptions of loneliness and well-being; (4) the role of nature in health and social action; (5) conditions for the appropriation of NBSP and the involvement of target groups (see Appendix A).

Data analysis

All interviews were transcribed verbatim and analyzed using an inductive thematic analysis following a six-step approach [28]. After an initial immersion phase involving repeated readings of the transcripts, each interview was systematically coded into distinct units of meaning, which were

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then grouped to form potential initial themes. To ensure reliability, this initial coding was conducted independently by two health psychologists. They then met to compare their coding, discuss and resolve any discrepancies, and establish a final, consensual coding scheme. This scheme was subsequently applied to the entire dataset, focusing on identifying commonalities and differences across interviews, which allowed for the naming and hierarchical organization of the final themes and sub-themes.

The combined integration of spontaneous discourse (from the free-association task) and more developed reflections enabled a nuanced interpretation of the anchoring processes at the core of professionals' emerging representations of NBSP.

Results

Thematic content analysis revealed five major themes and thirteen sub-themes, as detailed in Table 2. These themes are: (I) a holistic conception of health, community, and nature; (II) structural inequalities in Marseille; (III) populations facing cumulative disadvantage; (IV) pathways toward participation and recognition; (V) barriers and facilitators to NBSP implementation.

Table 2. Thematic structure of the analysis: key themes and sub-themes regarding the implementation of Nature-Based Social Prescription (NBSP).

Themes		*Sub-themes*	
I.	**A holistic conception of health, community, and nature**	1	Health as a multidimensional and interconnected phenomenon
		2	The need for social belonging as a core human experience
		3	Perceived continuity between humans and nature
		4	Nature-based activities as catalysts for social connection
II.	**Structural inequalities in Marseille**	5	Urban living conditions as a barrier to well-being
		6	Reproduction of social inequalities through unequal access to nature
III.	**Populations facing cumulative disadvantage**	7	A focus on basic needs limiting long-term engagement
		8	Expressions of psychosocial distress among target groups
IV.	**Pathways toward participation and recognition**	9	Conditions for meaningful public participation
		10	Recognition of local knowledge and lived experience
V.	**Barriers and facilitators to NBSP implementation**	11	Difficulties in engaging structurally isolated populations
		12	Institutional constraints and top-down dynamics
		13	Enablers of NBSP implementation

A holistic conception of health, community, and nature

This first theme comprises three sub-themes: an ecosystemic view of health, the fundamental role of social belonging, and nature as a vital and socially mediating entity.

Professionals consensually articulated an integrated vision of health, nature, and community. Health was unanimously described as a dynamic ecosystem involving multiple interacting factors, with one professional explaining that basic needs like eating and housing are often considered priorities, "*without realizing that this is already part of global health*" (SSI 9). Several professionals emphasized the importance of social connections, with a vast majority of professionals stating that nature-based interventions foster strong social bonds. One professional highlighted the need to *"feel surrounded, to feel like we belong to a community, even if it's just for the duration of a one-hour activity"* (SSI 6), while another described interventions such as NBSP as enabling a "*social encounter between inhabitants of the same neighbourhood or building*" (SSI 10). Nature was perceived as a foundational element, *"what keeps us alive"* (SSI 12), and as a means of connection, helping to *"break symbolic barriers"* (SSI 3). This was underlined by a clear majority of professionals who described nature as a vital need for humans. This ontological connection between humans and nature often took on a spiritual dimension in professionals' discourse. Nature was described as a superior and autonomous entity that surpasses us, is beautiful by essence, and universal across all cultures, with one professional stating, *"it seems to me that spirituality is completely part of the relationship with nature. We are part of a*

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whole" (SSI 5). This shared vision was seen as favorable to the acceptance of NBSP, which was perceived as a logical extension of this holistic perspective.

2. Structural inequalities in Marseille

This theme comprises two sub-themes: the city as a hostile environment and the unequal distribution of natural spaces. Professionals described Marseille's urban context as a significant barrier to well-being, pointing to a stark imbalance between concrete and green areas. This is illustrated by comments such as, "*In my neighbourhood, there's concrete everywhere, not even a single tree*" (SSI 3). This perception is compounded by what many described as a degraded state of the built environment, including dense housing, traffic congestion, and noise, leading to Marseille being perceived as a city that is "*difficult to live in, noisy, and tiring*" (SSI 16). As one professional summarised, "*living in Marseille is in itself a factor of stress, and when you add precarity on top of that, it's really hard to breathe*" (SSI 7). This challenging environment is marked by a starkly unequal distribution of natural resources, which professionals see as a social divide. This is highlighted by observations like, "*in the chic neighbourhoods there's greenery, and in the others much less*" (SSI 11), framing nature access as a 'luxury'. Consequently, even major assets like the Calanques National Park, described as a "*green lung*" (SSI 18), are considered difficult to access for certain populations. Access is limited not only by physical distance but also by a combination of social and symbolic barriers, perfectly captured by one professional: "*nature is right there, but in practice, it's far away for the people we work with*" (SSI 4).

3. Populations facing cumulative disadvantage

This theme is structured around three sub-themes: the effects of precarity on social isolation and loneliness, specific barriers to participation, and the potential of nature as a resource for personal valorisation.

Professionals described the target populations as facing multiple and intersecting forms of disadvantage. They referred to situations of *"uprooting"* (SSI 1), loss of reference points and social status, often intensified by stigma. One professional described them as a *"politically easy target"* (SSI 9). This demanding work context, professionals report, is dominated by a *"very short-term vision"* (SSI 9), as their efforts are constantly focused on addressing target populations' primary concerns. Basic physiological needs, such as housing and food, were reported as dominant concerns: *"finding housing, food, a roof over their heads"* (SSI 6). Several specific obstacles to participation were highlighted, including *"language barriers"*, *"cultural practices"* (SSI 9); institutional mistrust: *"fear of being caught by the police on the way"* (SSI 9); and significant symbolic barriers that confine individuals to their immediate surroundings: *"outside of their housing estate they don't dare to go out, it's complicated for them… Even their knowledge of their own city…"* (SSI 10).

Nevertheless, some professionals identified nature as a potential vector for revaluation and personal recognition, especially for individuals with a rural background who could reconnect with past agricultural skills. It was seen as a way to restore self-esteem and competencies: *"it shows them they haven't lost their skills"* (SSI 1). Some individuals, particularly women, were reported to have explicitly asked professionals for access to natural spaces: *"they ask to go out and ask for access to nature"* (SSI 4).

4. Pathways toward participation and recognition

This theme comprises two sub-themes: the importance of participatory design and empowerment, and the tensions surrounding the term *"prescription."*

Professionals strongly emphasized the need for a participatory approach, which they felt should begin with a diagnosis of needs established with the community itself. They expressed the desire to *"start from [people's] experiences and the lessons they draw from them"* (SSI 5), and to build on their internal resources, asking, *"How to help the other find their own solutions… starting from their experiences, that's what's important"* (SSI 5). Some spoke of forming a *"core group to drive the process"* (SSI 12) or offering

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"close, hands-on support" (SSI 10) with the ultimate goal of fostering autonomy. Assigning responsibilities was described as *"highly empowering and ego-boosting"* (SSI 1).

At the same time, the term *"prescription"* elicited mixed reactions. For some, it was perceived as a motivating element: *"It provides structure, it's reassuring for patients, they know it's not just a walk"* (SSI 10). Others, however, viewed it as problematic because it activates representations of medical authority and an asymmetrical power dynamic. They argued, *"Prescription sounds like a medical order. That's not what we want, we want to start from them"* (SSI 6). This revealed a tension between the top-down connotation of the term and the co-construction approach promoted by professionals, whose philosophy aligns more closely with humanistic psychology that values individual choice and autonomy.

5. Barriers and facilitators to NBSP implementation

This final theme includes four sub-themes related to territorial constraints, limited institutional resources, identity-based levers, and a shared set of professional values.

Professionals identified several structural barriers to the implementation of NBSP. A lack of nearby green spaces and difficulties accessing natural sites like the Calanques were frequently mentioned: *"There are places you just can't get to, even if you want to"* (SSI 6). Institutional constraints also emerged: *"We're already overloaded with projects, we can't do everything"* (SSI 8). Furthermore, professionals highlighted the inherent difficulty of mobilizing and sustaining involvement over time, noting that for multi-vulnerable individuals, "*if you ask people to commit long-term, it's complicated*" (SSI 11).

At the same time, several facilitators were highlighted. First, the alignment of NBSP principles with existing professional values: *"We're not inventing anything new, we're just putting a framework around what we already do"* (SSI 11). Second, nature was seen as a powerful vehicle for restoring self-esteem: *"It helps them regain confidence because it's not medical, it's alive"* (SSI 1). This was reinforced by the idea that NBSP could serve as a replicable pilot for other populations, as one professional noted: "*these people are participating in a pilot project that could later serve other publics*" (SSI 7). Finally, a strong sense of social urgency in response to growing loneliness and social isolation reinforced the perceived necessity of the NBSP intervention: *"We don't have a choice anymore, we need to do something"* (SSI 4).

4. Discussion

Thematic analysis, interpreted through the lens of Social Representation Theory, highlighted the dynamics through which professionals appropriate the concept of Nature-Based Social Prescription (NBSP) by mobilizing and articulating various forms of pre-existing knowledge related to nature and health, as well as to social and territorial inequalities. This anchoring process unfolds along three main axes: a consensual anchoring of NBSP in a holistic vision of health and nature; its perceived relevance in the face of Marseille's territorial inequalities; and a paradox between participatory ideals and barriers to implementation, crystallised around the term "*prescription*".

Anchoring NBSP in a representation of nature as a lever for biopsychosocial health promotion

Professionals' receptiveness to the concept of NBSP is closely linked to its anchoring in a widespread and consensual social representation of nature as a fundamental pillar of health. This receptiveness is grounded in a holistic conceptual framework that echoes several theoretical traditions, including health promotion, environmental psychology, and the One Health approach.

Professionals' views on health align with the model of health promotion as defined by the Ottawa Charter [29] and more recent approaches. These models conceptualize health as a complex, intersectoral and multi-level framework of interventions, involving diverse actors, promoting participation and empowerment, and aiming at health equity [30]. By focusing on the social and environmental determinants of well-being, health promotion provides an interpretative framework

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conducive to accepting interventions that target these same levers. Indeed, this study's exploration of how practitioners from the health, social care, and urban environment sectors understand NBSP highlights nature connection as a fundamental determinant of health. This vision thus moves beyond a purely biomedical approach and aligns fully with a comprehensive health promotion perspective, aimed at empowering individuals to improve their own health and meet their need for social belonging through direct interaction with natural environments.

The benefits of nature described by professionals align with key theories in environmental psychology, particularly Ulrich's stress reduction theory and Wohlwill's characterization of the qualities of nature-based experiences. Ulrich posits an innate biophilia, whereby nature constitutes an intrinsically soothing and aesthetic environment capable of alleviating the anxiety associated with loneliness [31]. Wohlwill further identifies four experiential qualities of nature: first, its autonomous character, whose organic growth and transformations inspire wonder; second, its visual properties, perceived as more ordered and predictable than urban spaces, which foster a sense of safety; third, its capacity to slow down vigilance mechanisms; and finally, its profound symbolic meanings [32]. For some professionals, the connection between nature and health extends beyond well-being to encompass identity formation, reflecting the principle that nature and the self are closely intertwined across individual life trajectories [33]. The anchoring of NBSP is thus both collective, as it is shared within specific professional paradigms, and individual, resonating with deeply personal experiences.

Together, these qualities foster a state of receptivity and predispose individuals to social interaction. This intrinsic affinity for living environments explains why professionals consider nature a universal language capable of facilitating connection and alleviating loneliness. By acting on both the individual (to reduce emotional burden) and the environment (to create opportunities for meaningful encounters), nature addresses loneliness on two levels: it soothes its psychological weight and helps build the social bonds that counter it. Along these lines, it has been shown that nature immersions can reduce emotional and social loneliness by fostering social interactions and community integration [34]. This integrated health-nature perspective, which grounds NBSP in the logic of health promotion, offers a systemic response to loneliness. Rather than seeing it merely as a lack of contact, loneliness is understood as a rupture in the connection between human well-being and the quality of the surrounding social and natural environment. This view resonates with broader contemporary approaches, such as the One Health concept, which emphasizes the interdependence of human, animal and ecosystem health [35]. It also foreshadows the perspective of Planetary Health, in which loneliness may be interpreted as a symptom of a fractured relationship between human civilization and global natural systems [36]. The favorable reception of NBSP by professionals interviewed in Marseille can thus be seen not only as interest in a novel intervention, but as an expression of the deeper need to repair the relationship between individuals and the living world, acknowledging that social and ecological health are deeply intertwined.

Future research should explore this anchoring more deeply by including a broader range of professional profiles to assess its robustness across different sectors. Attention should also be paid to how this health–nature linkage is translated into practice and embedded within potentially constraining institutional frameworks.

Territorial disparities in Marseille as drivers of health and loneliness inequalities

While the idea of nature as a source of well-being is broadly universal, its operationalization through NBSP is perceived by professionals as deeply rooted in the specific context of Marseille. NBSP is seen as a targeted response to territorial fractures which, as shown by the analysis of social determinants of health (SDH) in the city, directly contribute to residents' social vulnerability and experiences of loneliness.

Professionals describe a stark contrast between Marseille's northern districts, which are dense, under-resourced, and lacking in green spaces, and it's more affluent, spacious southern neighborhoods. This reflects the concept of the social gradient in health, which illustrates how

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differences in income and living conditions translate into observable disparities in health outcomes [37]. Such a context constitutes a form of environmental injustice, where professionals clearly identify a dual burden borne by residents of France's poorest districts. These individuals are not only more exposed to loneliness due to economic precarity but also suffer from limited opportunities for informal social encounters as a result of poor-quality public spaces in their immediate environment. This introduces a second, territorial determinant of social isolation.

Structural barriers such as mobility constraints further exacerbate this dynamic. In the Priority Neighborhoods, deficient public transport infrastructure, compounded by the fact that 40% of households do not own a car, reinforces geographic confinement and limits access to larger natural areas [15]. This territorial dimension of loneliness is inseparable from its psychosocial consequences. As the literature highlights, loneliness is closely associated with stigma and is often experienced through shame and self-deprecation, leading to social avoidance [2,4-6]. The relevance of NBSP lies precisely in its potential to address these psychological barriers by reducing fear of judgment, restoring self-esteem, enhancing recognition of individual strengths, and deconstructing internalized obstacles to social connection.

The tension between an empowerment ideal and a perceived top-down intervention model

The implementation of NBSP among vulnerable populations reveals a central paradox in professionals' discourse, which oscillates between a philosophy grounded in empowerment and a form of pragmatism shaped by structural determinism.

On the one hand, professionals express an intervention ideal strongly aligned with humanistic approaches. Their desire to start from people's lived experiences and help others find their own solutions directly echoes Rogers' person-centred approach [38]. This ideal corresponds to what is referred to as *praxis*: an action aimed at recognising the other as the main agent of their own autonomy, particularly in their effort to overcome loneliness [39]. However, this ideal of *doing with* comes into sharp contrast with professionals' analysis of their beneficiaries' living conditions. To justify the difficulty, or even the impossibility, of fostering participation, professionals frequently refer to Maslow's hierarchy of needs [40]. In their view, it is unrealistic to expect engagement in needs for belonging or self-actualisation (which are nonetheless at the heart of alleviating loneliness) when basic physiological and safety needs remain unmet. This reasoning, which attributes vulnerability to external structural factors, aligns with Strauss's perspective, in which vulnerability is understood as the product of social processes embedded in everyday life [41].

This is where the paradox emerges. While professionals are clearly attuned to the structural determinants of loneliness, some narratives hint at a tendency to reassign responsibility back onto individuals. This tension reflects an ambivalent framing of the problem, situated somewhere between structural approaches and individualising models. As suggested by Abric, such a stance may also reflect a representation of the social worker's role as primarily assisting individuals in difficulty, rather than engaging in complex efforts to dismantle mechanisms of social exclusion [42]. This ambivalence underscores the need for a paradigm shift in health promotion, favouring community-based and systemic action, such as that proposed by NBSP.

The paradox between participatory ideals and pragmatic constraints is most saliently expressed in the semantic debate surrounding the term "*prescription*". Far from being neutral, the term serves as a point of rupture, crystallising tensions between two models of intervention. For half of the professionals interviewed, it evokes a social representation of medical authority, perceived as a top-down and asymmetrical process [43]. This perspective is interpreted as a legacy of the medical monopoly, in which the physician is seen to possess knowledge where others do not [44]. Consequently, the word "*prescription*" becomes a symbol of a model that negates individual agency and stands in direct opposition to the *praxis* and *collaborative ethos* professionals seek to uphold. Thus, "*prescription*" becomes more than a word. It embodies a core challenge for NBSP: reconciling a holistic, socially rooted vision of health with practices inherited from the biomedical model. This tension

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elevates terminology to a strategic issue, the resolution of which is critical for fostering a shared professional culture and ensuring that implementation remains aligned with empowerment-based principles.

These tensions reveal a fundamental contradiction between the recognition of structural determinants and the persistence of individualising narratives. This framing, which often portrays NBSP as a primarily individual intervention, risks sidelining the collective dimension of health promotion, a dimension that is nonetheless essential. Loneliness should not be reduced to an individual experience alone, as it is closely linked to the quality of social networks, opportunities for civic participation, and dynamics of social recognition. It is precisely this collective dimension that NBSP aims to address. By mobilising nature as a non-stigmatising relational third space that facilitates the emergence of new collective narratives and strengthens psychosocial cohesion, NBSP aspires to produce multiple effects. These include a reduction of emotional loneliness (alleviating the feeling of facing one's difficulties alone), subjective restoration of self-worth (a renewed sense of belonging and social usefulness), and reconnection with others through the reactivation of localised social dynamics (renewed contacts, integration into other activities).

Despite the paradoxes observed, NBSP holds the potential to serve as a true mechanism for repairing social bonds. It may help transform loneliness into a more shareable experience: one that is more tolerable, and even mobilisable as a foundation for rebuilding mental well-being.

Limits

This study presents several contextual, methodological, and epistemological limitations. First, the specific context of Marseille, marked by significant territorial disparities, a particular urban geography, and high levels of social precarity, constitutes both a source of analytical richness and a limiting factor for the transferability of the findings to other settings.

From a methodological perspective, the sample size, although aligned with qualitative standards in terms of thematic saturation [26], does not allow for generalisation of the results, particularly regarding the relationship between professional affiliation and social representations and the specific context of the study, conducted in Marseille. Furthermore, the absence of interviewee feedback (member checking), although justified by the intention to preserve the spontaneity of responses, limits the external validation of the interpretations.

Regarding the analysis, although conducted with rigour, it inevitably involves a degree of subjectivity inherent in qualitative approaches. The complementary use of textual analysis software could have further enriched the interpretation. Likewise, while the decision to integrate free associations into the overall thematic analysis is consistent with an interpretative stance, some readers might question the absence of a distinct structural or prototypical analysis, which could have shed additional light on the underlying socio-cognitive dimensions.

Practical implications for NBSP implementation

This study led to the formulation of a set of operational recommendations that subsequently guided the implementation of NBSP in Marseille. Rooted in both the specific territorial context and the principles of health promotion, these actions aimed to strengthen the relevance, effectiveness, and equity of Nature-Based Social Prescription (NBSP) as a strategy to address loneliness.

To enhance accessibility, NBSP was primarily implemented in priority neighbourhoods, in partnership with locally embedded professionals. A set of progressive and adaptable activities, such as nature walks and gardening workshops, was co-designed with professionals and the target populations during the second and third phases of the co-creation process of RECETAS. These included a participatory diagnostic phase and the collective definition of a panel of NBSP activities. Five focus groups supported this process, which aimed not only to foster empowerment by valuing individuals' own resources, but also to build a shared culture around care, social connection, and nature. Professional reflexivity was also supported through interprofessional exchange sessions

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designed to foster a common culture. Finally, a mixed-methods evaluation was implemented to assess lived experience, changes in perceived loneliness, well-being and quality of life outcomes. By integrating environmental, social, cultural, and psychological dimensions, Nature-Based Social Prescription (NBSP) emerges as a systemic response to the multidimensional determinants of loneliness. This study highlights that this approach is positively received by professionals due to its grounding in a holistic view of health and in shared representations of nature as a source of well-being and social connection.

Conclusion

In the Marseille context, marked by significant territorial inequalities, NBSP is perceived as an innovative lever for disrupting mechanisms of social exclusion. The uniqueness of this territory lies in the coexistence of diverse natural environments, offering a distinctive potential to create spaces for social encounters where nature can function as a relational third place, safe and non-stigmatizing. It is precisely this collective dimension that NBSP aims to strengthen, by facilitating the emergence of new shared narratives and reinforcing psychosocial cohesion at the local level. Its anticipated effects include a reduction of emotional loneliness (by alleviating the feeling of facing difficulties alone), subjective enhancement (through a renewed sense of belonging and social usefulness), and reconnection with others through the reactivation of localized social dynamics (renewed contacts, integration into other activities). Thus, despite the paradoxes identified and supported by other works that have studied the representation of nature in Marseille and shown both the richness of its peripheral natural spaces and a fragmented urban nature, [45] NBSP may act as a genuine mechanism for repairing social bonds, contributing to a transformation of loneliness into a shareable, more tolerable experience, and even a potential foundation for the restoration of mental well-being. However, this dynamic encounters structural tensions. Although professionals advocate for participatory ideals, they are confronted with the material and psychological constraints of the target populations, which may lead to more top-down forms of intervention than initially envisioned. These findings invite us to consider NBSP not merely as a sector-specific innovation but as an opportunity to renew public health paradigms.

Firstly, it suggests the need to explicitly frame the reduction of emotional loneliness and the strengthening of social belonging as central objectives. To achieve its full potential, NBSP must move beyond the boundaries of individual interventions and be embedded within a collective and contextualized strategy, supported by ambitious public policies and training programs that promote professional reflexivity and active beneficiary involvement. Secondly, NBSP, as a new social object and intervention in France, derives its meaning from a deep interdependence between health, natural spaces, and social relations. The recognition of this interdependence implies an integration of human and ecosystem health, a concept known as Planetary Health [36]. This holistic and integrative representation of health, through which the interviewed professionals understand NBSP, also reflects a shift towards an ecological model of public health [46]. This new ecological public health transcends individualistic preventive and curative approaches and, much like the field of health promotion, calls for a consideration of social determinants of health at the macro level and an expanded responsibility for health across disciplines beyond traditional healthcare boundaries.

A further significant finding is the profoundly relational character of NBSP, where nature is conceptualized as a resource for developing social bonds. This characteristic suggests reframing ecology itself (and by extension, the ecological public health model previously cited) in a resolutely relational orientation, thinking of ecology as the possibility of forging connections between humans, and between humans and natural spaces [47]. This notion is supported by previous research on the social representations of nature, which has highlighted the importance of introducing relational values (between people and between people and nature) to develop systemic strategies around nature and human well-being [48].

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