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Using participatory research and a web-based interactive map to promote health

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Community resources and health

Research demonstrates that resources in the community contribute to health and quality of life for local inhabitants (Frumkin, 2013; Gidlow, 2010; World Health Organization [WHO], 2012). Specifically, at the physical and material level, resources such as green spaces, parks, and recreational facilities enhance health through greater physical activity and an active lifestyle (Li, 2022; Sallis et al., 2012). At the social level, resources including libraries, shops, and café terraces benefit health through social interactions (Klinenberg, 2018). Identifying these health resources and understanding how they contribute to a healthy living environment is therefore vital for health promotion in the community.

Communities function as central arenas for health-promotion efforts as individuals and community spaces interact in daily life (WHO, 2017). Local residents have first-hand knowledge of the community environment, as they live in apartment buildings, use bus and metro stations, and relax in parks and green spaces. To extract local residents' first-hand knowledge of the community, our team has partnered with them through a participatory mapping activity in order to understand how interventions can make communities healthier and more livable.

The community-based participatory tool described here aims at identifying health-enhancing resources by engaging residents' situated knowledge. Through participatory activities and sketch mapping, we identify community sites for their resources that enhance physical, mental, social, and spiritual health. This map is accessible to the public on the "Cause Commune" website: https://causecommune.ch/carteinteractive/#15/46.5270/6.5825

Experience with community-based participatory mapping

Located in the Swiss canton of Vaud, the municipality of Chavannes-près-Renens has a diverse population: 52% of its 8,060 inhabitants (December, 2019) are of non-Swiss origins, representing nearly 100 nationalities spanning Africa, Asia, North and South Americas, the Middle East, and other parts of Europe (Plattet & Spini, 2021). This municipality confronts several challenges (Plattet & Spini, 2021), including a lack of social infrastructures (Klinenberg, 2016) where residents can engage in socio-cultural activities, and social isolation among segments of the population, particularly older migrants with limited educational attainment (Li & Spini, 2022).

To promote social integration and health, increasing attention is paid to better understand disparities in well-being in the community (Plattet & Spini, 2021). The development of this web-based interactive map tool is part of the Participatory Action Research (PAR) project "Cause Commune" involving local residents in Chavannes-près-Renens (Plattet & Spini, 2021). PAR is an approach that aims to engage and promote the competences of local residents to bring about changes in the community (Minkler & Wallerstein, 2008). As such, the Cause Commune project is developed to identify intervention pathways to promote health in Chavannes-près-Renens by engaging inhabitant's competencies with the local environment.

As part of the "Cause Commune" project, a task group named "La santé dans tous ses états" was organized in October 2021 (Figure 1). This participatory activity was designed to capture local inhabitants' knowledge of the health resources present on the municipal territory, not only for physical health, but also for mental, social and spiritual health (Cause Commune, 2021). Through interactive activities, participants were invited to share their knowledge of the local living environment, by reflecting and deconstructing the social and material resources in the community that they perceived as health-enhancing.

Figure 1. Event poster for "La santé dans tous ses états"

Geospatial health with an interactive map tool

Specifically, participants engaged in sketch-mapping by placing coloured markers on a printed map of the municipality to indicate "health sites", or locations for health resources (see front page photo). Participants were given the opportunity to provide comments for specific health sites of their choice. For example, participants commented on how they perceived a public venue enhanced their mental and physical health, and what challenges they faced in accessing these resources. To preserve confidentiality, all comments were fully anonymized.

Based on data collected from the focus group, 112 places were identified for their resources that enhance ➡

four domains of health: physical, mental, social, and spiritual. These 112 places were subsequently geo-coded, visualized in four spatial layers (one layer per health domain), and illustrated in a public web-based interactive map using QGIS (Quantum Geographic Information System) following the steps outlined below.

First, each marker on the printed map from the aforementioned participatory activity was matched to a specific set of geographic coordinates. Second, the geographic coordinates corresponding to each 'health site', along with the comments associated with the health sites, were integrated in GIS layers, where each one of the four layers represents a health domain. Third, all layers were spatially joined to a satellite base map and a transportation layer incorporating street names and major landmarks (e.g. train station) to facilitate situational recognition of the health sites. Finally, to present the spatial and textual information in a user-friendly manner, a web-based interactive map was generated using QGIS.

The map (Figure 2) showed health sites that were clustered around existing public places: educational (e.g. Ecole de la Planta), recreational (e.g. Forêt du Caudray, Parc Robinson, Parcours en Forêt), and spiritual facilities (e.g. Eglise des Glycines, Chapelle de Renens). The interactive map was published on both the municipality and «Cause Commune project» websites, available at: https://causecommune.ch/carteinteractive/#15/46.5270/6.5825.

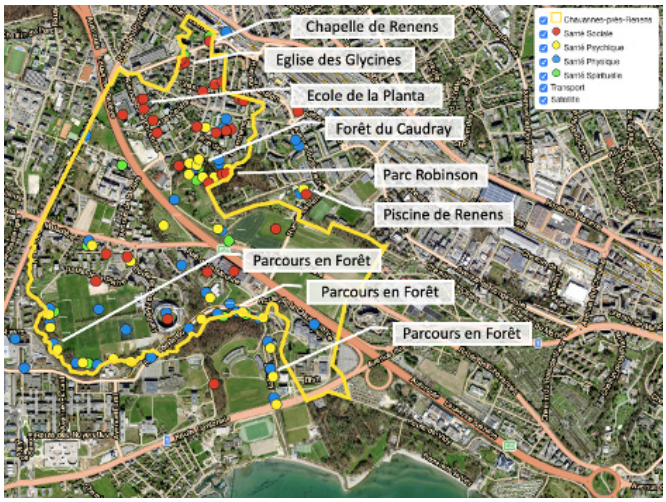

Figure 2. Selected public areas in the municipality

Conclusion

Several public venues were identified as supporting multiple domains of health. For example, while Parc Robinson provides green spaces for relaxation and physical health, it was also seen by local inhabitants as enhancing spiritual health, social health, and mental health. Similarly, Piscine de Renens, a swimming pool and water sport facility (Figure 2), was perceived as simultaneously benefitting physical health, mental health, and social health. This points to the 'multi-functionality' of these public venues in terms of health resources where inhabitants engage in social interactions and physical activity (Li, 2022), suggesting that investment in these health sites may be particularly beneficial in promoting health in the municipality.

This interactive map, a tool for understanding place-based resources and assessing community needs, benefits not only municipal inhabitants but also local administrators and urban planners. For inhabitants, the map provides information on the spatial distribution of health sites and the resources they provide, serving as a guidepost for future health-enhancing activities in their living environment. For administrators, the map shows whether actions are needed to improve accessibility, maintenance, and communication in an effort to promote health in the municipality. For example, inhabitants' feedback on difficulty accessing particular health sites or issues of noise and pollution may suggest that priority attention is needed in maintaining a health site in question. For urban planners, the interactive map offers unique insights into inhabitants' preferences and perceptions in the environment and how they are attached to the place-based resources in the community. Finally, while we used this community interactive map tool in the context of one community event, the tool can be expanded and enriched with information from inhabitants from other locations. Future designs and programs to enhance safety for play spaces, better accessibility to health sites, and mixed-use facilities that enhance multiple domains of health may prove particularly beneficial ■

Interactive map :

https://causecommune.ch/carteinteractive/#15/46.5270/6.5825

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