

A decade of progress: comparative evaluation of the Israel Healthy Cities Network

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Summary

Established in 1990, Israel's Healthy Cities Network (HCN) performed its first evaluation in 2003–2004. A decade later, the present evaluation was implemented to assess members' compliance with the European HCN requirements and to determine progress made since the initial evaluation. A total of 31 of the existing 42 HCN members participated in this mixed methods evaluation. Based on the Monitoring, Accountability, Reporting, and Impact assessment framework, the evaluation questionnaire integrated Healthy Cities' principles and strategies. Univariate and bivariate analyses were used to investigate municipality performance as well as associations between indicators and structural or process measures. Matched-paired *t*-tests were performed to compare HCN member cities' initial evaluation with the current evaluation. Qualitative analyses explored the processes involved in implementing the Healthy Cities approach. The current evaluation found that Israel's HCN complies with all European HCN requirements, except for producing a city health profile. Increased coordinators' time investment, maintaining municipal health steering committee meetings and attending HCN activities were positively associated with better score on all dimensions. There was no significant difference between the two evaluation scores for all HCN cities collectively; however, within city comparisons indicated significant change. Coordinators reported that there was added value in HCN membership and conveyed a need for better network facilities, publicity and improved public relations. This evaluation validates the previous evaluation's findings and informs decision makers and municipal leaders regarding potential areas to modify or expand, both on the municipality level and the network at large.

Lay summary

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Keywords: healthy cities, evaluation, implementation, municipality, steering committee

INTRODUCTION

Since its establishment in 1987, the WHO European Healthy Cities Network (HCN) has consistently integrated evaluation into its operations. These evaluations focused on fulfillment of both WHO requirements for accreditation as well as principles and strategies of the HCN approach. Given that HCN requirements, principles and strategies, as well as evaluation methodologies have evolved over the past 30 years, evaluation procedures have also progressed significantly.

Initially, HCN evaluations were primarily qualitative, consisting of interviews with activists, politicians and professionals participating Healthy Cities (De Leeuw, 2012). Subsequent evaluations incorporated quantitative methodologies, including elements of the Monitoring, Accountability, Reporting, and Impact assessment (MARI) framework (De Leeuw, 1999). Later evaluations utilized a realist synthesis methodology developed by the WHO European Research team in consultation with Healthy Cities representatives (De Leeuw *et al.*, 2015a). This evaluation used a multi-method approach, including case reports describing the implementation of HCN criteria, a closed questionnaire referring to strategic attributes and thematic areas, as well as reported documents and existing data from the municipalities. The newly minted ‘governance for health’ perspective was analyzed through case studies submitted by designated Healthy Cities (De Leeuw *et al.*, 2015b).

In 2018, at the WHO European HCN’s 30-year anniversary celebratory Summit of Mayors, a new vision and strategic approach for the European HCN was adopted (Ashton *et al.*, 2018). This ‘Healthier and Happier Cities for All’ implementation framework was aligned with the United Nations 2030 Agenda for Sustainable Development (United Nation, 2015) and outlined cities’ commitment to healthy, safe, inclusive, sustainable and resilient societies (WHO, 2018). This framework represented a quantum leap in the WHO requirements for accreditation compared with previous years (WHO, 2009, 2013) and necessitated inclusion in subsequent evaluation procedures.

Israel initiated its HCN in 1990 with four member cities, and as of 2015, it included 42 local and regional authorities. Conducted in 2003–2004, the first evaluation of the Israeli HCN (which was based on the MARI framework) revealed that while all member cities made council resolutions to adopt the principles and strategies of the Healthy Cities approach, they varied widely in their implementation of these commitments and in their health promotion activities (Donchin *et al.*, 2006). Additionally, the initial evaluation identified factors that were associated with requirement fulfillment, which served to inform future city recruitment. These include the need for investing more than 20 weekly hours by the cities’ coordinators in Healthy

City-related activities and having previous experience in public health or community work.

Since this evaluation, the network has expanded and necessitated an additional evaluation.

The aims of this study are therefore four-fold: to evaluate Healthy Cities’ level of assimilation of HCN’s requirements, to validate predictive factors, to compare the change over time in the relevant cities from 2003 to 2004, and to explore the extent to which the network provides added value to municipalities.

METHODS

This study is a program review, evaluating the status of the Israeli HCN and their current implementation of the European HCN principles and strategies as well as assessing progress since its initial evaluation a decade ago.

Subjects

Of the 42 municipality health coordinators contacted for participation, 5 were exempt from the study as they were newly enrolled in the network (i.e. within the previous year). Of the remaining 37 coordinators, eligible for the study, 31 participated (84% response rate).

The questionnaire was sent via e-mail through the Israeli HCN Directors mailing list. The health coordinators were asked to fill in the questionnaire with the assistance of key informants from the municipality, based on the previous two years’ performance. The researchers from the Braun School of Public Health provided phone support and in-person guidance when needed, to assist coordinators in completing the questionnaires. This active, extended process often provided researchers with insight into municipalities’ specific work environments and internal politics.

The evaluation tool

As this study was based on the previous evaluation (Donchin *et al.*, 2006), the researchers used the same evaluation tool and adapted it to the current municipal policies and work environment. For example, a question regarding bulletin boards was revised, as municipalities currently use electronic notifications, such as email.

The original tool was designed based on the MARI’s framework (De Leeuw, 1999), providing six performance dimensions built from questionnaire items. In the current study, given the necessary revisions, some components and measures were shortened or removed. The score of each component and the final dimension were generated according to the ranking score, which was affixed by the original evaluation’s researchers, except for the intersectoral dimension and health-promoting programs and activities, which were significantly revised.

Five open ended questions were added to the tool to provide additional information that would complement and enrich the quantitative information gathered. These items included (i) What, in your opinion, are the processes, activities and facilities in your city that justify your city's status as a Healthy City (HC)? (ii) What improvements, in your opinion, should be made in order to improve your city's HC status? (iii) What are the contributions, if any, of the HCN to your HC activities? (iv) What improvements can you suggest for the HCN? (v) What, in your opinion, are the pros and cons of working with the HCN. The final questionnaire contained five dimensions, specifically (i) city equity policy and political support, (ii) management, (iii) community participation, (iv) intersectoral partnership and (v) health promoting programs and activities (Table 1). The sixth dimension, environmental protection, was removed, as it had a low α -Cronbach score (<0.55).

All demographic data for municipalities were gathered from the 2014 publication of the Central Bureau of Statistics (CBS) (CBS, 2014).

Data analysis

All data were coded and analyzed using SPSS 26 for statistical analysis. Continuous independent variables were collapsed into two categories, divided according to the cumulative distribution of the study population: lower scores included those below the median; higher scores included scores from the median and up.

Data from the original evaluation were re-coded for compatibility with the current evaluation data to allow for comparison between the two. This adaptation enabled the researchers to preserve only three dimensions. These three dimensions were used for comparison purposes only. The dimensions which were preserved were: (i) city equity policy and political support, (ii) management and (iii) community participation. These dimensions were converted to a scale from 0 to 10. All new scales were checked for reliability by Alpha Cronbach. As previously mentioned, the necessary revisions that were made to the questions on intersectoral and health promotion activities precluded their comparison with these items in the previous survey. The third omitted dimension, environment, could not be compiled to a scale, as it had a very low Alpha Cronbach. *T*-test and paired *t*-test were used to compare the scores of both groups. One-way ANOVA was used to determine statistically significant differences between the means of the dimensions in each of the independent groups. As in the previous evaluation, the component of producing a city health profile was discussed separately. Qualitative content analysis was conducted using a deductive approach to code responses into predefined categories by the researchers according to themes

related to the research questions, followed by an inductive analysis when necessary (Elo and Kyngäs, 2008). Thematic analysis was done to retain context.

RESULTS

Municipalities socio-demographic characteristics

A total of 31 municipalities participated in the survey. These municipalities varied in population size, socio-economic status, religion and level of religiosity and geographic location (CBS, 2014). The smallest municipality consisted of 8100 citizens while the largest consisted of 849 800. Socioeconomic status (SES) is allocated per municipality on a scale of 1–10, with 1 indicating the lowest and 10, the highest. A total of 32% of the member municipalities fell into the 1–4 range while the other 68% of municipalities ranged 5–8 on the SES scale. None of the higher SES municipalities were members of the Israeli HCN. It is noteworthy that only three municipalities in the entire country score a 10 on the SES scale (CBS, 2014). A total of 81% of the participating municipalities are predominantly Jewish (63% of all municipalities nationwide), 7% are predominately Arab (33% of all municipalities nationwide) and 12% have a mixed Jewish and Arab population (4% of all municipalities nationwide).

Adherence to European HCN membership requirements

The Network of European HCNs has an accreditation process as a means of promoting high standards and consistency (WHO, 2013). To apply to the European network, each national network must declare that at least 70% of its members have achieved the minimum accreditation requirements. These four elements of accreditation requirements are political commitment, infrastructure, products and outcomes, and networking. The adherence of the Israeli network to these four elements is described in Table 2. On average, 73% of the cities adhere to the requirements.

Political commitment

Before joining the HCN, all cities are required to pass a council resolution regarding their commitment to the HC principles and strategies, with the support of their mayor. At the time of this evaluation, 74% of coordinators reported full support of the mayor to HC initiatives. Additionally, over half of the cities maintain a policy to reduce health and socioeconomic disparities.

Infrastructure

All cities have a designated health coordinator. Over half of them are employed full time. A total of 87% of

Table 1: The dimension system: components and measures

Dimension (score range)	Components (score range)	Measures (score range)
City equity policy and political support $\alpha = 0.735$ (0–27)	1.Policy for reducing inequalities (0–15).	1.a Official policy on equity (0–3)
	2.Political support (0–12).	1.b–c Inequalities in the political agenda (0–6)
	3.	1.d Budget allocated for equity (0–3)
	4.	1.e Annual reports (0–3)
	5.	2.a Support by the mayor
	6.	2.b Support by other political delegates
	7.	2.c Council members in steering committee
	8.	2.d Council members engage in health promotion activities
	9.	
Management $\alpha = 0.713$ (0–40)	1.Producing a city health profile (0–12).	1.a Progress in preparing a city health profile (0–8)
	2.Organization and resources (0–15).	
	3.Coordinator position and background (0–13).	
	4.	1.b Strategic planning based on profile (0–4)
	5.	2.a Presence of a steering committee(0–3)
	6.	2.b Multi-professional committee (0–3)
	7.	2.c Hierarchy level of head of committee (0–3)
	8.	2.d Number of annual meetings (0–3)
	9.	2.e Has a budget for activities, salary or both (0–3)
	10.	3.a Coordinator full/part time employment (0–3)
	11.	3.b Coordinators' position in the municipal hierarchy (0–3)
	12.	3.c Hours per week dedicated to coordinating Healthy Cities' activities (0–3)
	13.	3.d Coordinators' professional background (0–1)
	14.	3.e Coordinators' general background (0–3)
Community participation (0–15)	Based on the 'Davidson's wheel of participation' (Davidson, 1998) (0–15).	1.Providing information (0–3)
		2.Consultation (0–3)
		3.Participation in decision making (0–3)
		4.Participation in health profile discussions (0–3)
		5.Empowerment (0–3)
Intersectoral partnership $\alpha = 0.798$ (0–21)	Joint activities with public, private and the 3rd sectors (0–21).	For each of the seven institutions, a scale of 0–3 (ranging from no contact to jointly active task forces)

Table 1. Continued

Dimension (score range)	Components (score range)	Measures (score range)
Health promoting programs and activities $\alpha = 0.696$ (1–16)	1.Smoking restrictions. 2.Obesity prevention. 3.Healthy refreshments' policy. 4.Nutrition in educational institutions. 5.Promoting physical activity (1–16).	1.From no activity to a smoke free city policy (0–4) 2.From no activity to a well-defined program (0–2) 3.From no to only healthy refreshments (1–3) 4.From no to well defined in tender (0–2) 5.Sum of activities (0–5)

Table 2: Adherence of member cities (in percentages) to the European WHO Healthy Cities network requirements

WHO requirement	Requirement details	Proportion of cities that fulfilled requirements (2013–2014) (%)
Political commitment: endorsement of principles and strategies	*Political commitment by city mayor to participate in the national network through a council resolution	100
	*Full mayor support of HC initiatives	74
	*Declared policy to reduce health and socioeconomic disparities	55
Infrastructure	*Identify a coordinator	100
	*Full time employment of coordinator by municipality	57
	*An intersectoral steering committee	87
	*City political representative in the committee	68
Products and outcomes	* Complete a CHP	22
	*A range of activities:	75
	Smoking cessation and enforcement	63
	Obesity prevention	74
	Nutrition regulations in schools	96
	Physical activity in public spaces	86
	* Annual report submitted to the national network	
Networking	* Attend over 50% of national network meetings	68
Total average proportion of cities who fulfill all WHO HCN requirements:		72.9

the cities have an intersectoral steering committee in place and 68% of these committees are chaired by a political representative.

Products and outcomes

Municipality health promotion programs mainly included physical activity in public spaces (96%), smoking cessation and enforcement (75%), nutrition regulations in schools (74%) and obesity prevention (63%).

Networking

A total of 86% of coordinators submitted their annual reports to the Israeli network. 68% of coordinators participated in over 50% of the 19 national network meetings over a period of 3 years.

Dimensions

The dimension system introduced by Donchin *et al.* (Donchin *et al.*, 2006) facilitates comparison between cities and time periods. The dimensions were analyzed for associations with certain structural and process measures in order to identify potential characteristics that contribute to positive HC outcomes (Table 3). Community participation had the highest average score of all the dimensions (8.2 ± 2.2), while intersectoral partnerships had the lowest score, with an average score of $4.8 (\pm 2.5)$. Having a health coordinator that invested over 20 work hours a week in health promotion was significantly associated with higher scores in the equity policy, management, activities and intersectoral partnerships dimensions.

Table 3: Mean scores and SD of the dimensions assessed by selected characteristics (one-way ANOVA)

		N	Equity policy	Management	Community participation	Activities	Intersectoral partnerships
Total mean (SD)		31	5.3 (2.8)	6.5 (2.0)	8.2 (2.2)	6.5 (2.3)	4.8 (2.5)
Coordinator working hours (per week)	20≥	16	4.2 (2.4)*	5.4 (1.9)**	7.8 (2.5)	5.4 (2.0)*	3.2 (2.0)**
	20<	15	6.4 (2.8)	7.7 (1.2)	8.7 (1.8)	7.6 (2.0)	6.2 (2.0)
Years membership in network	0-5	9	4.8 (2.7)	5.5 (1.9)*	7.2 (2.9)	5.1 (2.2)	3.9 (2.2)
	6-10	5	4.2 (1.9)	5.6 (2.4)	8.8 (1.3)	6.7 (2.5)	4.2 (3.4)
	11-15	9	4.6 (2.7)	6.6 (1.8)	8.6 (2.1)	6.5 (1.7)	4.6 (2.8)
	15<	8	7.2 (2.9)	8.0 (1.3)	8.6 (1.9)	7.9 (2.4)	6.1 (1.5)
Political support	Lower scores	8	3.5 (2.4)*	6.2 (1.8)	8.6 (1.3)	6.1 (2.2)	5.1 (2.8)
	Higher scores	23	5.9 (2.6)	6.6 (2.1)	8.1 (2.4)	6.6 (2.4)	4.7 (2.4)
Annual steering meetings	Never met	12	4.6 (2.4)	4.6 (1.9)**	7.8 (2.3)	5.0 (1.7)**	3.1 (1.9)**
	Met	19	5.7 (2.9)	7.6 (1.1)	8.5 (2.2)	7.7 (2.0)	5.9 (2.3)
Participation in network activities	>9	11	4.9 (2.1)	5.4 (1.8)*	7.7 (2.7)	5.8 (2.8)	3.4 (1.7)*
	+9	20	5.5 (3.1)	7.1 (1.9)	8.5 (1.9)	6.8 (2.4)	5.4 (2.6)

* $p < 0.05$.** $p < 0.001$.

Years of membership in the HCN were significantly associated with the management dimension only. Participating in the HCN for more than 15 years was associated with higher scores on equity policy, health promotion activities and intersectoral partnerships dimensions, though not statistically significant. Political support was significantly associated with higher scores on the dimension of equity policy. Having annual health steering committee meetings was significantly associated with higher scores in the management, activities and intersectoral partnership dimensions. Participation in the network activities of the national HCN was positively associated with higher scores in the equity policy and intersectoral partnerships dimension. Community participation was not associated with any of the measured determinants. No associations were found between municipalities' dimensions and population size, socioeconomic status or type of municipality.

City health profile

Less than 40% of cities started the process of creating a city health profile (CHP). This process involves conducting a population survey as well as collecting data from national and local data sources. The objective of the profile is to help decision makers to make informed decisions and build a strategic plan based on accurate data. Only seven cities completed the process (22%) and of these, only five cities discussed the profile findings with their mayor. Only one municipality built a

strategic plan based on the CHP. The other six cities chose 1–2 priority projects to deal with rather than address the whole profile.

Comparison to the 2003–2004 evaluation:

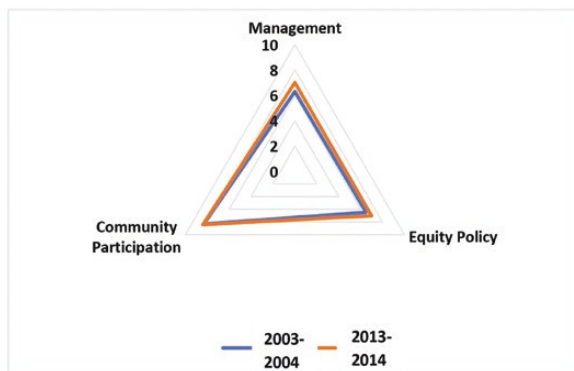
A comparison of all HCN members' collective current evaluation scores with the 2003–2004 evaluation indicates a reduced score in the dimension of equity and a higher score in management and community participation for 2013–2014, although these findings were not statistically significant (Table 4). Comparisons of the 12 matched cities (cities that participated in both surveys) indicated higher mean scores in all three dimensions for the 2013–2014 evaluation, however, these findings were also not statistically significant (Table 4 and Figure 1).

Intracity comparison

Although no significant difference was noted when comparing the matched cities collectively, a comparison of each city's 2003–2004 and 2013–2014 evaluations independently indicated differences within each city. Looking at improvements and regression in general, a quarter of the municipalities improved in all three dimensions, a third improved in two dimensions, and a quarter of the municipalities improved in only one dimension. In total, 17% of the municipalities showed no improvement in their performance over the last decade. Half of the municipalities regressed in one dimension and 8% regressed in two to three dimensions.

Table 4: Comparison of dimension scores (SD) between 2003–2004 and 2013–2014

	All cities		Matched cities N = 12	
	2003–2004 N = 18	2013–2014 N = 31	2003–2004	2013–2014
Equity policy	6.2 (3.0)	5.3 (2.8)	6.5 (2.6)	7.0 (2.3)
Management	6.0 (2.3)	6.5 (2.0)	6.3 (2.3)	7.0 (2.1)
Community participation	8.1 (1.7)	8.2 (2.2)	8.3 (1.9)	8.4 (2.1)

**Fig. 1:** Mean results of 12 matched municipalities.

In terms of specific dimension performance, 58% of the municipalities improved in equity policy, while a third regressed and 8% received the same score. Similarly, 58% of the municipalities improved in management scoring, while a third regressed and 8% received the same score. Half of the municipalities improved in community participation, while a quarter regressed, and a quarter received the same score (see [Table 5](#)).

Qualitative analysis

Two main categories were formulated in the analysis: coordinators' perception of their city as an HC and coordinators' perception of the Israeli HCN.

Healthy city—coordinators' perception

Coordinators reported perceiving their cities as Healthy Cities. In this regard, they mentioned the following phrases, with the number of times the phrase was mentioned in parenthetical notation: health (398), education (123), physical activity (104), nutrition (90), residents (77), activities and programs (76), health promotion (67), partnerships and collaboration (57), schools (48), budget (41), sustainability (40), healthy lifestyle (34), public spaces (29), environmental protection (29) and city health profile (20).

Coordinators expressed drastically different opinions about each of these categories, indicating that each city has a different level of implementation of HC values. One coordinator mentioned that:

'The values of the Healthy City are the values which guide the everyday actions of the mayor and all the municipal workers',

while another insinuated that his city does not yet integrate these values, stating,

'We should strive to adopt the principles of the Healthy City continuously and install them to all the population'.

Health promoting schools were discussed and praised by most coordinators, as one coordinator mentioned,

'the schools are invested, committed and knowledgeable about health issues'.

On the other hand, a coordinator mentioned that her city

'needs to engage in a significant process in order to implement health promoting schools'.

Most coordinators mentioned a lack of budget to promote the HC values.

'A budget would assist promoting many health issues in the city, especially in the lower socio-economic areas'.

'A budget should be allocated on the national level in order for us to achieve maximum impact on a bigger portion of the population'.

The topic of producing a CHP was addressed by the coordinators. They recognized the importance of the profile and how much it would assist them in their planning and budgeting decisions; however, they

Table 5: Comparison of dimension scores between 2003–2004 and 2013–2014 in 12 cities

City	Equity policy		Management		Community participation	
	2003–2004	2013–2014	2003–2004	2013–2014	2003–2004	2013–2014
T1	6.30	8.89	4.29	8.57	6.67	10.00
T2	6.30	8.15	5.00	6.43	9.17	9.17
T3	9.63	9.63	8.21	6.79	10.00	10.00
T4	8.89	10.00	8.57	9.64	9.17	10.00
T5	3.70	5.56	6.43	5.36	9.17	9.17
T6	7.78	8.89	8.21	8.21	10.00	5.00
T7	7.78	6.30	8.21	1.79	10.00	5.00
T8	7.41	6.30	3.21	7.14	4.17	5.83
T9	8.89	7.78	7.86	8.93	9.17	10.00
T10	0.74	2.59	3.21	6.43	5.83	10.00
T11	4.07	5.19	3.57	8.57	7.5	6.67
T12	6.67	4.44	8.93	6.43	8.33	10.00

complained that the process required was both time and resource consuming. In addition, most lower SES cities were not able to allocate a budget for it and needed professional intervention to help with the process.

Israeli Healthy City network

The coordinators mentioned that a main advantage of the network was connecting with their fellow coordinators. They said that they appreciated and valued the support, knowledge, assistance and collective brainstorming. On the other hand, one coordinator mentioned that they should be more respectful when they talk to each other and that the coordinators of wealthy cities should help reduce the disparities between wealthy and poorer cities.

The coordinators also mentioned the professionalism of the network 35 times, specifically using the phrases, ‘professional knowledge’, ‘professional assistance’, ‘professional guidance’, ‘professional team’.

Most coordinators mentioned that the network faces challenges itself, particularly a lack of budget. They suggested the network should work closer with government ministries, primarily with the Ministry of Health. They also suggested that the network should promote itself and advocate the different ministries in order

‘to gain more recognition from the government’.

They praised the network for all that they manage to accomplish on an exceptionally low budget, stating that,

‘even though it has a low budget, the HCN manages to survive and promote its agenda in the municipalities’.

The coordinators were unanimous in their praise of the networks’ coordinator. They stated that her professionalism, knowledge and experience in health promotion were invaluable and that she was always available to them to assist in any and all matters.

DISCUSSION

The current evaluation was performed as the Israeli HCN approached its 25th anniversary. This ‘milestone evaluation’ allowed for reflection upon achievements since Israel’s HCN inception and aspirations for the future. Given that a thorough evaluation of the Israeli HCN was performed a decade before the current one, it presented a baseline for comparison. This comparison validates the previous evaluation’s findings and provides a proverbial compass for decision-makers, informing HCN directors’ potential next steps for the network.

There is an abundance of literature discussing Healthy Cities evaluation, both in general (Baum *et al.*, 2006; O’Neill and Simard, 2006; Rice and Franceschini, 2007; De Leeuw *et al.*, 2015a; Pineo *et al.*, 2018) and the WHO European HCN specifically (Tsouros, 2009; De Leeuw, 2012; De Leeuw *et al.*, 2015a). This literature primarily focuses on identifying proper questions, tools and indicators. Most evaluation studies of Healthy Cities are WHO evaluations of designated Healthy Cities across Europe (Tsouros and Green, 2009, 2013) or National Networks of Healthy Cities (Lafond and Heritage, 2009; Heritage and Green, 2012) or Regions for Health Network (RHN) (WHO, 2022). All of them are cross-sectional studies and have a program review design, as they describe the performances of HC or Regions for Health. The ‘China Healthy Cities initiative’ (CHC) which was established by the government

as a vehicle for improving environmental conditions in cities, demonstrated its added value by comparing HC with matched control of non-HC in relation to urban environment (Yue *et al.*, 2017) and to health behavior and disease prevention (Wang *et al.*, 2017). By comparing national data of HC and non-HC they demonstrated a reduction of under 5 years of mortality especially in HC in the Western China and in Eastern China counties (Yue *et al.*, 2022). Although most of the European National Networks have performed internal evaluations (Heritage and Green, 2012), very few of them have published these evaluations. Two exceptions are the Valencia Community HCN (Boonekamp *et al.*, 1999) and the German HCN (Plumer *et al.*, 2010). To the authors' knowledge, the current study is the first to compare evaluations of an HCN using the same tool (though a shortened version), performed a decade apart.

The results of the current evaluation corroborate with those found in the 2003–2004 evaluation. This evaluation similarly found that the amount of time health coordinators invested in HC activities was associated with improved scores on equity policy, community participation, health-promoting activities and intersectoral partnerships dimensions. Both evaluations also found an association between coordinator's attendance at HCN meetings and scores on all dimensions. These meetings include thematic learning meetings, sharing experiences of good practices between city coordinators as well as workshops where HC principles and strategies are discussed and practiced for HCN mutual planning. Additionally, both evaluations found that in most cities, the coordinator reported having high rates of political support (74% of the cities in the current study and 62% in 2003–2004). Political commitment and support are fundamental building blocks of every HC, as it secures legitimacy, direction and resources (Tsouros, 1995). A political decision, of the city council, to accept the values, principles and goals of HC and joining the HCN is mandatory in all Israeli networks' member cities. This is in accordance with WHO requirements (WHO, 2009). The nomination of a city health coordinator, which is dependent on local decision and financing, attests to that commitment. However, in both evaluations this perceived political support was only associated with 'equity policy' (Donchin *et al.*, 2006). It seems that health promoting activities as well as intersectoral partnerships and community participation can be practiced even without perceived political support. As mentioned by city representatives in previous research (Tsouros, 2013), key success factors in implementing the HC mission are a strategically located HC office in the municipality and a well-organized team with good management and communication skills.

While this study focuses on association rather than causation, the confirmation of previous results may provide network directors with an impetus to encourage relevant policy changes in their municipalities. For example, requiring a minimum number of HC-related work hours or HCN meeting attendance may improve dimension scores.

Exclusive to the 2013–2014 survey was the inclusion of items referring to the role of the steering committee. In all phases, cities were required to establish an inter-sectoral committee for health. This was consistently a key feature of the structural changes required from city administration (Tsouros, 2013). Findings indicated that having at least one steering committee meeting in the last year impacted all dimensions, particularly intersectoral partnerships and activities. The existence of an active steering committee is another indication of political support, as the chair of this committee is either the mayor, his/her political representative, or the municipal CEO.

Given that steering committees are part of the management dimension, their significant association is understandable. Steering committees usually include directors of municipal departments as well as representatives of the Ministry of Health, HMOs, education, welfare and environmental sectors, local NGOs and other organizations. Joint meetings of these crucial figures are likely to reflect as well as facilitate successful collaborations. Therefore, the significant association between having an active steering committee and a higher score on the intersectoral partnership dimension was expected. Intersectoral collaboration is one of the building blocks of structural change in an HC all over the world. In fact, a study from Korea (Kang, 2016) found that there was a higher percentage of physical activity programs implemented with at least one partner in Healthy Cities compared with non-Healthy Cities.

Intersectoral partnership was also significantly associated with the health promoting activities' dimension. Effective partnerships with key local stakeholders can facilitate the implementation of quality interventions (Dennis *et al.*, 2015). It is important to note that the observed regression in intersectoral partnerships, since the previous evaluation, likely reflects the use of different questions in measuring this dimension between the two evaluations, rather than true deterioration.

An additional independent variable that was added to the 2013–2014 survey is the years of membership in the HCN. There is likely added value in increased exposure to the HC values and principles. Being part of the HCN for more time may contribute to greater integration of the HC values and language (Ritsatakis, 2012), impacting governance operations (De Leeuw *et al.*, 2015b), as indicated in the phase IV evaluation.

Community participation is one of the core strategies of HCs. Since its first phase, the WHO has stated that promoting active involvement of the community in health promotion is one of the institutional changes needed for realizing the vision of HC (Tsouros, 1995). Indeed, questionnaire items in the WHO-ENHC evaluation studies, as well as those in both Israeli evaluations, included all four quadrants of Davidson's wheel of participation (i.e. providing information, consulting with the public, enabling the participation of representatives and empowering individuals and communities). It is therefore heartening that the dimension of community participation received the highest score (8.2 out of 10), among all other dimensions. This is similar to other HCs globally, as project cities of the WHO European Network of HCs (WHO-ENHC) also had high community participation and empowerment both in their phase III (1998–2002) (Heritage and Dooris, 2009) and phase IV evaluations (2003–1008) (Dooris and Heritage, 2011). The Israeli HCs' high scores in community participation likely reflect the successful empowerment of communities (for some HCs, if not all) beyond participation in the municipal steering committees.

Cities that join the Israeli HCN are committed to preparing a CHP, in accordance with the WHO ideal requirements (WHO, 2009). The CHP presents the health of the city's population and its determinants and identifies any inequalities between geographical areas and population groups (Bayram and Donchin, 2019). However, only 22% of municipalities had completed this task at the time of the current survey. Though all of them focused on identifying inequalities. This is in comparison with the designated WHO-EHCN, which indicated that 43% of their municipalities had produced a CHP, while only about 65% used it to identify inequalities (Ritsatakis *et al.*, 2015).

Municipalities of the Israeli HCN consistently reported that preparation of a CHP was a long and expensive process, as it requires, among other sources of data, a face-to-face population survey of a representative sample of residents. Procuring this challenging to access the primary source of data is necessary for Israel, as there are no municipal databases available that provide the relevant data. The WHO-EHCN found similar challenges in their municipalities. All designated WHO HCs were requested to send a copy of their CHP to WHO. An analysis of CHPs submitted between 1995 and 2005 (Webster and Lipp, 2009) revealed an improvement in CHP content over time, although very few presented inequalities properly or made CHP-based recommendations. It is possible that HCs have challenges with the current CHP requirements, as it necessitates a population survey. There are

two options for increasing the performance of CHP: (i) Modification of the CHP process and (ii) Investing in developing accessible integrated routine databases which combine individual (un-identified) data on the necessary indicators from different sources.

In addition, the current evaluation found that most of the municipalities that did produce a CHP did not create a full strategic plan for promoting health and reducing inequalities in health, though recommendations were included in the CHP report, compared with the WHO designated HC, of which 80% reported using the CHP data for preparing a city strategy in 2012 (Ritsatakis *et al.*, 2015).

The lack of associations found among all dimensions and population size, socioeconomic status or type of municipality likely speak to the notion that all cities are equally capable of becoming successful HCs. In fact, Agis Tsouros, a former Director of the Division of Policy and Governance for Health and Wellbeing at Europe's WHO Regional Office has stated that 'any city can be part of the 'Healthy Cities' movement, regardless of its current health status; what is required is a commitment to health and a structure and process to achieve it'. (Tsouros, 1995). This finding is also not exclusive to Israel's HCN; Germany's HCN evaluation presented similar results, where population size and performance scores were not associated (Plumer *et al.*, 2010).

Comparing the two evaluations only allowed for a comparison of three dimensions. However, this limitation likely has a limited impact on the comparisons, as both the missing dimensions as well as those in the current comparison were associated with coordinators' working hours and the rate of participation in network activities in both the 2003–2004 and 2013–2014 evaluations. Comparing the matched 12 cities collectively found no statistically significant differences between evaluations in dimensions or structural and process indicators. While the combined mean values of the municipalities' indicators were comparable to those obtained a decade prior, analysis of each municipality separately indicated differences. There were municipalities that improved or regressed in all dimensions, as well as those that improved or regressed in one or two dimensions.

Information gathered through the data collection process (i.e. coordinator guidance and interviews) may explain these findings. Certain municipalities underwent management and administration changes that likely impacted their performance. For instance, municipality T1 improved in all dimensions, which may be explained by this city's election of a new mayor (who is very health-oriented) between the two evaluations. This mayor encouraged and allocated funds for health promotion activities, walking and biking paths and

outdoor fitness facilities. Municipality T7, however, discontinued its participation in the HCN between the evaluations, explaining its drop in all dimension scores.

The 2020 Israel Democracy Institute policy paper (Finkelstein, 2020) attests to the impact of local political changes on its city pointing to the structural failures of the governance system in Israel. It refers both to the excessive centralization of the Israel Ministries over the local authorities and the excessive power of the mayor and the corresponding weakness of the council. It is therefore understandable that policy may change drastically upon the election of a new mayor. For municipality T5, a new health coordinator was appointed 3 months before the 2013–2014 evaluation, likely impacting its reduced scores in the management dimension.

The heterogeneity of these intra-city evaluation comparisons indicates the importance of individual evaluation of municipalities. Comparing the two evaluations of each municipality allows municipalities to identify the specific areas each one excels in as well as those which may need modification.

The current study's findings advocate for the continuity and reinforcement of national HCNs. Israeli HC coordinators reported that the professionalism of the HCN staff in conjunction with HCN meetings and their subsequent peer learning were essential for Healthy City capacity building and promoting the HC principles and strategies.

LIMITATIONS

This study had several limitations. First, it utilized a self-report questionnaire which was completed by city coordinators. These coordinators' responses may be influenced by social desirability, as they may want their cities to appear as successful, health-promoting HCs. This potential bias, however, would not impact the evaluation comparisons as it would be present in both. The second possible limitation is the current evaluation's revision of the 2003–2004 questionnaire, which may have influenced the questionnaires' uniformity, preventing accurate comparison between the two evaluations. This problem was overcome by re-analyzing the 2003–2004 data for the 12 matched cities on the three comparable dimensions. In addition, although a shortened questionnaire was used, most coordinators reported having difficulty accumulating all the data that were necessary for questionnaire completion. This hindered the evaluation process and may have contributed to under-reporting. The third limitation is the small number of cities, which did not allow for adequate power to detect statistically significant differences in some cases.

The fourth limitation refers to an unaccomplished objective. One of the study's aims was to compare performances in cities that are members of the HC network with a sample of matched cities, like what have

been done in China (Wang *et al.*, 2017) or South Korea in relation to Intersectoral collaboration for physical activity (Kang, 2016). Unfortunately, non-members refused to cooperate.

CONCLUSIONS AND RECOMMENDATIONS

The heterogeneity of HCN member cities' intra-city evaluation comparisons indicates the importance of evaluating each city as an individual entity. Coordinators' time investment, participation in operating municipal health steering committee meetings and attending HCN activities positively impact HCN member cities' performance. This qualitative and quantitative evaluation validates the previous evaluation's findings and informs decision makers and municipal leaders regarding the progress and challenges of the HCs.

It is suggested that the HCN modify the process and requirements for producing CHPs and/or advocate for investment in developing databases that enable continuous monitoring and evaluation of changes both in health and health equity indicators in every municipality. It is also suggested that the European HCN invest in national networks, which may facilitate improved HCN public relations as well as promotion at the governmental and ministry levels. Future research should include evaluations of each municipality individually while integrating several qualitative evaluation methods in a short, user-friendly way.

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Conflict of Interest

None declared.

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