

An examination of perceived health care availability and unmet health care need in the City of Toronto, Ontario, Canada

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ABSTRACT

OBJECTIVES: Although timely access to health care is a top priority, a burgeoning body of research highlights the important role of neighbourhood environments on unmet health care needs. This study aimed to examine an association between perceptions of neighbourhood availability of health care services and experience of unmet health care needs by gender in an urban city setting.

METHODS: A total of 2338 participants from the Neighbourhood Effects on Health and Well-being (NEHW) study, between 25 and 64 years of age and dwelling in the City of Toronto, Ontario, Canada, were included in the analyses. Four different logistic regression models stratified by gender were used to examine the relationship between neighbourhood health care availability and unmet health care need as well as the impact of neighbourhood perception of health care availability on the three different types of unmet needs.

RESULTS: Perceived health care availability was associated with higher likelihood of experiencing unmet health care needs in both women and men (women = OR: 1.58, 95% CI: 1.09–2.28; men = OR: 1.92, 95% CI: 1.23–2.99). In addition, perceived health care availability was associated with barrier- and wait times-related unmet health care need among women (OR: 1.83, 95% CI: 1.13–2.97; OR: 1.93, 95% CI: 1.10–3.40 respectively), and personal choice- and wait times-related unmet need among men (OR: 1.99, 95% CI: 1.10–3.58).

CONCLUSION: Individuals' perception of health care availability plays a crucial role in the experience of unmet health care needs, suggesting the importance of community-based policy development for improving physical conditions and the social aspect of health care services.

KEY WORDS: Unmet health care need; neighbourhood environment; access to care; Toronto; Canada

La traduction du résumé se trouve à la fin de l'article.

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Timely access to health care is of great concern to the general public, who expect equal access to necessary services (e.g., when sick or in need), regardless of socio-demographic factors and place of residence.¹⁻³ Equal access to necessary medical and hospital health care is mandated by the Canada Health Act. Yet, a growing body of literature highlights that certain population groups do not have equal access.^{4,5} Individuals with lower socio-economic status (SES), particularly those with lower income and educational levels, have more difficulties accessing necessary health care services irrespective of their health status.⁶⁻⁸ In addition to individual-level characteristics, a growing body of literature shows the impact of neighbourhood environments on individual health outcomes.⁹⁻¹¹ For instance, neighbourhood resources and contexts are associated with better health status, suggesting that neighbourhood characteristics (e.g., physical and social features) may enable or constrain quality of health at the individual level.¹² In particular, physical characteristics of the neighbourhood such as access to parks, grocery stores, and community and health service facilities are important determinants of health, yet these features are differentially distributed across neighbourhoods.⁹ Residing in disadvantaged neighbourhoods (e.g., fewer resources, higher marginalization) generally results in worse long-term health outcomes.¹³

Unmet health care need is a commonly used indicator to measure access to health services.^{14,15} It usually refers to an individual's perception of lack of timely access to health care when he or she is sick or in need.¹⁶ Unmet health care need is typically measured in one of two ways: 1) a clinical assessment can identify whether an individual did not receive appropriate and necessary care based on a clinical guideline;¹⁷ 2) an individual can be asked whether they feel they received appropriate care when needed.¹⁸

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This latter approach is more feasible and can be achieved by exploring data available from national population-based health surveys, such as those that ask about personal experiences pertaining to unmet health care need.

Despite the multifactorial components comprising the construct of unmet needs, most research uses a crude (dichotomous) measure of unmet need (e.g., whether or not an individual experienced *any unmet health care need*).^{2,18} A more meaningful characterization is necessary to capture the range of personal experiences that drive such unmet needs, providing a better understanding and interpretation of unmet needs for the purpose of policy development.¹⁸

Previous studies examining the relationship between neighbourhoods and health suggest that perception of neighbourhood (e.g., with regard to availability of services) is an important determinant of health.¹⁹ With respect to neighbourhood and health care use, a few studies have focused on perceived conditions of neighbourhoods, but most studies focus solely on objective conditions such as the distribution of the health care resources (e.g., number of health care facilities and physicians).^{9,20,21} Studies that focus on objective conditions consistently report improved access to, and effective provision of, health services when more resources are available.²² While a higher density of health care resources in a neighbourhood may improve availability of such services, this does not necessarily mean that residents are aware of available services or that timely access to the required services is guaranteed when they need the service.²³

In spite of the increasing recognition of neighbourhood as an important determinant of health and well-being,^{21,24} questions about the role of neighbourhoods in shaping unmet health care needs remain largely unaddressed. Given this gap in knowledge, this study aimed to determine the impact of urban dwellers' perceptions of health care availability in their neighbourhoods on perceptions of unmet health care needs. Our research questions were: 1) whether individual perceptions of the neighbourhood availability of health care services were associated with perceived unmet needs; 2) whether the relationship between perception of availability and unmet needs varied by gender; and 3) whether perception of health care availability affects reported reasons (personal choice, barriers, and long wait time) for perception of unmet health care needs.

METHODS

We used data from the project Neighbourhood Effects on Health and Well-being (NEHW), collected by the Centre for Urban Health Solutions (formerly the Centre for Research on Inner City Health) survey research unit at St. Michael's Hospital in Toronto, Ontario, Canada. The purpose of this project was to develop an understanding of the relationships among neighbourhoods, health and well-being.²⁵ The NEHW study used a cross-sectional survey that measured a wide range of health information as well as information on individual and neighbourhood stressors and resources. Over 2400 randomly selected participants from 47 random neighbourhood planning areas (NPAs) across the City of Toronto were interviewed for the NEHW study.²⁵ In 2002, NPAs, combinations of approximately 6 census tracts for each neighbourhood area, were created by the City of Toronto for municipal government and community agency

planning.²⁵ Eligible participants were between the ages of 25 and 64 years, were able to communicate in English, and had lived in the selected neighbourhood for at least 6 months. Data were collected between March 2009 and June 2011 and linked to Census data, and administrative neighbourhood data, which allowed the examination of the influence of neighbourhood characteristics on health and health care in an urban city setting. The Research Ethics Board at St. Michael's Hospital and Sunnybrook Health Sciences Centre in Toronto provided ethics approval for the NEHW study. All data analyses were conducted at St. Michael's Hospital.

Variables

Dependent variable: Experience of unmet health care need

To assess participants' experience of unmet health care needs, we used the question "During the past 12 months, was there ever a time when you felt that you needed health care but you didn't receive it?" Eligible responses were "Yes" or "No". Based on self-reported perceptions of unmet health care experience during the past 12 months, we identified participants' overall experience of unmet health care need.

To ascertain reasons for unmet health care needs, we used responses to the question "Thinking of the most recent time you needed care but did not receive it, what are the primary two reasons you did not receive care?". Based on the self-reported reason for the unmet health care need, we classified three subcategories of unmet health care need (i.e., reasons unmet needs arose) – a) personal choice; b) barriers; and c) wait times. This categorization of unmet health care need has been suggested by a previous study using data from the Canadian Community Health Survey (CCHS), a nationally representative survey administered through Statistics Canada.^{2,18} Consistent with these other studies, unmet needs related to personal choice were indicated through affirmative responses to statements – "felt would be inadequate; too busy; didn't get around to it; dislike doctors; decided not to seek care"; unmet needs related to barriers, affirmative responses to statements – "unavailable in the area; cost; didn't know where to go; transportation problems; language problems; personal/family responsibilities; unable to leave the house because of a health problem; doctor didn't think it was necessary"; unmet needs related to wait times, affirmative responses to statements – "not available at the time required; waiting time too long" (see Table 1). Individuals who responded "no" to the statements in each subanalytic model were those who have never experienced any kind of unmet health care needs.

Independent variable: Assessment of neighbourhood health care availability

Our independent variable of interest was perceived availability of neighbourhood health care. This was based on participants' responses to a close-ended survey question rating the availability of health care and medical services in their neighbourhood (e.g., hospitals, clinic, doctor's offices, mental health clinics, rehab program): "How would you rate the availability of the health care and medical services in your neighbourhood?" Possible response options were "excellent", "very good", "good", "fair" and "poor", with the first three collapsed into "good" and the last two into "poor" for our analyses.

Table 1. Classification of unmet health care needs and percentage of self-reported unmet needs from the Neighbourhood Effects on Health and Well-being (NEHW) Study, Toronto, Canada ($n = 2338$)

Category of unmet need*	Stated reasons for unmet need	<i>n</i> (%)
Personal choice	Felt would be inadequate Too busy Didn't get around to it Dislike doctors Decided not to seek care	157 (6.7)
Barriers	Unavailable in the area Cost Didn't know where to go Transportation problems Language problems Personal/family responsibilities Unable to leave the house because of a health problem Doctor didn't think it was necessary	166 (7.1)
Wait times	Not available at the time required Waiting time too long	139 (6.0)

* Classification of unmet needs was adopted from Allin et al.¹⁸

Covariates

Age, educational attainment, household income, immigrant status, self-rated health, having a family physician, and total number of family physicians and general practitioners (GPs) at the neighbourhood levels were selected as covariates based on prior literature and theoretical considerations. The theoretical considerations were based on Andersen's health care utilization model, which theorizes that health care-seeking behaviours are driven by predisposing characteristics, enabling resources, and need-based factors (see Figure 1).²⁶

Statistical analyses

We hypothesized that neighbourhood would be an important determinant of unmet health care need and that the average

proportion of residents reporting unmet health care needs would vary by neighbourhood. As an initial analysis, we ran an intercept-only multi-level model, treating neighbourhood as a random intercept. Such a model would enable the statistical evaluation of the hypothesis that unmet needs vary significantly by neighbourhood. However, the results of our model did not suggest significant among-neighbourhood variance; as such, using multi-level models to account for neighbourhood effects was not necessary (results not shown).²⁷

We generated four logistic regression models to examine the relationship between neighbourhood health care availability and unmet health care need. The first model (Model 1) examined the impact of neighbourhood perception of health care availability on reporting any unmet health care need. The next three models (Models 2–4) examined the impact of neighbourhood perception of health care availability on the three different types of unmet needs. All analyses were stratified by gender. Data analyses were performed using STATA v. 12, and results are presented as odds ratios (OR) and 95% confidence intervals (95% CI).

RESULTS

Table 2 presents the descriptive characteristics of the 2338 participants. Approximately 17% ($n = 228$) of female and 14% ($n = 141$) of male participants reported they had experienced overall unmet need in the past year. Women and men aged 60 years and older were more likely to report unmet needs (13.7% and 9.2% respectively) compared to younger age categories. Women aged 40–49 (19.8%) and men aged 40 and younger (20.0%) were more likely to report the unmet needs relative to other respective age-sex categories. Persons with income less than \$40 000 indicated significantly more unmet health care needs compared to other income level groups (23.0% of both men and women). Recent immigrants (<10 years) had the highest reported unmet needs (men: 20.0%; women: 16.4%)

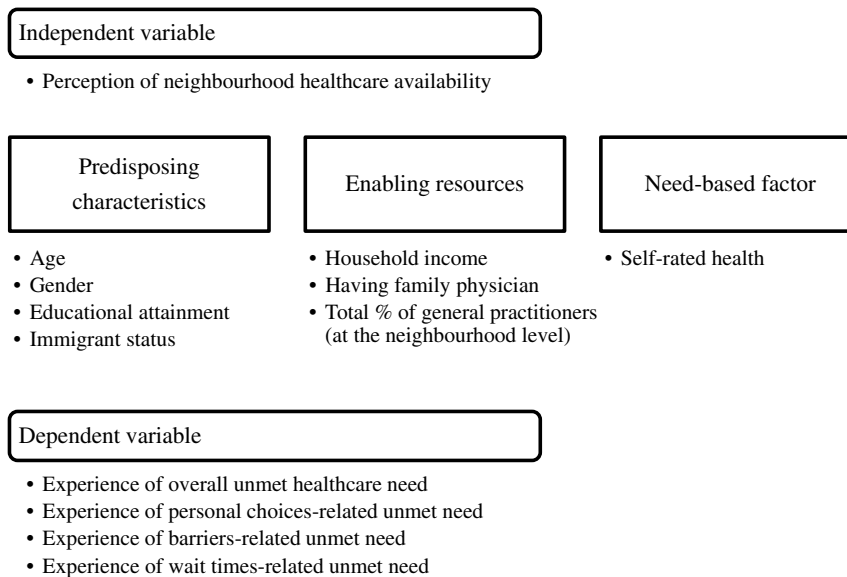


Figure 1. Covariates based on Andersen health care utilization model, Neighbourhood Effects on Health and Well-being (NEHW) Study, Toronto, Canada ($n = 2338$)

Table 2. Descriptive characteristics of the sample by overall unmet health care needs, NEHW Study, Toronto, Canada ($n = 2338$)

Variables	Overall unmet health care needs					
	Women ($n = 1347$)		<i>p</i> -value	Men ($n = 991$)		<i>p</i> -value
	Yes ($n = 228$)	No ($n = 1119$)		Yes ($n = 141$)	No ($n = 850$)	
Number (%) / mean (SE)		Number (%) / mean (SE)				
Age (years)						
<40	55 (17.0)	268 (83.0)	0.24	45 (20.0)	180 (80.0)	<0.01*
40–49	74 (19.8)	299 (80.2)		45 (16.1)	235 (83.9)	
50–59	67 (16.0)	351 (84.0)		36 (11.2)	287 (88.8)	
60+	32 (13.7)	201 (86.3)		15 (9.2)	148 (90.8)	
Education			0.85			0.07
High school or less	45 (16.5)	228 (83.5)		104 (13.2)	683 (86.8)	
More than high school	182 (17.0)	891 (83.0)	37 (18.1)	167 (81.9)		
Household income			<0.01*			<0.01*
<\$40 000	47 (23.3)	155 (76.7)		26 (23.6)	84 (76.4)	
\$40 000–\$74 999	66 (20.1)	262 (79.9)		30 (16.0)	157 (84.0)	
≥\$75 000	94 (13.1)	624 (86.9)	73 (11.4)	568 (88.6)		
Immigration status			0.38			0.27
Born in Canada	144 (17.8)	666 (82.2)		97 (15.2)	539 (84.8)	
10+ years	71 (15.1)	399 (84.9)		32 (11.4)	248 (88.6)	
<10 years	13 (20.0)	52 (80.0)	12 (16.4)	61 (83.6)		
Self-rated health			<0.01*			<0.01*
Excellent/very good/good	163 (14.3)	975 (85.7)		112 (12.8)	764 (87.2)	
Fair/bad	65 (31.3)	143 (68.7)	29 (25.2)	86 (74.8)		
Having family doctor			<0.01*			0.01*
Yes	201 (15.8)	1072 (84.2)		121 (13.3)	787 (86.7)	
No	27 (37.5)	45 (62.5)	19 (23.5)	62 (76.5)		
Perceived availability			<0.01*			<0.01*
Good	168 (15.1)	942 (84.9)		97 (12.1)	708 (87.9)	
Poor	60 (25.3)	177 (74.7)	44 (23.7)	142 (76.3)		
% of GPs [†] at the neighbourhood level	56.4 (± 2.1)	54.1 (± 1.0)	0.58	56.5 (± 2.7)	55.5 (± 1.1)	0.74

* $p < 0.05$.[†] General practitioners.

and long-term immigrants (10+ years) reported the lowest unmet need (women: 15.1%; men: 11.4%) in comparison to those born in Canada. Unmet health care needs were significantly more common among those reporting poor self-rated health (women: 31.3%; men: 25.2%). Approximately 38.0% of women and 24.0% of men without a family doctor reported unmet health care needs.

Gender-stratified results for neighbourhood conditions on overall unmet health care (Model 1) and the three subcategories of unmet need (Models 2–4) are presented in Tables 3 and 4. Findings show that poor perceptions of neighbourhood health care availability were associated with higher odds of experiencing

unmet health care need among both women (OR: 1.58, 95% CI: 1.09–2.28) and men (OR: 1.92, 95% CI: 1.23–2.99).

Among women (Table 3), reporting poor neighbourhood health care availability was associated with higher odds of unmet needs related to barriers (OR: 1.83, 95% CI: 1.13–2.97) and wait times (OR: 1.93, 95% CI: 1.10–3.40) relative to those who perceived excellent/good neighbourhood health care availability. Among men (Table 4), reporting fair or poor neighbourhood health care availability was associated with higher odds of unmet needs related to personal choice (OR: 1.99, 95% CI: 1.10–3.58) and wait times (OR: 2.75, 95% CI: 1.51–5.01) relative to those who perceived excellent/good neighbourhood health care availability.

Table 3. Odds and 95% CIs from logistic regression models examining perceived health care availability and overall unmet need and reasons for unmet health care needs (personal choice, barriers, wait times) among women ($n = 1347$), NEHW Study, Toronto, Canada ($n = 2338$)

Variables	Model 1	<i>p</i> -value	Model 2	<i>p</i> -value	Model 3	<i>p</i> -value	Model 4	<i>p</i> -value
	Overall ($n = 1347$)		Personal choice ($n = 1119$)		Barriers ($n = 1140$)		Wait times ($n = 1107$)	
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)				
Perceived availability								
Good	1 (ref*)		1 (ref*)		1 (ref*)		1 (ref*)	
Poor	1.58 (1.09–2.28)	0.02 ^{†,‡}	1.40 (0.79–2.50)	0.25	1.83 (1.13–2.97)	0.02 ^{†,‡}	1.93 (1.10–3.40)	0.02 ^{†,‡}

* Reference.

[†] Age, education, household income, immigrant status, self-rated health, household size, having family doctor, and total % of GPs at the neighbourhood level were adjusted.[‡] $p < 0.05$.

Table 4. Odds and 95% CIs from logistic regression models examining perceived health care availability and overall unmet need and reasons for unmet health care needs (personal choice, barriers, wait times) among men ($n = 991$), NEHW Study, Toronto, Canada ($n = 2338$)

Variables	Model 1	<i>p</i> -value	Model 2	<i>p</i> -value	Model 3	<i>p</i> -value	Model 4	<i>p</i> -value
	Overall ($n = 991$)		Personal choice ($n = 868$)		Barriers ($n = 848$)		Wait times ($n = 861$)	
	OR (95% CI)		OR (95% CI)		OR (95% CI)		OR (95% CI)	
Perceived availability								
Good	1 (ref*)		1 (ref*)		1 (ref*)		1 (ref*)	
Poor	1.92 (1.23–2.99)	<0.01 ^{†,‡}	1.99 (1.10–3.58)	0.02 ^{†,‡}	1.12 (0.51–2.44)	0.78	2.75 (1.51–5.01)	<0.01 ^{†,‡}

* Reference.

[†] Age, education, household income, immigrant status, self-rated health, household size, having family doctor, and total % of GPs at the neighbourhood level were adjusted.[‡] $p < 0.05$.

DISCUSSION

This cross-sectional study examined how perceived health care availability was associated with unmet health care needs and reasons for these unmet needs among residents of Toronto, Canada. Our findings suggest that perceived lack of health care availability was associated with higher odds of unmet health care needs; that is, the more negative the perception of health care availability, the more unmet health care need was reported. In addition, perceived health care availability was associated with barriers- and wait times-related unmet health care need among women, and personal choice- and wait times-related unmet need among men.

While the majority of studies on neighbourhood and health have emphasized neighbourhood-level SES or provision of services,^{23,28,29} this study focused on the role of perceived availability of health care services on the experience of unmet needs.

Our study yields three important findings that can be used to inform future health policy. First, we found that perceptions of poor health care availability in the neighbourhood were significantly associated with unmet health care need. In previous studies, perceived barriers to health care access negatively affected health services utilization, suggesting that poor perception of availability could possibly hinder access and use of health care services.^{30,31} Andersen's Behavioural Model of Health Services Use, a widely used conceptual model, also supports the idea that neighbourhood perception, which is defined as contextual dimension, can impact the use of health services.²⁶ That is, the perception of neighbourhood is a cumulative indicator reflecting a resident's view of service availability, satisfaction, quality and expectation.^{32,33} From a health policy perspective, it is worthwhile to note that neighbourhood perception of health care availability becomes an important determinant of health care services because the perception reflects objective condition of neighbourhood environment.^{34,35}

Second, the importance of perceived availability of neighbourhood health care in our research suggests that simply increasing the number of family practitioners or promoting a more even distribution of physicians across neighbourhoods may not reduce unmet health care needs. After adjusting for actual availability of health care resources in the neighbourhood, there was still an association between perceived health care availability and unmet needs. Practically, this suggests that having sufficient density of

health care resources (e.g., number of family physicians) in a neighbourhood may not be related to perceptions of health care access. Instead, efforts to improve knowledge of availability could make more of an impact, such as promoting community-need-based services and improving neighbourhood health facilities.³⁴ Beyond improving perception, investing in environmental changes such as increasing the number of health care resources at the neighbourhood level may still be a potential policy option, because improving neighbourhood physical conditions facilitates an increase in awareness of available neighbourhood resources in addition to improving neighbourhood reputation.³⁴

Third, we identified gender differences in the relationship between perception of health care availability and subcategories of perceived unmet needs. In particular, we found that poor perception of health care availability was associated with barriers-related unmet needs in women, whereas the perception of health care availability was associated with personal reasons for unmet needs in men only. That women with poor perception of health care availability had higher odds of reporting unmet needs due to the experience of barriers is in line with previous studies that indicate women are more sensitive to perceptions of the residential environment, and neighbourhood perception shapes health behaviour and healthy lifestyles.¹¹ Women may consider poor perception of the availability as actual external barriers because women have a higher likelihood of being influenced by the social aspects of the environment.³⁶ In contrast, perception of poor availability may not be considered as external barriers for men, but rather internalized as personal reasons for not seeking care.

This gender difference in perception and unmet need also supports the existing idea that women are more likely to experience barriers to health care services based on individual and community characteristics.³⁷ In Canada, several studies found women reported higher rates of unmet need compared to men.^{2,15,38} One plausible explanation for women's experiencing more barriers-related unmet health care is precarious employment and consequence of traditional gender roles. Women are more likely to have unstable job conditions, and this precarious employment status results in experiencing difficulties in seeking needed health services.³⁹ In addition, women use more health services than men and tend to have expectations to retain primary responsibility for family care, so this traditional gender role may contribute to higher rate of unmet need in women.^{38–42}

Limitations

Our conclusions are based on a population-based representative sample of over 2300 persons from 47 Toronto neighbourhoods. Despite this, there are a few limitations. Due to the cross-sectional nature of this study, we cannot be certain of the temporality of the relationship between neighbourhood conditions and self-reported unmet health care needs. A longitudinal study would help to further clarify the role of perceived and actual health care availability in the neighbourhood and unmet health care needs. In addition, participants of the NEHW survey data have somewhat higher socio-economic position in terms of educational and income levels than other Toronto residents, and were English-speaking, suggesting this survey may not be representative of the City of Toronto in terms of socio-economic levels and cultural and ethnic diversity. However, the NEHW study used a three-stage sampling design to ensure that the sample represented the population of Torontonians. Considering the increasing proportion of immigrants in Toronto and the concentration of immigrants in certain neighbourhoods,⁴³ it is worthwhile to consider further studies focused on examining how the relationship between neighbourhood and unmet need varies across different subpopulation groups living in Toronto.

CONCLUSION

As different types of unmet need have different policy implications, we examined the perception of health care availability and unmet health care need overall as well as classified into three subcategories among residents of 47 neighbourhoods in Toronto, Canada. Perception of health care availability in the neighbourhood was inversely associated with unmet health care need in both women and men. In gender-stratified models exploring the reasons for these unmet needs – personal choice, barriers and wait times – gender differences in neighbourhood perception and unmet needs were observed. Women who felt their neighbourhood had poor availability of services were more likely to report access-related barriers while men who perceived poor availability were more likely to report personal choice-related barriers. Individuals' perception of health care availability plays a crucial role in the experience of unmet health care needs, suggesting the importance of community-based policy development for improving physical conditions and the social aspect of health care services that reflect the needs of the residents within neighbourhoods.

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RÉSUMÉ

OBJECTIFS : L'accès rapide aux soins de santé est une priorité absolue, mais un corpus de recherche grandissant fait ressortir l'importance des environnements de quartiers pour combler les besoins de soins de santé insatisfaits. Notre étude visait à examiner l'association entre les perceptions de la disponibilité de services de soins de santé dans le quartier et l'expérience des besoins de soins de santé insatisfaits, selon le sexe, dans un milieu urbain.

MÉTHODE : Nos analyses ont porté sur 2 338 participants de l'étude *Neighbourhood Effects on Health and Well-being (NEHW)* âgés de 25 à 64 ans et vivant à Toronto (Ontario) au Canada. Nous avons utilisé quatre modèles de régression logistique stratifiés selon le sexe pour examiner la relation entre la disponibilité des soins de santé dans le quartier et les besoins de soins de santé insatisfaits, ainsi que l'impact de la perception de la disponibilité des soins de santé dans le quartier sur les trois types de besoins insatisfaits.

RÉSULTATS : La disponibilité perçue des soins de santé était associée à une probabilité accrue d'éprouver des besoins de soins de santé insatisfaits, tant chez les femmes que chez les hommes (femmes = RC : 1,58, IC de 95 % : 1,09–2,28; hommes = RC : 1,92, IC de 95 % : 1,23–2,99). En outre, la disponibilité perçue des soins de santé était associée à des besoins de soins de santé insatisfaits liés aux barrières et aux temps d'attente chez les femmes (RC : 1,83, IC de 95 % : 1,13–2,97; RC : 1,93, IC de 95 % : 1,10–3,40, respectivement), et à des besoins insatisfaits liés aux choix personnels et aux temps d'attente chez les hommes (RC : 1,99, IC de 95 % : 1,10–3,58).

CONCLUSION : La perception individuelle de la disponibilité des soins de santé joue un rôle décisif dans l'expérience des besoins de soins de santé insatisfaits, ce qui indique l'importance d'élaborer des politiques communautaires pour améliorer les conditions matérielles et l'aspect social des services de soins de santé.

MOTS CLÉS : besoins de soins de santé insatisfaits; environnement du quartier; accès aux soins; Toronto; Canada