

Unmet eye care needs among a homeless youth population

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ABSTRACT • RÉSUMÉ

Objective: To assess the rate of visual impairment and quantify the unmet eye care needs within Toronto's homeless youth community.

Design: Prospective and cross sectional.

Participants: Ninety randomly selected homeless youth aged 16–24 years.

Methods: From each of 9 participating homeless youth shelters and drop-in centres in Toronto, 10 English-speaking youths between ages 16 and 24 were randomly recruited. Information regarding sociodemographics, medical history, subjective visual acuity, and access to eye care was collected. Comprehensive visual screening and undilated direct funduscopy were also performed.

Results: The median age of participants was 21 years (interquartile range = 19–23 years), and 62.2% were male. Most participants were homeless for less than 5 years (90%) and earning less than \$500 monthly (57.8%). Despite 51.1% of participants having previously owned corrective lenses, only 20% of participants currently owned them when assessed/at study time. When analyzing the better-seeing eye, presenting visual acuity was 20/50 or worse in 18.9% (95% CI 10.8%–27.0%) of participants. Pinhole occlusion decreased the number to 2.2% (95% CI 0%–5.3%). The most common cause of visual impairment was uncorrected refractive error. Ocular pathology was observed in 8 participants. Compared to adults, youth have similar functional visual impairment (adults 24.0%, youth 18.9%) but less impairment uncorrectable by pinhole occlusion (adults 11.0%, youth 2.2%) and are less dissatisfied with their vision (adults 70.0%, youths 36.7%). Although a higher proportion of homeless youths have visited an eye specialist in the past year (adults 14.0%; youths 17.8%), neither group is visiting as frequently as the Canadian average (41%) ($p < 0.01$).

Conclusions: Homeless youth have a high prevalence of visual impairment, even when living within a system of universal health insurance. Ongoing vision-screening programs, readily accessible free eye clinics, and particularly low-cost glasses may help address this need.

Objet : Évaluer le taux de déficience visuelle et quantifier les besoins de soins oculaires non comblés chez les jeunes sans-abri de Toronto.

Nature : Étude transversale prospective.

Participants : 90 jeunes sans-abri de 16 à 24 ans choisis au hasard.

Méthodes : Dans chacun des neuf refuges pour jeunes sans-abri et centres de jour participants de Toronto, 10 jeunes anglophones ayant entre 16 et 24 ans ont été recrutés aléatoirement. Des informations sur le profil sociodémographique, les antécédents médicaux, l'acuité visuelle subjective et l'accès à des soins oculaires ont été recueillies. Un examen visuel complet et une ophtalmoscopie directe sans dilatation ont aussi été réalisés.

Résultats : L'âge médian des participants était de 21 ans (écart interquartile = 19–23) et 62,2 % étaient de sexe masculin. La plupart des participants étaient sans abri depuis moins de 5 ans (90 %) et avaient un revenu mensuel de moins de 500 \$ (57,8 %). Alors que 51,1 % des participants avaient déjà possédé des verres correcteurs, seuls 20 % en possédaient au moment de l'étude.

Dans l'analyse du meilleur œil, l'acuité visuelle manifeste était de 20/50 ou pire chez 18,9 % (95 % IC 10,8 %-27,0 %) des participants. La mesure de l'acuité avec le trou sténopéique a réduit la proportion à 2,2 % (95 % IC 0 %-5,3 %). La cause la plus courante de la déficience visuelle était la non-correction d'une erreur de réfraction. Une pathologie oculaire a été observée chez huit participants.

Les jeunes ont un taux de déficience visuelle fonctionnelle comparable à celui des adultes (adultes 24,0 %, jeunes 18,9 %), mais une proportion moins forte de déficience non corrigible avec le trou sténopéique (adultes 11,0 %, jeunes 2,2 %) et sont moins insatisfaits de leur vision (adultes 70,0 %, jeunes 36,7 %). Même si les jeunes sans-abris sont proportionnellement plus nombreux à avoir consulté un spécialiste des yeux au cours de la dernière année (adultes 14,0 %; jeunes 17,8 %), aucun des deux groupes ne consulte aussi fréquemment que la moyenne des Canadiens (41 %) ($p < 0,01$).

Conclusion : Les jeunes sans-abri ont une forte prévalence de déficience visuelle, même quand ils vivent à un endroit où existe un régime d'assurance maladie universelle. Des programmes permanents d'examen de la vue, des cliniques de soins oculaires gratuites facilement accessibles et surtout des verres abordables pourraient contribuer à répondre à leurs besoins.

The homeless, one of society's most vulnerable populations, are at increased risk for a number of adverse medical conditions, including arthritis, epilepsy and acute seizures, mental illness, musculoskeletal disorders, poor oral and dental health, chronic obstructive pulmonary disease, and substance abuse.¹ Once recognized, health issues of the

homeless are often still inadequately managed.^{2–4} Homelessness has also been linked outright as a risk factor for overall mortality, particularly in youth populations.¹

Within the body of existing literature regarding the health of homeless populations, ocular health is not well documented. However, ocular health has close associations

with issues particularly relevant to these communities, such as reduced quality of life, earning potential, and levels of education attainment.^{5–8} Indeed, vision is often seen as one of the most important senses, with vision loss being the most feared disability amongst Canadians.⁹

Recognizing the importance of addressing this knowledge gap, our group previously investigated the ocular status of Toronto's adult homeless population and found that 25.2% suffered from functional visual impairment, a rate that is 4 times higher than the general populations of Canada and the United States.^{5,10–12} Documentation is important for directing services, whether locally through government and community programs, or internationally through initiatives such as *VISION 2020: The Right to Sight* campaign (www.iapb.org/vision-2020). Additionally, we noted that a large degree of strabismus (12%) existed in our adult study.¹⁰ This figure is markedly higher than the 4%–5% value quoted for the general population.^{13,14} Given that these illnesses often first present in pediatric populations, we were interested to see whether these same inequities existed in a youth population.

Understanding the ocular health of youth populations, specifically, is important for additional reasons. Studies have found that youth with visual impairment are less likely to be employed.¹⁵ Furthermore, visual impairment has been found to have a social and emotional impact in ways particularly relevant to this population, such as difficulty making friends, lower self-esteem, and feelings of loneliness.^{16,17}

Homelessness presents additional challenges, yet it is unknown if homeless youth have levels of visual impairment similar to homeless adults. In fact, to the best of our knowledge, no studies to date have focused on youths aged between 16 and 24 years, despite the fact that this age group has distinct differences from their adult counterparts with respect to comorbidities, living environments, predisposition to ocular pathology, and access to programs and care providers. Youth shelters and drop-in programs provide a different set of services compared to adult equivalents, with some even facilitating access to optometrists. It is unclear how such differences translate to differences in unmet eye care needs and necessary models of care delivery. Thus, the current study aims to elucidate and quantify the unmet eye care needs of the youth population.

METHODS

The methods employed in this study were similar to those used in our previous study recruiting homeless adults.¹⁰ Recruitment for this cross-sectional study took place in Toronto, Ontario, between June and December 2014. A homeless youth was defined as a person who is aged between 16 and 24 years of age, currently residing in a shelter, or accessing drop-in centres designated for street-involved youth. Non-English speakers and persons found to lack decisional capacity were excluded.

For their participation, participants received a \$10 gift card upon study completion. Ethics approval was obtained from the St. Michael's Hospital Research Ethics Board.

Within Toronto's Central Local Health Integration Network, 14 youth shelters/drop-in centres were identified. An additional 5 centres were identified but excluded from the recruitment process as they had <20 homeless youth on site at any given time. All 14 institutions were approached, and 9 agreed to participate—4 shelters and 5 drop-in centres. To ensure that our sample was as representative as possible, a random sampling technique was employed. For the 4 shelters, bed numbers within each were randomly selected, and the respective occupants were invited to participate in the study. For the 5 drop-in centres, all occupants of the shelter were identified and assigned a number, after which numbers were randomly selected and respective individuals invited to participate. Sampling continued until 10 participants had been recruited from each site.

All participants underwent an informed consent process. Verbal consent was obtained from each participant, in accordance with the Canadian Tri-Council Policy Statement on Ethical Conduct (TCPS2) guidelines. A written statement outlining all information relayed during the consent process was provided to each participant.

Each participant underwent a structured interview and ocular examination. Many of the questions posed to respondents were derived from validated questionnaires or previously published studies.^{18–21} The interview was designed to collect information on sociodemographic characteristics, past ocular history, and accessibility of eye care services.

An assessment of objective visual acuity was done through the measurement of distance and near presenting visual acuity (PVA), pupil reactivity, confrontation fields, extraocular eye movements, and an undilated retinal examination via direct funduscopy. Given the young age of participants, we elected to not routinely check for raised intraocular pressure in this cohort.

PVA was assessed using the participant's usual distance correction. A corrected visual acuity (CVA) was also collected through the use of a pinhole occluder. Visual acuity was recorded as the last line for which 4 or more characters could be properly read. The best PVA and/or CVA of the better-seeing eye were used to categorize participants as not impaired (better than 20/50), low vision (between 20/50 and 20/200), or blind (20/200 or worse).

The χ^2 analysis was used to assess significant differences ($p < 0.01$) between our youth homeless population and an adult homeless population cohort. Confidence intervals for proportions were calculated using Wilson's method.^{22,23} Statistical analyses were conducted using R version 3.0.1.²⁴

RESULTS

From the 9 institutions, 103 youths were approached and 90 successfully completed the study. The median age

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