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Abstract

There is national recognition of the need to incorporate Aboriginal health issues within the medical school curricula. This study aims to evaluate changes in medical students' knowledge and attitudes about Aboriginal health, and their preparedness to work in Aboriginal communities after attending a 3-hour Aboriginal health seminar. A cross-sectional survey was administered before and after the seminar for Year 1 and 2 medical students at the University of Western Ontario. The survey included four true or false questions and 24 questions using a seven-point Likert scale (1 – strongly disagree, 7 – strongly agree). Eighty two of 130 (64 per cent) Year 1 students and 55 of 86 (63 per cent) Year 2 students completed both questionnaires. Knowledge-based questions were answered correctly by most students before the seminar, with an increasing number of correct responses noted after the seminar ($p < 0.05$). Students' perceptions about sociocultural and economic factors affecting health showed uncertainty before the seminar, but changed towards greater agreement regarding its impact on health after the seminar ($p < 0.05$). Students initially felt unprepared to care for Aboriginal patients before the seminar, but felt more prepared after the seminar ($p < 0.05$). A 3-hour seminar using both didactic and non-traditional teaching methods appears to be effective in the short term in improving knowledge, changing attitudes and reversing some of the uncertainties medical students have about practicing in Aboriginal communities.

Keywords

Aboriginal health, medical education curriculum, medical student attitudes

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Introduction

Aboriginal people (First Nations, Inuit, Métis) comprise 3.8 per cent of Canadians and have a population growth rate that is six times faster than non-aboriginal Canadians due to higher birth rates and increased self-identification¹. Aboriginal people continue to experience persistent health disparities, including a lower life expectancy, increased infant mortality, suicide, diabetes, obesity, tuberculosis, sexually transmitted infections and heart disease, that is mirrored in other westernized regions, such as the USA and Australia^{2,3}. The reasons are multifactorial and point to biologic⁴ as well as socioeconomic influences related to the loss of culture, self-governance, colonialism and the residential school experience^{5–8}. In addition, differences in language use, worldview and different understandings of the history of Indian–white relations further exacerbate communication difficulties⁹. Hence, it is critical that medical students receive specific training to develop skills to navigate through the non-medical issues that underlie each patient–physician encounter in order to deliver culturally sensitive medical care^{10,11}.

Despite initiatives to increase the number of Aboriginal doctors, the majority of medical care continues to be delivered by non-Aboriginal physicians^{12,13}. There is a need to both recruit more Aboriginal health care professionals, and to improve health care education to address Aboriginal health issues¹⁴. In 2005, a series of agreements between the Government of Canada, First Ministers of the Provinces and Territories, and leaders of five national Aboriginal organizations in Canada culminated in the Kelowna Accord that sought to improve education, employment and living conditions for Aboriginal people¹⁵. The education goals included the doubling of Aboriginal physicians by 2016, greater social accountability of medical schools and the adaptation of health care curricula to incorporate cultural competency^{15,16}. Subsequently, the Association of Faculties of Medicine in Canada (AFMC), in partnership with the Indigenous Physicians Association of Canada (IPAC), developed a national Aboriginal health recruitment strategy and curriculum framework for medical schools^{16–18}.

Many Canadian medical schools have implemented initiatives to increase enrolment and incorporate Aboriginal health learning objectives in their curriculum^{18–22}. However, implementation is not uniform and there remains no published data on the outcome and effectiveness of the curriculum in changing student perspectives and future medical practice. The Schulich School of Medicine and Dentistry at the University of Western Ontario currently does not have dedicated teaching in its curriculum on Aboriginal health issues. This study aims to assess the effectiveness of an Aboriginal health seminar in altering medical students' knowledge, attitudes and perceptions of Aboriginal health issues, and their preparedness and willingness to work in an Aboriginal community.

Methods

Educational seminar

The 3-hour education seminar was developed in conjunction with the Department of Undergraduate Medical Education as part of the Community Health component of the medical school curriculum that extends through Years 1 and 2. The seminar was given twice on 14 January 2008 – in the morning for Year 2 students and in the afternoon for Year 1 students.

The learning aims of the seminar were for students to have an appreciation of: (i) the basic facts about Aboriginal health issues; (ii) the social and cultural background of Aboriginal people and its influence on their health and attitudes towards western medical care; (iii) the communication difficulties and challenges with persons of different cultures and languages; and (iv) the pre-conceived stereotypes and attitudes towards Aboriginal people.

The seminar session was facilitated by two University of Western Ontario Faculty members of Aboriginal descent and a monologue performance that wove together relationship, culture, history and conflict in a health care setting. Dr Chantelle Richmond's presentation, entitled 'The roots of health and social inequality of Indigenous peoples', addressed the following topics: who are indigenous peoples and where they live in Canada; the indigenous link to the land; health as represented in the traditional medicine wheel; and the concept of environmental marginalization. Professor Bryan Loucks's presentation, entitled 'Resonance, Resistance and Well Being', focused on the cultural context of land, peoples and relationships; land treaties; the Indian Act and reservation system; and residential schools and their effects on subsequent generations.

Data collection

As a relevant validated survey instrument was not found, a survey was developed (AWZ, SB, JS) and pilot tested with faculty advisors to clarify wording, appropriateness and improve its usability. All Year 1 and 2 medical students (2011 and 2010 graduating classes, respectively) at the Schulich School of Medicine and Dentistry were asked to complete the 28-item questionnaire immediately before and after the 3-hour seminar. Responses were matched by means of an anonymous identification code (first two letters of birth city, first two letters of high school, year of high school graduation [YY], and first two letters of mother's maiden name). Participation was voluntary and followed tenets of the Declaration of Helsinki to ensure anonymity. Ethics approval for data collection was granted by the University of Western Ontario Research Ethics Board.

The questionnaire format included four true or false questions, and 24 questions based on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The questions were grouped into three sections examining knowledge about Aboriginal health issues, perceptions of the sociocultural factors affecting health and health care delivery, and student support for the curriculum changes and their readiness and willingness to work in Aboriginal communities.

Statistical analysis

SPSS software version 16.0 (SPSS Inc, Chicago, IL) was used to calculate median score and interquartile range for 24 items. Cronbach's alpha coefficients were calculated to determine the internal consistency of the questionnaire. McNemar's test was used to compare responses to the true or false questions. The Wilcoxon signed rank test was used to compare 'before' and 'after' responses within each class. The Mann-Whitney test was used to test for differences in response between Year 1 and 2 classes.

Results

Of the 130 Year 1 and 86 Year 2 students (88 per cent and 62 per cent of total class enrolment, respectively) who attended the Aboriginal health seminar, 82 (63 per cent) from Year 1 and 55 (64 per cent) from Year 2 completed both pre- and post-seminar questionnaires. Cronbach's alpha calculated for questions 1–21 was 0.72 in pre- and post-seminar questionnaires for the Year 1 class, and 0.72 and 0.78 in the pre- and post-seminar questionnaires from the Year 2 class, respectively.

Knowledge-based items were tested using a true or false (items 1–4) and seven-point Likert scale question format (items 6–12). The majority of students in both Years 1 and 2 correctly answered the true and false questions before attending the course. Correct responses to items 1–4 increased after the seminar, but this was not statistically significant (Table 1). Knowledge-based

Table 1. True or false responses of Year 1 ($n = 82$) and 2 ($n = 55$) medical students before and after attending a 3-hour Aboriginal health seminar

Item	Year 1 <i>n</i> (per cent) answered correctly		Year 2 <i>n</i> (per cent) answered correctly	
	Pre-seminar	Post-seminar	Pre-seminar	Post-seminar
1. Most Reserves are far from urban centres (False)	72 (88)	78 (95)	51 (93)	51 (93)
2. Each Reserve has a health care team in place to address the needs of its members (False)	69 (84)	75 (91)	43 (78)	44 (80)
3. The population rarely needs to travel to an urban centre for health care needs (False)	81 (99)	80 (98)	54 (98)	54 (98)
4. The medicine wheel is a holistic approach to medicine (True)	78 (95)	81 (99)	54 (98)	54 (98)

Table 2. Responses of Year 1 ($n = 82$) and 2 ($n = 55$) students before and after attending the Aboriginal health seminar evaluating their knowledge and attitudes towards Aboriginal health issues

Item	Year 1 Median score (IQR)		Year 2 Median score (IQR)	
	Pre-seminar	Post-seminar	Pre-seminar	Post-seminar
Knowledge				
6. Many members of the population rely on their traditional medicines and ceremonies in everyday life	5 (4–6)	6 (5–6)*	5 (4–6)	5.5 (4–6)*
7. The population frequently uses tobacco for traditional purposes	5 (4–6)	6 (5–6)*	4 (4–5)	4 (4–5)
8. The population frequently uses alcohol for traditional purposes	4 (4–5)	4 (4–6)*	4 (4–6)	6 (4–6)*
9. The population has a higher prevalence of alcohol abuse than the general population	6 (6–7)	6 (6–7)	6 (6–7)	6 (6–7)*
10. The population has a higher prevalence of obesity than the general population	6 (5–6)	6 (5–6)	6 (6–7)	6 (6–7)
11. The population has a higher prevalence of Type 2 diabetes than the general population	6 (5–7)	6 (6–7)*	6 (6–7)	7 (6–7)*
12. The population has a higher suicide rate than the general population	6 (5–7)	7 (6–7)*	6 (6–7)	7 (6–7)*
Sociocultural influences on health				
13. Conventional (i.e. western) physicians should be aware of traditional medicine(s) that their patients may be using	7 (6–7)	7 (6–7)	6 (6–7)	7 (6–7)*

Table 2. (Continued)

Item	Year 1 Median score (IQR)		Year 2 Median score (IQR)	
	Pre-seminar	Post-seminar	Pre-seminar	Post-seminar
14. The population is more likely to comply with a treatment plan than the general Canadian population	5 (4–6)	5 (4–6)	5 (4–6)	5.5 (4–6)
15. The population is less likely to fill prescriptions due to financial struggles	5 (5–6)	5 (4–6)	5 (5–6)	6 (5–6)
16. The population is generally mistrusting of conventional (i.e. western) physicians	4 (4–5)	4 (4–5)*	4 (4–5)	5 (4–6)
17. The population does not communicate as openly with conventional physicians as compared to the general population	5 (4–5.25)	5 (4–5)	4 (4–5)	5 (5–6)*
18. Loss of the population's traditional lifestyle is a result of colonization	5 (5–6)	6 (6–7)*	5 (5–6)	6 (6–7)*
19. Loss of the population's traditional lifestyle is a negative contributing factor to their health	5 (4–6)	6 (6–7)*	6 (5–6)	6 (6–7)*
20. The residential school system has caused negative health outcomes in this population	5 (4–6)	7 (6–7)*	6 (4–6)	7 (6–7)*
21. Health effects of the residential school system are propagated through several generations	5 (4–6)	6 (6–7)*	6 (5–6)	7 (6–7)*
Preparedness and attitudes towards caring for Aboriginal patients				
5. The population has equal rights to access government provided health care	5 (3–7)	5 (2–6)	5 (3–5)	6 (3–7)
22. I have been adequately educated regarding social issues facing this population	2 (1–3)	5 (3–5)*	2 (2–3)	4 (2–5)*
23. I have been adequately educated regarding health issues facing this population	2 (2–3)	5 (3–5)*	3 (2–3)	4.5 (3–5)*
24. Comfortable discussing trust issues with patients from this population	3 (2–5)	5 (4–5.25)*	3 (2–4)	5 (3–5)*
25. It is valuable to me as a future physician to be educated on social issues concerning this population	6 (6–7)	6 (6–7)	6 (6–7)	6 (6–7)
26. It is valuable to me as a future physician to be educated on the health issues concerning these populations	6 (6–7)	6.5 (6–7)*	6 (6–7)	6 (6–7)
27. The clinical curriculum should incorporate a rotation in a First Nations community	5 (4–6)	6 (4–6.25)	6 (4.25–7)	6 (4.75–6)
28. I would consider working in a First Nations, Métis and/or Inuit community	4 (3.75–6)	5 (4–6)*	4 (4–6)	4.5 (3–6)

IQR: interquartile range. *Statistically significant ($p < 0.05$) difference in the pre- and post-seminar response.

items 6–12 were answered correctly (Likert scale ≥ 6) for four (57.1 per cent) questions in both classes before the seminar. This increased after the seminar to six (85.7 per cent) questions in the Year 1 class and five (71.4 per cent) questions in the Year 2 class ($p < 0.05$). Survey questions and significant change ($p < 0.05$) in response after the seminar are indicated in Table 2.

The second question group (items 13–21 in Table 2) assessed students' perceptions regarding the impact of sociocultural and economic factors on health and health care delivery. Student responses indicated uncertainty or only partial agreement (Likert scale ≤ 5) with the statements before the seminar. One (11.1 per cent) and four (44.4 per cent) questions out of nine selected by the Year 1 and 2 classes, respectively, indicated agreement with the statements. After the seminar, however, Year 1 and 2 classes indicated agreement to five (55.6 per cent) and six (66.7 per cent) questions, respectively ($p < 0.05$).

The third question group (items 5, 22–28 in Table 2) was subjective in nature to elicit students' attitudes about the importance of incorporating Aboriginal health issues in the curriculum, and whether they felt prepared to navigate through medical and non-medical aspects of the Aboriginal patient encounter. The questions also assessed students' willingness to work in Aboriginal communities. These questions were excluded in the calculation of Cronbach's alpha, as internal consistency would be inherently low due to their personal nature. Prior to the seminar, students agreed to two (25 per cent) and three (37.5 per cent) items in the Year 1 and 2 classes, respectively. After the seminar, there was an increase in agreement, with Year 1 students agreeing to three (37.5 per cent) items and Year 2 students agreeing to four (50 per cent) items. The Year 2 class agreed to item 27 regarding the incorporation of a clinical rotation within an Aboriginal community both before and after the seminar, whereas Year 1 students only partially agreed before the seminar. This changed to full agreement after the seminar, but the difference did not reach statistical significance.

The Mann–Whitney test was used to assess whether pre- and post-seminar responses differed significantly between the two cohorts. Prior to the seminar, response to items 10 and 11 (knowledge), 19 and 20 (sociocultural factors) and 23 (personal views) differed significantly between Years 1 and 2 students, where the senior class showed stronger agreement with statements 10, 11, 19 and 20. After the seminar, there was a significant difference in response to questions 7, 8 and 10 (knowledge), 16–18 (sociocultural factors) and 22 (personal views) between the Year 1 and 2 classes.

Discussion

This study demonstrates that a brief intervention through a 3-hour educational seminar can have a significant impact in changing medical students' knowledge and attitudes about Aboriginal health issues. Our pre-seminar survey revealed that both Year 1 and 2 students, in general, were more aware of the medical issues affecting Aboriginal people than the sociocultural factors affecting health. Medical students also indicated uncertainty about their preparedness and willingness to work in an Aboriginal community. Post-seminar analysis indicated not only improved knowledge about both medical and sociocultural impacts on Aboriginal peoples' health, but also more importantly, students had a greater sense of being adequately prepared to provide care to Aboriginal patients. However, most students still felt uncertain about their willingness to practice in an Aboriginal community in the Year 2 class, whereas more students were willing to consider this opportunity in the Year 1 class after the seminar (Table 2). Although our attitude-based subjective questions (items 5, 22–28) garnered a modest shift from disagreement to uncertainty, it nevertheless points to the positive impact of teaching about the biological and social determinants of Aboriginal health. The moderate degree of change suggests that shifts in personal attitudes are likely slower and would require in-depth immersion to help students overcome feelings of uncertainty.

Issues of trust and communication emerged from items 16 and 17 as areas of uncertainty identified in our study. These topics were addressed in the seminar through the monologue, which stressed the importance of being aware of the Aboriginal patient's collective social history beyond the immediate medical encounter. Ellerby et al²³ identified several qualities essential for effective communication and trust-building with Aboriginal patients including: understanding the histories and cultures of Aboriginal people; knowing the individual beyond the immediate medical issue(s); allowing the patient time to tell their story; booking longer visits to allow for more patient interaction; and physician education^{12,24,25}. The present study has only assessed the first of these learning imperatives – that of Aboriginal history and culture. A curriculum sensitive to the needs of Aboriginal peoples must also address practical skills in the patient–doctor interaction that will help build trust and open communication. For instance, studies have demonstrated the limitation of the biomedical model prompting research and development of guidelines to facilitate culturally appropriate communication that may be adapted for medical student training^{23,26}. An encouraging finding from our study is that both classes are aware of their communication deficits and were in agreement with items 13 and 25, indicating a willingness to learn effective communication skills with Aboriginal patients if given the opportunity.

Although the topic of compliance to medical advice and treatment was not addressed in any of the presentations, many students in both years indicated they 'somewhat agree' to items 14 and 15 regarding the perceived higher rates of non-compliance in Aboriginal patients. It is concerning to see that students near the beginning of their medical training may already be developing a profile of a non-compliant patient that includes Aboriginal people. Compliance is intimately tied to a patient's trust in their doctor, and the ability to communicate and understand their doctor²⁷. This was not explicitly explored within our 3-hour seminar and indicates an area that needs to be addressed more clearly for students.

The most common format for teaching Aboriginal health in the curriculum is case-based and didactic learning, with few schools providing first-hand exposure to Aboriginal people in the community^{21,28}. Our educational intervention incorporated both didactic learning and interaction with members of the Aboriginal community in teaching history and culture in the context of western medical care. We believe this approach of partnering students with members of the Aboriginal community, rather than exposure only in the context of poor health, can foster greater communication, understanding and awareness about the powerful social undercurrents of health and wellbeing, as demonstrated elsewhere²⁹. In addition, the use of non-traditional tools, such as drama in the classroom, can prove to be a valuable adjunct to student learning³⁰.

If a 3-hour seminar can bring about short-term change in medical students' knowledge and attitudes towards caring for Aboriginal patients, as was seen in our study, the impact of developing a curriculum that embeds teaching of Aboriginal health and cultural issues within all years of medical education could prove to be beneficial. Already, studies have shown positive student feedback towards teaching cultural diversity and incorporating cultural awareness in medical education as a starting point to delivering excellent health care^{10,11}.

This study, to our knowledge, is the first to evaluate the effects of Aboriginal health teaching in changing medical student knowledge and attitudes in Canada. Although first and second year medical students have substantial knowledge about Aboriginal health, they are uncertain of the socio-cultural influences on health, and even less certain about their ability and readiness to work in an Aboriginal community. A 3-hour seminar using both didactic and non-traditional teaching methods appears to be effective in the short term in improving knowledge, changing attitudes and reversing some of the uncertainties students have about practicing in Aboriginal communities. The long-term effects of such intervention remain to be investigated, including changes in future practice patterns as these medical students become doctors.

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Conflict of interest statement

The author(s) declared no conflicts of interest with respect to the authorship and/or publication of this article.

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