Skin deep: Coverage of skin cancer and recreational tanning in Canadian women's magazines (2000–2012)

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ABSTRACT

OBJECTIVE: Skin cancer is a significant public health problem among Canadians. Knowledge and attitudes about health are informed by mass media. The aim of our study was to describe the volume and nature of coverage of skin cancer and recreational tanning in Canadian women's magazines.

METHODS: Directed content analysis on article text and images in six popular Canadian women's magazines (*Chatelaine*, *Canadian Living*, *Homemakers*, *Flare*, *FASHION*, *ELLE Canada*) from 2000–2012 with attention to risk factors, ultraviolet radiation (UV) exposure and protection behaviours, and early detection. Six popular American women's magazines were used for a between-country comparison.

RESULTS: There were 154 articles (221 images) about skin cancer and tanning published over 13 years. Volume of coverage did not increase in a linear fashion over time. The most common risk factor reported on was UV exposure (39%), with other risk factors less frequently identified. Although 72% of articles promoted sunscreen use, little content encouraged other protection behaviours. Only 15% of articles and 1% of images discouraged indoor tanning, while 41% of articles and 53% of images promoted the tanned look as attractive. Few articles (<11%) reported on early detection. Relative to American magazines, Canadian magazines had a greater proportion of content that encouraged sunscreen use and promoted the tanned look and a lesser proportion of content on risk factors and early detection.

CONCLUSION: Skin cancer and tanning messages in Canadian women's magazines had a narrow focus and provided limited information on risk factors or screening. Conflicting messages about prevention (text vs. images) may contribute to harmful UV behaviours among Canadian women.

KEY WORDS: Sunbathing; ultraviolet rays; suntan; melanoma; beauty; communications media

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

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Skin cancer is the most common type of cancer among Canadians.¹ It is such a significant and growing public health problem that the Canadian Cancer Society made skin cancer a special focus of the 2014 annual cancer statistics report,¹ with 6,500 new cases of melanoma (1,050 deaths) and 76,100 cases of non-melanoma (440 deaths) skin cancers estimated. Both the incidence of, and mortality from, melanoma – the most dangerous type of skin cancer – have increased significantly in Canada over the past 25 years. Indeed, the incidence of melanoma among Canadian women is 13.0 per 100,000 and has risen by 1.5% per year from 1986 to 2010.¹ In 2004, the cost of skin cancer care in Canada was \$532 million; by 2031, this is expected to increase to \$922 million per year.²

Ultraviolet (UV) radiation exposure is the most important cause of melanoma and non-melanoma skin cancers.³ In Canada, UV radiation accounts for 90% of melanoma cases.⁴ Sources of UV radiation include the sun (most commonly) and indoor tanning equipment. The World Health Organization recognizes UV exposure – both from the sun and indoor tanning beds – as carcinogenic.⁵ Intermittent intense sun exposure, history of sunburn, susceptible phenotype (light hair, skin or eyes), indoor tanning bed use, and multiple or atypical moles are associated with melanoma.⁶

National surveys suggest that the sun behaviours of Canadians may increase their risk of skin cancer. More Canadians are taking

winter vacations in sunny locales, spending more time in the sun while vacationing or doing leisure activities, and fewer Canadians report wearing protective clothing or hats.⁷ Artificial UV exposure is also a public health problem. Over 25% of Canadian women ages 16 to 24 years, and 15% of women ages 25 to 44, use indoor tanning equipment.⁷ There are over 5,000 tanning salons in Canada,⁸ far more than the number of McDonald's (1,400) and Tim Hortons (3,000) restaurants.^{9,10}

The mass media, including print magazines, are an important source of information about skin cancer for the public.¹¹ Previous research on cancer coverage in Canadian magazines has focused on cervical cancer,¹² breast cancer,¹³ and, more broadly, on attention to different cancer types.¹⁴ Investigating media coverage of cancer, including skin cancer, is supported by theory. According to Agenda Setting Theory, the media is persuasive

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toward influencing public and policy agendas: the more frequent and prominent the media coverage of an issue is, the more important audiences will believe this issue to be.¹⁵ It is, thus, important to investigate the frequency and nature of skin cancer and tanning coverage as a way of understanding the contribution of media effects on skin cancer behaviours by the public.

Despite the growing incidence of skin cancer and the importance of media to position health issues on the policy agenda and influence the public's health knowledge, attitudes and behaviours, there has been no published research on the coverage of skin cancer and tanning in Canadian mass media. In an effort to address this surprising research gap, we examined 13 years of skin cancer and tanning content (both article text and accompanying images) in six popular Canadian women's magazines, with a focus on risk factors, UV protection and exposure behaviours, and early detection or screening information. We also assessed magazine reporting on skin cancer and tanning in Canadian compared to American (US) women's magazines because US magazines have considerable reach in Canada.¹⁶ We hypothesized there would be no jurisdictional differences in reporting given the increased incidence of skin cancer among both countries,¹⁷ similarities in each country's approach to indoor tanning restrictions,¹⁸ and general cultural similarities.

METHODS

Using directed content analysis as our qualitative methodology, we examined coverage of skin cancer and recreational tanning in six popular Canadian women's magazines from 2000 to 2012: *Canadian Living*, *Chatelaine*, *Homemakers*, *FASHION*, *ELLE Canada*, and *Flare* (2012 circulation rates: approximately 127,000 to 512,000). Although the focus of this study was on Canadian magazines, we also included six popular US women's magazines to serve as a comparison group: *Good Housekeeping*, *Family Circle*, *Ladies' Home Journal*, *Glamour*, *ELLE US*, and *Vogue* (2012 circulation rates: approximately 1.1 to 4.4 million).

We used electronic databases (*Canadian Periodical Index*, *Reader's Guide to Periodical Literature*, *LexisNexis*, *Factivia*, and *ProQuest Research Library*) and relevant search terms (skin cancer, melanoma, basal cell carcinoma, squamous cell carcinoma, tan*, indoor tan*, outdoor tan*, suntan*, sunburn, sunscreen, sunblock) to search the magazines for skin cancer and tanning content. Those magazines not indexed electronically were searched manually using the table of contents. A comprehensive list of the potential articles on skin cancer and tanning was created, which noted the title of the article, the periodical in which it was published, the date of publication, and the relevant page numbers (when available). Using this list, one researcher collected the data 1) by using electronic databases, 2) manually by visiting libraries (e.g., Toronto Reference Library), and 3) by co-ordinating with the university inter-library loan specialist to facilitate the collection of data from other libraries (e.g., Vancouver Public Library).

We determined whether articles focused on skin cancer and tanning by examining the title, byline, introductory paragraph, and amount of space (>75%) devoted to the issues. To examine the nature of skin cancer and tanning coverage, we coded

articles and their accompanying images for the presence or absence of variables related to mentioning specific risk factors for skin cancer, promoting UV protection and exposure avoidance behaviours, and encouraging early detection through self or physician-led skin examination. These variables are listed in Table 1 and were operationalized in a codebook developed by the researchers based on information from the Canadian and American academies of dermatology and cancer societies. A description of these variables appears in Table 1. For each article and image, the variables were coded as being present (1) or absent (0), and this information was entered into a spreadsheet in SPSS v 21. NVivo 10 software was used to capture quotes and create image descriptions for each variable. The reading grade level for text of each article was determined using an online SMOG (simplified measure of gobbledygook) calculator.¹⁹

One researcher coded all articles and images for the study. To ensure reliability of coding and reduce bias, a sample of articles ($n = 32$) and images ($n = 53$) were independently coded by a second researcher. Each researcher kept separate notes on variables where descriptions or images were ambiguous and on other questions or concerns that arose during coding. After independently coding the sample of data, the results were compared: inter-coder reliability was very good with kappa scores ranging from 0.83 to 1.00. Discrepancies in coding were resolved through discussion until consensus was reached; to address discrepancies, the codebook was revised to include more detailed descriptions and examples.

We used SPSS v 21 for descriptive statistics to summarize the volume and nature of skin cancer and tanning coverage in Canadian women's magazines. We used chi-square and Fisher's exact tests to compare the presence of variables by content type (text vs. images) and country (Canada vs. US). Statistical results with $p < 0.05$ were considered statistically significant.

RESULTS

There were 154 articles (containing 221 images) published on skin cancer or tanning in six popular Canadian women's magazines between 2000 and 2012. Data retrieval was high (98.7%); just two articles could not be obtained. The number of articles published per year fluctuated considerably, ranging from 4 (in 2001) to 18 (in 2004) (Figure 1). The average number of articles published per year between 2000 and 2012 was 11.85 (SD = 4.67). There was no linear trend for the volume of articles published over time (Figure 1).

Articles came from *Canadian Living* ($n = 21$, 13.6%), *Chatelaine* ($n = 24$, 15.6%), *Homemakers* ($n = 12$, 7.8%), *FASHION* ($n = 32$, 20.8%), *ELLE Canada* ($n = 18$, 11.7%) and *Flare* ($n = 47$, 30.5%). About 80% of articles were published between May and July (May, 6.5%; June, 55.2%; July, 18.8%).

Articles were accompanied by 0 to 6 images ($M = 1.46$, $SD = 0.99$). Articles were between 0.25 and 5 pages in length ($M = 1.29$, $SD = 1.13$) and ranged from 40 to 1967 words ($M = 519.05$, $SD = 418.60$). The average reading grade level of the articles as calculated using SMOG was high and at post-graduate levels ($M = 16.34$, $SD = 1.79$).

The number and percent of all articles reporting and images depicting skin cancer risk factors, UV behaviours, and early detection variables in Canadian women's magazines are presented in Table 2. Table 2 also presents chi-square tests

Table 1. Codebook of variables of interest

Variable	Text description	Image description
Risk factors		
UV exposure	Mention of UV exposure (solar or artificial) as risk factor for skin cancer (e.g., UV rays from the sun cause skin cancer)	Depiction of someone who has had skin cancer being exposed to UV radiation (e.g., depiction of someone diagnosed with skin cancer outdoors in the sun)
Light skin, hair or eyes	Mention of having susceptible phenotype (light-coloured hair, skin or eyes) as risk factor for skin cancer (e.g., people with very fair skin are more prone to skin cancer)	Depiction of person who has had skin cancer with susceptible phenotype (e.g., a scar from skin cancer treatment on the body of a person with fair skin)
Moles	Mention of increased risk of skin cancer with abnormal moles or more than 50 moles (e.g., people with many moles are more likely to get skin cancer)	Depiction of numerous or abnormal moles (e.g., images of abnormal-looking moles or image of a person with a large number of moles on their skin)
History of skin cancer	Mention of personal or family history of skin cancer as a risk factor (e.g., having had skin cancer before, or having a relative with skin cancer, raises the chances you will get skin cancer)	Depiction of recurrence of skin cancer or of family members affected by skin cancer (e.g., image of siblings both diagnosed with skin cancer)
Sunburns	Mention of sunburn as risk factor for skin cancer (e.g., sunburns increase the chances you will get skin cancer)	Depiction of someone with sunburn (i.e., red, blistered, or peeling skin), with some connection to skin cancer
UV behaviours		
Tanned look	Promotes tanned ideal or having a tanned look (e.g., a tan is beautiful, sexy, or healthy-looking)	Depiction of a person with tanned skin (i.e., image of person depicted in a favourable way who appears to have skin darkened by UV exposure)
Self-tanners	Promotes use of self-tanners (lotions or sprays applied topically to produce appearance of suntan) (e.g., try a sunless tanner to fake a healthy glow)	Depiction of self-tanner, of someone applying self-tanner, or having a self-tan (for images of skin, there must be evidence the tan is from a self-tanner)
Solar UV avoidance	Promotes sun avoidance (e.g., avoid the sun during certain times of day)	Depiction of a person either not exposed to the sun or without suntan (e.g., depiction of a pale person indoors)
Discourages indoor tanning	Information discouraging the behaviour (e.g., it is dangerous, should be avoided, can cause deleterious health effects)	Negative depiction of indoor tanning (e.g., picture of a tanning bed with an "x" over it)
Encourages indoor tanning	Information encouraging the behaviour (e.g., it's good for you because it provides vitamin D, prevents sunburns, provides an attractive suntan, feels good)	Positive depiction of someone indoor tanning (e.g., attractive, healthy-looking person in a tanning bed)
Promotes shade	Promotes seeking shade to avoid UV exposure (e.g., bring a beach umbrella to provide protective shade)	Depiction of someone seeking shade (e.g., image of model sitting under the shade of a tree on the beach)
Promotes hats	Promotes wearing a hat to protect the face from UV exposure (e.g., a wide-brimmed hat will shield your face from the sun)	Depiction of a hat or of someone wearing a hat (e.g., image of person wearing a wide-brimmed hat)
Promotes clothes	Promotes use of protective clothing (e.g., protect your skin from the sun with long sleeves and long pants)	Depiction of protective clothing or of someone wearing protective clothing (e.g., long sleeved t-shirt, long pants)
Promotes sunscreen	Promotes use of sunscreen (e.g., use sunscreen daily, sunscreen can prevent skin cancer and skin aging)	Depiction of sunscreen or sunscreen application (e.g., image of a bottle of sunscreen, image of sunscreen being rubbed into skin)
SPF level (30+)	Promotes SPF level of 30 or higher (e.g., use sunscreen with an SPF of at least 30)	Depiction of sunscreen labelled with SPF 30 or higher (e.g., image of bottle of sunscreen with SPF 30 on label)
Early detection		
ABCD criteria	Mention or description of the ABCD* criteria (e.g., use the ABCD criteria to look for early signs of skin cancer)	Depiction of moles that exhibit the ABCD criteria (e.g., image of moles, each depicting one of the criteria)
Skin self-examination	Promotes skin self-checking for skin cancer (e.g., conduct a skin self-exam once per month, skin self-examination is important for detecting skin cancer early)	Depiction of someone conducting a skin self-exam or example images of dangerous mole characteristics to look for (e.g., image of a person looking at a mole on their skin)
Physician skin examination	Promotes seeking a physician to do a skin examination for skin cancer (e.g., those at high risk should see their doctor for a skin examination)	Depiction of someone having a physician-led skin examination conducted (e.g., image of a doctor looking at a mole on patient's skin)

* ABCD = asymmetry, border irregularity, colour, diameter.

(or Fisher's exact tests) for comparisons between how text vs. images conveyed these variables. Table 3 provides representative example quotes and image descriptions to illustrate each of the variables.

The most common skin cancer risk factor reported on was UV exposure (39% of articles). Light skin, moles, personal or family history, and sunburns were infrequently reported as risk factors: less than 12% of articles mentioned them. Although there was limited coverage in text about skin cancer risk factors, they were nevertheless more frequently described in text than depicted in images ($p < 0.01$ for all risk factor variables).

With regard to UV behaviours, the most frequently conveyed variables were sunscreen use, self-tanners, and the suntanned look. Nearly 72% of articles promoted sunscreen use, but little content promoted other means of UV radiation protection, including seeking shade (7%), wearing a hat (12%), or wearing protective clothing (14%). Articles that encouraged UV avoidance – avoiding the sun (16%) or indoor tanning (15%) – were in the

minority. In fact, there were more articles (41%) and images (53%) that promoted the suntanned look as attractive compared to those that discouraged indoor tanning or sun exposure.

Text tended to have more messages about the importance of UV protection and avoidance compared to images: images more frequently promoted the tanned look as attractive, while text more frequently encouraged the use of self-tanners and sunscreens and discouraged indoor tanning more often than images.

Few articles (<11%), and even fewer images (<2%), focused on early detection (skin self-examination, physician-led skin examination, ABCD criteria) for skin cancer. For all three early detection variables, they were significantly more likely to be conveyed through article text than through images (Table 2).

For country comparisons, six US women's magazines with similar topic focus and target audience were selected. There were a total of 332 articles about skin cancer and tanning between the two sets of magazines, but 8 were missing (2 Canadian, 6 US); the

Figure 1. Skin cancer and tanning articles published per year (2000–2012) in six Canadian women's magazines

Table 2. Skin cancer and tanning content in Canadian women's magazines from 2000 to 2012

Variable	Text		Image		χ^2 (df = 1) or Fisher's exact, <i>p</i> value
	%	(n/152)	%	(n/221)	
Risk factors					
UV exposure	38.8%	(59)	0.0%	(0)	101.90, <i>p</i> < 0.0001*
Light skin, hair or eyes	11.2%	(17)	3.2%	(7)	9.61, <i>p</i> = 0.002*
Moles (>50 or abnormal)	7.2%	(11)	1.4%	(3)	8.62, <i>p</i> = 0.003*
History of skin cancer	5.3%	(8)	0.0%	(0)	Fisher's exact, <i>p</i> = 0.001*
Sunburns	10.5%	(16)	0.0%	(0)	24.31, <i>p</i> < 0.0001*
UV behaviours					
Promotes tanned look	41.4%	(63)	53.4%	(118)	5.25, <i>p</i> = 0.023*
Promotes self-tanners	33.6%	(51)	20.8%	(46)	7.59, <i>p</i> = 0.006*
Promotes solar UV avoidance	16.4%	(25)	11.3%	(25)	2.05, <i>p</i> = 0.153
Discourages indoor tanning	14.5%	(22)	0.9%	(2)	27.54, <i>p</i> < 0.0001*
Promotes indoor tanning	3.3%	(5)	0.9%	(2)	Fisher's exact, <i>p</i> = 0.126
Promotes shade	6.6%	(10)	7.7%	(17)	0.17, <i>p</i> = 0.683
Promotes hats	11.8%	(18)	8.6%	(19)	1.06, <i>p</i> = 0.303
Promotes clothes	13.8%	(21)	10.0%	(22)	1.32, <i>p</i> = 0.251
Promotes sunscreen	71.7%	(109)	27.1%	(60)	72.17, <i>p</i> < 0.0001*
SPF level (30+) [†]	59.1%	(55)	86.0%	(37)	9.73, <i>p</i> = 0.002*
Early detection					
Skin self-examination	10.5%	(16)	1.4%	(3)	15.66, <i>p</i> < 0.0001*
Physician-led skin examination	10.5%	(16)	0.5%	(1)	21.01, <i>p</i> < 0.0001*
ABCD criteria	3.9%	(6)	0.5%	(1)	Fisher's exact, <i>p</i> = 0.020*

n/a = not available; ABCD = asymmetry, border irregularity, colour, diameter.

*Statistically significant.

[†]Articles or images not mentioning or depicting a specific SPF level were excluded from these analyses.

remaining comparison analyses were based on 324 articles (*n* = 152 Canadian articles; *n* = 172 US articles) and 531 accompanying images (*n* = 221 Canadian images; *n* = 310 US images). There was no statistically significant difference for the number of skin cancer and tanning articles published in the 6 Canadian (*n* = 154) vs. the 6 US (*n* = 178) women's magazines ($\chi^2 = 1.74$, df = 1, *p* = 0.188) over the study timeframe. The jurisdictional comparisons by variable are summarized below and presented in detail in Table 4.

US magazine article content was more likely to convey light skin (images), moles (text and images), and history of skin cancer (text) as risk factors. There were no significant differences in

reporting frequency between the two countries for UV exposure or sunburns as risk factors for skin cancer.

For UV behaviours, text and images in Canadian magazines were more likely to promote the tanned look than those in US magazines. Images in US magazines more often promoted solar UV avoidance (18%) compared to images in Canadian magazines (11%). Articles in Canadian magazines were more likely to promote indoor tanning (3%) compared to US magazines (0%). Articles in US magazines were more likely to promote hat use (20% vs. 12%), but images in Canadian magazines were more likely to promote sunscreen use (27% vs. 18%) (Table 4).

Table 3. Example quotes and image descriptions in Canadian women's magazines from 2000 to 2012

Variable	Example quote	Example image description
Risk factors		
UV exposure	"Excessive exposure to UV rays before the age of 18 is a risk factor, as is frequent sunbathing or visits to tanning salons." (<i>Canadian Living</i> , No Safe Tan, August 2002)	n/a (depiction of someone who has had skin cancer being exposed to UV radiation)
Light skin, hair or eyes	"...other risk factors include having fair or freckled skin, light coloured eyes, lots of moles, using tanning beds or having a family history of the disease." (<i>Canadian Living</i> , Skin Cancer, July 2007)	Photographic portrait of a blonde-haired, fair-skinned young woman in a fashionable dress and heels, who is a melanoma survivor. (<i>Flare</i> , Sun Smart, June 2008)
Moles	"With her platinum-blond locks, green eyes and fair skin sprinkled with moles, Stephanie Gionet, 23, knew she was at high risk for skin cancer." (<i>Flare</i> , Sun Smart, June 2008)	Circular photographs of five abnormal (cancerous) moles. (<i>Chatelaine</i> , Spot It, July 2009)
History of skin cancer	"Be especially careful if you have one or more of these risk factors: a family history of melanoma or other skin cancer..." (<i>Chatelaine</i> , 9 Suncare Secrets, June 2010)	n/a (depiction of recurrence of skin cancer or of family members affected by skin cancer)
Sunburns	"Numerous burns can also lead to leathery, blotchy and yellowing skin and up your chance of developing skin cancer." (<i>Homemakers</i> , Hat Tricks, June 2004)	n/a (depiction of someone with sunburn, with some connection to skin cancer)
UV behaviours		
Tanned look	"Then fashion diva Coco Chanel turned the tan into a status symbol, and suddenly everyone wanted to be a posh golden girl." (<i>ELLE Canada</i> , Ray of Light, June 2005)	Large photograph of an attractive, blond-haired, darkly tanned model wearing a fashion-forward white bathing suit. (<i>FASHION</i> , Bronze Ambition, June 2006)
Self-tanners	"Spray-on tanning is a confidence builder because everyone feels better with a tan." (<i>ELLE Canada</i> , Sunny Side Up, June 2004)	Photograph of six different self-tanning products (lotions, sprays and wipes). (<i>ELLE Canada</i> , Gold Standard, April 2005)
Solar UV avoidance	"Stay out of the sun during peak hours (11 am to 2 pm)." (<i>FASHION</i> , Skin Care for Bad Girls, June 2004)	Photographic portrait of a model with very pale, youthful skin pictured in indoor lighting. (<i>FASHION</i> , Total Protection, January 2005)
Discourages indoor tanning	"75%: the increase in your risk of melanoma if you start using indoor tanning beds before 35." (<i>Flare</i> , Health News, June 2012)	Photograph of an attractive young woman in a tanning bed with the words "cancer is skin deep" printed over the photograph. (<i>Canadian Living</i> , Skin Deep, February 2004)
Encourages indoor tanning	"I can attest that soaking up the rays feels intoxicating – I craved the warmth, the glow, and the tranquil escape from reality. [...] feeling refreshed with a sun-kissed glow and a major confidence kick." (<i>Flare</i> , Confessions of a Former Tanoholic, June 2011)	Photograph of an attractive young woman in a tanning bed. (<i>Canadian Living</i> , Skin Cancer IQ, August 2010)
Promotes shade	"...the CDA recommends that you seek shade and minimize the amount of time you spend outdoors between 11 am and 4 pm." (<i>Canadian Living</i> , No Safe Tan, August 2002)	Photograph of a model on a sandy beach standing under a large palm tree frond, which is providing shade. (<i>ELLE Canada</i> , Ray Ban, June 2006)
Promotes hats	"Wear a hat to help prevent sun spots." (<i>Flare</i> , Health: You Ask, October 2004)	Photograph of woman outside, sitting on a dock wearing a sun hat, tank top, and long pants. (<i>ELLE Canada</i> , Shore Thing, July 2002)
Promotes clothes	"If you have to be out in the sun, wear long-sleeved shirts, long pants, a wide-brimmed hat..." (<i>Canadian Living</i> , No Safe Tan, August 2002)	Photograph of a model in a tropical location, on a beach, wearing a red wrap dress with long sleeves. (<i>Flare</i> , 21st Century Sun, May 2000)
Promotes sunscreen	"If you plan on being in the sun, we recommend spreading at least two tablespoons of SPF 15 over your entire body..." (<i>ELLE Canada</i> , Ray Ban, June 2006)	Photograph of a red-haired woman generously applying sunscreen to her bare shoulders. (<i>Canadian Living</i> , Here Comes the Sun, June 2010)
SPF level (30+)	"Use at least a broad-spectrum SPF 30 (the minimum recommended by the Canadian Dermatology Association)." (<i>Flare</i> , Screen Test, June 2012)	Full-page photograph of bottles of face and body sunscreens, each with a minimum SPF 30 marked on the bottle. (<i>FASHION</i> , Protection Plan, June 2010)
Early detection		
ABCD criteria	"You might be familiar with the ABCDs of melanoma: Asymmetry, Borders, Colour and Diameter. Now doctors have added an E (for Evolving) [...]" (<i>Canadian Living</i> , Summer Skin: What to Watch, June 2005)	Photographs of five moles, each exhibiting one of the criteria: asymmetry, border irregularity, colour, diameter, evolution. (<i>Chatelaine</i> , Spot It, July 2009)
Skin self-examination	"In addition to routine self-checks, she regularly sees a dermatologist." (<i>Flare</i> , Sun Smart, June 2008)	Illustration of woman looking at photographs of her own moles as baseline images for performing a skin self-exam. (<i>Chatelaine</i> , Picture Yourself, July 2004)
Physician skin examination	"Avoiding the sun, wearing sunscreen and seeing your doctor for early detection are still your best strategies." (<i>ELLE Canada</i> , Java Jolt, September 2010)	An illustrated pathway combining text and image showing the steps from a skin-check with a doctor, to biopsy, to diagnosis, and treatment. (<i>Chatelaine</i> , Mole Survivor, June 2006)

n/a = not available; ABCD = asymmetry, border irregularity, colour, diameter.

Regarding early detection variables, a greater proportion of articles encouraged physician-led skin examination (US = 24%; Canada = 11%) and a greater proportion of both articles (US = 22%; Canada = 11%) and images (US = 8%; Canada = 1%) encouraged skin self-examination in the US compared to Canadian magazines.

DISCUSSION

Overall, while there was considerable focus on UV exposure as a risk factor for skin cancer and the importance of sunscreen use in Canadian women's magazine content on skin cancer and

tanning, other risk factors, other prevention and protection behaviours, and screening information received little attention. When these findings are considered in light of the fact that skin cancer usually receives less media coverage than other cancers,²⁰ the concern is amplified. The lack of informative content on skin cancer and tanning in Canadian magazines may both help to explain and also reflect the general lack of knowledge about skin protection among the population.

UV exposure is *the* most important risk factor for skin cancer, so it is positive that it is reported on most frequently in this media channel; however, risk is heavily modified by other variables

Table 4. Comparison of skin cancer and tanning content in Canadian vs. US women's magazines from 2000 to 2012

Variable	Content type	Canadian		US		χ^2 or Fisher's exact, <i>p</i> value
		% %	(<i>n</i> /152) (<i>n</i> /221)	% %	(<i>n</i> /172) (<i>n</i> /310)	
Risk factors						
UV exposure	Text	38.8%	(59)	39.0%	(67)	0.00, <i>df</i> = 1, <i>p</i> = 0.980
	Image	0.0%	(0)	1.3%	(4)	Fisher's exact, <i>p</i> = 0.145
Light skin, hair, eyes	Text	11.2%	(17)	17.4%	(30)	2.55, <i>df</i> = 1, <i>p</i> = 0.110
	Image	3.2%	(7)	13.5%	(42)	16.60, <i>df</i> = 1, <i>p</i> < 0.0001*
Moles (>50 or abnormal)	Text	7.2%	(11)	17.4%	(30)	7.60, <i>df</i> = 1, <i>p</i> = 0.006*
	Image	1.4%	(3)	6.8%	(21)	8.77, <i>df</i> = 1, <i>p</i> = 0.003*
History of skin cancer	Text	5.3%	(8)	13.4%	(23)	6.13, <i>df</i> = 1, <i>p</i> = 0.013
	Image	0.0%	(0)	0.0%	(0)	n/a
Sunburns	Text	10.5%	(16)	12.2%	(21)	0.23, <i>df</i> = 1, <i>p</i> = 0.635
	Image	0.0%	(0)	0.0%	(0)	n/a
UV behaviours						
Promotes tanned look	Text	41.4%	(63)	29.1%	(50)	5.44, <i>df</i> = 1, <i>p</i> = 0.020*
	Image	53.4%	(118)	39.0%	(121)	10.75, <i>df</i> = 1, <i>p</i> = 0.001*
Promotes self-tanners	Text	33.6%	(51)	29.7%	(51)	0.57, <i>df</i> = 1, <i>p</i> = 0.450
	Image	20.8%	(46)	18.1%	(56)	0.63, <i>df</i> = 1, <i>p</i> = 0.428
Promotes solar UV avoidance	Text	16.4%	(25)	16.9%	(29)	0.01, <i>df</i> = 1, <i>p</i> = 0.921
	Image	11.3%	(25)	17.7%	(55)	4.17, <i>df</i> = 1, <i>p</i> = 0.041*
Discourages indoor tanning	Text	14.5%	(22)	12.8%	(22)	0.20, <i>df</i> = 1, <i>p</i> = 0.659
	Image	0.9%	(2)	0.3%	(1)	Fisher's exact, <i>p</i> = 0.573
Promotes indoor tanning	Text	3.3%	(5)	0.0%	(0)	Fisher's exact, <i>p</i> = 0.022*
	Image	0.9%	(2)	1.6%	(5)	Fisher's exact, <i>p</i> = 0.705
Promotes shade	Text	6.6%	(10)	12.8%	(22)	3.50, <i>df</i> = 1, <i>p</i> = 0.061
	Image	7.7%	(17)	8.7%	(27)	0.18, <i>df</i> = 1, <i>p</i> = 0.675
Promotes hats	Text	11.8%	(18)	20.3%	(35)	4.27, <i>df</i> = 1, <i>p</i> = 0.039*
	Image	8.6%	(19)	11.6%	(36)	1.26, <i>df</i> = 1, <i>p</i> = 0.312
Promotes clothes	Text	13.8%	(21)	15.7%	(27)	0.23, <i>df</i> = 1, <i>p</i> = 0.634
	Image	10.0%	(22)	7.7%	(24)	0.80, <i>df</i> = 1, <i>p</i> = 0.372
Promotes sunscreen	Text	71.7%	(109)	61.6%	(106)	3.68, <i>df</i> = 1, <i>p</i> = 0.055
	Image	27.1%	(60)	17.7%	(55)	6.73, <i>df</i> = 1, <i>p</i> = 0.009*
SPF level (30+) [‡]	Text	59.1%	(55)	52.6%	(41)	0.75, <i>df</i> = 1, <i>p</i> = 0.388
	Image	86.0%	(37)	71.1%	(69)	2.90, <i>df</i> = 1, <i>p</i> = 0.089
Early detection						
ABCD criteria	Text	3.9%	(6)	9.3%	(16)	3.66, <i>df</i> = 1, <i>p</i> = 0.056
	Image	0.5%	(1)	2.5%	(7)	Fisher's exact, <i>p</i> = 0.146
Skin self-examination	Text	10.5%	(16)	22.1%	(38)	7.77, <i>df</i> = 1, <i>p</i> = 0.005*
	Image	1.4%	(3)	7.7%	(24)	10.90, <i>df</i> = 1, <i>p</i> = 0.001*
Physician-led skin examination	Text	10.5%	(16)	23.8%	(41)	9.86, <i>df</i> = 1, <i>p</i> = 0.002*
	Image	0.5%	(1)	1.0%	(3)	Fisher's exact, <i>p</i> = 0.645

n/a = not available; ABCD = asymmetry, border irregularity, colour, diameter.

*Statistically significant.

[‡]Articles or images not mentioning or depicting a specific SPF level were excluded from these analyses.

(susceptible phenotype, personal or family history, history and severity of sunburns, and numerous or abnormal moles) which were mentioned infrequently. This may have been because magazine journalists and editors are aware that UV exposure is the most important risk factor for the disease or because it is a modifiable risk factor that can be readily changed (whereas family history, susceptible phenotype, etc., are not). Images did little to convey information about risk factors. Although UV exposure as a risk factor was frequently messaged in the magazines, this emphasis was only reflected in terms of UV protection and not UV avoidance behaviours.

As with risk factors, there was one stand-out UV behavioural variable that was encouraged most frequently in articles: sunscreen use. It is encouraging that so many articles promoted sunscreen use; however, when this is considered in the context that approximately half of the content also promoted the tanned look as attractive, it becomes less clear that this message is entirely positive. About 30% of articles in Canadian women's magazines also promoted self-tanners – more than those discouraging indoor tanning behaviours. This may suggest, perhaps not surprisingly given the role beauty product advertising plays in magazine operation and publication, that

the UV behaviours encouraged in magazines are product-related. The lack of information about UV protection behaviours (other than sunscreen) in popular magazines may partly contribute to the lack of sun safety awareness and sun protective behaviours among Canadians.⁷

Images generally did not promote prevention behaviours: compared to text, they were more likely to convey the tanned look as attractive, and less likely to encourage sunscreen use. That images stressed the tanned beauty ideal potentially has an even greater impact on the 'take-home' message for the readership of these women's magazines as the readability of article texts was at the post-graduate level. With such high reading grade levels, readers tend to focus even more on images. The promotion of the tanned look as attractive has been reported elsewhere in Australian magazine content,²¹ but we were particularly concerned that even in images accompanying Canadian articles about skin cancer and tanning, this beauty ideal was present. Approximately 77% of Canadian adults report that an important reason for using tanning equipment is to look better and 29% of Canadian women try to tan from the sun or tanning equipment.⁷ These attitudes and behaviours may be encouraged by Canadian media content promoting the tanned

look as normative and desirable; images are important drivers of these behaviours.²²

Given the rising incidence of melanoma and the known carcinogenic nature of UV radiation from indoor tanning devices, a number of provinces now restrict youth under 19 years of age from using tanning beds, including: British Columbia, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador.⁸ Health Canada recently strengthened warnings on the devices about the dangers of indoor tanning through changes to the Radiation Emitting Devices Act,²³ and the Canadian Cancer Society and Canadian Dermatology Association advise against the use of these devices.^{24,25} Despite these health policies and efforts to dissuade users, fewer than 15% of articles in the magazines included in our study discouraged indoor tanning bed use. The public health push limiting and discouraging artificial tanning device use appears not to be reflected in Canadian women's magazine content on skin cancer and tanning. The Canadian Cancer Society indicates that greater efforts are needed to encourage UV avoidance, from both the sun and tanning beds.¹ The results of this study add further support to this recommendation.

There was very limited focus on early detection and screening for skin cancer in Canadian women's magazines. Early detection has been associated with better prognosis,²⁶ and screening for skin cancer, including skin self-examination and physician check-ups, is encouraged for those at high risk of skin cancer.²⁷ Early detection information was infrequently conveyed through text, and even less so, in images. In fact, just *one* image in six Canadian women's magazines over a 13-year timeframe depicted the visual ABCD* criteria – images which are necessary to promote frequent and accurate skin self-examination.²⁸ It is unclear how Canadians might gain access to seeing such images, or even know to seek them out, if they are not depicted in the mass media. For example, at the time of writing, the Canadian Cancer Society did not provide visual examples of skin lesions on its website,²⁹ although it does encourage skin self-examination. This is exacerbated by the fact that there are relatively few dermatologists serving the Canadian population, and family medicine programs provide limited training in dermatology.³⁰

There were significant differences in the way Canadian and US women's magazines covered the issues of skin cancer and tanning. Aside from the topic of sunscreen use, which was featured more often in Canadian magazines, US magazines were generally more informative with regard to skin cancer and tanning: they reported on a wider variety of risk factors and UV protection behaviours and more often encouraged UV avoidance and early detection and screening. The reasons for the transnational variation in popular women's magazines between the two countries are not clear from our data. We suggest that differences in health care systems³¹ and the personal responsibility that a private health care system in the US puts on individuals for their own health³² may be possible factors. Variations in coverage and emphasis could also relate to the warmer and sunnier climate in many parts of the US compared

to Canada. Canadian magazines more often conveyed the tanned look as attractive, which may reflect the 'tan' being rather exotic in Canada because of climate or because Canadians seek leisure time in warm, sunny climates.⁷

Limitations

Our research did not investigate skin cancer and tanning coverage in Canadian men's magazines. Determining media messages around skin cancer and tanning targeted towards men is an important area for future research, especially given that men over 50 have a higher incidence of melanoma skin cancer compared to women.¹ It is also a limitation that the magazines in our study target adult women while it is adolescent girls who most often use tanning beds and to whom the tanning bed restrictions apply. There were no Canadian men's or girls' magazines published consecutively during the study timeframe, so we restricted the focus to women's magazines. Our study focused on print magazine coverage, but many Canadians turn to other print media (e.g., newspapers), online sources (e.g., websites), and social media (e.g., Twitter) for health information. Future research should investigate reporting of skin cancer and tanning in these types of mass media outlets. Our study focused only on English-language magazines and it will be important to examine the coverage of French-language Canadian women's magazines with regard to skin cancer and tanning, in light of possible differences in normative beauty ideals.

Had the research been guided by other media communication theories, our results might have been interpreted differently. For example, active audience theory³³ suggests that readers are actively involved with making meaning from the information they receive from magazines. A reader who recently had a friend diagnosed with melanoma may attend more to early detection information, while a reader who has suffered a sunburn may be more influenced by content around sunscreen use. How audiences interpret media messages (passively, actively, or a combination of both) around these public health issues will be important to address in future research.

CONCLUSION

Over a decade of Canadian women's magazine reporting on skin cancer and tanning has focused on UV exposure as a risk factor and sunscreen use as a protection behaviour; however, little attention was given to other risk factors, other UV protection or avoidance behaviours, and information about early detection. Images promoted the tanned look and rarely depicted skin cancer risk factors, prevention behaviours, or early detection. With the exception of sunscreen use, US magazine content, in comparison with Canadian content, tended to be more informative about skin cancer and tanning. Taken together, the results of our study indicate that some skin cancer-related information is reported fairly frequently, but there is considerable room for improvement in the way Canadian women's magazines cover this public health issue. Our results strongly support the recommendation of the Canadian Cancer Society that there is a great need for "clear and consistent sun safety messages for the public."¹ Public health engagement with Canadian mass media may facilitate the promotion of effective skin cancer and UV protection and avoidance messaging.

*Asymmetry, border irregularity, colour, diameter.

REFERENCES

- Canadian Cancer Society's Advisory Committee on Cancer Statistics. *Canadian Cancer Statistics 2014. Chapter 7: Special Topic: Skin Cancers*. Toronto, ON: Canadian Cancer Society, 2014. Available at: <http://www.cancer.ca/~media/cancer.ca/CW/cancer%20information/cancer%20101/Canadian%20cancer%20statistics/Canadian-Cancer-Statistics-2014-EN.pdf> (Accessed August 12, 2014).
- Krueger H, Williams D, Chomiak M, Trenaman L. *The Economic Burden of Skin Cancer in Canada: Current and Projected*. Toronto, ON: Canadian Partnership Against Cancer, 2010. Available at: <http://www.partnershipagainstcancer.ca/wp-content/uploads/Economic-Burden-of-Skin-Cancer-in-Canada-Report-Final1.pdf> (Accessed August 20, 2014).
- International Agency for Research on Cancer. *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Volume 100D. A Review of Human Carcinogens. Part D: Radiation*. Lyon, France: IARC, 2012.
- Armstrong BC, Kricke A. How much melanoma is caused by sun exposure? *Melanoma Res* 1993;3:395–401. PMID: 8161879.
- El Ghissassi F, Baan R, Straif K, Grosse Y, Secretan B, Bouvard V, et al. A review of human carcinogens—Part D: Radiation. *Lancet Oncol* 2009;10:751–52. PMID: 19655431.
- Canadian Cancer Society. *Risk Factors for Melanoma*, 2014. Available at: <https://www.cancer.ca/en/cancer-information/cancer-type/skin-melanoma/risks/?region=on> (Accessed August 28, 2014).
- National Skin Cancer Prevention Committee. *Exposure to and Protection from the Sun in Canada: A Report Based on the 2006 Second National Sun Survey*. Toronto, ON: Canadian Partnership Against Cancer, 2010. Available at: <http://www.partnershipagainstcancer.ca/wp-content/uploads/Exposure-to-and-Protection-from-the-Sun-in-Canada.pdf> (Accessed August 20, 2014).
- Guo D, Hawkins S, Quantz SD, Kalisiak M. *Indoor Tanning in Canada – Where We Are and How We Got Here*. Canadian Dermatology Association Annual Conference Proceedings, 2013. Available at: http://www.dermatology.ca/wp-content/uploads/2013/09/2013Abstracts_Eng-web.pdf (Accessed September 3, 2014).
- McDonald's Canada. *Frequently Asked Questions*, 2014. Available at: http://www.mcdonalds.ca/ca/en/contact_us/faq.html (Accessed September 8, 2014).
- Tim Hortons. *About Us: The Story of Tim Hortons*, 2014. Available at: <http://www.timhortons.com/ca/en/about/the-story-of-tim-hortons.php> (Accessed September 9, 2014).
- Dixon H, Warne C, Scully M, Dobbinson S, Wakefield M. Agenda-setting effects of sun-related news coverage on public attitudes and beliefs about tanning and skin cancer. *Health Commun* 2014;29:173–81. PMID: 23485415. doi: 10.1080/10410236.2012.732027.
- Abdelmutteri N, Hoffman-Goetz L. Risk messages about HPV, cervical cancer, and the HPV vaccine Gardasil in North American news magazines. *J Cancer Educ* 2010;25:451–56. PMID: 20232189. doi: 10.1007/s13187-010-0087-9.
- McWhirter JE, Hoffman-Goetz L, Clarke JN. Can you see what they are saying? Breast cancer images and text in Canadian women's and fashion magazines. *J Cancer Educ* 2012;27:383–91. PMID: 22228485. doi: 10.1007/s13187-011-0305-0.
- Hoffman-Goetz L, MacDonald M. Cancer coverage in mass-circulating Canadian women's magazines. *Can J Public Health* 1999;90:55–59. PMID: 10910568.
- McCombs ME, Shaw DL. The agenda-setting function of mass media. *Public Opin Q* 1972;36(Summer):176–87. doi: 10.1086/267990.
- Magazines Canada. *U.S. Spill into Canada*, 2012. Available at: http://www.magazinescanada.ca/uploads/File/AdServices/Research/USSpill/USSpill2011EN_July2012.pdf (Accessed September 8, 2014).
- U.S. Cancer Statistics Work Group. *United States Cancer Statistics: 1999–2011 Incidence and Mortality Web-based Report*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute, 2014. Available at: www.cdc.gov/uscs (Accessed September 6, 2014).
- National Conference on State Legislatures. *Indoor Tanning Restrictions for Minors: A State-by-state Comparison*, 2014. Available at: <http://www.ncsl.org/research/health/indoor-tanning-restrictions.aspx> (Accessed September 9, 2014).
- The University of Nottingham and the Education Development Innovation Technologies Lab. *SMOG Calculator*. Available at: <http://www.niace.org.uk/misc/SMOG-calculator/smogcalc.php> (Accessed July 11, 2014).
- Slater MD, Long M, Bettinghaus EP, Reineke JB. News coverage of cancer in the United States: A national sample of newspapers, television, and magazines. *J Health Commun* 2008;13:523–37. PMID: 18726810. doi: 10.1080/10810730802279571.
- Gamble RG, Fuller EN, Dymek PM, Walkosz BJ, Jensen JD, Duke JK, et al. Tanning and sun-protection portrayal in magazine images. *Arch Dermatol* 2011;147:983–84. PMID: 21844464. doi: 10.1001/archdermatol.2011.209.
- McWhirter JE, Hoffman-Goetz L. Systematic review: Impact of images on UV attitudes and behaviors. *Health Promot Int* 2015;30:397–410. PMID: 23669159. doi: 10.1093/heapro/dat031.
- Health Canada. *Guidelines for Tanning Salon Owners, Operators and Users*. Ottawa, ON: Health Canada, 2014. Available at: http://www.hc-sc.gc.ca/ahc-asc/alt_formats/hecs-sesc/pdf/psp-ppsp/ccrpb-bpcrppcc/2014_guidelines_tanning_salon_owners_operators_users.pdf (Accessed September 3, 2014).
- Canadian Cancer Society. *Indoor Tanning*, 2014. Available at: <http://www.cancer.ca/en/prevention-and-screening/live-well/sun-and-uv/indoor-tanning/?region=on> (Accessed August 28, 2014).
- Canadian Dermatology Association. *Indoor Tanning: Indoor Tanning Is Out*, 2014. Available at: <http://www.dermatology.ca/programs-resources/programs/sap/indoor-tanning/> (Accessed August 28, 2014).
- Kirsner RS, Wilkinson JD, Ma F, Pacheco H, Federman DG. The association of medicare health care delivery systems with stage at diagnosis and survival for patients with melanoma. *Arch Dermatol* 2005;141:753–57. PMID: 15967922. doi: 10.1001/archderm.141.6.753.
- From L, Marrett L, Rosen C, Zwall C, Johnston M, Bak K, et al. *Screening for Skin Cancer*. Toronto: Cancer Care Ontario, Program in Evidence-based Care, 2007. Available at: <https://www.cancercare.on.ca/common/pages/UserFile.aspx?serverId=6&path=/File%20Database/CCO%20Files/PEBC/pebc15-1s.pdf> (Accessed September 6, 2014).
- McWhirter JE, Hoffman-Goetz L. Visual images for patient skin self-examination and melanoma detection: A systematic review of published studies. *J Am Acad Dermatol* 2013;69:47–55.e9. PMID: 23474227. doi: 10.1016/j.jaad.2013.01.031.
- Canadian Cancer Society. *Signs and Symptoms of Melanoma*, 2014. Available at: <https://www.cancer.ca/en/cancer-information/cancer-type/skin-melanoma/signs-and-symptoms/?region=on> (Accessed August 28, 2014).
- Chow EY, Searles GE. The amazing vanishing Canadian dermatologist: Results from the 2006 Canadian Dermatology Association member survey. *J Cutan Med Surg* 2010;14:71–79. PMID: 20338122. doi: 10.2310/7750.2010.09025.
- Boslaugh SE. *Health Care Systems around the World: A Comparative Guide*. Thousand Oaks, CA: Sage Publications Ltd., 2013; pp. 80, 492.
- Steinbrook R. Imposing personal responsibility for health. *N Engl J Med* 2006;355:753–56. PMID: 16928991. doi: 10.1056/NEJMp068141.
- Chandler D, Munday R. *A Dictionary of Media and Communication*. Oxford: Oxford University Press, 2011; p. 3.

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RÉSUMÉ

OBJECTIF : Le cancer de la peau est un important problème de santé publique chez les Canadiens. Les connaissances et les attitudes en santé sont formées par les médias de masse. L'objectif de notre étude était de décrire le volume et la nature de la couverture du cancer de la peau et du bronzage de beauté dans les périodiques canadiens pour les femmes.

MÉTHODES : Analyse de contenu du texte et des images des articles de six périodiques canadiens pour les femmes (*Chatelaine*, *Canadian Living*, *Homemakers*, *Flare*, *FASHION*, *ELLE Canada*) de 2000 à 2012, axée sur les facteurs de risque, les comportements d'exposition aux rayons ultraviolets (UV) et de protection, et la détection précoce. On a utilisé six périodiques américains populaires pour les femmes pour la comparaison entre les pays.

RÉSULTATS : Cent cinquante-quatre (154) articles (221 images) sur le cancer de la peau et le bronzage ont été publiés sur 13 ans. Le volume de la couverture n'a pas augmenté de façon linéaire au fil du temps. Le facteur de risque le plus traité était l'exposition aux rayons UV (39 %) et d'autres facteurs étaient mentionnés moins fréquemment. Peu de contenu encourageait d'autres comportements de protection même si 72 % des articles faisaient la promotion des écrans solaires. Seulement 15 % des articles et 1 % des images décourageaient le bronzage intérieur tandis que 41 % des articles et 53 % des images faisaient la promotion de la beauté d'une peau bronzée. Peu d'articles (<11 %) mentionnaient la détection précoce. Les périodiques canadiens, comparés aux périodiques américains, avaient une plus grande proportion de contenu qui encourageait le recours aux écrans solaires et favorisait le bronzage et une moins grande proportion de contenu sur les facteurs de risque et la détection précoce.

CONCLUSION : Les messages sur le cancer de la peau et le bronzage dans les périodiques canadiens pour les femmes portent peu d'attention aux facteurs de risque et au dépistage et offrent peu d'information sur ces sujets. Les messages contradictoires sur la prévention (texte c. images) peuvent contribuer aux comportements dommageables en matière d'UV chez les femmes canadiennes.

MOTS CLÉS : bain de soleil; rayons ultraviolets; bronzage; mélanome; beauté; médias de communication