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SPECIAL SECTION ON QUALITATIVE RESEARCH

HPV vaccination discourses and the construction of "at-risk" girls

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Abstract

Objective The objective of this study was to investigate the deployment of HPV vaccination (HPVV) discourses and their impact on Canadian girls, parents, nurses and physicians.

Methods Qualitative methods were favoured and included interviews with participants ($n = 146$) from four Canadian provinces and diverse socio-cultural locations. Using a poststructuralist discourse analysis, we examined HPVV campaigns as well as interview transcripts to document how girls, parents and health professionals make sense of HPVV as well as how they position themselves within and/or resist discourses coming from industry and public health sources.

Results The results speak to HPVV campaigns as morally laden, gendered, heteronormative and factually misleading. Emerging from the analysis of interviews is the girls' and parents' lack of information regarding HPVV. For mothers, results show how they construct themselves as responsible biocitizens at the cost of the powerlessness, uncertainty, anxiety and fear they feel alongside the perceived imperative to act upon their daughter's cancer risk. As for health professionals, they generally appropriate dominant HPVV discourses and use fear of HPV infection as a strategy to manufacture consent for HPVV among girls and parents. We discuss the ways in which opportunities for broader dialogue about HPVV and girls' sexual health are foreclosed and how subject positions for all types of participants are problematic.

Conclusions We ask whether public health is advanced when HPVV discourses transform healthy bodies into "at-risk" bodies and when the fear of cancer is instrumentalized in the pharmaceuticalization of public health.

Résumé

Objectif L'objectif était d'étudier le déploiement des discours sur la vaccination contre les VPH (VVPH) et leur impact sur les filles, les parents, les infirmiers/infirmières et les médecins canadiens.

Méthodes Des entrevues ont été réalisées avec des participant(e)s ($n = 146$) de quatre provinces canadiennes. Une analyse poststructuraliste du discours a permis d'examiner les campagnes de VVPH et les transcriptions d'entrevues pour documenter la façon dont les participant(e)s interprètent les VVPH et se positionnent comme sujets au sein des discours de l'industrie ou des agences de santé publique.

Résultats Les campagnes de VVPH sont sexistes, hétéro-normatives et trompeuses. Émergeant de l'analyse des entrevues est le manque d'information des filles et des parents en ce qui a trait à la VVPH. Les mères se construisent en tant que bio-citoyennes responsables, mais au prix de l'impuissance, de l'anxiété et de la peur ressenties parallèlement à l'impératif d'agir pour minimiser le risque de cancer de leur fille. Quant aux professionnel(le)s de la santé, ils s'approprient les discours dominants sur la VVPH et utilisent la peur comme stratégie pour fabriquer le consentement pour la VVPH. Les occasions de dialogue sur la VVPH et la santé sexuelle des filles sont perdues et les positions en tant que sujets sont problématiques pour tous les types de participant.

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Conclusions Nous nous questionnons à savoir si la santé publique est bien servie quand les discours sur la VVPH transforment des corps en santé en corps « à risque » et quand la peur du cancer est instrumentalisée pour la pharmacologisation de la santé publique.

Keywords HPV · Vaccination · Girls · Cancer · Consent · Medicalization

Mots-clés VPH · Vaccination · Filles · Cancer · Consentement · Médicalisation

Introduction

Despite the international interest in the human papillomavirus (HPV) and in HPV vaccination (HPVV) since 2006, research on HPVV has been largely quantitative and focused primarily on individual attitudes and behaviours that influence vaccine uptake. Qualitative research has been limited and, with few exceptions, has neglected to consider how Canadian youth, parents and other stakeholders consider HPVV in relation to broadly circulating public health and industry-sponsored discourses about HPV and HPVV. In this paper, we advance a poststructuralist approach to help fill this gap in understanding and consider its utility for public health research and practice.

A common sexually transmitted infection (STI), HPV infection is typically cleared by the body's immune system within 2 years (Cutts et al. 2007), although multiple HPV infections may be one of the co-factors toward the onset of precancerous cell development and, when they do not clear on their own over time (i.e., 15 to 40 years), the onset of invasive cervical cancer (Sellors et al. 2003). Prevalence of cervical cancer in Canada is low and 15 other types of cancer are more deadly for Canadian women (Canadian Cancer Society 2017). Cervical cancer is one of the most preventable and treatable forms of cancer, and cervical cancer mortality has declined steadily from 13.5 to 2.2 per 100,000 (83%) between 1952 and 2006 in Canada (Dickinson et al. 2012). At present, 99.7% of mortalities among Canadian women are *not* attributable to cervical cancer (Statistics Canada 2017). The situation is different globally as cervical cancer (after breast, colorectal and lung cancers) is the fourth leading cause of cancer-related death among women worldwide (Stewart and Wild 2014). Global cervical cancer numbers are important, although the World Health Organization (WHO) reports that cervical cancer is not among the top 25 causes of death since women, particularly in low- and middle-income countries, most often die of other diseases and infections (WHO 2015).

While the purpose of HPVV is to block a few HPV types (there are over 200 of them), the vaccine manufacturers have succeeded in marketing their product as an "anti-cancer" vaccine and, as a result, mass HPVV programs have been approved and first implemented for girls in many countries. Both Gardasil4 (in 2006) and Cervarix (in 2010) have been approved in Canada, although Gardasil4 has been the preferred HPV vaccine in all Canadian provinces. Gardasil4 is said to offer 5–10 years of protection against four types of HPV that are associated with condylomas (low-risk HPV types 6 and 11) and approximately 70% of cervical cancers (high-risk HPV types 16 and 18) for those who complete the rounds of vaccination and who have not yet engaged in sexual activity (Paavonen et al. 2007). Since starting our study, the HPV vaccine has been extended to boys in some Canadian provinces. Furthermore, Gardasil9 has been authorized in Canada (in 2015) to prevent infection from additional HPV types (31, 33, 45, 52 and 58) and has been introduced in many provinces and territories.

Despite the broad implementation of HPVV campaigns in Canada and elsewhere, a number of medical and social scientists have pointed to their problematic assumptions. Critics have noted that (a) over 90% of HPVs are cleared by the body's immune system so it is problematic to overestimate HPV as a sufficient cause of cervical cancer (e.g., Herzog et al. 2008); (b) given that cancer takes 15–40 years to develop, there is no proof yet of HPVV's efficacy to reduce cancer; (c) phase III clinical trials showed that Gardasil4 could not lower the global incidence of precancerous lesions (i.e., when considering *all* HPV types and not just types 16 and 18), and therefore that it is unlikely to lower the incidence of cervical cancer (Riva and Spinosa 2013); (d) cervical cancer is a slowly progressing disease that is treatable if detected early and, in Canada, regular Pap tests have shown to be largely responsible for the dramatic decrease in its incidence (Canadian Cancer Society 2017); (e) the HPV vaccine is the most expensive childhood vaccine and mass vaccination may jeopardize public health priorities (Lippman et al. 2007); and (f) there are few *independent* studies of serious adverse reactions (see Nicol et al. 2016) and no long-term data on the safety of HPVV, yet alarming signals regarding illness and death are coming from adverse event reporting systems (e.g., Canada Vigilance program, US Vaccine Adverse Event Reporting System, European EudraVigilance system, WHO VigiAccess database) as well as clinical case studies (e.g., Blitshteyn 2014; Brinth et al. 2015).

HPVV marketing and media representations

Qualitative research on HPVV is relatively recent and has generally centred on HPVV marketing, media representations and

stakeholders' views. In terms of marketing and media representations of HPVV, critical analyses of national newspapers in Canada, the US, and the UK (e.g., Abdelmutti and Hoffman-Goetz 2009; Hilton et al. 2010) have noted that, in addition to perpetuating the misconception that HPVs alone cause cervical cancer and that there is unequivocal evidence supporting HPVV's role in protecting against cancer, media have relied on discourses associating HPV infection to cancer-related illness and death, conjuring up notions of hopelessness and great suffering (a factual and rhetorical inflation sometimes labelled the "cancer effect"). Mara (2010) has asserted that HPVV debates in Texas have focused on women's bodies but that women's voices were marginal. Burns and Davies (2013, 2015) have suggested similarly that Australian media have not echoed women's voices. Within the context of neoliberal discourses of risk, these authors have discussed the vaccine manufacturer's co-optation of a postfeminist empowerment discourse (i.e., a highly individualized and depoliticized framing that emphasizes girls' individual choice, agency and "right" to health). These authors have contended that the white and attractive young women in advertising campaigns function as stalwarts for proper female sexuality and are stripped from the context of racialized socio-economic deprivation in which HPV infection generally unfolds. Davies and Burns (2013) have documented a similar process in the US, where Gardasil campaigns directed at girls and their mothers mobilize neoliberal discourses of risk and self-management alongside a postfeminist rhetoric that values empowerment through freedom to consume "health" products. In Canada, a number of authors (Charles 2014; Cayen et al. 2016; Polzer and Knabe 2009) have reached similar conclusions regarding medicalization and the ways in which HPVV discourses conjure up moral sentiments regarding girls' proper sexual activity and personal health as well as mothers' responsibility for the protection of their daughters.

HPVV and its stakeholders

Many qualitative studies that focus on stakeholders are intended for social marketing purposes and address reasons for vaccine hesitancy or uptake among youth in many countries, including Canada (e.g., Chow 2015; Scott and Batty 2016). Systematic reviews (e.g., Ferrer et al. 2014; Hendry et al. 2013) indicate that findings are similar across countries: barriers to HPVV uptake include vaccine cost and lack of education, awareness, health professional recommendation and trust in effectiveness or safety. These results concur with those of Canadian studies that have examined young women's narratives to understand how they negotiate their decisions regarding HPVV. Authors found a complex decisional matrix in which discourses concerning risk, morality and personal responsibility for sexual health influenced decisions (Mancuso and Polzer 2010; Roberts and Mitchell 2017). Remes et al. (2013) focused on students' HPVV awareness at a Canadian university and found that most male participants were unfamiliar with the HPV vaccine while most female respondents had not received this vaccine and thought it was poorly researched and expensive. The authors attribute these results to the fact that, at the time of the study, media coverage of Gardasil underlined the threat of cervical cancer to girls. We note indeed that after the introduction and marketing of the HPV vaccine for boys and men, Piedimonte et al. (2017) found that the main barriers to vaccination identified by male and female students at two Canadian universities were lack of access to health professionals and financial reasons.

The vast majority of studies concerning parents are of the social marketing kind and centre on reasons for low vaccine uptake. Early on, parents feared supporting girls' promiscuous sexual activity (e.g., Waller et al. 2006), but more recent studies reveal that cost, lack of knowledge, safety concerns and general HPVV uncertainty are the most significant barriers (e.g., Grabiel et al. 2013). Brown, Gabra and Pellman's (2017) study of 200 Californian parents suggests that the most common reasons for them to accept HPVV for their child are strength of provider recommendation (84%) and available information (63%), while main reasons for refusing relate to lack of information (53%) and safety (17%). Ward et al. (2017) surveyed French mothers and confirmed that fear of side effects and of new vaccines is the main reason for hesitating or refusing to get their daughters vaccinated.

With regard to nurses and physicians and the HPV vaccine, qualitative research is limited. Studies focused on these stakeholders generally show that health professionals (HP) consider themselves advocates for preventive health, confirm their trust in the medical profession, challenge patients' concerns about HPVV, normalize the risk of HPVV and avoid the sexual nature of HPV transmission (e.g., Todorova et al. 2014). In Canada, Mishra and Graham (2012) have reported that rather than simply rearticulating the "facts" about HPV and cancer, HPs' narratives illustrate the clinical, political and practical complexities of introducing a new and controversial vaccine originally marked "women only." A more recent Canadian study (Steben et al. 2017) may be pointing to changes accompanying the introduction of HPVV for males: surveyed physicians now seem to accept the dominant vaccine discourse (e.g., 83% of them recommended or administered the HPV vaccine to adults; only 5% were concerned about vaccine safety).

In brief, qualitative studies of HPVV are fairly recent and, in Canada, limited research exists on the views of those directly involved in HPVV. To address key research gaps, the objectives of our study were to investigate the deployment of HPVV discourses and interrogate their impact on Canadian girls and adults by deepening our understanding of how they take up, make sense, negotiate or resist HPVV and/or HPVV discourses.

Theoretical framework and methodology

The aims of our study were informed by a poststructuralist theoretical framework (Weedon 1997). Our research was driven by the assumption that HPVV discourses have both enabling and constraining effects on young girls' bodies and subjectivities. From a poststructuralist standpoint, an individual's subjectivity is made possible through the (already gendered, sexualized, ableist, racialized, classed) discourses to which she has access. An advantage of poststructuralism is that it enables an understanding of how discourses and the subject positions they inspire are implicated in societal relations of power. Indeed, according to Foucault (1969), some discourses have shaped and created meaning systems that have gained the status and currency of "truth", and dominate how we define and organize both ourselves and our social world. These "dominant" discourses emerge from positions of power and become the accepted way of looking at an issue, while alternative discourses are marginalized and subjugated (Foucault 1969). In our study, we thus endeavoured to not only map the range of discourses to which girls have access in constructing their meanings of HPVV, but also to deepen our understanding of the connections between such discourses and their experiences and subject positions. Our approach theorizes subjectivity as socially produced in relation to discursive constructions and social contexts, thus challenging the notion of the autonomous individual with a fixed identity that informs the bulk of public health research on health beliefs and attitudes. We hypothesized that the "healthy citizenship" idealized by HPVV discourses and supported by institutions that manage HPVV is increasingly structured and supervised. Current public health initiatives informed by HPVV discourses work on the premise that, as individuals become informed about the purported connections between HPVV and health, they will behave in ways that lead to their own better health. We argue here that knowledge does not necessarily lead to desired behaviours but still has discursive and material effects of concern to public health.

In keeping with our poststructuralist stance, our methodological approach was qualitative and involved in-depth interviews with girls as well as with individuals populating the spaces around them where HPVV discourses were circulated: boys, parents, teachers, nurses, doctors and public health officials (most often nurses or doctors). Following approval from the ethics boards of the five participating universities, permission was sought to put up recruitment posters in various public spaces with our contact information.

Our sample was purposive and constituted using a snowball method. As shown in Table 1, participants ($n = 146$) were located in four different provinces. These provinces were selected because of the researchers' access to participants in the selected communities and because these provinces provided an interesting range of ages for the HPVV programs (i.e., the latter involved the first HPV vaccine dose in grade 4 for QC, grade 6 for MB and BC, and grade 8 for ON). The sample was constituted while paying attention to the issue of diversity. Most participants came from urban centres and a smaller number, from suburban and rural areas. Participants came from diverse socio-demographic backgrounds and 37 (25%) self-identified as other than white/Caucasian. All interviews were carried out in English ($n = 108$) or French ($n = 38$). Girls and boys ranged in age from 12 to 16 years, although there were a few exceptions. For instance, to further diversify our sample, eight older participants (17–21-year-old youth who could consent on their own) were recruited based on their self-identification as bisexual, questioning, gay, trans*, pansexual or polysexual. With the exception of a few who refused the vaccine, youth participants were vaccinated with Gardasil in a school context. For parent participants, most were female and only a few refused consent for their daughter's vaccination. HPs (nurses, mostly female, and physicians, mostly male; 91% identifying as white or Caucasian) were recruited both from public health agencies and in clinics providing services related to women's health. About half of the nurses also worked as school nurses and were directly involved in a school vaccination program.

Table 1 Participants' discursive constructions of HPVV

Participant type	BC	MB	ON	QC	Total
Girls	5	14	4	15	38
Boys	3	1	5		9
Parents		10	16	18	44
Teachers (9) and school director (1)		5		4 + 1	10
Nurses		10	12	10	32
Doctors		5	5	3	13

Semi-structured interviews included open-ended questions (the same across the four provinces) and took place at a time and location of the participants' choice between May 2014 and July 2016. Child participants were interviewed separately from their parents. Interviews were digitally recorded and lasted between 30 and 180 min. They were transcribed verbatim and submitted to a two-step discourse analysis. First, a thematic analysis was conducted so we could identify *what* participants had to say about HPVV. Text fragments were grouped based on semantic affinity. Second, a poststructuralist discourse analysis was done to further explore the interview texts: we were interested in *how* participants were discussing HPVV, how they positioned themselves as subjects and how they constructed themselves within "dominant" or "subjugated" HPVV discourses.

Results: HPV vaccination discourses and their impact

In this section, we briefly address the deployment of HPVV discourses in Canada. Then, we focus on the results of our thematic analysis, which documents the participants' discursive constructions of HPVV, and those of our poststructuralist discourse analysis, which speak to the participants' appropriation of, and/or resistance to, dominant discourses surrounding HPVV in Canada. Given space limitations, we focus below on the results of analyses regarding girls, parents and HPs (nurses and physicians), using pseudonyms to protect anonymity.

HPVV discourses in Canada

Since 2007, various campaigns have been launched to promote the HPV vaccine in Canada. The pharmaceutical industry is supporting research at Canadian universities and has been successful in shaping HPVV knowledge among HPs, public health officials, as well as the general public. Print media (advertisements, opinion pieces), pamphlets and consent forms targeting parents, training sessions for HPs, posters and materials in health and postsecondary institutions, advertisements in traditional (television, movie theatres) and social media; the campaigns have been numerous and diversified, with only minor differences across provinces.

Results from our discourse analysis of such campaigns appear in detail elsewhere (Petherick et al. 2016; Rail et al. 2017) and confirm as well as extend results from a number of authors (Burns and Davies 2013, 2015; Charles 2014; Polzer and Knabe 2009, 2012; Thompson 2010), showing that dominant HPVV discourses in Canada conjure up moral sentiments regarding girls and women's proper sexual activity, personal health and biocitizenship (where the responsibilities of citizenship are increasingly tied to the consumption of "health" products that claim to reduce risk). The vaccine manufacturer's aggressive marketing is intended to convince the Canadian public as well as HPs that infection with HPVs has reached epidemic proportions, and that cancer deaths will increase dramatically if the HPV vaccine is not administered. The Gardasil vaccine is presented as an anticancer option and the logical weapon in the "war" against cervical cancer. HPVV discourses serve to erase the complex aetiology of the relationship between HPVs and cancer and, in so doing, construct a crisis situation wherein HPVs are seen as commonplace and potentially deadly, but constituting a preventable risk. At the time of the study and still today, although to a lesser extent, discourses circulating in Canadian campaigns associated with HPVV are largely gendered and heteronormative, entrenching the discursive constructions of girls' and women's embodiment as both vulnerable (i.e., "at risk" of HPVs) and dangerous (i.e., as a threat of contagion). HPVV discourses targeting parents work through fear and guilt to incite them to become "responsible" citizens and embark on a "rescue mission" (Rail et al. 2017) to "save" their daughters from cancer.

In addition, we argue that public health officials, through documents sent to parents to obtain their permission to vaccinate their child, are "manufacturing consent" (Petherick et al. 2016). Rather than allowing for informed consent to take place, documents are designed to intensify parental fears about the risks of HPVs at the same time as they work to assuage anxieties about the vaccine's efficacy and safety. The presentation of "facts" is a carefully constructed story designed to compel parents to consent to have their child vaccinated. While the impact of such "neomedicalization" of girls has been the object of some writings (e.g., Batt and Lippman 2010), there is much less empirical research exploring how girls, their parents and HPs take up and/or resist discourses in negotiating their health subjectivities in relation to HPV vaccination. This is what we attend to in the next sections.

Discursive constructions of HPVV

Narratives from the girls interviewed in our study reveal that those who received HPVV generally appeared to be neutral or non-interested in the vaccination as such; they considered the decision to be of their parent's competence. Girls often interpreted and accepted HPVV as they did other vaccinations received throughout their childhood. Regardless of region, age, native language or cultural background, they all showed very limited knowledge or understanding of the purpose or implications of HPVV. Table 2 lists the discursive elements emerging from the participants' narratives (a star indicates that the element was there for a majority of them; a dot, that the element was there for a sizeable minority, that is, 10–49% within a subgroup of participants—girls, parents or HPs). As can be seen in this table, girls had little to say about HPVV and constructed it in terms of general health protection as opposed to protection against cancer or gynaecological cancer.

A few girls confused the acronym HPV with other sexually transmitted viruses ("Is this, like, HIV?"), and among Quebec interviewees, one associated HPV with colon cancer (which, in French, sounds like "*cancer du col*") and one thought the virus came from a butterfly (confusing papilloma with the French word "*papillon*"). Like many other girls, Farida noted how she received little explanation with regard to the vaccine:

> The math teacher just got a bunch of forms and he was just, like: "here's some consent forms for vaccinations, who wants it?" And he just distributed it to everyone. And I just brought it home. He didn't really give any

Table 2 Participants' discursive constructions of HPVV

Construction of HPVV	Girls	Parents	HPs
Prevention/protection from cancers or gynaecological cancers		★	★
Safe and efficacious/recommended by doctor (nurses)			★
Individual health protection/avoidance of risks (no specific disease)	●	●	●
Long-term health/long-term disease prevention	●		●
Associated with STIs/STDs	●		
Useless vaccine/false protection/not 100% effective/not a public health priority		●	●
Good since recommended by school/health system		●	
Protection against genital warts			●
Long-term reduction of health care costs			●

explanations. He was just, like: "there is one vaccination on this piece of paper that is for everyone and the other one, the HPV, is only for the girls." And I was: "Ah? OK."

Despite their lack of information or interest, most girls shared that having received the vaccine conveyed to them a sense of protection. A good portion of the girls noted that they did not see the need for young men to have a vaccine for HPV and some had a sense that girls are more exposed to risk factors. Generally, though, most did not experience their bodies as "at-risk" or "vulnerable": they were rather curious about sexual health. In the case of older girls, they saw themselves as active agents in their embodied sexual health, although they expressed confusion over sexual health practices linked to STIs and STDs, and in particular those related to HPVs.

Our interviews with parents reveal that despite the general trend to adhere to the vaccination program, the vaccination decision-making process was challenging for many. Overall, parents lamented a general lack of understanding and information about HPVV. An excerpt from Jennifer's interview illustrates this:

I had the impression that they were giving me the bright side of the story… Now, we have access to much information and there is information on this vaccine, the negative aspect of the vaccine, you know, we heard about serious adverse events, deaths even, so the vaccine is suspect. But I have not read anything that pointed in the direction of this vaccine. I believe that they would not administer this vaccine if this was the case… Maybe there are urban myths but I think it would have been important to shed light upon those myths or facts or reality on this. When it's time to make a decision on the health of my children, it's very important to make an informed choice.

For most parents, the decision to vaccinate their daughter was motivated by a sense of trust in the school and the health system. Despite this, many felt that the information they received was framed to make them adhere to HPVV, and that information about potential benefits/harms was not available. Despite some parents' ambivalence, all but a few consented to HPVV, moved by what they considered to be their mandate: protecting their daughter.

Narratives from HPs make clear that most considered HPVV a very good health prevention strategy to impact both individual and population health, ultimately leading to reduced costs for the health care system. Most HPs understood HPVV as a strategy to avoid contracting those HPV strains more directly linked to gynaecological cancers or a way to prevent genital warts. HPs reported trust in medical research and health institutions. Most received information from a public health agency or directly from the pharmaceutical company and considered HPVV in the same way as other vaccines (i.e., its benefits were considered greater than its "minimal" risks). A few HPs questioned the efficacy of the vaccine or disagreed with its place in the list of public health priorities but, overall, HPs equated questioning or refusing the vaccine with lack of information, thus justifying increased efforts for vaccine promotion.

As can be seen in Table 3, most girls had limited to no knowledge of potential harms and benefits related to HPVV and the situation was not appreciably different for parents. Despite important participant differences in terms of region, age, educational level, language and racial/cultural background, blank stares and hesitations usually followed our interview questions about harms and benefits. In contrast, HPs were part of a rather homogeneous group (medical professionals mostly identifying as white *Québécois* or Canadians) and articulated understandings of potential harms and benefits that were directly informed by guidelines provided by public health organizations and/or the pharmaceutical industry.

Table 3 Participants' constructions of HPVV's benefits and harms

	Girls	Parents	HPs
Benefits			
Not sure/don't know	★	●	
Prevention/protection from gynaecological cancers		★	★
Protection from HPVs	●	●	★
Health protection and prevention	●		★
Protection against warts		●	★
Benefits higher than risks			★
Opens discussion of sexuality with child		●	
Harms			
Not sure/don't know	★	★	
Potential minimal side effects as for other vaccines (pain at injection site, dizziness)	★	★	★
Never heard about harms from health institutions/documents	★	★	
Risk of major side effects/risk may be superior to benefits		●	

HPVV discourses: appropriation and resistance

Results of our poststructuralist discourse analysis provide evidence of *how* participants discussed HPVV. As shown in Table 4, the participants' narratives convey their appropriation of dominant discourses readily available in Canadian society (e.g., biomedical discourse, discourse of choice, discourse of consumption, discourse of proper childhood) or associated with HPVV (see previous section on HPVV discourses in Canada). Four discourses were circulated by a majority of participants: the discourse of risk and protection from risks (e.g., the importance of being conscious of risks, of acting on the fear of risk, "we need to protect ourselves from risks"), the vaccination discourse (e.g., "vaccines have obvious benefits"; vaccination alleviates the fear of cervical cancer, of cancer epidemics); the discourse of gender and health (e.g., "girls and women are more exposed"; the female body is a primary vector of sexually transmitted infections, a site for future diseases like cervical cancer) and the biomedical discourse (e.g., trust in doctors and the medical system, faith in modern medicine). Two discourses circulating during the interviews were unique to a subgroup of participants: girls appropriated the discourse of "proper childhood" (e.g., children should trust their parents' decisions and obey their parents) and parents appropriated the discourse of responsible parenthood (e.g., "good mothers" and more generally "proper parents" make the "right" decision; the responsible choice is to "protect" one's daughter and "arm" her in the war against cancer).

Other dominant discourses were present in the narratives, but only for a fraction of our participants: the discourse of responsibility for sexual health (e.g., "girls and women are responsible for their own sexual health" as well as that of their partner's sexual health; "choosing to vaccinate is a good sign of my responsibility"), the discourse of proper biocitizenship (e.g., one should trust social institutions like public health agency, school, ministry of health; there is a moral obligation

Table 4 Participants' appropriation of dominant HPVV discourses

Discourses	Girls	Parents	HPs
Discourse of risk/protection	★	★	★
(Bio)medical discourse	★	★	★
Vaccination discourse	★	★	●
Discourse of medicalization/consumption	★	●	●
Discourse of responsibility for sexual health (of self/partner/child)	●	●	★
Discourse of proper biocitizenship	●	●	●
Postfeminist discourse of choice	●	●	●
Discourse of gender and health	★	★	
Discourse of responsible parenthood	●	★	
"Good girl" discourse	●	●	
Discourse of proper childhood	★		

Table 5 Participants' resistance to dominant HPVV discourses

Signs	Girls	Parents	HPs
Believing in equality/alluding to sexism/boys should get HPVV	•	★	★
Having doubts or negative views of drugs or pharma/pharma ethics	•	★	•
Believing that vaccination in school is problematic (de-responsibilization of parents, difficulty of "tracking" girls who are absent from school, relocated because of foster care, etc.)		★	•
Resisting interventionist medicine, hyper-medicalization		•	•
Believing in holistic health		•	•
Having negative views of the HPV vaccine/potential (long-term) adverse reactions		•	•
Denouncing school/public health pressure to vaccinate		•	
Being uncomfortable with the idea of associating children with STIs/sexuality		•	
Not the best way to prevent disease			•

to preserve health for the benefit of society), the discourse of medicalization and consumption (e.g., the requirement to monitor risks and to use a drug/vaccine to manage this risk; the importance of modern medicine; one should minimize risks through purchase of health products), the postfeminist discourse of choice (e.g., girls/mothers are empowered by the possibility of, the choice to, vaccinate; "girls have the right to their health") and the "good girl" discourse (e.g., "good girls should not be sexually active"; "good girls" get vaccinated in order to manage future health risks associated with sexual activity).

Given the widespread appropriation of the above dominant discourses, it is not surprising to find lesser traces of resistance to HPVV. Resistance common to all three participant groups took the form of dissatisfaction with the treatment of boys and girls (at the time of the study, most provinces and territories were only vaccinating girls—a situation commonly seen as "sexist" or "heterosexist") and of negative views about drugs or pharmaceutical companies or their ethics. As can be seen in Table 5, most girls did not offer resistance in any other way.

The situation was different for parents and HPs as a number of them circulated four additional resistant ideas: they saw vaccination in school as being "problematic" and some considered it as a form of "de-responsibilization of parents", they resisted interventionist medicine and hyper-medicalization, they believed in holistic health and they had negative views of HPVV or lamented insufficient research and potential harms. A minority of parents articulated additional discourses of resistance: they criticized the school and public health authorities' pressure to vaccinate, they spoke against a system that pressures them for vaccine consent and they expressed their discomfort when faced with the idea of engaging their young children in discussions about STIs or sexuality.

Included in Table 5 and most resistant to the dominant discourses surrounding HPVV was a small number of individuals voicing strong criticism on various issues (15 to 30 individuals, depending on the issue). Contrary to findings in some studies (e.g., Bramadat et al. 2017) and assumptions made in popular discourse, these were not individuals with less education or coming from ethnic/racial or religious minorities. As Joan, a nurse from a large city mentioned: "is the anti-immunization the educated or is it the people who have been here a long time and still have not gone ahead? The new immigrants are usually very pro-immunization because they've seen disease." Individuals most resistant to the HPV vaccine and its related discourses were mostly nurses, Euro-Canadian parents whose daughters experienced death ($n = 1$) or grave health problems after HPVV as well as girls who experienced adverse events immediately following their HPVV (most commonly mentioned were chronic fatigue, constant headaches, hypotension, myalgia and arthralgia, while less common injuries were genital infection, ovarian failure, uterine tumour, lupus and acute eczema). These "resistant" participants raised questions about the need to vaccinate, the fact that the "new" vaccine was being "tested on girls", and the idea that HPVV was a public health priority. They also had concerns regarding informed consent. For example, Afra (a mother) said, sarcastically, "I mean... Potential benefits? It's a miracle, you will never have cervical cancer! Potential harms? None! So that's the extent of my non-knowledge." The "resistants" also lamented the pressure to give (nurses) or receive (parents, girls) the vaccine, and the fact that those questioning HPVV were being "stigmatized" or "bullied." A few nurses trained in homoeopathy or alternative approaches to health were particularly quick to question the pharmacologization of public health and some condemned the code of silence surrounding HPVV. The bulk of the resistants' additional concerns related to adverse events following HPVV. Some lamented the lack of public awareness regarding adverse reactions, others blamed HPs for not connecting the vaccine to adverse reactions or spoke of the lack of support for those injured. For instance, Claire, a mother, declared: "Doctors are not there. They try to wash their hands of it, like, they especially don't want to speak against the vaccine.

Definitely not. So it's immediately brushed aside: 'no.' And when mothers have insisted, they were turned away: 'You can also find another physician.'" Charlotte, an injured girl who disclosed problems of chronic fatigue, myalgia and arthralgia, complained about feeling like a "fool" at the doctor's office when suggesting that "Gardasil made me so sick." She added: "(the doctor) said that he had called the company but that the company had said 'it's not possible' so, you know (sigh)." Finally, there were criticisms about the adverse event reporting system. For instance, Léa, a mother, spoke about what she considered to be an "inadequate" system of vaccinovigilance: "You are not identified, nobody identifies, nobody declares, nobody does anything…. It makes no sense. So, nurses do not declare (adverse reactions), doctors do not declare, and when you declare, well then, you have to fight with them for them to write it down because they don't want to."

Concluding comments and concerns

Four main commentaries or concerns stem from our study. First, our results regarding the nature of HPVV campaigns in Canada concur with those of other authors in Canada and elsewhere. These campaigns constitute projects of moral regulation emphasizing biocitizenship (Connell and Hunt 2010); they are gendered, heteronormative and centred on girls and women's "proper" sexual activity (Mara 2010; Thompson 2010); they construct a crisis situation that leads to the medicalization of nascent female sexuality (Polzer and Knabe 2009, 2012); they speak to girls' and women's embodiment as vulnerable (i.e., "at-risk" of HPV); they use a postfeminist narrative of individual risk and choice (Mishra and Graham 2012); and they produce responsible girl-citizens (Charles 2014; Davies and Burns 2013; Burns and Davies 2015). Our study extends to the consent process and speaks to the cancer effect—bringing the issue of HPVs to an entirely new rhetorical level given the gravity of cancer—and the "manufacturing of consent" among parents, mothers in particular (Petherick et al. 2016).

Second, apart from quantitative social marketing studies, little research exists on the situation of HPVV and girls, parents and HPs in Canada. Our findings correspond with those of the few authors who have looked at knowledge or opinions of students, parents or HPs (Grabiel et al. 2013; Scott and Batty 2016; Steben et al. 2017). Results also show that girls lack information but are nevertheless impacted by the gendered discourse on HPV vaccination: many construct themselves as subjects of this discourse. It is not so much that they position their bodies and selves as "at-risk" for HPV acquisition but that they generally feel responsible for preventing and not spreading STIs. As a result of HPVV, they construct themselves, rightfully or not, as "protected" subjects. In contrast, parents' narratives reflect the cancer effect as well as the powerlessness, uncertainty, anxiety, stress and fear that emerge alongside the vaccine and the perceived imperative to act upon their daughter's cancer risk. In doing so, they take to heart their social responsibility as parents and construct themselves as responsible biocitizens. As for HPs, they largely appropriate dominant discourses, acting as responsible agents of the state by helping to redistribute risk management from the state to the individual, notably as they encourage all to act on the risks of cancer and genital warts, and as they manufacture consent for HPVV. Subject positions for all three types of participants are problematic. Breaking the code of silence surrounding HPVV as well as independent research and key actions are needed to remedy the situation.

Third, our concern regards educational and ethical aspects. Our analysis of narratives points out that opportunities for broader dialogue about girls' sexual health are foreclosed, as are important discussions about health inequalities, overmedication and medicalization of girls' bodies. Furthermore, we find that independent research and information about the HPV vaccine, its potential harms and benefits, and its available alternatives are lacking, and therefore, that informed assent (for girls) and consent (for parents) are absent. This untenable and unethical situation requires attention on the part of public health agencies.

Finally, we conclude that catering to market needs and, in the case of the HPV vaccine, moving to a costly form of chemoprevention constitute a dubious priority in Canadian public health. We question whether public health is advanced when dominant HPVV discourses and practices transform healthy bodies into "at-risk" bodies, and when cancer prevention is instrumentalized in the pharmaceuticalization of public health. We hope that our contribution legitimates areas and types of research that are crucial for "real" dialogue in public health, that is, dialogue that involves multiple stakeholders and that is not dominated by vaccine manufacturers and their key opinion leaders.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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