

What kind of ‘a girls’ thing’? Frictions and continuities in the framing and taming of the HPV vaccine in Finland

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Abstract This article focuses on two different ways of framing and taming the uncertainties of the human papillomavirus (HPV) vaccine in the context of the Finnish welfare state: the bio-medical rationale of population-level cancer reduction based on epidemiological assessments, and the meaning formation of Finnish vaccination-aged girls. Epidemiologists run analyses estimating the cost-effectiveness and public health benefit of vaccinations, while the adolescent girls face the burdensome choice of whether to undergo vaccination. The processes of framing the complexities and actively taming them are analysed utilising a cultural-sociological framework. Firstly, the taming work of the epidemiologists is examined by focusing on the creation of the vaccination campaign. The aetiological complexities between some HPV types and cervical cancer are tamed into a clear campaign message of vaccination as a scientifically proven protection against deadly cancer. Secondly, the girls’ own ways of framing the complexities of the HPV vaccine and taming the decision whether to undergo vaccination or not are analysed based on their comments in an Internet discussion forum. Finally, the framings and tamings of both sites are discussed together, and some interesting continuities and disjunctions between the two are revealed.

Keywords: HPV, vaccine, vaccination, public health, women’s health, cultural sociology, framing

Context and previous research

My mother wouldn’t allow it but I want to take it. All of my friends take it, but I can’t decide!

The immunological mechanisms of HPV vaccination are biological. Yet, these mechanisms are put into effect through the consent to vaccinate. Adolescent girls frame the issue and tame the decision whether to undergo vaccination or not socially, with their parents and among their peers, as part of their life.

The HPV vaccine has been included in the Finnish national vaccination programme (NVP) since 2013, and the first vaccinations were administered in November 2013. Girls aged 11–12 years (6th grade) are offered a free Cervarix vaccination as a three-dose series through a school-based programme by school nurses. In this context, it is noteworthy that HPV vaccination rates have remained relatively low in Finland so far. Full-course HPV vaccination coverage for routine immunisation was 68 per cent in 2015. According to the latest statistics, the

coverage improved in 2016 to 72 per cent, but it is still far from the minimum goal set of 80 per cent, which has been met in Sweden and Norway, for example.¹

At present, 23 European Union and European Economic Area member states recommend the HPV vaccination. However, the 'vaccine infrastructure' – in terms of the justifications and policies in addition to the administration of the campaign – differs from country to country, including those offering taxpayer-funded vaccination. There is some distinctiveness to the Finnish context in this respect. Firstly, Finland favours a welfare regime with universal healthcare. Taxpayer-funded vaccines are distributed through the effective and comprehensive networks of maternity and child health guidance and school health care. Secondly, Finland was a late implementer of the HPV vaccine by European standards – the vaccine was launched in 2013, five to six years after Germany, France, and the United Kingdom, for instance. Thirdly, the medical-scientific model of reasoning and the role of medical authorities have remained largely uncontested, which is also reflected in the relatively high population-wide vaccination rates (Finnish Science Barometer 2016). Fourthly, and in contrast to the combination of universal healthcare and trust in medical authorities, vaccine criticism has risen in the country since the debate following the Pandemrix vaccination campaign against H1N1 (swine flu) in 2009–2010.²

Furthermore, the overall cervical cancer incidence is relatively low in Finland (4/100,000 women, mortality around 1/100,000). The publicly administered and population-based screening programme introduced in the 1950s based on cytological Pap (Papanicolaou) tests has been successful both in terms of coverage and effectiveness, leading to a 'rapid, world-record reduction of cervical cancer' (Nohynek 2008: 279). The clinical effectiveness of the screenings was thus promoted over HPV vaccination in epidemiological and economic terms until the end of the first decade of this century. The effective screening programme is also the main reason for the late adoption of the HPV vaccine in the Finnish NVP (Nohynek 2008, see also Casper and Clarke 1998, Gericke 2008, Hestbech *et al.* 2016, Paul *et al.* 2018).³

The cognitive and behavioural aspects of HPV vaccination are attracting increasing attention among health scientists. The vaccination is peculiar as a research topic which lies primarily in its targets. First, HPV vaccine is the first 'cancer vaccine' (Gericke 2008); the main target of the vaccination is a female-specific cancer in cervix. Consequently, the decision whether to undergo vaccination or not is not trivial; it is a decision concerning adolescent girls' future health in terms of protection against a sexually transmitted cancer (Wailoo *et al.* 2010). Second, the target population is distinct. Adolescent girls are 'a difficult population to vaccinate because of their liminality: they are not quite children and not quite adults' (Gottlieb 2018: 4). Hence, both the question of the actual decision-maker, the girl or the mother, as well as adolescents' and their parents' grounds and capacities to make the decision have been examined (Das *et al.* 2010, Griffioen *et al.* 2012, Patel *et al.* 2016).

Previous research has pointed out that mother-daughter communication takes place prior to consent; most mothers discuss HPV vaccine with their daughters, and adolescent girls' opinions play an important role in the discussions (Mathur *et al.* 2010, McRee *et al.* 2010, 2011). Furthermore, as Gregory Zimet's research group has shown, both 'the myths and the misinformation', such as the fear of reduction in safe-sex behaviours after the vaccination as well as inadequate vaccination recommendations by health care providers, and general distrust due to the perceived 'newness' of the vaccine, have been sparking anxiety about the decision (Zimet *et al.* 2013, see also Hendry *et al.* 2013, Larson *et al.* 2011, Thomson *et al.* 2016).

Social scientists, for their part, have targeted on socio-cultural aspects of HPV vaccination. Firstly, the debates and processes of adoption of the vaccine to NVPs as well as the implementation of vaccination campaigns are highlighted by drawing on critical science and technology studies (STS) and policy analysis frameworks (Connell and Hunt 2010, Gottlieb 2018, Lindén 2016, Löwy 2010, Paul 2016, Paul *et al.* 2018). Secondly, by drawing on biopolitical and

gender research frameworks, the power and governance aspects of the vaccination have been critically scrutinised. On the one hand, the gendered governance by producing and protecting 'risky girlhoods' (Mamo *et al.* 2010), through both HPV vaccination itself as well as parental care related to it, has been examined (Lindén 2017, Mara 2010, Mishra and Graham 2012). On the other, the widening scope of vaccination as 'pharmaceuticalisation of life' (Fox and Ward 2008: 865) and as a form of control over the bodies of adolescent girls in terms of public health have been pointed out (Casper and Carpenter 2008, Clarke *et al.* 2003, Mamo and Epstein 2014).

For the study at hand, the control aspect of HPV vaccination is of particular importance as it emphasises the nexus between individual responsibility and population (reproductive) health. On the one hand, public health is increasingly privatised, but on the other, individual responsibility for one's health is also a public (health) matter (Mamo *et al.* 2010); vaccination is not completely a matter of one's private health but a matter of privatised public health instead. Consequently, the privatisation carries both a rational and moral imperative: it is both individually rational and morally right to protect oneself – and at the same time the population – against cervical cancer, for instance.

Despite the growing interest in these processes, the diverse formation of HPV vaccination has not been exhaustively examined to date. Previous research has either focused on one site, cognitive decision-making and information needs, the work of health professionals or campaigns with diverse underpinnings, or highlighted the phenomenon by a general rationale, such as gendered governance through vaccine infrastructures or subject-shaping via health consumerism. The article at hand contributes to this growing research body by a multi-sited research design aiming at the mediations between sites and rationales of HPV vaccination, the ones of vaccination officials responsible for the vaccination campaign and the targets of the campaign, and by tracing both frictions and continuities between these.

Objective: frictions and continuities between landscapes of meaning

The objective of the article is twofold: first, to explore how HPV vaccine is made meaningful in two sites, or 'landscapes of meaning' (Reed 2011), that of the vaccine officials who direct the campaign, and that of the vaccination-aged girls; and second, to reveal both frictions and continuities between these two. The meaning formation is operationalised as framing of and taming the complexities of the vaccination in both of the landscapes. The conceptual tandem of framing and taming is utilised to grasp different aspects of meaning formation. Framings are mundane and often unreflected upon processes, while tamings are cognitive, rationalised, and technicalised forms of framing. The vaccine is made meaningful by framing issues (vaccination) and taming specific complexities (the decision whether to undergo vaccination or not) into a less complex, familiar form. (Silvast and Virtanen under review.)

Drawing on this cultural-sociological framework, the objective is approached via three research questions:

- 1) How is the persistent uncertainty intrinsic in the vaccine framed and tamed into the official vaccination campaign message, and what kind of message is thus created?
- 2) How is the vaccination framed and tamed by the adolescent girls themselves?
- 3) What kind of frictions and continuities come up between these two landscapes of meaning?

The first question is explored by analysing the creation of the Finnish HPV vaccination campaign and its epidemiological background. The second question is answered by analysing

peer discussions on *demi.fi*, a website for Finnish adolescent girls that is a culturally rich forum reflecting the users' very own landscape of meaning. The third question is studied by discussing the framings and tamings found on both sites together.

The analysis of framings and tamings in both landscapes is conducted two-dimensionally, based on Luhmann's (1995) conceptualisation of meaning formation. On the epistemic-factual dimension, the focus is on 'what' framings, and on the social dimension, on 'who' framings – what is framed as important factually, and who are referred to as important socially. Furthermore, in the analysis of the campaign materials, the framings and tamings on both dimensions are combined in order to analyse the campaign language and imagery as it promotes and shapes vaccination-aged girls as 'certain types of subjects (Clarke *et al.* 2003). This 'subject-shaping' is further reflected in the analysis of girls' online discussions.

Before turning to the analyses, I start by highlighting the aetiological complexities of the HPV virus and its relation to cervical cancer. These complexities form the background to active epidemiological taming work of the vaccine, the results of which are seen in the campaign materials. Then, I present my research materials and methods. The fourth section of the article contains both analyses. In the final section, the results of the analyses – the girls' own framings and tamings and the image of the vaccination and its targets enacted in the campaign materials – are discussed together.

Epidemiological meaning: aetiological indeterminacy tamed statistically

The link between HPV and cervical cancer was discovered in the 1980s by Harald zur Hausen, a German Nobel Prize virologist. Based on zur Hausen's (2000, 2009) pioneering work, HPV is currently considered a necessary factor in the development of invasive cervical cancer. However, the virus infection is not sufficient factor, and there are various types of factors that cannot be comprehensively controlled, such as possible interactions between different virus types across various time scales. Besides, 'the strength of the causal association does not necessarily predict what will happen when a causal factor is removed. [...] We do not understand precisely the aetiology of cervical cancer at either the individual or the population level.' (Aronowitz 2010: 23–24, see also Haug 2009.)

This is no peculiarity of cervical cancer, however; it is rather a persistent challenge in cancer research in general. In fact, 'the evidence for the causal link between HPV and cervical cancer is tighter than almost any other causal association in cancer' (Aronowitz 2010: 24). Direct observations and visualisations of the mechanisms of the infection have been carried out, and the role of HPV in cancer transformation has been considered from the perspective of the virus itself (*ibid.*, Cairns 1997: 166–200). The factor that makes cervical cancer stand out is its current primary prevention method, the vaccine.

The aetiological uncertainties in cancer development do not necessarily entail the inefficacy of vaccination as a prevention method. However, the epidemiological taming takes a different path from that of aetiology. The scientific rationale behind the vaccine assessment is one of empiricism in terms of epidemiological-statistical probabilities, not one of realism as aetiological-ontological certainty (Virtanen 2015: 303–310). The statistical analysis of population impact, risks, and cost-efficiency is based on probabilities and mean figures. Salo (2017: 14) has described the assessment criteria of vaccines in the Finnish context of the universal vaccination policy:

The working group . . . composed of national experts . . . carefully evaluates the potential vaccination programme according to four criteria given by KRAR [the National Advisory Committee on Vaccination]: 1) expected public health benefit, 2) safety of vaccine for an individual, 3) safety of the vaccination programme at the population level, 4) cost-effectiveness.

In the British context, it is stated unambiguously that '[c]ost-effectiveness is the cornerstone of decision making where universal vaccination of the population is concerned' (Hall 2010: A56).

Public health benefit and cost-effectiveness are assessed on the population level, paired with both individual- and population-level safety, and analyses are run estimating cost per quality-adjusted life-year (QALY). The results are also compared with other potential prevention methods, such as Pap smear screenings, for which similar assessment analyses are also run (Nohynek 2008, Salo 2017). Once the vaccine was included in the NVP, the clinical-aetiological uncertainties yielded to the unambiguous statements in the Finnish HPV vaccination campaign organised by the public medical officials: 'HPV types 16 and 18 are the cause of 70 per cent of cervical cancers. [...] [W]hen you take the vaccine you get protection against the cancer-causing HP virus.' (tyttojenjuttu.fi)

In sum, the HPV vaccine is not a static object but one that must be actively stabilised by giving it different statuses on different occasions. The indeterminacies in cancer aetiology and the epidemiological-statistical uncertainties about the (cost) effect of the vaccine must be actively framed and tamed according to different contexts. In the words of Casper and Clarke (1998: 277), the vaccine must be 'tinkered' with on many occasions to be 'good enough', both in scientifically technical and socio-political terms, not only vis-à-vis the vaccination-aged girls and their parents, but also in relation to other prevention methods, health policies, legal requirements, and public opinion formation as well. In Finland, however, the adoption of the vaccine into the NVP caused no remarkable political or public contestation compared to other European countries, such as Austria and the Netherlands (Paul 2016, Paul *et al.* 2018), and especially to the United States (Gottlieb 2018). Hence, it is reasonable to move the focus on the relatively low HPV vaccination coverage in Finland to the potential frictions between the framings and tamings of the directors of the vaccination campaign and the framings and tamings of the girls targeted for the vaccination.

Materials and methods

The research materials consist of two different data corpuses. The first corpus contains both the official Finnish HPV vaccination campaign materials and the campaign's planning phase materials made by the advertising agency *Recommended* (reco.fi). The official campaign materials gathered from the campaign website (tyttojenjuttu.fi) consist of textual information, pictures, and other visualisations and short information clips on YouTube. The planning materials, 12 pages in printed form, consist of textual and visual content about the making of the campaign. The materials are openly available on the public innovation website (innokyla.fi), and they could also be freely commented on before the campaign's launch in 2013. I conduct interpretative, thematic analysis of (i) the framings and tamings of HPV and cervical cancer, and (ii) the subject-shaping of the adolescent girls in the materials. The interpretation work is carried out two-dimensionally, on the epistemic-factual and social dimensions.

The second data corpus consists of vaccination-aged girls' online contributions to a discussion about the HPV vaccination on demi.fi, a Finnish Internet site for girls. Demi's discussion forum is highly popular among girls aged 10–18 years, and the themes discussed on the forum cover all possible aspects of a Finnish adolescent girl's life. All the online discussions are moderated, and participation requires registration. The HPV vaccination was discussed in several threads from 2013 onwards. Four of the threads most suitable for the task at hand were selected during the preparatory phase of the study: 'Experiences of the HPV vaccination' ($n = 86$), 'Nurses on the web: HPV vaccination, does it make you think?' ($n = 96$), 'HPV vaccination' ($n = 32$) and 'Are you going to take the HPV vaccine?' ($n = 137$).

The data corpus of 447 online comments is not a representative and exhaustive sample of Finnish adolescent girls' opinions and views of the HPV vaccine. However, it is a rich source of the girls' own ways of framing and taming the complexities of the HPV vaccine and the difficult decision of whether to take it or not. The context, the Demi discussion forum, is also significant as the girls' own cultural zone. The girls involved interact with peers facing the same situation – having to make a difficult choice concerning their own health. The participants use a language of their own, an informal slang full of misspellings and careless grammar, rich with abbreviations and emoticons. Furthermore, when references to parents, other relatives, older friends, school nurses, and the media are made, they are considered as being outside the discussion, even though any of them could read the discussion online.

The analysis of the online discussions targets active meaning-formation operationalised as framing and taming of the vaccine among the adolescent girls. Drawing from the methodological insights of Straussian grounded theory (Corbin and Strauss 2012), I began by coding the raw data line-by-line with ATLAS.ti software, and then cross-coding, resulting in a total of 87 codes. Each utterance could contain several codes. I also gathered remarks and wrote notes about issues relevant to the task at hand. In the second phase, I merged the codes into eight positive/uncritical/pro and eleven negative/critical/con themes and then classified and interpreted the themed data by utilising the social and epistemic-factual conceptualisation of meaning formation. Lastly, I refined the analysis by interpreting the classified data vis-à-vis the results of the analysis of the campaign materials and research literature.

Analysis: framings and tamings in campaign materials and online discussions

The campaign materials: a sure shot against deadly cancer

The guiding outline for the creation of the Finnish HPV vaccination campaign is formulated as tripartite in the planning materials:⁴

- Daughters and mothers/parents as the target group
- Goal: arouse interest, distribute information
- Tone: reliable, clear

Based on this outline, the campaign is tailored to a one-theme concept, 'a girls' thing'.

Instead of the conventional top-down health communication, the concept is intended to produce a pronouncedly fresh, grass-roots approach: 'a girls' thing' concept is put to work in the campaign materials both online and in print, encompassing 'posters, letters, website, banners' and 'videos, 30 sec. & 60 sec.'. Except for the letters sent home and a couple of text boxes directed at parents on the campaign website, the campaign materials directly target the adolescent girls. This contrasts partly the 'One Less' campaign in the United States which depicts girls as empowered tamers of individual cancer risk and mothers as responsible for the health of their daughters (Mamo *et al.* 2010). Similarly, in the Swedish campaign materials, 'the mother is addressed as a caring, good and responsible parent who wants to preserve the future health of her daughter by acting as a risk manager in the present' (Lindén 2017: 116).

The girl-centeredness in the Finnish campaign is manifested throughout the visual materials: the theme colours are pink and magenta; all the pictures contain teenage girls, mostly with friends; and all the banner texts and visualisations are pronouncedly clear and unambiguous, even to a dramatic extent. Below are two pictures from the campaign website, both with a pink background. The upper image is from the front page of the site and the lower image is from the cervical cancer information page. [Colour pictures can be viewed at wileyonlinelibrary.com]



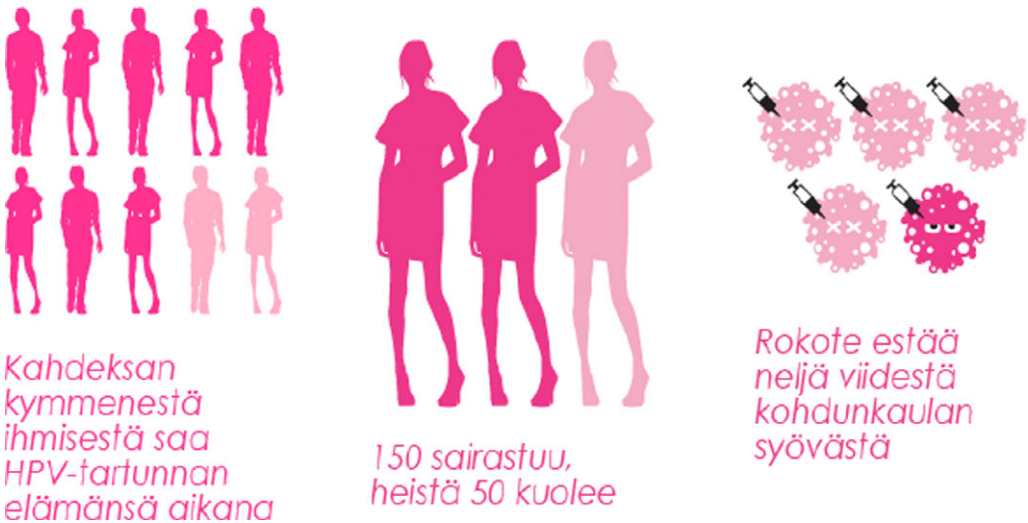
The *social* framings, social bonds and demarcations enacted in the campaign materials, appear as ambivalent. On the one hand, the adolescent girls are active and cheerful in the illustrations. They are portrayed curiously close to each other while engaged in activities such as biking (above) or chatting and laughing together. The objective of the conceptualisation states:

When the campaign theme is pleasant and positive, the topic immediately becomes more interesting. [...] For the girls to become interested in the vaccine and to take it, the campaign must be made 'their own kind of thing'.⁵

The campaign materials approach the vaccination-aged girls directly and exclusively by using social imagery familiar to them; a socio-cultural exclusiveness is enacted by portraying adolescent girls having fun *socially*.

On the other hand, the vaccination is ultimately offered to *individuals*. There is one picture on the campaign site portraying a lone girl who is noticeably older than other girls pictured; she is apparently pondering something (see above). The illustration draws an image of a circumspect adolescent, more mature than the other girls having fun together in the other website imagery. Girls in the target cohorts are addressed – and enacted – not only through social exclusiveness but also as rational and knowledgeable individuals. The vaccine is not only a girls' thing collectively, but also a thing for one rational individual adolescent girl at a time. This individual rationality is enacted epistemic-factually.

Below are three side banner pictures from the campaign website (all in magenta and pink colour).



The text underneath the pictures states (from left to right): 'Eight out of ten people are infected with the HPV infection during their lives', '150 get sick, and 50 of them die', and 'The vaccine prevents four out of five cervical cancers'. The campaign video⁶ is even more dramatic, as (unvaccinated) figures facing death are slowly faded out, while those who were vaccinated remain. The vaccine keeps them alive.

Underlying aetiological uncertainties are framed and tamed into a scientifically proven cure against the deadly cancer. As stated on the front page of the campaign site: 'When you are vaccinated, you get protection against the cancer-causing HP virus.' The *epistemic-factual* framing of the issue is clear. Firstly, there is a deadly cancer approaching, and the vaccine

prevents it. Secondly, adolescent girls, as rational individuals, have the key to protect themselves against this deadly cancer. The right and wise thing to do is to be vaccinated. Deciding not to be vaccinated is framed as an irrational and irresponsible choice, since one consciously takes the risk of developing cancer.

Choice rationality is not enacted socially but individually, and issues of solidarity remain untouched in the materials. Lisa Lindén (2017: 107) argues similarly in the Swedish context: HPV '[v]accination practice invokes a tension between the collective good and individual choice'. The tension is striking as one of the goals of the campaign is population or herd immunity. This is an important threshold rate of vaccination coverage in the population beyond which it is harder for a contagious disease to pass between people who have not been vaccinated. Achieving herd immunity is important both in terms of clinical epidemiology and cost-effectiveness (Brisson and Edmunds 2003), but also in terms of solidarity, as it 'gives protection to vulnerable people such as those who are too sick or too young to be vaccinated'.⁷

The ambivalence of individual-rationality and social-solidarity is even more complex in the campaign materials, however. Firstly, the social framing is twofold: both the active (imagined) community of vaccination-aged girls doing their girls' things and each individual girl pondering the decision alone are framed as a socio-cultural unit separately. Yet, secondly, these social frames appear asymmetric. The vaccine gets framed as girls' 'own kind of thing'⁸ through the illustration of interaction familiar to them. Portrayed social interaction makes 'the campaign theme . . . pleasant and positive'; it functions as a means to an end, a means '[f]or the girls to become interested in the vaccine and to take it'.

Adolescent girls are shaped *as* rational health-subjects for whom making the right decision is both easy and relieving *through* the girls' very own visualised zone of meaning, rich with social activity that is familiar to them. The issue itself – whether to be vaccinated or not – is a matter of wise and knowledgeable decision, pondered individually and rationally, and sociality and solidarity gets framed outside this core epistemic-factual question. It is up to the girls themselves to frame and tame the question of whether to be vaccinated or not socially among peers – in online discussions, for instance.

Internet discussion: 'a girls' thing' revised

Adolescent girls frame the vaccination and tame the vaccination decision socially in the online discussion. A difficult topic and decision concerning one's own health is made socially meaningful among peers. Hence, the online discussion of the HPV vaccination itself is an example of how socio-cultural structures are (re)built in the moment of individually faced uncertainty.

The HPV vaccine discussions on the *demi.fi* website have a broad, twofold structure. Approximately half of the comments were short (one or two lines) and expressed either a pro or a con attitude towards the vaccination:⁹

[I] have been thinking getting it, but three shots in half a year D: (35/137)

This is an outcome in itself. Half of the girls did not think over the issue in depth, or at least they did not express this in written form, even though they participated in the discussion. The other half of the comments contained more consideration, often including explicit reasoning and surprisingly thorough assessments.

Remarks about discussions: cancer vaccine, media and sex It is salient that the discussions were centred on cancer. Especially in the comments with a positive attitude towards the

vaccine, the HPV–cervical cancer link was taken for granted; the HPV vaccine was framed unambiguously as a cancer vaccine.

[T]hat vaccine is only a good thing and it can prevent CANCER. Every single cancer patient is one too many. (11/86)

In addition, print and online media were mentioned relatively often in both critical and uncritical comments, and links to official statements and other texts were attached. However, references to alternative, vaccine-critical media were relatively rare and followed without exception by comments questioning vehemently both the status of the source and the media literacy of the referrer. In general, the role of alternative media remained practically insignificant in terms of structuring and steering the discourse.

Issues related to sex mostly concerned the HPV contamination process. It was unclear whether condom use offers good protection against infection, or whether it is useful to be vaccinated after one has already started a sex life. Furthermore, some moral tones against the ‘sex vaccine’ were raised.

I’m going to avoid getting the virus by simply not having any one night stands, and using a condom prevents getting the HPV by 70% (56/137)

Interestingly, the possible reduction of the (frequency) of the Pap screenings in the wake of the vaccination campaign also came up in this regard, which I highlight in detail in the latter part of the analysis section.

Social meanings: references to fellow females Within the discussions, the vaccination was framed socially by referring to particular people and groups. These references simultaneously enacted the social; they shaped meaningful social bonds and created demarcations. The most remarkable demarcation was a gendered one. The vaccination was framed by references only to fellow females, and this gender frame remained untouched throughout the discussions. The only reference to males in the whole data was a closing remark in one comment:

[T]his is really fair once again, that men poison us and that’s why we have to endure these types of things X) (33/86)

Even though no detailed references to mother–daughter communications occurred in the discussions, mothers’ opinions came up as crucial in the girls’ own framings of the issue and tamings of the decision. Mothers were referred to as authorities, whether demanding or refusing the injection. Their opinions were also contrasted with the views of friends, and there was friction between the two in terms of peer pressure.

My mother wouldn’t allow it but I want to take it. All of my friends take it, but I can’t decide! (50/96)

The decisions were also made meaningful vis-à-vis the experiences of friends and elder sisters over a longer time span, mostly in terms of the harmlessness of the vaccine.

One of my friends went to a voluntary vaccine testing two years ago and she is completely healthy (54/137)

The vaccination was also framed socially through the illness. Kinship connections and the chain of generations were referred to as important in physiological terms; the vaccination was made meaningful through a common and shared cancer risk.

[M]y grandmother died precisely of cervical cancer just like her own mother (96/137)

The tone of these comments was sad and submissive. Kin bonds highlight a shared fate via an increased cancer risk, which is more burdensome to frame and tame than the vaccination decision. The general cancer frame was concretised, leading to the framing of the vaccination issue outside ones' own agency.

Epistemic-factual meanings: reasoning and certainty, anxiety and ambiguity The decision to be vaccinated was framed mainly both rationally and in terms of trust in officials. The majority of the pro comments were in line with the campaign message: it is rational for the individual to be vaccinated, as the vaccine has been thoroughly researched and the benefits of the vaccination outweigh the possible individual risks.

It is more reasonable to take the vaccine and endure pain for a couple of days than go later to cancer treatment and suffer that (66/86)

I am aware that the prior motivation for the pharmaceutical companies is not always health promotion, but this vaccine seemed to be more thought through and more researched and trustworthy in general than, e.g. the swine flu vaccine (46/86)

Individual, knowledge-based rationality and trust in officials also appeared separately. Instead of thorough and rational pondering, the uncertainty of the decision was framed by positing it outside the scope of one's own reasoning, into the realm of the officials, who were framed as essentially trustworthy authorities.

If a vaccine is offered publicly, it is absolutely safe (102/137)

Pro-vaccination justifications were also contrasted with the anti-vaccine stories in the (alternative) media. The media narratives were labelled as 'alarmism' and 'nonsense', and downplayed both by questioning the status of the medium in question and by the underlying trust in official, scientifically proven information. However, anecdotal stories, mostly about the sufferings caused by cancer, were not downplayed in a similar manner but framed as authentic and justified instead.

One woman who suffered from the cervical cancer wrote a text about how she ... would have taken the vaccine without whimpering if it had been available (54/86)

Scepticism towards the vaccine differed significantly from the pro-vaccine comments. In contrast to the twofoldness of the individual-rational reasoning and the trust in officials, there were many ways of framing the issue negatively and taming the decision to not be vaccinated. I grouped the negative framings and tamings under twelve main themes, and the second largest theme was nevertheless a heterogeneous one, which I labelled 'other'. This is a finding in itself: the official vaccine discourse was challenged multifariously.

When the issue was framed negatively in epistemic terms, the questioning of official expert knowledge was the most common theme. However, the criticism of official knowledge was not solely grounded on alternative knowledge, but more importantly on a lack of sufficient knowledge, including among health officials.

I won't take it as the vaccine hasn't been researched thoroughly, so no one knows what it brings about :) (65/137)

Lack of knowledge was connected both to unknown side effects and to scepticism towards the effectiveness of the vaccine. Unknown side effects reflected the theme of the newness of the vaccine, which was related to three separate con framings.

Newness reflected, firstly, distrust in health officials and suspicion about their true motives, bolstered by references to the previous public debate around the swine flu vaccination. As the primary interest of the officials and the pharmaceutical companies is to promote new vaccines at all cost, they are not trustworthy when reporting potential side effects, it was argued.

People have aalll kinds of vaccines rammed down their throats; are all of these helpful and necessary? :DD and pharmaceutical companies won't tell about all the side effects (61/137)

Secondly, newness related to scepticism towards the necessity of the vaccine and contrasted with the known or imaginary category of healthy people living their lives unvaccinated.

Somehow it feels alien to take it. People have done well to date without it, so I will be ok as well D: Aaargh I don't know :I (2/96)

The quote features also a third type of newness framing that is relatively common in the comments: anxiety towards something new and different, which leads to the decision to not to act. This framing resembles the so-called status quo bias, a preference for the current state of affairs. The current state of one's health is taken as a reference point, and any change from it is perceived as a loss, even though altering the status quo might be beneficial. Concretely, the anxiety towards altering the current state was expressed as a fear of needles and injections: needles hurt one's healthy body.

The last and most important finding in the critical comments was a pronounced trust in one's own ability to obtain knowledge and make a rational decision independently, ignoring 'pressure from the officials'. This framing was connected, firstly, with the relatively low total rate of cervical cancer contraction.

Approx. 160 women contracted it a year in Finland, and we got 2.5 million women, so the amount is quite low. Why should we be vaccinated against such a thing? (70/96)

There is a clear contradiction between the framings as the same annual number of cancer cases was set to promote the vaccine in the campaign materials by highlighting the relatively high percent of deaths among the contracted.

Secondly, the 'cancer vaccine' frame was called into question by emphasising the role of other medical-preventive measures, especially the regular Pap screenings. One's right to attend to the on-going screenings regularly also after the vaccination was defended vehemently.

I want the opportunity to go to the pap tests as often as those without the vaccine. The vaccine won't protect [all] but only the majority from the papilloma virus (8/96)

The framing of the vaccine as less effective than regular Pap screenings was based pronouncedly on individual-rational reasoning. Moreover, the rationality of the screenings in terms of one's own health was also contrasted with the assumed cost-saving rationale of the health officials on the population level.

The vaccine prevents the preliminary stages of the cancer and not the whole cancer . . . and the cancer can be prevented by visiting the gynaecologist and if some preliminary stages are found, they can be had out somehow (22/32)

It is anyway true that Finland bought the vaccine batch at a discount and now the PAP tests are being reduced ->saving money (15/137)

In addition, the individual responsibility of condom use was referred to as a more effective prevention method compared to the vaccine.

That vaccine protects from papillomavirus (not directly even from that cervical cancer) which is very effectively prevented by using a condom (63/96)

The underlying cancer frame was not really questioned. However, the cancer vaccine frame, the rationality of the new official preventive method – i.e. vaccination –, was challenged. Interestingly, this challenge was based on the very framing of the official vaccination campaign by stressing one's competence as a self-responsible, rational health-subject. The regular Pap screenings were defended exactly in these terms, as safeguarding one's own health more effectively than the vaccine.

Results and discussion: frictions and continuities between health-rationalities

HP virus affects both males and females and causes also diseases that are not female-specific, such as genital warts, oropharyngeal cancers and other types of anogenital cancers than cervical carcinoma (Daley *et al.* 2017, Zimet *et al.* 2013). However, the HPV vaccination is unambiguously gendered and 'genderedly ontologised' in both explored meaning landscapes – the vaccination campaign directed by the health officials and the online discussions of the vaccination-aged girls. The tight coupling of HPV to cervical cancer and further to its prevention by female-only vaccination resemble the critical theses of 'feminization of HPV and HPV vaccines' (Daley *et al.* 2017) and 'the gendering of HPV' (Mara 2010). Both the virus and its prevention method get framed as a girls' thing. But what kind of a girls' thing?

The broad picture of frictions between the scientific and socio-cultural framings and tamings of health and illness is already a given in social scientific research. In contrast to epidemiological-statistical chance-taming based on probabilities, personal, peers' and relatives' experiences and lay knowledge play a significant role in lay perceptions of health, as do cultural framings based on luck, fate and destiny, for instance (Davison *et al.* 1991, Prior 2003). Furthermore, previous research has also highlighted how campaigns against female-specific cancers "pink-wash" cancer through gendered metaphors and symbols' (Lindén 2016: 36), and, consequently, push broader issues of herd immunity and public health rationales involved in HPV vaccination into the background (Lindén 2016: 201–202, see also Jain 2013). The idea of gendered pink-washing fits well with the girly pink HPV vaccination campaign in Finland, free of broad, complicated issues of herd immunity and epidemiological assessments.

Other scholars have targeted HPV vaccination by focusing on the nexus between population health and individual responsibilities, especially in terms 'biomedicalization' (Clarke *et al.* 2003) and 'privatization of public health' (Mamo *et al.* 2010: 124) via consumer imperatives; 'individual girls and girlhood collectives are brought forward to consume in the name of health, adhering neatly to neoliberal ethics of individual responsibility and normative construction of gender and sexuality' (*ibid.*). Although the sweeping narrative of neoliberal, individualised and consumerised health governance covers partly also the Finnish taxpayer-funded HPV vaccination,¹⁰ it must be fine-grained, however, to describe aptly the case at hand. This

is carried out by focusing on the mediations between epidemiological and campaign framings and tamings, and the ones of adolescent girls, and by highlighting both frictions and continuities between these.

The aetiological complexities in the interconnectedness of the HP virus, cervical cancer, and the vaccine are actively tamed by epidemiologists and health officials in the making of a 'good enough' prevention method against cervical cancer (Casper and Clarke 1998). The sufficient effectiveness of the vaccine is produced by conducting statistical assessments that combine population-level effectiveness with safety and cost-effectiveness. When the vaccine is included in the NVP, it must be effectively delivered to the target group to reach the campaign goals. This is not only a matter of technical administration, however. The vaccine needs also to be framed to 'satisfy pertinent "social worlds" to become embedded in them' (Paul *et al.* 2018: 69). The 'a girls' thing' campaign was created for this, to embed the vaccine in the social world and the landscape of meaning of vaccination-aged girls. In the campaign materials, targeted directly at the adolescent girls through girly socio-cultural imagery, the aetiological complexities have been tamed and the image is clear: the papillomavirus is common and causes cervical cancer; cervical cancer is deadly; and vaccination is the most effective defence against this insidious cancer. Consequently, a rational and responsible subject consciously taking care of her (reproductive) health by getting the shot is enacted. Yet, the rationality of this rationale was both confirmed and contested in the adolescent girls' online discussions.

First, the entire online discourse centred on the campaign imperatives of cervical cancer and the most effective prevention method against it. Additionally, although elements of distrust in health care officials and amorphous uncertainty and anxiety came up, the critical in-depth ponderings were also remarkably in line with the style of reasoning promoted in the campaign materials – namely, framing cancer and its prevention in terms of rationally safeguarding one's individual health. The individual rationality of cancer prevention and conscious self-responsibility flow unaltered through the landscapes of meaning of both the vaccination campaign and the vaccination-aged girls.

However, despite the common goal of maximal cancer prevention and individual rational orientation towards it, the exact means to reach the goal varied between the landscapes since – on an individual basis – regular Pap screenings were framed as a more effective cancer prevention method than the vaccine in the girls' vaccination comments. Consequently, the crucial nexus in the campaign objective – to obtain a public health benefit on the population level *through* the rational decisions of individuals – was called into question. The rationale of population-epidemiological health benefit was associated with the official vaccine promotion, whereas the individual health rationale pointed towards the screenings as the most effective prevention method. Maximal clinical effectiveness, in terms of one's individual health, was emphasised at the expense of the public health rationale of health benefit and cost-effectiveness on the population level. The rationality of the promoted, most rational choice was questioned in rational terms.

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Acknowledgements

This study was funded by the Academy of Finland as part of 'INSPRINS (283447) and TreWISE (312624) research projects,' and by Alfred Kordelin Foundation.

Notes

- 1 The statistics can be found on the websites www.hpvcentre.net and www.thl.fi/fi/web/rokottaminen/rokotteet/hpv-rokote#rokote.
- 2 In 2011, the officials of the Finnish National Institute for Health and Welfare (THL) eventually admitted that there was a connection between the Pandemrix flu vaccination and the increase in narcolepsy figures in Finland: www.thl.fi/fi/tutkimus-ja-asiantuntijatyo/hankkeet-ja-ohjelmat/narkolepsia-ja-sikainfluenssarokote
- 3 'With the experience of the rapid, world-record reduction of cervical cancer screening in Finland since the introduction of the PAP smear screening programme in year 1953 [...] the present thinking on the national level is to intensify the already highly successful PAP smear screening. Intensifying screening especially in the younger age groups would most likely have a positive impact on these morbidity and mortality figures much faster than introducing an HPV vaccine, given the fact that the reported overall vaccine efficacy figures of HPV on cervical precancerous lesions caused by all HP viruses is only 27% in non-naïve individuals and that introduction of a vaccine would not bring about savings in the form of reducing screening costs.' (Nohynek 2008: 279)
- 4 All quoted passages are from the materials on the planning and campaign websites www.innokyla.fi and www.tytojenjuttu.fi.
- 5 See: www.youtube.com/watch?v=jzUArTB9Ljw
- 6 www.innokyla.fi
- 7 www.thl.fi/fi/web/vaccination/vaccination-coverage
- 8 All quotations are from the materials on the planning and campaign websites www.innokyla.fi and www.tytojenjuttu.fi.
- 9 All quotations are verbatim, including misspellings and emoticons, and translated and formulated as close to the original Finnish versions as possible. The number following the quotation indicates the place of the quotation in the respective thread.
- 10 In the Nordic welfare regime, the tax-funded, universal health care traces historically to the constellation between the state and the citizen: 'Responsibility for care has been understood first and foremost as a public and collective responsibility within a citizen–state relationship rather than as an individual one' (Lindén 2017: 110).

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