

Lisa Minio

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University of Twente, Enschede

Westfälische Wilhelms-Universität, Münster

## **Framing the HPV Vaccination – A Content Analysis of the German News Coverage**

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## Abstract

This paper aims to detect which frames, also referred to as framing facets, were applied in the German printed news coverage of the HPV vaccination since its first recommendation in 2007 until 2019. The sub-questions: (i) „Which framing facets are identified according to the literature published so far?“, (ii) “How do the framing facets found in the literature relate to people’s behavior, attitude and intention concerning the HPV vaccination?”, (iii) “How frequently were the framing facets found in the literature discussed in the German news coverage from 2017 until 2019?” and, (iv) “How were the framing facets derived from the literature discussed in the selected newspaper articles from 2007 until 2019?” are answered, applying a deductive approach to a quantitative and qualitative content analysis. First, a systematic literature review was conducted, to gather an overview of previous findings on framing facets, their relation to people’s HPV vaccination attitudes, intentions and behavior. Based on those findings, hypotheses regarding the prevalence of the aforementioned framing facets were deduced. According the deductive approach, a coding scheme was created, using the information provided by the studies included in the literature review, to screen a selection of German newspaper articles for identified framing facets. During the screening process, the aforementioned frequencies were calculated, and the content discussed was noted. This paper reports that in contrast to previous findings, the German news coverage of the HPV vaccination displayed 42% of future-oriented articles which focused on cancer related to HPV, particularly on female-only forms, and 22% of story-telling articles which initially aimed at gender-neutralizing the perception of the HPV vaccination, but instead focused on highlighting female health concerns. Additionally, the detection of the feminizing framing facet in 88% of the articles highlighted that the forming of a collective among young vaccinated girls not only led to inclusivity, but also exclusivity of non-vaccinated girls which led to peer-pressure influencing them and their mothers. Further, the gain-, rational choice, non-urgency/non-requirement, expository and STI-framing facets were found as suggested by the literature review.

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## 1. Introduction and Research Questions

People, in particular parents in the USA and Europe, have appeared to be less affirmative to vaccinations than in the years before (Calandrillo, 2004, pp.353, 361; Poethko-Müller & Buttmann-Schweiger, 2014, p.871). The increasingly skeptical stance among Western societies including Europe is referred to as “*vaccination-paradox*” (World Health Organization, 2008; Calandrillo, 2004, p.353). Initially, vaccinations displayed necessary means to survival in earlier times (Calandrillo, 2004, p.353). Following their utilizations, experts began to regard some diseases as extinct in the West in the recent past (Calandrillo, 2004, p.353). Therefore, a large number of people have never encountered anyone who faced any of the illnesses it is currently vaccinated against (World Health Organization, short: WHO, 2008). Notably, the vaccination-paradox entails increased numbers of epidemics of preventable diseases, due to decreased vaccination rates in countries with formerly high average vaccination rates (WHO, 2008). People, on the one hand, reject vaccinating themselves or their children for fear of side-effects, and, on the other hand, they rely on “*herd immunity*” (Calandrillo, 2004, p.353). “*Herd immunity*” is defined by the Oxford Vaccination Group (2018, para. “What is herd immunity?”, n.p.) as “*When a high percentage of the population is vaccinated, it is difficult for infectious diseases to spread, because there are not many people who can be infected*”. Experts estimated that herd immunity begins to protect unvaccinated members of society, for some diseases like polio, at a vaccination rate of at least 80% (Oxford Vaccine Group, 2016). In the 20th century, experts initially argued that the massive decline of Measles could further result in the “*extinction (of it) in the United States and (...) global eradication (...)*.” (Calandrillo, 2004, p.372). Yet, The re-occurring outbreaks of measles in the US as well as in Europe, due to low vaccination rates, display the most prominent instance of the vaccination-paradox (Calandrillo, 2004, p.362; European Centre for Disease Prevention and Control, 2019a). The European Centre for Disease Prevention and Control disclosed in February 2019 that 30 countries belonging to the EU/EUFA reported 8,476 laboratory-confirmed cases of the Measles from February 2018 until March 2019 (European Centre for Disease Prevention and Control, 2019b).

The increased skepticism, following the vaccination-paradox, has not spared the HPV vaccination which belongs to the most recently licensed vaccinations on global markets. In 2015, eight years after the German Standing Committee on Immunization (STIKO) firstly recommended the HPV vaccination (human papillomavirus vaccination) for girls (Bundeszentrale für gesundheitliche Aufklärung, n.d., short: BZgA), the Robert Koch Institut (2018b, p.233) found that only 44,6% of 17-year old girls had received it. Moreover, Bruni et al. introduced in their study concerning the global estimation of HPV vaccination rates from 2016 that Germany belonged to the underperforming Western countries, due to its low vaccination rates (p. 458). In comparison, observations of the vaccination rates against HPV in Australia have shown that 70% of the targeted adolescents had received it (Bruni et al., 2016, p. 456).

While there have been previous studies carried out in Germany with regards to reasons for the reception of the HPV vaccination, they mainly focused on people's socio-economic conditions (SES), and their levels of education, as well as their knowledge on HPV (Poethko-Müller & Buttmann-Schweiger, 2014). Other forms of research on the HPV vaccination were located in gender studies (Sabisch, 2009). In this realm, Sabisch (2009, p.108) highlighted that the responsibility of receiving the HPV vaccination in Germany had been mainly targeted at girls, though HPV is also known to cause other forms of cancer, such as penile and colon cancer, which affect men as well (Robert Koch Institut, 2018b, p.234). Criticisms like Sabisch's (2009) and the failed attempt to achieve herd immunity against HPV (Robert Koch Institut, 2018b, p.234) have led to the implementation of alternative policies in Europe. The Austrian administration stepped ahead with the pioneering recommendation of the HPV vaccination for all adolescents regardless of the sex (Paul, 2016, pp.197, 198). Eventually, the STIKO also followed this approach and issued an official statement in mid-2018 recommending the HPV vaccine for boys in addition to girls (BZgA, n.d.; Robert Koch Institut, 2004, 2018a, 2018b; Gemeinsamer Bundesausschuss, 2018a, short: G-BA). Currently, the recommended age range for the gender-neutral HPV vaccine in Germany is 9-14, while missing shots can be received free of costs until the 18<sup>th</sup> birthday (BZgA n.d.; Robert Koch Institut, 2018b). In line with this official recommendation is the extension of the insurance coverage (BZgA, n.d.). While German insurances were initially only required to cover the HPV vaccination for girls, since

November 30<sup>th</sup>, 2018, they have been required to cover the costs of HPV vaccinations for everyone between the ages of nine and 14. (G-BA, 2018b).

“Framing” as concept in relation to the German news coverage of the HPV vaccination has yet remained untouched, although it offers new insights with respect to the perception of the HPV vaccination by the general public. The underlying argument for the provision of new insights is related to the public discourse of vaccinations and the antagonism of parties supporting contradicting judgments which can often be portrayed in the media. According to Scheufele (1999, p. 105ff), framing in the context of the communication of public issues is to be understood on the basis of social constructivism. Media outlets decide on their own on the focus, frame and underlying messages they want to convey to consumers (Scheufele, 1999, p.105). While these underlying messages display the outlet’s judgment, they also reflect the attitudes found within society (Scheufele, 1999, p.105ff). Summarizing, Scheufele (1999, p.105ff) points out that framing in media is object to two streams of influences. While framing and the content of publications reflect the pre-existing societal judgments regarding certain topics, it is also the media itself which exerts influence by deciding on what kind of judgment they want to convey to people who read their publications. Since not even every second adolescent girl in Germany has received the HPV vaccine (Robert Koch Institut, 2018b), it remains interesting, as well as important, to investigate whether the German media reported on the HPV vaccination and how they did it, as such results allow for recommendations of the framing of the HPV vaccination which could increase the HPV vaccination rates and, therefore, prevent different forms of cancer on the long run.

The most recent studies aiming at identifying framing facets in news articles dealing with the HPV vaccination have taken place in Romania (Pența & Băban, 2014) and China (Li, Nowak, Yan, & Cacciatore, 2018). The results of these two studies strongly deviate from one another. Romania has long struggled with HPV; in fact, it has the highest cervical cancer rate in Europe (Pența & Băban, 2014, p.977). Pența and Băban investigated in 2014 that nearly a third of the published outlets concerning the HPV vaccination were neutrally formulated, followed by mixed outlets (17%), and negatively framed ones (28%) (p.982). In 2008, when Romania initiated a public HPV vaccination program, the majority of media reports was negatively

framed associating the vaccine with side effects, which were included as concerns in 36.9% of the reports (Pența & Băban, 2014, p.982, 984). In addition, only 18.5% of all published articles presented accurate information regarding the vaccine's effectiveness (Pența & Băban, 2014, p.983). Further, the study brought forward the argument that only 2.2% of the sample directly and explicitly recommended the HPV vaccination, whereas 4.8% directly recommended not to receive it (Pența & Băban, 2014, p.986). Thus, Pența and Băban (2014, p.987) concluded that besides its high rate of cervical cancer, Romania displays a rather neutral media coverage of the HPV vaccination. Pența and Băban (2014, p.987) also theorize that negatively framed articles remain on people's minds for a long time and subsequently influence their behavior causing fear.

Li, Nowak, Yan, and Cacciatore (2018, p.582, 585) concluded that the importance of the collective in Chinese culture was the reason behind the large number of informative articles which in particular pointed out the severity (48.6%) and susceptibility of HPV (69.6%), in contrast to Romania (Pența & Băban, 2014). Therefore, health in general, as well as preventive behaviors, are regarded in China as collective issues that concern everyone in society. Almost all examined articles communicated the link between HPV and cervical cancer (Li et al., 2018, p. 585). Other linkages to HPV that were reported on were genital warts and other forms of cancer (Li, Nowak, Yan, & Cacciatore, 2018, p.585). Li et al. (2018, p. 585) introduced in their article that a little under a third of all articles mentioned the sexual transmission of HPV. Further, the benefits of the HPV vaccination were included in a large number of articles (Li et al., 2018, p.585); additionally, 75.9% reported on the self-efficacy of receiving the vaccination (Li et al., 2018, p.585). According to Li et al. (2018, p.585), almost half of the sampled articles were released in the year the HPV vaccine has received its licensure for the Chinese market which indicates that the public awareness additionally to the news coverage on the HPV vaccine increased from this starting point. However, the study also indicated that only a small percentage of the 2000 newspapers that can be found in China reported on the HPV vaccination (Li et al., 2018, p.585). In contrast to Romania (Pența & Băban, 2014), Li et al. (2018, p.586) concluded that the majority of the sample reported information regarding the complex scope of HPV, its consequences and the HPV vaccine which indicates favorable underlying judgments with regards to the public's vaccination attitudes and vaccination intentions.

Nevertheless, the newspapers related HPV most strikingly to cervical cancer, which as criticized by Sabisch (2008) ascertains HPV, as well as the reception of the HPV vaccine, to women's responsibility and, thus, delivered only partial facts (Li et al., 2018, pp.585-586).

Findings like the ones for China or Romania do not yet exist for the German news coverage of the HPV vaccination which is identified as a knowledge gap. Therefore, this paper aims at bridging the gap by investigating applied framing facets in German news and magazine articles.

*The central research question in this paper is „Which framing facets were utilized in the German news coverage of the HPV vaccination from 2007 until 2019 by newspapers?“. Further, the sub-questions (i) „Which framing facets are identified according to the literature published so far?“, (ii) “How do the framing facets found in the literature relate to people's behavior, attitude and intention concerning the HPV vaccination?”, (iii) “How frequently were the framing facets found in the literature discussed in the German news coverage from 2017 until 2019?” and, (iv) “How were the framing facets derived from the literature discussed in the selected newspaper articles from 2007 until 2019?” are answered in this paper.*

This paper entails scientific relevance by relating Scheufele's claim (1999) that pre-existing judgments by society and the news outlets are reflected in the utilized framing in the German news coverage of the HPV vaccine. The judgment by the news outlet, as well as the social norm are said to affect the readers of publications, as both influential streams reinforce opinions (Scheufele, 1999). To my knowledge, this research has not yet been conducted while it allows for the identification of framings applied in German articles. These framings are thought to indicate how the German society perceives the HPV vaccination. Further, this paper is motivated by assessing framing in the German context which might allow for a generalization of the aforementioned findings in China and Romania (Pența & Băban, 2014; Li, Nowak, Jin, & Cacciatore, 2018).



The societal relevance of this paper is given by the earlier mentioned low rates of HPV vaccinations among young female adolescents in Germany which fail to prevent certain forms of cancer in the short-term (Robert Koch Institut, 2018a), and herd immunity against HPV in the long-term (Schwarz, 2018). Schwarz (2018, p.14) refers to Australia's HPV vaccination rate of 70% among teenage girls, and points out that this has led to the decrease of the most prevalent HPV types: 6, 11, 16, and 18. These types decreased from 22.7% between 2005 and 2007 among 18- and 24-year-olds to 1.5% in 2015 (Schwarz, 2018, p.14). Further, the longitudinal study Schwarz (2018, p.14) refers to has shown that in the age range of women from 25 to 35 years, the prevalence of the aforementioned HPV types sank from 11.8% between 2005 and 2007 to 1.1% in 2015 (Schwarz, 2018, p.14). Successes like the Australian one, do not exist in Germany, therefore, the research this paper aims at, is important since the prevention of HPV and battling its consequences still display an obstacle for human beings in general, as well as for German administrations.

In the following chapters, a systematic literature review summarizes extant findings on the framing of the HPV vaccination, on which basis hypotheses are drawn. Subsequently, the methodology and criteria applied to gather and analyze a sample of German newspaper articles are pointed out. Next, the aforementioned analysis is conducted. Thereby, its results grant insight into the framing facets applied in the German news coverage concerning the HPV vaccination, which are then compared to the pre-existing arguments made, according to the systematic literature review. Finally, the conclusion entails statements that aim at thoroughly answering the central research question, in addition to the four sub-questions.

## **2. Theory**

The purpose of this study is to identify the forms of framing applied in the German news coverage of the HPV vaccination, as they elaborate on the judgments of the news outlet and German society concerning the HPV vaccination. The derived forms of framing will be referred to as (framing) facets in the remainder of this paper. A first visualization of the concept and its detected framing facets is mapped out in annex 2. A systematic literature review (see annex 3) is applied in this chapter to answer the first two sub-questions (i) „Which framing

*facets can be identified according to the literature published so far?” and (ii) “How do the framing facets found in the literature relate to people’s behavior, attitude and intention concerning the HPV vaccination?”.*

## **2.1 Search Strategy and Criteria**

For this systematic literature review, a search on Scopus was run in April 2019. A flowchart (see annex 1) illustrates the search and the applied criteria, in relation to the number of articles included in the sample. The following keywords were applied for the search of English articles: HPV vaccination AND papillomavirus Vaccine AND framing. Since the latest article, included in the previous systematic literature review conducted by Pența and Băban in 2018, stems from 2016, the search was limited to the years 2016-2019, in order to search for articles which have not yet been included in the systematic literature review. Initially, the search for articles from the years 2016 until 2019 generated 12 articles, but after the titles of the articles were screened for duplicates with the references indicated by Pența and Băban (2018) two articles were excluded from the sample, leaving ten articles. After skimming the abstract and the articles, eventually, the sample contains ten articles which are summarized in the systematic literature review (see annex 3). The aforementioned systematic literature review is based on Pența and Băban (2018, p.301, Table 2) and, therefore, applies the same headings for columns in the table (annex 3), such as (1) “Author(s), Year”, (2) “Country”, (3) “Participants, Sample Size, Experimental Conditions” and (4) “Authors reported results”.

## **2.2 Identified Framing Facets in the Literature**

By conducting a systematic literature review, insights with regards to framing facets found according to the literature derive. These are displayed explicitly in Table 4 below, which answers the first sub-question of this paper mentioned above. Distinctively, Table 4 shows the framing facets, ordered as goal framing facets (gain and loss), the feminizing framing facet, the non-urgency/non-requirement framing facet, the rational choice framing facet, temporality framing facets (present- and future-oriented), the narrative (episodic) framing facet, the expository (thematic) framing facet, the STI framing facet and the attribute framing facet in

the left column, while the column on the right indicates in which one of the studies each facet was proposed. For readability, the included articles in the systematic literature review were given numbers which can be seen in annex 3. In total, nine framing facets were found, according to the literature review (see annex 3). Goal framing facets (gain- vs. loss-framing facets) are noted by study 1 and 2. Additionally, study 8 focuses on the feminizing framing facet, and the non-urgency/non-requirement framing facet is reported in study 9. A rational choice framing facet is noted in study 8. Moreover, study 3 and 6 utilize a temporality framing facet (present- vs. future-oriented messages). Study 3, 6 and 10 apply a narrative and expository (episodic and thematic) framing facet, while an STI-framing facet is applied in study 5 and 7. Study 4, 5 and 7 note an attribute framing facet, and lastly, an attribute framing facet is utilized in study 4, 5 and 7.

Table 4. Applied Framing Facets in the collected studies at hand from 2016-2019.

<b>Framing Facets</b>	<b>Study (as coded in the literature review)</b>
Goal framing facet (gain- and loss-framing facets)	Study 1, 2
Feminizing framing facet	Study 8
Non-urgency/non-requirement framing facet	Study 9
Rational choice framing facet	Study 8
Temporality framing facet (present- and future-oriented framing facets)	Study 3, 6
Narrative (episodic) framing facet	Study 3, 6, 10
Expository (thematic) framing facet	Study 3, 6, 10
STI framing facet	Study 5, 7
Attribute framing facet	Study 4, 5, 7

Eventually the systematic literature review answered the first sub-question, (i) „*Which framing facets can be identified according to the literature published so far?*“, by pointing out that goal framing facets (gain- and loss-framing facets), the feminizing framing facet, the non-urgency/non-requirement framing facet, the rational choice framing facet, temporality framing facets (present- and future-oriented framing facets), the narrative (episodic) framing facet, the expository (thematic) framing facet, the STI-framing facet and an attribute framing facet can be identified according to the literature so far.

### **2.3. Reported Relation of Framing Facets to people's HPV Vaccination Behavior, Attitude and Intention**

The systematic literature review also provides answers to the second sub-question of this paper:

(ii) *“How do the framing facets found in the literature relate to people's behavior, attitude and intention concerning the HPV vaccination?”*. Annex 3 summarizes all findings and allows for a systematic overview on how the found framing facets relate to behavioral consequences, attitudes or intentions with regards to the HPV vaccination. In the next sections, I for each of the framing facets derive hypotheses about how they relate to people's HPV vaccination attitudes, intentions, and behavioral consequences.

#### **2.3.1 Goal Framing Facet**

Pența and Băban (2018, p.299) report, referring to Tversky and Kahneman (1981), that the current state of knowledge suggests that goal framing facets can be divided up into *“(...) gain-framed, (when) people are risk-averse, but when the messages are loss-framed, they are risk-seeking”*. Therefore, Pența and Băban's (2018) findings imply that both underlying frames have different approaches to convince people of following a certain type of behavior or to perform a certain action. Lee and Cho (2017, p.646) define the two underlying and deriving goal framing facets, referring to Rothman and Salovey (1997) and Rothman, Bartels, Wlaschin, and Salovey (2006), as *“Gain-framing contains messages emphasizing benefits (or advantages) of adopting a recommended behavior (...). Loss-framing refers to messages emphasizing losses from the nonadaptation of a recommended behavior (...).”* Summarizing the findings from the literature, the gain framing facet focuses on the benefits of a suggested behavior, as this allows people to avoid certain risks, while the loss-framing facet emphasizes the dangers and risks of not following a suggested behavior, especially when people seem to be unaware of risks or behave risky, despite being aware of them. Concluding, it can be said that a loss-framing facet leads people to regard the HPV vaccination as a necessary vaccination (Tu, Lin, Fan, Tsai, & Wang, 2019, p.72). In particular, loss-framing facets on Social Networking Sites (SNS) lead to higher HPV vaccination intentions and lower perceived barrier factors (Lee & Cho, 2017, p.650). However, Pența and Băban (2018, p.299) bring forward the claim that gain facets are more persuasive for riskless preventive behaviors, while loss-facets are more persuasive for risky detection procedures (Pența & Băban, 2018, p.299).

Due to its preventive nature as a vaccine, the HPV vaccination does not account as detective procedure. Nevertheless, studies have been conducted applying the loss-framing facet for the HPV vaccination. Therefore, this paper applies the findings of the studies from Taiwan (Tu et al., 2019) and the USA (Lee & Cho, 2017) to the German framing of the HPV vaccination. Additionally, Germany displays rather low HPV vaccination rates (Robert Koch Institut, 2018b) which, according to Tu et al. (2019), might illustrate that the reception of the HPV vaccination was not viewed as necessary in Germany. As Pența and Băban's (2018) findings contradict the findings by Lee and Cho (2017) and Tu et al. (2019) two hypotheses are derived. It is expected that:

*H1a: "German newspaper articles apply the gain-framing facet when they report on the HPV vaccination."*

*H1b: "German newspaper articles apply the loss-framing facet when they report on the HPV vaccination."*

### **2.3.2 Feminizing Framing Facet**

One of the most debated framing facets of the HPV vaccination is the "*feminization of HPV and HPV vaccines*" (Virtanen, 2019, p.801). Virtanen reports in 2019 that the recent HPV campaign in Finland featured stereotypical colors that are connected to the female sex in information brochures and graphics (p.794). In addition to stereotypical colors, only smiling and laughing teenage girls were printed on the brochures (Virtanen, 2019, pp.794ff, 796). The girls on the covers, thus, imply the social framing of the campaign: adolescent girls and their peers (Virtanen, 2019, p.796). Subsequently, the wishes of an adolescent girl to have fun with her friends, to be regarded as 'cool' and mature, as well as to be independent of her parents build the foundation for the individual framing upon which the campaign draws (Virtanen, 2019, p.796). Therefore, the campaign targets the collective as adolescent girls, as well as the female teenager as an individual.

The findings by Virtanen (2019) for the Finnish framing of the HPV vaccination from above are transferred to the German setting, as in both cases the vaccine was framed and targeted at women. Similar to the feminization of the HPV vaccination in Finland (Virtanen, 2019), the first German HPV vaccination recommendation from 2007 only recommended the HPV

vaccination for adolescent girls in Germany (Robert Koch Institut, 2007). Thus, this similarity allows for the usage of the Finnish findings as basis for a hypothesis for the German setting:

*H2: “German newspapers apply the feminizing framing facet when they report on the HPV vaccination.”*

### **2.3.3 Non-Urgency/Non-Requirement Framing Facet**

The non-urgency/non-requirement framing facet describes the reception of the HPV vaccination as “*optional or non-urgent*” (Niccolai, North, Footman, and Hansen, 2018, p.29). According to Niccolai et al. (2018, p.33), framing the HPV vaccination as an urgent matter and a requirement for school entry would improve administrative and behavioral consequences. Since the HPV vaccination does not display a required vaccine, clinicians remark that it is regarded as an additional choice (Niccolai et al., 2018, p.32). Thus, the findings by Niccolai et al. (2018) imply that parents do not recognize the necessity of the HPV vaccination, and thus, do not display HPV vaccination intentions. Moreover, Virtanen (2019, p. 802) criticizes the trivialized portrayal of HPV in public campaigns.

These findings allow for assumptions on the framing of the HPV vaccination in Germany, as similar to Niccolai et al.’s findings in the USA (2018), neither the German government, nor German schools have implemented the duty for students to be vaccinated against HPV, in fact, only two (voluntary) HPV vaccination recommendations exist (Robert Koch Institut, 2007; 2018a; 2018b). Due to the claim that the trivialization of the HP virus and the vaccination (Virtanen, 2019), as well as its portrayal as unnecessary lead to low vaccination intentions (Niccolai et al., 2018), it is possible to assume that this might be the case for Germany, as exactly such a low HPV vaccination uptake was observed by the Robert Koch institute (2018b). This assumption leads to the hypothesis:

*H3: “German newspapers apply the non-urgency/non-requirement framing facet when they report on the HPV vaccination.”*

#### **2.3.4 Rational Choice Framing Facet**

While Virtanen (2019, p.802) notes that feminized HPV vaccination campaigns, such as the Finnish one, fail to display the danger the HP virus entails, he yet acknowledges that the Finnish campaign frames the reception of the HPV vaccination as a rational choice. This rational choice framing facet is evident when a chain of arguments is emphasized, which displays the reception of the HPV vaccination as the only rational choice (Virtanen, 2019, p.802). By applying this, it is thought that the HPV vaccination becomes more normalized in the daily lives of people which subsequently decreases distrust and uncertainty (Virtanen, 2019, p.802).

The finding of the rational choice framing facet relies on the feminized HPV promotional campaign which was published in Finland (Virtanen, 2019). As explained in 2.3.2, a similar recommendation was enacted in Germany in 2007 (Robert Koch Institut, 2007). Due to this similarity, it is expected that the rational choice is found in the German news coverage of the HPV vaccination, as well:

*H4: “German newspaper articles apply the rational choice framing facet when they report on the HPV vaccination.”*

#### **2.3.5 Temporality Framing Facet**

Framing a particular topic or behavior with regards to temporality, either highlights the short-term consequences or the long-term consequences (Kim & Nan, 2016, p.1090). Thus, similar to goal framing facets, temporality framing facets display two derivative forms: a present-oriented framing facet and a future-oriented framing facet (Kim & Nan, 2019, p.403). Kim and Nan (2016, p.1094) point out that when people with a high CFC (consideration of future consequences) are confronted with the freely attainable HPV vaccine in present-oriented framing facets, they display a high HPV vaccination intention. In their study from 2019, Kim and Nan report that positive attitudes, high HPV vaccination intentions and high perceived efficacy of the HPV vaccine are shown by people who are confronted with the present- and future-oriented framing facets (pp.412-413). However, only the future-oriented framing facet

achieves a high perceived severity additionally, when it is non-narratively framed under the premise that people need to fund the vaccine themselves (Kim & Nan, 2019, pp.410, 411).

This paper draws on the findings by Kim and Nan from their studies in the USA in 2016 and 2019 because the immediate and future consequences of the HPV vaccination are the same universally, the geographic location does not affect them in any way. Nevertheless, this paper solely focuses on applied framing facets in the German news coverage of the HPV vaccination, in contrast to Kim and Nan (2016, 2019) who also took factors from the Health Belief Model (HBM) into account, additionally to measuring their participant's consideration of future consequences. Due to this paper's focus, it is just as possible that the German news coverage of the HPV vaccination highlights the present-oriented consequences, as the future-oriented ones. Besides, the reported low HPV vaccination uptake by 17-year olds (Robert Koch Institut, 2018b) does not indicate a prevalence of only one of the aforementioned framing facets which is why two hypotheses are derived, based upon Kim and Nan's findings (2016, 2019):

*H5a: "German newspapers apply the present-oriented framing facet when they report on the HPV vaccination."*

*H5b: "German newspapers apply the future-oriented framing facet when they report on the HPV vaccination."*

### **2.3.6 Narrative Framing Facet**

Kim and Nan (2019, p.404) refer to Kreuter et al.'s findings (2007), to define the utilization of a narrative framing as *"a representation of connected events and characters that has an identifiable structure, is bounded in space and time and contains implicit or explicit messages about the topic being addressed"*. This is in line with Li et al. (2018, pp.582-583) who utilize a similar definition for the episodic framing facet. Thus, the episodic framing facet will be treated as a synonym for the narrative framing facet. Moreover, Li et al. (2018, pp.582-583) voice criticism with regards to the application of a narrative framing facet to cover the HPV vaccine, as it is unable to grasp the vast scope of it. Additionally, Li et al. (2018, pp.585) report that the narrative framing facet was applied in 0.8% of the Chinese articles on the HPV vaccination. Further, Li et al. (2018, pp.585-586) note that the focus in the Chinese news coverage was on women's stories, and especially their susceptibility to HPV and female-only



health concerns. In fact, the “(...) *“HPV vaccine” literally translates to “cervical cancer vaccine” in Chinese*” (Li et al., 2018, pp.585-586).

As the underlying reasoning for the transference of the findings by Kim and Nan (2016, 2019) from the US-American to the German setting were elaborated under 2.3.5, they are not repeated here. Instead, the underlying reason for the application of the finding by the Chinese study (Li et al., 2018) is elaborated. The Chinese study by Li et al. (2018), as well as this paper, are both content analyses of the news on the HPV vaccination, focusing on how it has been framed. Thus, their similar aims allow for the usage of the findings. While Li et al. (2018) focused on framing facets, and Health Belief Model factors, this paper only focuses on framing facets. Despite the criticism and the low frequency noted by the Chinese study (Li et al., 2018) for the narrative framing facet in the Chinese news coverage, it has still been detected and it provided interesting results with regards to the content and topics it discussed. Therefore, the following hypothesis is expected:

H6: *“German newspaper articles apply the narrative framing facet when they report on the HPV vaccination.”*

### **2.3.7 Expository Framing Facet**

Li et al. (2018, p.582) report, referring to Iyengar (1991) and Zhang et al. (2015), that the expository (thematic) framing facet, in contrast to the narrative (episodic) one, “(...) *presents health issues through information about systemic causes, trends, background information, and broader societal consequences (...). Thematically framed news articles are more likely to include general facts and statistics, and less likely to use quotes and stories from individuals (...)*”. Due to the expository framing facet’s ability to grasp the vast scope of HPV and the HPV vaccination, it is claimed that it is better equipped than the narrative (episodic) framing facet for covering HPV (Li et al., 2018, pp.585-586). Findings reveal that almost 82% of the sampled Chinese articles apply an expository framing facet (Li et al., 2018, p.585).

As elaborated in 2.3.6, Li et al. (2018) conducted a content analysis of the Chinese news coverage of the HPV vaccination, similar to this paper, which is why their findings are

transferred to the German setting. Departing from Li et al. (2018), the following hypothesis is assumed:

*H7: “German newspaper articles apply the expository framing facet when they report on the HPV vaccination.”*

### **2.3.8 STI-Framing Facet**

Yang and Pittman (2017, p.993) illustrate that women, compared to men, not only display more perceived shame when HPV is framed as an STI, but also a higher vaccination intention. In their later study from 2018, Vorpahl and Yang outline that it is the external attribute framing facet, which frames the transmission of HPV as an act committed by somebody else, that leads to high HPV vaccination intentions, even when people perceive the response efficacy of the HPV vaccine to be low (p.625).

Since the STI framing facet has been identified by Yang and Pittman (2017) in the USA, as a framing facet applicable for the HPV vaccination, there is no explicit reason against the expectation to find the STI framing facet applied in the German news coverage, the findings by Yang and Pittman (2017) are transferred to the German news coverage and lead to the subsequent hypothesis:

*H8: “German newspaper articles apply the STI framing facet when they report on the HPV vaccination.”*

### **2.3.9 Attribute Framing Facet**

With regards to the attribute framing, McGlone, Stephens, Rodriguez, and Fernandez, (2017) arrive at the same conclusion as Vorpahl and Yang (2018). When the (sexual) transmission of HPV is framed as an external attribute, mothers display higher intentions to vaccinate their daughters against it (McGlone et al., 2017, p.4296). Also, when the responsibility to protect said daughters is attributed to the mothers, instead of solely to a vaccine, their intentions to vaccinate their daughters remains high (McGlone et al., 2017, pp.4296-4297).

However, since the attribute framing facet can be displayed in many deviating forms, besides the (sexual) transmission of HPV, the way HPV is described, and the responsibility to prevent it, its identification mostly relies on inductive and extensive qualitative approaches to framing analyses, I do not draw hypotheses based on these findings.

The following chapter outlines the applied research design, case selection, methods, as well as the operationalization of the investigated framing facets, since these allow for valuable insights into the German news coverage of the HPV vaccination, but also on its implications in the context of people's HPV vaccination attitudes, intentions, and behaviors.

### **3. Research Design**

This research is motivated by identifying framing facets applied in the German news coverage of the HPV vaccination, hence there are four research questions to be answered. The first two sub-questions aimed at a systematic analysis of the extant literature, in order to conclude the potential framing facets for which German newspaper articles were screened in the following chapter. This systematic literature review has taken place in the preceding chapter and, thus, answered (i) „*Which framing facets are identified according to the literature published so far?*“ (see Table 4 in the previous chapter), as well as (ii) „*How do the framing facets found in the literature relate to people's behavior, attitude and intention concerning the HPV vaccination?*“. The results of the systematic literature review can be found in detail in annex 3. Next, the focus was on the detected framing facets, as the German newspaper articles were screened for them. This procedure displayed one out of two main parts of the analysis and contributed to answering the third sub-question: (iii) „*How frequently were the framing facets found in the literature discussed in the German news coverage from 2017 until 2019?*“. Thus, the third research question linked the detected framing facets from the literature to the framing facets in the German news coverage of the HPV vaccination. In addition to the frequency of detected framing facets from the literature in the German news coverage, the fourth sub-question: (iv) „*How were the framing facets derived from the literature discussed in the selected newspaper articles from 2007 until 2019?*“ displayed the second part of the analysis

and elaborated on how the detected framing facets discussed the HPV vaccination in the German news coverage.

Such deductive comparisons and analyses will yield insights with regards to the frequencies of applied framing facets among German newspaper articles, as well as the percentages they make up (Touri & Koteyko, 2015, pp.2, 3) in relation to the publishing outlets and the total of all framing facets.

### **3.1 Case Selection**

A purposive sampling method (Flick, 2016, pp.95ff) was applied, in order to select German newspaper articles dealing with the HPV vaccination for the analysis. The aforementioned approach suggests for the application of criteria which were determined prior to the search (Flick, 2016, p.95). By having utilized this approach to sampling, it was guaranteed that the only crucial data was included in the analysis, such as articles with an in-depth focus on the HPV vaccination (Flick, 2016, p.95). The criteria applied to the sample are elaborated in the remainder of this chapter.

The first criterion applied for the search of newspaper articles concerned the time frame. The STIKO published their first official recommendation for the HPV vaccination for on March 23rd of 2007 (Robert Koch Institut, 2007, p.97). Their second and last recommendation, to vaccinate boys against HPV as well, was released on June 28th of 2018 (Robert Koch Institut, 2018b, p.233). Hence, March 23rd of 2007 was used as a criterion for the selection of articles, as it displayed the earliest publishing date for German newspaper articles to draw on the official recommendation of the HPV vaccination. Concerning the time frame, the latest date for articles was May 23rd of 2019, because the search for articles was run that day, and the chosen time frame manages to cover the whole news coverage of both HPV vaccination recommendations, as well as recent articles. A flow diagram illustrating the selected criteria and the number of articles included after each step can be found in annex 5.

Besides the time frame, a second criterion focused on the publishing outlets. As this paper aims at generalizable results, the newspaper articles used for the analysis were required to reach a vast amount of people. Since no particular number was targeted, the website “deutschland.de” by FAZIT Communication GmbH and Federal Foreign Office (2018, n.p.) provided a useful oversight of nationally available newspapers, consisting of “*BILD*”, “*DIE ZEIT*”, “*Frankfurter Allgemeine Zeitung (FAZ)*”, “*Frankfurter Rundschau*”, “*Süddeutsche Zeitung*”, “*die tageszeitung, taz (taz)*” and “*Die Welt*”. Since the university has access to the database Lexis Nexis which stores newspaper articles from all over the world, it was used for the search of German newspaper articles on May 23rd of 2019 using the keywords “HPV Impfung” (HPV vaccination). This initial and rather broad search yielded 1,212 articles. Then, the aforementioned time frame, March 23rd of 2007 until May 23rd of 2019, was applied and narrowed down the sample to 1,174 articles. Limiting the search to “newspapers” reduced the sample to 872 articles. Next, the search was even more narrowed down to the nationally available newspaper outlets mentioned above. Thus, this criterion secured the reliability of the sample in relation to the earlier stated goal, the external generalizability of this paper and tackled the threat of sampling unreliability. Out of the seven suggested newspapers by FAZIT Communication GmbH and Federal Foreign Office (2018, n.p.), only the “*Frankfurter Allgemeine Zeitung (FAZ)*”, “*Frankfurter Rundschau*”, “*Süddeutsche Zeitung*” and “*die tageszeitung, taz*” were available on Lexis Nexis, which shrunk the sample size to 121 articles.

A third and fourth criterion applied in the sampling criteria were to avoid duplicates, and that the articles were required to be written in German. For this, the language was set to “German” and the function “group duplicates” was activated on Lexis Nexis. Together, the application of both criteria yielded a result of 109 articles.

These 109 articles built the final sample of articles which were then screened for their origins. The origin of the text or the kind of text displayed the fifth applied criterion which was assessed to secure that the sample only included articles or interviews that were written by a party associated with the publishing outlet, such as journalists, commentators, and columnists. By only including professionally written texts by the publishing media, the focus was on texts that display the majority of each published issue read by people. Hence, people are exposed to more

professionally written and published articles than comments by readers or letters to the editor. Eventually ten contributions by readers were excluded, leaving 99 articles.

The sixth criterion applied determined the minimum length of articles or passages that dealt with HPV. As outlined earlier, the goal was to analyze German newspaper articles that deal in detail with the HPV vaccination, using framing facets. This is only given when the whole article, or the passage dealing with the HPV vaccination is longer than 100 words. This assessment led to the exclusion of 34 articles, leaving 65 final articles for the analysis. A list containing all utilized documents can be found in annex 7. From the left column to the right one, Table 8 below shows all selected publishing outlets, from “Frankfurter Allgemeine Zeitung (FAZ)”, “Frankfurter Rundschau”, to “Süddeutsche Zeitung” and “taz”. Underneath the newspapers, the last row indicates the overall numbers (Table 8). Subsequently, the time frame is included from 2007 until 2019, for which the overall frequencies of published articles were filled in in the last row (Table 8). Finally, on the right, there is a column that indicates the total number of published articles for each newspaper included in the sample.

	2007	2008	2009	2010	2011	2012	2013	2015	2016	2018	2019	N(total)
<b>FAZ</b>	2	3	3	1	0	2	1	0	0	2	1	15
<b>Frankfurter Rundschau</b>	2	5	5	0	1	0	0	0	0	5	0	18
<b>Süddeutsche Zeitung</b>	2	7	7	0	0	0	2	1	1	2	2	24
<b>taz</b>	0	2	2	0	0	0	0	0	0	2	2	8
<b>N(total)</b>	6	17	17	1	1	2	3	1	1	11	5	65

Table 8. The number of published articles per newspaper throughout the years.

### 3.2 Methods

Since the systematic literature review (in annex 3) answered the underlying research questions (i), and (ii) by suggesting for framing facets, as well as their implications on people’s HPV vaccination attitudes, intentions and behavior, these findings were used in the proceeding chapters to derive hypotheses concerning the prevalence of framing facets in the German news coverage of the HPV vaccination. The subsequent assumption to find particular framing facets

from the literature in the German news coverage relied on deductive reasoning (Babbie, 2011, p.23; Touri & Koteyko, 2015, pp.2, 3). Based on the findings the extant body of research provided, hypotheses with respect to the prevalence and frequencies of pre-determined framing facets in the German news coverage of the HPV vaccination were created and later tested (Touri & Koteyko, 2015, p.2). As this paper drew on the operationalizations and definitions which have been already used before, its final results will allow for international comparisons and conclusions. Summarizing, this deductive approach to the content analysis heavily focuses on already identified framing facets from the literature (Touri & Koteyko, 2015, p.2). A coding scheme was created, in order to screen the selected newspaper articles for identified framing facets, using the descriptions, definitions and findings provided by the systematic literature review as basis (see annex 9). Moreover, this displays the quantitative, measuring, approach in this paper (Flick, 2016, pp.144ff; Touri & Koteyko, 2015, p.2). The calculated frequencies for framing facets utilized in the selected articles allowed for the rejection or acceptance of the previously stated hypotheses, which also answered the sub-question (*iii*).

In order to arrive at conclusions with regards to the fourth (*iv*) underlying research question a qualitative interpretative research (Flick, 2016, pp.149ff.; Touri & Koteyko, 2015, p.3) was applied, in addition to the previous quantitative approach. Every article was read and checked for ways the derived framing facets from the literature were applied. Additional to the reading process, the interpretation of text fragments was necessary, in order to conclude the ways framing facets were discussed in the German news coverage (Touri & Koteyko, 2015, p.3). For this step, notes were taken manually and for each article individually, which were eventually compared to the existing findings and either were in accordance with the findings, contradicted them, allowed for additions, or suggested for further research.

### **3.3 Operationalization**

For this study, a coding scheme (annex 9) was created which operationalized information, such as framing facets (see Table 4 in Chapter 2), and made them measurable. It entails all framing facets derived from the earlier conducted systematic literature review, in addition to their

sources, references and values. Depending on the indicated references, the codes derived directly or indirectly from the studies included in the literature review. Additionally, the idea to screen for formalities, such as the publishing newspaper outlet and the publishing year, was proposed by Pența and Băban (2014). Due to the different approach of this study, the formality variables, and their underlying values were adapted to the needs of this paper and its included cases. Following the deductive approach, the coding scheme was then used to code text fragments for ways framing facets occurred, and to check whether they were present or not in the sampled articles (Touri & Koteyko, 2015, p.2). Further, the text fragments that discussed the aforementioned framing facets were noted manually and later described how each article discussed said framing facets.

### **3.4. Analysis**

A content analysis was performed in retrospect of German newspaper and magazine articles published between 2007 and 2019. This approach was motivated by addressing which framing facets, detected in the literature, were applied in the German news coverage of the HPV vaccination. As proposed by Touri and Koteyko (2015, p.2), each article was read during the screening process, while manually filling in the pre-determined coding scheme (see annex 9) with “one” indicating that a framing facet was present or “zero” when it was not detected (Touri & Koteyko, 2015, p.2). The results derived from the screening and coding of the articles can be found in annex 10. Additional to deductively screening the articles for frequencies of framing facets, which were determined prior to the analysis, further steps catering the qualitative approach of this paper were added (Touri & Koteyko, 2015, p.2). As for conclusions with respect to how framing facets were discussed in the German news coverage of the HPV vaccination, an interpretative bottom-up approach was applied (Touri & Koteyko, 2015, p.3). By having manually noted specific observations, such as text fragments discussing said framing facets for each article, *“an analysis of news frames can offer insight in the choices and interpretations journalists make when framing a story, which can ultimately define the nature of the debate and suggest to audience members how an issue can be interpreted”* (Touri & Koteyko, 2015, p. 2). The aforementioned text fragments did not account as mutually exclusive to only one code (framing facet), and thus, could indicate more than one. Concluding, quantitative and qualitative procedures were combined in this paper (Flick, 2016, p.223).



Eventually, the applied content analysis managed to measure text fragments that fit framing facets, noted and put them together for the analysis. Based on the results of the analysis, the frequencies of each applied framing facet were calculated in relation to the total number of articles which allowed for the earlier stated hypotheses concerning the prevalence of framing facets to either be rejected or accepted, as well as discussed.

In the following chapter, the quantitative and qualitative content analysis discussed above is applied to analyze 65 German newspaper articles.

#### **4. Data Analysis**

In the analysis, the research question: *(iii) “How frequently were the framing facets found in the literature discussed in the German news coverage from 2017 until 2019?”* is answered, by calculating the frequencies for each detected framing facet in the German news coverage. Based on these frequencies, the initially stated hypotheses are tested, as they summarize which of the expected framing facets were found in the German news coverage.

After testing the hypotheses, the fourth sub-question: *“(iv) „How were the framing facets derived from the literature discussed in the selected newspaper articles from 2007 until 2019?”* is answered by elaborating on the content and topics the applied framing facets have discussed in the German news coverage, in order to address the HPV vaccination. The findings to this research question allow for generalizations for the German news coverage, as well as additions to the current body of research on the framing of the HPV vaccination among printed news.

##### **4.1 Frequency of applied Framing Facets in the German News Coverage**

In order for a hypothesis to be accepted, it was determined in this paper that the mentioned framing facet needed to be present in at least 10% (seven articles). Hence, Table 10 shows each selected publishing news outlet in the left column, as well as leaving the last two rows, for firstly, relating the number of applied framing facets to the complete sample of articles, and secondly, relating the number of applied framing facets to the total number of detected framing

facets. Going further from left to right, the frequencies for all included framing facets, such as the gain-, loss-, feminizing, non-urgency/non-requirement, rational choice, present- and future-oriented framing facets, narrative, expository framing facets and lastly, the STI-framing facets are noted (Table 10).

	gain-facet	loss-facet	Feminizing facet	non-urgency/non-requirement facet	rational choice facet	present-oriented facet	future-oriented facet	narrative facet	expository facet	STI facet	N(total)
FAZ	6	4	15	2	4	1	7	3	13	8	
Frankfurter Rundschau	5	1	14	4	3	3	11	5	13	10	
Süddeutsche Zeitung	5	0	21	3	3	1	8	5	21	11	
taz	3	1	7	2	3	1	1	1	8	3	
N(total)	19	6	57	11	13	6	27	14	55	32	240

Table 10. Overall frequency of each applied framing facet distinguished by newspaper and relative percentages in relation to the articles

### Goal Framing Facets

The frequency calculation in Table 10 shows that goal framing facets were detected in 25 articles of the sample. Precisely, 19 articles displayed the gain-framing facet and six the loss-framing facets were detected (Table 10). Subsequently, the two hypotheses to be tested are H1a: “German newspaper articles apply the gain framing facet when they report on the HPV vaccination” and H1b: “German newspaper articles apply the loss-framing facet when they report on the HPV vaccination”.

#### Gain-Framing Facet

The most articles applying the gain-framing facet were published by the Frankfurter Allgemeine Zeitung (FAZ) with a number of six (Table 10). The Frankfurter Rundschau and the Süddeutsche Zeitung released five gain-framing articles and, thus, both displayed the second most frequently publishing outlets in this regard (Table 10). Lastly, the taz released three articles utilizing the gain-framing facets (Table 10).

### **Loss-Framing Facet**

Similar to the gain-framing facet, the Frankfurter Allgemeine Zeitung published the maximum number of four articles concerning the loss-framing facets articles (Table 10). The Frankfurter Rundschau and the taz published one article which utilized the aforementioned facet (Table 10). A loss-framing facet could not be detected for Süddeutsche Zeitung (Table 10).

The closer inspection of the overall frequencies of gain- and loss-framing facets within the selected articles (Table 10) suggests that the gain-framing facet was applied three times as frequently at 19, as the loss-framing facet. At a number of 19 articles (Table 10), the gain-framing facet withstands the initially stated hurdle of 10% (7 articles) which leads to the acceptance of hypothesis *H1a*: “German newspaper articles apply the gain-framing facet when they report on the HPV vaccination”.

The loss-framing facet was applied in six of the selected articles (Table 10) which indicates that the 10% hurdle has not been tackled by it. Subsequently, the hypothesis *H1b*: “German newspaper articles apply the loss-framing facet when they report on the HPV vaccination” is rejected.

### **Feminizing Framing Facet**

Focusing on the feminizing framing facet, the hypothesis *H2*: “German newspapers apply the feminizing framing facet as they report on the HPV vaccination” is tested. The frequency analysis in Table 10 recognized 57 articles that included the feminizing framing facet. At 57, the feminizing framing facet is the most frequent and prevalent one. The feminizing framing facet was applied in 15 articles by the Frankfurter Allgemeine Zeitung (Table 10). Further, 14 articles which feminized the HPV vaccination were published by the Frankfurter Rundschau and 21 were released by the Süddeutsche Zeitung (Table 10). Simultaneously, the Süddeutsche Zeitung displayed the maximum for the feminizing framing facet (Table 10). The taz published seven articles which included the feminizing framing facet (Table 10).

Since the feminizing framing facet was detected in 57 articles (Table 10), it did not only fit the aforementioned criterion or hurdle of 10% (seven articles), but its large representation in the

sample also allowed for the initially stated hypothesis *H2* to be accepted: “*German newspapers apply the feminizing framing facet as they report on the HPV vaccination*”.

### **Non-Urgency/Non-Requirement Framing Facet**

Paying closer attention to the non-urgency/non-requirement framing facet in the German news coverage of the HPV vaccination, the subsequent hypothesis *H3*: “*German newspapers apply the non-urgency/non-requirement framing facet*” is tested. The frequency calculation in Table 10 shows that eleven articles included the aforementioned framing facet. Two articles which included the non-urgency/non-requirement framing facet were published by the Frankfurter Allgemeine Zeitung (Table 10). The maximum number of four is attributed to the Frankfurter Rundschau (Table 10). Followingly, the Süddeutsche Zeitung published three and the taz two articles including the framing facet mentioned above (Table 10).

Since the non-urgency/non-requirement framing facet was observed in eleven articles (Table 10), it passed the hurdle of 10% (seven articles) and the following hypothesis *H3*: “*German newspapers apply the non-urgency-/non-requirement framing facet*” is accepted.

### **Rational Choice Framing**

In relation to the rational framing facet, the hypothesis *H4*: “*German newspaper articles apply the rational choice framing facet*” is to be tested. According to the overall frequency analysis (Table 10), the rational choice framing facet was expressed in 13 articles. The highest number of four was achieved by the Frankfurter Allgemeine Zeitung, followed by the Frankfurter Rundschau, Süddeutsche Zeitung and taz, which each published three articles containing the rational choice framing facet (Table 10).

The observation has shown that 13 of the selected articles displayed the rational choice framing facet (Table 10). Thus, the prevalence of the aforementioned framing facet is located above 10% (seven articles) and qualifies to accept the hypothesis *H4*: “*German newspaper articles apply the rational choice framing facet*”.

## **Temporality Framing Facet**

Temporality framing facets made up 33 out of 65 articles, which could be divided up into six articles including the present-oriented framing facet and 27 articles including the future-oriented framing facet (Table 10). Subsequently the hypotheses *H5a*: “German newspapers utilize the present-oriented framing facet when they report on the HPV vaccination” and *H5b*: “German newspapers utilize the future-oriented framing facet when they report on the HPV vaccination” are tested.

### **Present-oriented framing facet**

According to the frequency calculation in Table 10, the Frankfurter Allgemeine Zeitung released only one present-oriented article (Table 10). In addition, the Frankfurter Rundschau applied the most present-oriented framing facets, in three articles, while the Süddeutsche Zeitung and taz were on equal footings, as the two of them each released only one article in which a present-oriented framing facet was detected (Table 10).

### **Future-oriented framing facet**

Table 10 shows a similar result as the framing facet before. The Frankfurter Allgemeine Zeitung published seven future-oriented articles, according to Table 10. The Frankfurter Rundschau published a maximum of eleven future-oriented articles, which were followed in decreasing order by the Süddeutsche Zeitung at eight articles and the taz at one article (Table 10).

Since the present-oriented framing facet was observed in only six articles (Table 10) and the future-oriented framing facet was detected in 27 (Table 10), the latter was observed almost five times as frequently as the present-oriented framing facet. Subsequently, the present-oriented framing facet did not pass the criterion of 10% (seven articles). Therefore, the present-oriented framing facet will not further be elaborated in the remainder of the analysis, in contrast to the future-oriented framing facet. The findings allow for hypothesis *H5a*: “German newspapers utilize the present-oriented framing facet when they report on the HPV vaccination” to be rejected and *H5b*: “German newspapers utilize the future-oriented framing facet when they report on the HPV vaccination” to be accepted.

### **Narrative framing facet**

For the narrative framing facet, hypothesis H6: *“German newspaper articles apply the narrative framing facet when they report on the HPV vaccination”* is tested. The overall frequency analysis in Table 10 shows that a narrative framing facet was reported in 14 out of 65 articles. The Frankfurter Allgemeine Zeitung published three narratively framed articles (Table 10). Both, the Frankfurter Rundschau, as well as the Süddeutsche Zeitung released five articles which included the narrative framing facet and the taz published one (Table 10).

As the narrative framing facet was found in 14 articles (Table 10), it passed the 10% criterion (seven articles) and qualified to accept the hypothesis H6: *“German newspaper articles apply the narrative framing facet when they report on the HPV vaccination”*.

### **Expository Framing Facet**

For the expository framing facet, hypothesis H7: *“German newspaper articles apply the expository framing facet when they report on the HPV vaccination”* is tested. Table 10 shows that the expository framing facet was detected in 55 out of 65 articles (Table 10) which displayed the second most frequent framing facet. Distinctively, the Frankfurter Allgemeine Zeitung and Frankfurter Rundschau published 13 articles, the Süddeutsche Zeitung published at 21 the maximum, and the taz only released eight articles (Table 10).

The expository framing facet was found in 55 articles (Table 10) and passed the 10% (seven articles) hurdle. Subsequently, the hypothesis H7: *“German newspaper articles apply the expository framing facet when reporting on the HPV vaccination”* is accepted.

### **STI Framing Facet**

With regards to the STI framing facet, the hypothesis H8: *“German newspapers apply the STI framing facet when they report in the HPV vaccination”* is tested. The frequency analysis in Table 10 shows that the STI framing facet was reported in 32 articles from the sample. Eight articles utilizing the STI-framing facet were published by the Frankfurter Allgemeine Zeitung,

ten were published by the Frankfurter Rundschau, and eleven articles, which displayed the maximum, were published by the Süddeutsche Zeitung (Table 10). Lastly, three STI-framed articles were published by the taz (Table 10).

The STI framing facet was observed in 32 articles (Table 10). Therefore, the STI framing facet passed the criterion of seven articles (10%) and qualified to accept the *hypothesis H8: German newspapers apply the STI framing facet when they report in the HPV vaccination.*

#### 4.2 Hypotheses and Answer to the Research Question

From left to right, the following table shows the number of each previously stated hypothesis, what that hypothesis predicted and whether those predictions were either accepted or rejected in the course of the analysis.

H1a	<i>German newspaper articles apply the gain-framing facet when they report on the HPV vaccination.</i>	accepted
H1b	<i>German newspaper articles apply the loss-framing facet when they report on the HPV vaccination.</i>	rejected
H2	<i>German newspapers apply the feminizing framing facet when they report on the HPV vaccination.</i>	accepted
H3	<i>German newspapers apply the non-urgency/non-requirement framing facet when they report on the HPV vaccination.</i>	accepted
H4	<i>German newspaper articles apply the rational choice framing facet when they report on the HPV vaccination.</i>	accepted
H5a	<i>German newspaper articles apply a present-oriented framing facet when they report on the HPV vaccination.</i>	rejected
H5b	<i>German newspaper articles apply a future-oriented framing facet when they report on the HPV vaccination.</i>	accepted
H6	<i>German newspaper articles apply the narrative framing facet when they report on the HPV vaccination.</i>	accepted

H7	<i>German newspaper articles apply the expository framing facet when they report on the HPV vaccination.</i>	accepted
H8	<i>German newspapers apply the STI framing facet when they report on the HPV vaccination.</i>	accepted

Table 12. Overview of hypotheses and their results

The results deriving from the conducted quantitative analysis not only provided clarity with respect to the underlying hypotheses, but also provided suggestions concerning further research.

Thus, this paper reported with regards to the research question (iii) *“How frequently were the framing facets found in the literature discussed in the German news coverage from 2017 until 2019?”*, that the selected sample of newspaper articles consisted of 19 gain-framing facets, 57 feminizing framing facets, eleven non-urgency/non-requirement framing facets, 13 rational choice framing facets, 27 future-oriented framing facets, 14 narrative framing facets, 55 expository framing facets and 32 STI-framing facets (Table 10).

### 4.3 Content of the Framing Facets in the German News Coverage

The remainder of the analysis concerns the question (iii) *“How were the framing facets derived from the literature discussed in the selected newspaper articles from 2007 until 2019?”*. Therefore, the detected framing facets concluded in 4.1 and 4.2 are discussed and elaborated in relation to the previous findings from Chapter 2.

#### Gain-Framing Facet

As concluded in 4.1 and 4.2 the only derivative of the HPV of the goal framing facets that was represented repeatedly and robustly in the German news coverage, was the gain-framing facet. Therefore, only the gain-framing facet is discussed below. The emphasis on the effectiveness rate of the HPV vaccination strikingly surrounded the protection against *“mehr als 90 Prozent der Genitalwarzen“* (n.a., 2018, November 17, p.1), against *“die von HPV 16 und 18 hervorgerufenen*



*schweren Läsionen im Gewebe“* (Müller-Jung, 2009, July 8, p.2), against *“HPV-bedingten Krebsarten und deren Vorstufen“* (n.a., 2018, November 17, p. 1) in particular against *“neun Typen des Krebsvirus“* (Zinkant, 2016, December 27, p.1). Further, the ability of the HPV vaccination to reduce *“die Sterblichkeit an Gebärmutterhalskrebs um 90 Prozent“* (Zinkant, 2016, December 27, p.1) was expressed, as well as the consequence: *“Je weniger dieser Krebsvorstufen zu finden sind, desto weniger muss nach der Vorsorgeuntersuchung herausoperiert werden. Ein Argument, das (...) vom Heidelberger Medizin-Nobelpreisträger Harald zur Hausen gerne angeführt wird “* (Müller-Jung, 2009, July 8, p.2).

As stated by Pența and Băban (2018, p. 299), *"gain-framed messages would present the positive consequences of performing a behavior, whereas loss-framed messages would present the negative consequences of not performing the behavior"*. Further, Pența and Băban (2018, p.299) point out that the application of gain-framing facets indicates that people aim to avoid a certain risk. In this paper, German newspaper articles often covered the advantage of protection against health consequences, from STIs (n.a., 2018, November 17) to surgeries (Müller-Jung, 2009, July 8) and cancer (Zinkant, 2016, December 27). Therefore, they fit the definition used by Pența and Băban (2018, p.299). Furthermore, the German news coverage reflected Pența and Băban's (2018) claim, as the benefit or the advantage of complying with the suggested behavior, receiving the HPV vaccination, was displayed as the avoidance several aforementioned infections and diseases. Articles also expressed the vaccination's ability to lower the mortality rate of cervical cancer (Zinkant, 2016, December 27), and its ability to protect against the HP virus, so that less removal surgeries follow regular cancer screening examinations as further advantages (Müller-Jung, 2009c). The latter two advantages, thus, are in line with the definition provided earlier. Additionally, they are in line with the risk-avoidance aspect (Pența & Băban, 2018), since they mention the possibility of avoiding death due to cervical cancer which concerns predominantly women, and the avoidance of having to undergo surgery.

All in all, the findings from this paper regarding the gain-framing facet were in line with previous findings by Pența and Băban (2018) who proposed that the benefits of the suggested action or health behavior were promoted. In this study, the focus was on the beneficial ability of the HPV vaccination to protect people from STIs, forms of cancer, as well as the vaccine's ability to lower

cervical cancer mortality rates, and thus, to reduce or avoid the risk of dying, due to a cancer diagnosis related to HPV.

### **Feminizing Framing Facet**

The title of the article “*Der stille Killer in ihr*” (pps., 2012, December 13, p.1) already hints at the feminization, as it translates to “*the silent killer inside of her*”. PPs. went on to elaborate on the susceptibility of women to HPV, by mentioning that the life expectancy of a female patient in Africa is “*höchstens noch fünf Jahre*” (pps., 2012, , December 13, p.2), due to the fact that “*Gebärmutterhalskrebs (...) ist die häufigste Tumorerkrankung bei Frauen in Afrika*”(pps., 2012, December 13, p.2). Furthermore, vom Lehm (2009, January 31, p.3) advised explicitly girls “*sich möglichst vor dem ersten Sex impfen lassen und Jungen sollten Kondome benutzen*”. Havlicek (2008, May 8, p.1) mentioned that many girls had received the HPV vaccination which pressured their unvaccinated peers to think that “*sie gehören nicht dazu, wenn sie nicht auch geimpft sind. Es geraten aber auch immer wieder Mütter, die bei Impfungen eher zurückhaltend sind, in Panik*“. Nevertheless, experts like immunologist, “*Andreas Kauffmann*”, (Willmann, 2018, September 29, p.2) and “*Lutz Gissmann*” from the “*Deutschen Krebsforschungszentrum (DKFZ)*” (Mertens, 2007, April 17, p.1) were quoted expressing their regret that the HPV vaccination had been initially targeted at women only.

It was also referred to a feeling of collectiveness among adolescent girls that was used in promotional material, in order to appeal to them (Virtanen, 2019, p.796). The German news coverage reflects these findings, as explicit recommendations targeted at girls were published which indicated that the responsibility to protect themselves and others from the HP virus by receiving the vaccination was assigned to them only (vom Lehm, 2009, January 31), although experts (Mertens, 2007, April 17; Willmann, 2018, September 29) were outspoken against it. Besides, the introduced risks and health consequences often concerned cervical cancer and its mortality rate which again affects women (pps., 2012, December 13). Havlicek’s (2008, May 8) article also brought forward that the emphasis on collectivity not only created the normalization of the HPV vaccination among teenage girls, and a feeling of inclusion, as proposed by Virtanen (2019), but in contrast, also created a feeling of exclusion for unvaccinated girls, which in

consequence pressured mothers to vaccinate their daughters against HPV, regardless of their personal concerns.

The feminization of the HPV vaccination in the German news coverage not only targets only one group of society, but also examines the health consequences rather one-sided, and thus, misses to communicate the whole scope of the HPV vaccination. Further, the findings by Virtanen (2019) need to be extended. The framing facet's targeting of teenage girls apparently does seem to normalize it to them, and to form a collectivity among them (Virtanen, 2019). However, this study emphasized that it subsequently excludes unvaccinated girls and pressured their mothers (Havlicek, 2008, May 8).

### **Non-Urgency/Non-Requirement Framing Facet**

Havlicek stated in the article from May 8th, 2008 that *“häufig heilt die Infektion aber ab, ohne dass es zu Zellveränderungen am Gebärmutterhals kommt. Selbst die verschwinden zum Teil wieder”* (p.1). Additionally, vom Lehm (2009, January 31, p.2) claimed that *“Schließlich entwickelt sich nicht jeder simple Schnupfen zur schweren Lungenentzündung”* and that it is ultimately the *“Lebensstil der Frau”* (vom Lehm, 2009, January 31, p.2) that matters concerning the development of the HP virus. If the vaccination is not suggested in the context of HPV, the question for recommendations in general arises. Vom Lehm (2009, January 31, p.2) answered the previous question by recommending *“einen Zellabstrich bei der jährlichen Früherkennung”*.

According to the extant body of research, a requirement policy demanding the HPV vaccination for school entrances would increase the HPV vaccination uptake (Niccolai et al., 2018) which implies the counter argument: without requirements, the HPV vaccination uptake is low. In relation to the lack of requirement, Niccolai et al. (2018) also note the lack of urgency, as the HPV vaccination is often regarded as unnecessary, additional vaccination. Contributing to the lack of urgency, Virtanen (2019) reported that HPV was trivialized. The findings for the German news coverage suggest that the unnecessary of the HPV vaccination (Niccolai et al., 2018) was expressed when Havlicek (2008, May 8) mentioned that the infection with HPV, as well as cervical dysplasia often subsided on their own. Additionally, the trivialization (Virtanen, 2019) and the lack of

urgency (Niccolai et al., 2018) were brought up, when vom Lehm (2009, January 31) expressed that the individual conditions of women's bodies were to blame for the contraction with HPV, and when the contraction of a cold was referenced in comparison to the infection with HPV (vom Lehm, 2009, January 31). According to the comparison, both is frequently passed on, people frequently contract it, but barely, people die due to it.

This paper did detect that the HPV vaccination was framed as unnecessary and not urgent, as the consequences of HPV were trivialized and compared to a cold, which is transmitted comparably often among people without causing severe consequences. In the study, it was not found that the HPV vaccination was framed as required which might be due to the voluntary recommendation provided by the STIKO at the Robert Koch Institut (2007, 2018a, 2018b). The aforementioned findings are in line with Niccolai et al. (2018) and Virtanen's (2019) findings.

### **Rational Choice Framing Facet**

With regards to the second vaccination recommendation against HPV for boys in 2018, pam. (2018, June 14, p.1) stated that *“Krebsforscher Harald zur Hausen, der den Zusammenhang zwischen humanen Papillomviren und Gebärmutterhalskrebs entdeckt hat (...) hält die Änderung für überfällig: “ „Das wurde auch höchste Zeit”, (...) In nahezu allen Kulturen hätten die jungen Männer mehr Sexualpartner als Frauen der gleichen Altersgruppen. Damit seien sie die “wichtigsten Verbreiter” der Infektion.“* Pam (2018, June 14, p.1) also brought up that HPV not only caused female forms of cancer but many others as well, which is why boys should be vaccinated as well.

According to Virtanen (2019), the reception of the HPV vaccination is framed as rational when facts are presented in a way which logically and rationally lead to the consequence to receive the vaccine. Further, Virtanen (2019) notes that this facet normalizes and rationalizes the HPV vaccination, which eventually decreases their feeling of anxiety. In the news coverage, pam. (2018, June 14) quoted the Nobel-prize winning researcher, zur Hausen, in relation to the recommendation of the HPV vaccination regardless of the sex. The reference to an expert underlined its relevance and its rationality, as he enumerated facts. Zur Hausen, thus, mentioned

the higher average number of sex partners boys have, in comparison to girls for the same age group, and the fact that HPV causes different forms of cancer that affect everyone (pam., 2018, June 14). Therefore, he arrived at the conclusion that boys were “transmitter” (pam., 2018, June 14) who should be vaccinated additional to girls, as no herd immunity against HPV could have been achieved without including vaccinating everyone (pam., 2018, June 14).

Concluding, the study found that the rational choice framing facet was rather recently applied in the German news coverage, as it covered the second HPV vaccination recommendation from 2018. Besides, the framing facet was found as described by Virtanen (2019), rationalizing the reception of the HPV vaccination (for boys) and making it appear as the only logical and responsible behavioral consequence, given their role and the goal of herd immunity.

### **Future-oriented framing facet**

Zinkant (2016, December 27, p.1) elaborated on the “*umfassend und dauerhaft*“ protection from HPV and the HPV vaccine’s ability to protect “*(...) vor neun Typen des Krebsvirus, er könnte die Sterblichkeit an Gebärmutterhalskrebs um 90 Prozent senken*” (Zinkant, 2016, December 27, p.1). Furthermore, it was pointed out that “*die HPV-Impfung zudem vor einer Erkrankung schützt, die erst nach vielen Jahre spürbar wird, ist der Nutzen des Vakzins für viele nicht augenfällig*” (Zinkant, 2019, February 20, pp.2, 3).

With regards to previous research on the future-oriented framing facet, Kim and Nan (2016, p. 100) conclude that it concerns long-term consequences. If people display a large consideration of future consequences (CFC), and they receive a message that focuses on the present, they are very likely to receive the HPV vaccination (Kim & Nan, 2016). However, the counter argument would be that people with a low CFC who are confronted with the future-oriented framing facet, display low HPV vaccination intentions. Thus, in the sample HPV-related cancer, in particular cervical cancer (Zinkant, 2016, December 27) was brought up. Zinkant (2016, December 27) even explicitly mentioned that cancer developed after years, which led people to forget about its relatedness to HPV.

The future-oriented framing facet was found in the German news coverage, as proposed by Kim and Nan (2016, 2019). This study reported that it was explicitly mentioned that people in Germany seem to have low considerations of future considerations (CFC) which made them forget about the relation between HPV and different forms of cancer (Zinkant, 2019, February 20).

### **Narrative Framing Facet**

In the article “*untenrum angesteckt*” (Schleth, 2018, September, 28, p.1), the author vividly described a friendly gathering in the “I”- form with his friend, Regina, who suffered from cervical cancer. In addition to the contraction with HPV, the susceptibility of sexually active people, the article also brought forward the severe health consequences HPV has for everyone and the possibility that diagnostic examinations might be misinterpreted by the personnel which led to the removal of a “*vier Zentimeter großes Gebärmutterhalskrebs-Karzinom*“ (Schleth, 2018, September 28, p.1). Further, medical professionals claim that

*“Das testet man eigentlich nur bei Frauen. Die können davon Krebs bekommen. (...) Kondome helfen nicht wirklich und ich kann nicht mal herausfinden, ob ich einen HP-Virus habe, um eine Ansteckung zu vermeiden? (...) Ein deutliches Ohnmachtsgefühl machte sich bemerkbar. Ist es in Ordnung, wenn Männer wild in der Gegend herumvögeln und Frauen mit Krebs anstecken?“.* (Schleth, 2018, September 28, p.1)

The narrative framing facet is defined by Kim & Nan (2019, p.404), citing (Kreuter et al., 2007, p. 222), as: “*a representation of connected events and characters that has an identifiable structure, is bounded in space and time and contains implicit or explicit messages about the topic being addressed*”. The narrative framing facet is thought by Li et al. (2018, pp.582-582) to be unable to grasp the extensive scope of the HPV vaccination. However, the article by (Schleth, 2018, September 28) which serves as striking example for the narrative framing facet began by discussing a friendly gathering between a person in the “I”-perspective of a male protagonist and his friend “*Regina*” who suffered from cervical cancer (Schleth, 2018, September 28). Schleth (2018, September 28) involved particular people in a story-telling approach who discussed HPV, its consequences, irregularities of diagnostic services, the procedure of a tumor removing surgery, the lack of awareness and knowledge that HPV entails health consequences for men and women, as well as false claims that were made with regards to trivializing the infection or that the

responsibility to receive the HPV vaccination had been initially ascertained to women only (Schleth, 2018, September 28). Li et al. claimed that (2018, p.587) “*many of the published stories conveyed information about disease severity, susceptibility, vaccination benefit, and cues to action, but often only with respect to cervical cancer.*” In relation to Schleth’s (2018, September 28) article which describes Regina’s struggle with cervical cancer, Li et al.’s (2018) findings for the Chinese news coverage are in line with the ones for the German news coverage.

Thus, the article (Schleth, 2018, September 28) fit the definition by Kim and Nan (2019), but in contrast to Li et al. (2018), it was discovered that the narrative framing facet, despite being written in a story-telling way, managed to cover a lot of sub-topics related to HPV. In line with Li et al.’s (2018) results was that the article is written from the perspective of a man who complains about the feminization of the HPV vaccination, while the focus of the article still remains on his female friend who suffered from cervical cancer. Thus, although efforts have been made in 2018 to stop the feminization of the HPV vaccination utilizing a narrative framing facet, the focus prevails on women’s susceptibility to HPV, and its severe consequences for them.

### **Expository Framing Facet**

Jw (2007, March 26, p.1) utilized the statistic that “*An Gebärmutterhalskrebs erkranken weltweit jährlich rund 230 000 Frauen. In Deutschland sind es 6500 Fälle*“. Similar to above, pps. (2009, August 11, p.1) brought forward that “*Die dreimalige Impfung wirkt gegen zwei HP- Viren, die die Ursache von 70 Prozent aller Fälle von Gebärmutterhalskrebs sind. In Deutschland erkranken jährlich zwölf bis 14 von 100 000 Frauen an Gebärmutterhalskrebs, 2007 starben 1566 daran*“, in order to elaborate on the HPV vaccination. In the article from March 27th, 2007, pps. stated “*bis zu 70 Prozent der sexuell aktiven Frauen infizieren sich mit HPV, die beim Sex übertragen werden können*“ (p.1).

As proposed by Li et al. (2018, pp.582-583), the expository framing facet aims to reflect the broad scope of the HPV vaccinations, while applying numbers and statistics, in order to underline the important points. As jw (2007, March 26), pps. (2007, March 28; 2009, August 11) are in line with the description provided by Li et al. (2018, pp.582-583), they account for the expository framing facet. Further, Li et al (2018, p. 587) claimed that articles that were analyzed for the Chinese news

coverage of the HPV vaccination mainly focused on the susceptibility and severity of women to be contracted with the HP virus. In the German news coverage, the analysis concluded that numbers and statistics were applied to emphasize the susceptibility of sexually active women contracting HPV (pps., 2007, March 28), the susceptibility of women to fall ill to cervical cancer world wide (jw, 2007, March 26) and in Germany (jw, 2007, March 26; pps. 2009, August 11), the mortality rate of cervical cancer (pps., 2009, August 11), the likelihood of two HPV types causing cancer (pps., 2009, August 11). Thus, the German news coverage of the HPV vaccination shares the focus on women with the Chinese news coverage, as proposed by Li et al. (2018, p.587).

Concluding, the expository framing facet which was recognized in the German news coverage of the HPV vaccination often concerned the susceptibility of women to contract HPV or to be diagnosed with cervical cancer. As the expository framing facet focused on women, it displayed only one side of the scope of the HPV vaccination.

### **STI Framing Facet**

Exemplary for the STI framing facet, Berndt (2013, April 23, p.1) brought forward that

*“(...) im Jahr 2007 fanden Ärzte noch bei neun Prozent aller Mädchen und Frauen (...) Genitalwarzen; 2011 waren nur noch drei Prozent der Patientinnen betroffen. (...) Eine solche Reduktion dieser bedauerlichen Krankheit, die durch ein sexuell übertragbares Virus ausgelöst wird, ist eine große Errungenschaft”, freuen sich zwei britische Experten für sexuelle Gesundheit“.*

According to the findings by Yang and Pittman (2017) women displayed perceived shame to a higher degree than men, though women expressed higher vaccination intentions against HPV than men. While the STI framing facet led to high vaccination intentions as noted by Yang and Pittman (2017), Niccolai et al. (2018) regarded this as difficulty. According to health professionals, it is troublesome to discuss a vaccination, that is framed as protection for adolescents against STIs, with parents, since they do not want to associate their children with infections that are transmitted by sex (Niccolai et al., 2018). The statement from above (Berndt, 2013, April 23) does not only mention genital warts as a possible STI that the HP virus can cause, but it also explicitly mentioned that the virus was sexually transmitted.



Therefore, the study detected the STI framing facet in the German news coverage, as proposed by Yang and Pittman (2017) covering the sexual transmission and its consequences with regards to STIs. However, it is crucial to take into consideration that the vaccination recommendation in Germany aims at adolescents (Robert Koch Institut, 2007, 2018b), and not grown up women, as it was the case in Yang and Pittman's (2017) article.

#### **4.4 Answer to the Research Question**

The fourth and last sub-research question: “(iv) „How were the framing facets derived from the literature discussed in the selected newspaper articles from 2007 until 2019?“” was answered in the second part of the analysis.

Table 13 summarizes the findings which answer the fourth sub-question. From left to right, Table 13 shows each framing facet, starting with the gain-framing facet, the feminizing framing facet, non-urgency/non-requirement framing facet, rational choice framing facet, the future-oriented framing facet, the narrative framing facet, the expository framing facet and lastly, the STI framing facet. In the mid-column the topics and content each of the aforementioned framing facets discussed in the German news coverage are summarized, while the third and last column displays the references to exemplary articles in which the content from before was detected (Table 13). Each detected framing facet is listed as discussed in 4.3 in addition to the content and topics it discussed in the German news coverage, as well as the reference to the articles (Table 13).

<b>Framing Facet</b>	<b>Exemplary topics each framing facet discussed in the quotes given in 4.3 to frame the HPV vaccination</b>	<b>References</b>
gain- framing facet	ability of the HPV vaccination to protect against two distinguished types of HPV (16 and 18), STIs (genital warts), lesions in the tissue, different forms of cancer, as well as its ability to lower the mortality rate of cervical cancer	n.a. (2018, November 17), Müller-Jung (2009, July 8), Zinkant (2016, December 27)
feminizing framing facet	responsibility/duty to receive HPV vaccination ascertained to girls, targeting of girls, creation of collectives and groups for vaccinated girls at school, but also the exclusion of unvaccinated girls which pressures mothers to let their daughters be vaccinated against HPV, experts expressed regret over initial feminized HPV vaccination recommendation	pps. (2012, December 13), vom Lehm (2009, January 31), Havlicek (2008, May 8th), Willmann (2018, September 29), Mertens (2007, April 17)
non-urgency/ non-requirement framing facet	high likelihood of contracting HPV, the subsidence of HPV infections over life time, possibility of natural subsidence of cervical dysplasia, life style of women as determinant for consequences of HPV, comparison of the contraction of HPV to catching a cold, recommendation of detective procedures: cancer screening examinations	Havlicek (2008, May 8), vom Lehm (2009, January 31)
rational choice framing facet	rationalization of second HPV vaccination recommendation to vaccinate boys as well, Nobel-prize winning expert, Harald zur Hausen, elaborated on the higher average number of sexual partners boys have in comparison to girls and that they transmit the disease, additionally different forms of cancer were brought up which affect everyone, the importance of herd immunity was outlined, as well as its requirement to vaccinate large percentages of the population, which logically includes boys as well	pam. (2018, June 14)
future-oriented framing facet	protection against nine types of cancer viruses, lowering mortality rate of cervical cancer, both only observable after long periods of time which leads people to forget about the relation of a contraction with HPV to a cancer diagnosis	Zinkant (2016, December 27; 2019, February 20)
narrative framing facet	Story-telling, written in "I"-form from male perspective: meeting with a friend who suffered from cervical cancer, due to an unnoticed contraction with HPV, cancer screening examinations results misinterpreted by professionals which led to a tumor removing surgery and a permanent damage of the friend's nerves, additionally the lack of awareness and knowledge about the gender-neutral health consequences of HPV, the trivialization of the infection and the feminization of the HPV vaccination were discussed, since the friend is female, the consequences of HPV for women were elaborated more in detail	Schleth (2018, September 28)
expository framing facet	diagnosis rate for cervical cancer worldwide and for Germany, likelihood of contracting HPV for sexually active women, mortality rate for cervical cancer	jw (2007, March 26), pps (2007, March 28; 2009, August 11)
STI framing facet	HPV vaccination's ability to reduce genital warts, sexual transmission of HPV, HPV causing genital warts	Berndt (2013, April 23)

Table 13. Overview of framing facets, content and references

## 5. Conclusion and Discussion

The thesis aimed at answering the overarching research question: “Which framing facets were utilized in the German news coverage of the HPV vaccination from 2007 until 2019 by newspapers? “. In the German news coverage of the HPV vaccination, the gain-framing facet occurred in 19 articles. The feminizing framing facet was detected the most frequently in 57 articles. Further, the non-urgency/non-requirement framing facet was reported in eleven articles. The expository framing facet displayed the second most prevalent and frequent facet, as it was identified in 55 out of 65 articles. Summarizing, the aforementioned framing facets were found as expected, according to the literature. The gain-framing facet elaborated on the benefits that follow the reception of the HPV vaccination, the feminizing framing facet ascertained the responsibility to prevent HPV by receiving the HPV vaccination to women, as typical female health consequences were discussed. The non-urgency/non-requirement framing facet displayed the HPV vaccination as not required and additional. Lastly, the expository framing facet highlighted statistics from female HPV contraction rates to cervical cancer mortality rates. Interestingly, the rational choice framing facet, which displayed a sound line of arguments leading to the reception of the HPV vaccination as a rational and responsible consequence was found in 20% of the articles. Although the literature proposed it, the low HPV vaccination rates reported by the Robert Koch Institut from 2015 (Robert Koch Institut, 2018b) might have suggested otherwise. Nevertheless, the aforementioned framing facet was detected in rather recently published articles, which might lead to an increased HPV vaccination uptake in the future. The future-oriented framing facet was found in 42% of the articles which discussed in particular cancer as long-term consequence of HPV and the fact that people appear to forget about the relatedness between HPV and cancer. Contradicting the findings by Li et al. (2018), the narrative framing facet was detected in 22% of the articles. The narrative framing discussed, as suggested by Li et al. (2018), health concerns, especially the female ones. Lastly, the STI framing facet, which discussed HPV as sexually transmittable infection, occurred in 49% of the sampled articles.

The second part of the analysis added extensions to Virtanen (2019), with regards to the feminizing framing facet. Virtanen (2019) suggested that adolescent women were targeted individually or collectively, as for normalizing the topic “HPV vaccination” among them and uniting them in groups. In the news coverage in Germany, however, it was additionally pointed out that the

collectivity of teenage girl who had received the HPV vaccination, also caused peer-pressure and subsequently the exclusion of girls who had not received it (yet) which pressured their parents, in particular mothers, to take their daughters to the doctor and to vaccinate them against HPV.

The detected prevalence of the expository framing facet, as well as the occurrence of the narrative framing facet, were also rather outstanding. The examples elaborated in the second part of the analysis for narrative and expository framing facets were both thought to aim at the general presentation of HPV and the vaccination regardless of sex and gender, while in fact, both cases highlighted cervical cancer, a female-only consequence of HPV.

Also strikingly, the news coverage in Germany of the HPV vaccination applied a comparison between HPV and catching a cold with regards to the non-urgency/non-requirement framing facet. Therefore, this study reports that the German news coverage aimed at transferring the non-threatening perception of a cold to HPV.

With respect to the STI framing facet, Yang and Pittman (2017) reported that it led to higher vaccination intentions among women. However, the HPV vaccination uptake remained at under 50% in Germany for female adolescents around the age of 17 (Robert Koch Institut, 2018b). The findings derived from Yang and Pittman (2017), thus, seem to contradict the findings under real-life conditions. Nevertheless, the comparably high percentage of the detected STI framing facet might still account for the less than 50% of adolescents who were reported to have received the HPV vaccination, according to the Robert Koch Institut (2018b). However, it is also possible that the opposite happened. In Germany, the HPV vaccination recommendations are targeted at adolescents (Robert Koch Institut, 2007; 2018b), which implies that under this circumstance, parents need to be reached first. In Yang and Pittman's (2017) experiment, (female) participants who expressed higher HPV vaccination intentions were older and attended university, while Niccolai et al. (2018) noted that conversations with parents became more complicated, timely longer, and that parents were not easily convinced by clinicians to have their children vaccinated against a particular infection, such as HPV, when it is framed as an STI. Therefore, the differences in the age range might explain the different results, as well as the latter finding, might be more likely to account for the German situation.

The limitations of this paper include that, in contrast to Pența and Băban (2014) and Li et al. (2018), only one coder was involved in writing this thesis and coding the articles. Therefore, it is possible that especially in the interpretative part of the content analysis, the threat of misinterpretation or bias prevails. Subsequently, the reliability of the coded text fragments for framing facets was neither checked by another independent coder, nor by a subsequent inter-coder reliability index which could be achieved in future research.

Another weak point is the case selection. As only 65 articles derived from the database Lexis Nexis, the sample remains rather small for a time frame of 12 years. The number of selected articles is related to the availability of only four German nationally available newspapers in the database. Thus, it is possible that the presentation of the HPV vaccination by regional newspapers differs from the reported presentation thereof in nationally available newspapers. The aforementioned limitation allows for the close inspection of framing facets in regional publishing outlets, as well as in online outlets.

Although this paper allowed for text fragments and articles to display more than only one framing facet, it did not analyze the co-occurrence of them, which limits the findings of the aforementioned framing facets to simple frequencies, without relating them to one another. Thus, it remains uncovered which framing facets have been detected together or following one another in articles. In future research, calculating the co-occurrences of different framing facets within a selected sample of German articles could provide more detailed information with regards to the order in which framing facets were applied together, their relation, as well as the frequency of their utilization.

In contrast to the elaborated shortcomings of this paper, it managed to achieve its aim, stated in the introduction, to add new information to the extant body of research. To my knowledge, this study is the first content analysis of the German news coverage concerning the HPV vaccination. Thus, it generally provided new information for the detection of framing facets from the literature in the German news coverage. Additionally, it calculated their frequencies and discussed the topics and content the framing facets covered in relation to the HPV vaccination.

The analysis of the German news coverage of the HPV and the previously answered research questions allow for the deduction of the opinion of the German general public concerning the HPV vaccination, since Scheufele argued (1999) that, on the one hand, the applied framing facets by newspapers reflect their opinions, and on the other hand, reflect the general public's perception.

Furthermore, this study applied definitions and operationalizations suggested by existing studies, such as Li et al. 's content analysis of the Chinese news coverage of the HPV vaccination (2018), to screen the German news coverage for framing facets. Accordingly, this paper did not only draw conclusions on the same foundation as Li et al. (2018), but also on the current state of knowledge, which contributes to the generalizability and validity of this study's findings. As the results rely on scientifically approved findings, they qualify to discuss and especially, to compare the Chinese findings with the German ones.

The paper's deductive focus on pre-determined and already identified framing facets displays another strength. As stated in the introduction and chapter three, the goal of this paper was to contribute to the international body of research on the framing of the HPV vaccination. Due to the application of scientifically approved and published information as basis for the coding scheme, the threat of invalid measures was eliminated or at least diminished and results for the applied framing facets in the German news coverage were added.

Finally, this study created the basis for future recommendations. The Bundeszentrale für gesundheitliche Aufklärung (BzgA) which is involved in the creation of promotional material for vaccinations. If the aforementioned public authority was interested in increasing the HPV vaccination uptake, they might want to consider releasing different framing facets for different groups in society. Thus, the findings by Niccolai et al. (2018) and this study suggest that framing the HPV vaccination as cancer prevention, instead of STI prevention, when adolescents were targeted, might have a more encouraging effect on their parents, as they decide whether or not their children receive the HPV vaccination. However, the STI-framing thereof might still positively influence grownups, specifically adult women, to receive the HPV vaccination, as Yang and Pittman reported in 2017.

Although women were reported to display higher intentions to receive the HPV vaccination, when the human papillomavirus was framed as a sexually transmittable infection (Yang & Pittman, 2017), the feminization of the HPV vaccination should be prevented. This study reported that the feminization still prevails, especially with regards to the narrative and expository framing facets which, despite their initial neutrality, regressed into highlighting the female susceptibility to HPV, and its severe consequences for women. The aforementioned framing facet, thus, limits the possibility to present the whole scope of HPV, which affects everyone.

In times in which vaccinations of all kind face increased skepticism, the HPV vaccination might as well be perceived as risky by a large number of people by default, as Pența and Băban suggested (2018). In order to convince people of following the suggested behavior, the loss-framing facet, describing the disadvantages of not complying, should be highlighted. The aforementioned recommendation is in line with Pența and Băban (2018). Since the detected expository framing facet already applied statistics with respect to the likelihood of contracting the HP virus, or mortality rates of certain forms of cancer, they would only need to be worded differently, emphasizing that the risks of not receiving the HPV vaccination were more severe than the risk people apply to the reception of the HPV vaccination.

With regards to policy recommendations for the STIKO, the focus should be on the herd immunity against (types of) the HP virus. The aforementioned goal was elaborated in the introduction by drawing on findings by the Oxford Vaccine group (2016), Calandrillo (2004) and Schwarz (2018). As proposed by the STIKO, 17 displayed the maximum age to receive the missing HPV vaccination shots free of costs (Robert Koch Institut, 2018b). However, people's susceptibility to HPV does not end at that age; only the financial coverage does. Thus, people who have not contracted the HP virus until then remain vulnerable to the infection. As public insurances are bound to the recommendations made by the STIKO (BZgA, n.d.; G-BA, 2018a, 2018b), this paper would suggest for the aforementioned actor to release another HPV vaccination recommendation, additional to the previous one from 2018 targeting adolescents regardless of their sex. This new recommendation would include a negative pap-test result for HPV as a condition for insurances to cover the costs of the HPV vaccination for people above the age of 17. As those tests check for not only HPV, but also other STIs. The previously outlined recommendation for people above 17

would not only contribute to the goal of herd immunity against HPV, but also to their awareness of STIs and clarity regarding their overall health status.



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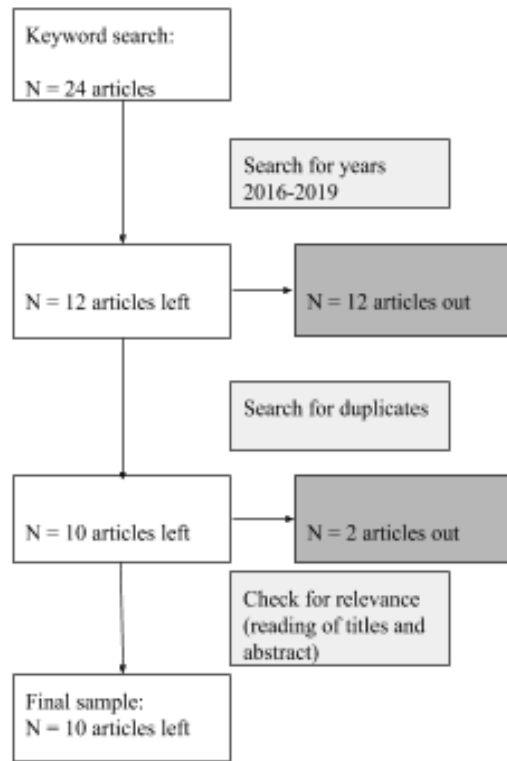
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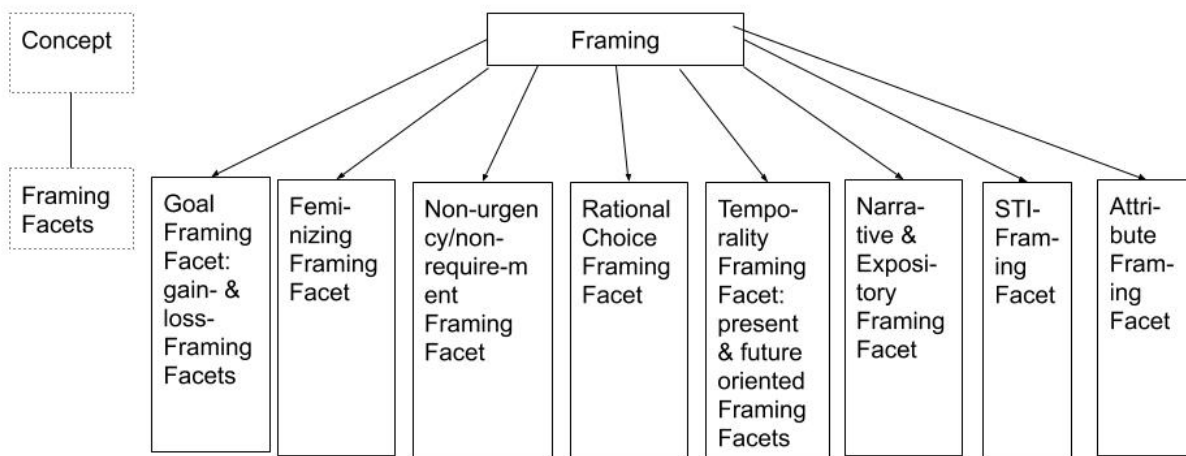
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## Annex

### Annex 1. Flow Chart of Systematic Literature Review. Search Strategy.



## Annex 2. Visualization of Concept and identified Framing Facets



1

### Annex 3. Systematic Overview of conducted Studies from 2016-2019, following Pența and Băban's (2018) Design and Categories

Codes as	Author(s), Year	Country	Participants, Sample, Size, Experimental Conditions	Authors reported results	kind of study
Study 1	Tu, Lin, Fan, Tsai, and Wang (2019).	Taiwan	481 adolescent girls, mean age = 15.58 years, SD = 0.68, age range 15-16 in first years of nursing school, not taken medical courses, unmarried, willing to participate in study, mean age, girls unwilling to participate, without informed consent, 84 participants excluded, 3 (frame: gain vs. loss vs. control group) x cervical cancer awareness and vaccination intention	HPV knowledge gain frame: mean score on the HPV knowledge scale was 18.18 (SD = 2.38, $p < .001$ ); loss frame: mean 18.10 (SD = 2.32, $p < .001$ ); $g > 1$ ; attitude: gain: mean scores of attitude toward HPV vaccination were 5.16 (SD = 0.73, $p = .004$ ) loss: mean of 5.19 (SD = 0.81, $p < .001$ ); $1 > g$ ; mean score of the groups differed significantly ( $F = 5.778$ , $p = .003$ )	quasi-experiment
Study 2	Lee and Cho (2017)	USA	142 participants, mean age = $M = 22.44$ , SD = 1.22, whose age ranged between 20 and 28 years, 79% female ( $n=112$ ), 100% in undergrad course, Caucasian (59.9%, $n = 85$ ), Hispanic (25.4%, $n = 36$ ), African American (9.2%, $n = 13$ ), Asian (5.6%, $n = 8$ ), 2 (message framing: gain message/loss message) $\times$ 2 (media type: SNSs/traditional media)	HPV vaccination intention: loss: ( $M = 4.68$ , SD = 1.45), gain: ( $M = 4.26$ , SD = 1.32), $t(140) = -1.77$ , $p < .05$ ), $1 > g$ ;  Effect of Newspapers and SNS: no significant medium effect between newspapers ( $M = 4.49$ , SD = 1.39) and SNS (Facebook) ( $M = 4.47$ , SD = 1.41), $t(140) = .08$ , $p = .94$ ).  Two-way interaction effects for higher vaccination intention: loss framing facet on SNS (Facebook): ( $M = 4.90$ , SD = 1.33), gain framing facet on SNS (Facebook): ( $M = 4.03$ , SD = 1.37), $p < .05$ ), $1$ on SNS $> g$ on SNS	quasi-experiment
Study 3	Kim and Nan (2016)	USA	students with any HPV shot excluded, sample size of 416 participants: 66.3% male ( $n = 276$ ) and 33.7% female ( $n = 140$ ) with a mean age of 20.05 years (SD = 2.37). 57.2% white, Asians 19.5%, Blacks 16.3%, Hispanics 6.3%, and others 0.7%; two groups (present-oriented vs. future-oriented)	HPV vaccination intentions: high CFC: present oriented framing facet $>$ future framing facet, reporting of higher degree of HPV vaccination intention when stronger when the vaccination is available free of costs and in present oriented framing facet;  low CFC: present oriented framing facets = future oriented framing facet, with regards to costs: participants with low CFC responded similarly to the present- and future-oriented messages	quasi-experiment
Study 4	McGlone, Stephens, Rodriguez, and Fernandez (2017)	USA	167 Spanish-speaking Hispanic/Latina mothers who a) had daughters between 11 and 17 not vaccinated for HPV and b) owned a mobile phone which is able to receive text messages; 2 (transmission: daughters vs virus) $\times$ 2 (protection: mothers vs vaccination)	HPV vaccination intentions of mothers for their daughters: transmission attributed to virus: $M = 4.51$ , SD = 1.05, transmission attributed to daughter: 4.04, SD = 0.98, virus $>$ daughter	quasi-experiment

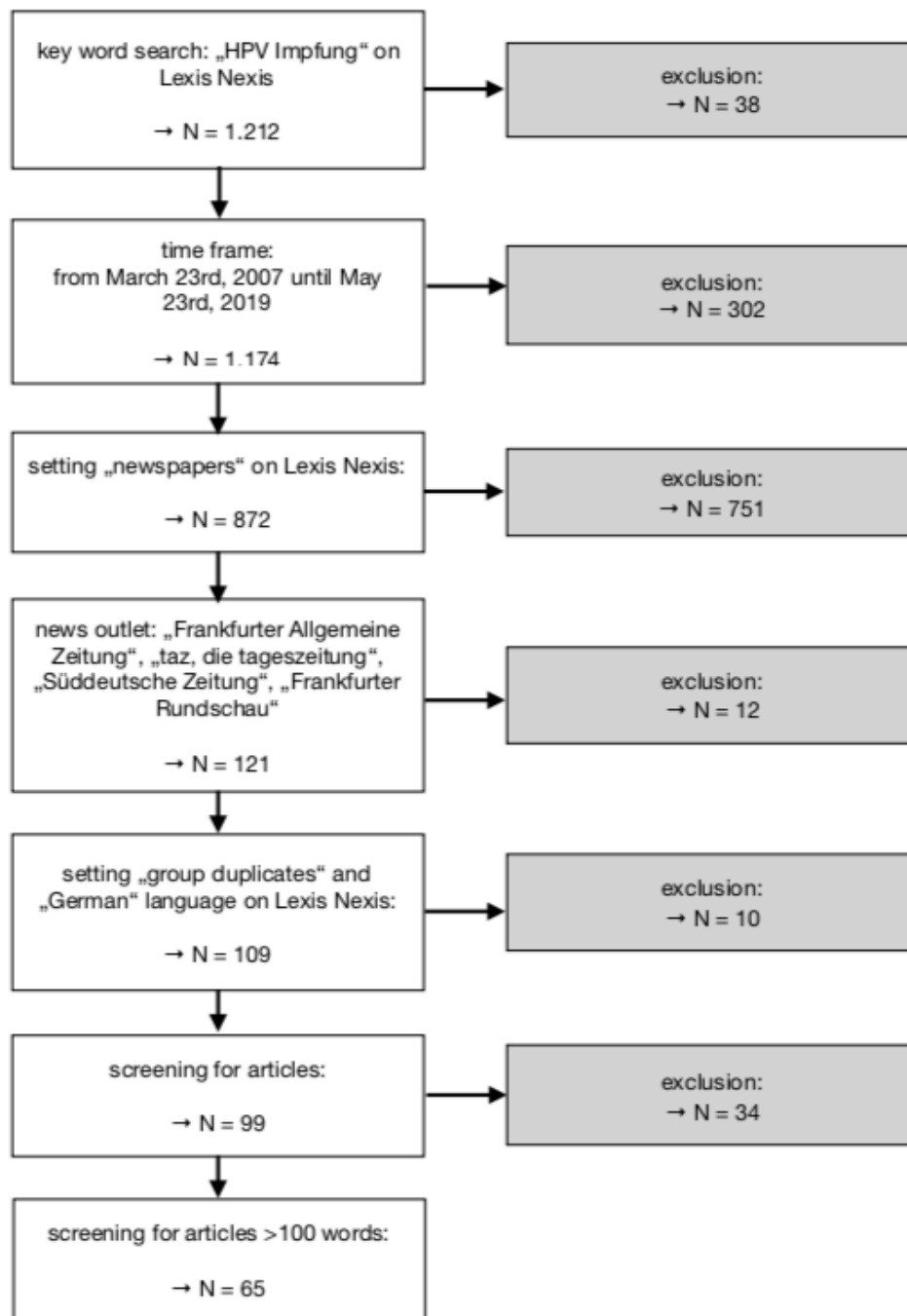
Study 5	Yang and Pittmann (2017)	USA	students, participants (N = 359, 56.3% male and 43.7% female), 2 × 2 STI framing (mentioning STI vs. not) and causal attribution (internal vs. external) as the two factors.	<p>significant interaction between STI framing and shame, <math>F(1, 247) = 3.91</math>, <math>p &lt; .05</math>, <math>\eta^2 = .02</math>. Specifically, only in the STI framing condition, participants who perceived more shame reported less intention to disclose to family members if they were diagnosed with HPV (<math>b = -.29</math>, <math>p &lt; .05</math>);</p> <p>HPV vaccination intention: STI framing facet, future oriented framing facet (soon), Attribute framing facet (no costs): significant main effect of shame on intention, <math>F(1, 240) = 5.98</math>, <math>p &lt; .05</math>, <math>\eta^2 = .02</math>.; STI framing facet, present oriented framing facet (today), attribute framing facet (no costs): significant for intentions <math>F(1, 246) = 7.35</math>, <math>p &lt; .01</math>, <math>\eta^2 = .03</math>;</p> <p>HPV vaccination intentions &amp; gender: female participants (<math>M = 3.58</math>, <math>SD = 0.93</math>) reported higher degree of perceived shame than men (<math>M = 3.19</math>, <math>SD = 0.86</math>), <math>F(1, 253) = 11.90</math>, <math>p &lt; .001</math>, <math>\eta^2 = .04</math>, 1.;</p> <p>HPV vaccination intentions for female participants: future oriented framing facet (soon) &amp; attribute framing facet (no costs): higher intentions, <math>F(1, 249) = 11.03</math>, <math>p &lt; .01</math>, <math>\eta^2 = .04</math>; even further future oriented framing facet (future): <math>F(1, 250) = 13.56</math>, <math>p &lt; .001</math>, <math>\eta^2 = .05</math>.; present oriented framing facet (today): <math>F(1, 255) = 13.97</math>, <math>p &lt; .001</math>, <math>\eta^2 = .05</math>; soon &amp; free &gt; future/today &amp; free HPV vaccination intentions: STI framing facet, future oriented framing facet (soon), Attribute framing facet (costs: \$375) &amp; gender (female): significant interaction between STI framing and gender, <math>F(1, 250) = 7.10</math>, <math>p &lt; .01</math>, <math>\eta^2 = .03</math>.; STI + future (soon) + costs + gender (female) = significant</p> <p>Non-STI framing facet, future oriented framing facet (soon), attribute framing facets costs/\$375), gender (female): stronger intention, <math>b = .96</math>, <math>p &lt; .01</math>.; same as above, just for present oriented framing facet (today): significant interaction effect, <math>F(1, 252) = 4.23</math>, <math>p &lt; .05</math>, <math>\eta^2 = .02</math>.; Non-STI framing facet led female participants to report higher HPV vaccination intentions for present (today) and for the attribution of costs, <math>b = .84</math>, <math>p &lt; .01</math>.</p>	quasi-experiment
Study 6	Kim and Nan (2019)	USA	students who had received any HPV vaccination shot excluded, students, 416 participants (M age = 20.05, SD = 2.37; 33.7% female; 57.2% White, 19.5% Asian, 16.3% Blacks, 6.3% Hispanic, and 0.7% Others), 2 (narrative vs non-narrative) X 2 (present- vs future-oriented message)	<p>main effects of temporality framing facets were statistically significant on attitudes, <math>F(1, 408) = 4.71</math>, <math>p = .03</math>, and approached significance on intentions when the vaccine cost US\$360, <math>F(1, 408) = 2.68</math>, <math>p = .10</math>.</p> <p>HPV vaccination attitudes: non-narrative (expository/thematic) framing facet: = 6.12, narrative framing facet: = 5.88, expository &gt; narrative; interactions: present oriented framing facet + narrative framing facet = future oriented framing facet + narrative/expository framing facet</p> <p>HPV vaccination intentions: expository framing facet: = 3.08 narrative framing facet: = 2.83;</p> <p>interactions for HPV vaccination intentions: narrative framing facet + attribute framing facet (no costs) + present oriented framing facet &gt; narrative framing facet + attribute framing facet (no costs) + future oriented framing facet; = expository framing facet + future oriented framing facet</p>	quasi-experiment

Study 7	Vorpahl and Yang (2018)	USA	359 participants: 56.3% male and 43.7% female, 55.4% White ranging in age from 18 to 50 (only six participants reported being older than 26 years), 2 (STI vs non-STI) x 2 (internal vs external)	<p>HPV vaccination behavior:  attribute framing facet (internal responsibility): <math>M = 5.08</math>, <math>SD = 1.36</math>, <math>F(1, 256) = 4.05</math>, <math>p &lt; .05</math>, <math>d = .25</math>.,  attribute framing facet (external responsibility): <math>M = 5.40</math>, <math>SD = 1.23</math>,  external attribute framing facet &gt; internal attribute framing facet</p> <p>HPV vaccination intentions:  STI framing facet+ attribute framing facet (others contracting participant): perceived susceptibility increased and led to higher HPV vaccination intentions, <math>F(1, 224) = 4.69</math>, <math>p &lt; .05</math>, <math>\eta^2 = .02</math>, (<math>b = .73</math>, <math>p &lt; .05</math>);  gender (female): females participating (<math>M = 5.62</math>, <math>SD = 1.31</math>) expressed stronger vaccination HPV intentions than participating males (<math>M = 4.92</math>, <math>SD = 1.22</math>), <math>F(1, 253) = 19.23</math>, <math>p &lt; .001</math>, <math>d = .55</math>,  gender (female) + attribute framing facet (no costs): more likely to report HPV vaccination intentions,  <math>F(1, 247) = 16.22</math>, <math>p &lt; .001</math>, <math>\eta^2 = .06</math>,  STI framing facet + attribute framing facet (others pass it on participant): even participants with negative perceptions of the effectiveness of the HPV vaccination expressed significantly higher vaccination intentions (<math>b = .80</math>, <math>p &lt; .05</math>)</p>	quasi-experiment
Study 8	Virtanen (2019)	Finland	research materials I: official Finnish promotion material for current HPV vaccination campaign, taken from their official website including texts, pictures, visual material, and videos, as well as publicly available material from its planning by an advertising company, which, again, includes texts and visualizations, which people were able to comment on before the campaign's initiation; research body II: 4 threads from Finnish chatroom discussions about the HPV vaccination held by girls in recommended HPV vaccination age range, leading to the selection of 447 comments to analyse	<ul style="list-style-type: none"> <li>gendering or feminization of the HPV vaccination</li> <li>the vaccination campaign by the health professionals, as well as the online chat room discussion by girls suiting the recommended HPV vaccination age displayed the close displayed close relatedness of HPV to cervical cancer and its prevention by a vaccination targeting women. Thus, virus and vaccinator were focused on women</li> <li>feminizing HPV and its vaccination miss to grasp broader topics that matter to more members of society than the targeted ones, such as topics like herd immunity</li> <li>individual girls and collectives were targeted</li> <li>additionally, the campaign material also targeted cervical cancer as main consequence of an HPV contraction</li> <li>however, the chain of arguments was represented rationally and responsibly: HPV causes cervical cancer, cervical cancer can kill, the vaccination effectively protects against it (according to studies), thus, vaccinating protects from the aforementioned form of cancer</li> <li>this rational choice framing of the reception of the HPV vaccination was recognized in the chatroom discussions as well</li> <li>still, girls who were not convinced by the framing facets applied in primatual material, mentioned pap-tests as effective method to prevent cervical cancer on an individual basis</li> <li>thus, the collective of girls might have been reached by the feminized framing facet applied in the official vaccine promotion, but the individual remains critical and relied on pap-tests, which eventually affects the collective</li> </ul>	interpretative, thematic framing and taming (content) analysis of HPV and cervical cancer, as well as (ii) the subject-shaping of the adolescent girls, said interpretations are based on the epistemic-factual and social dimensions
Study 9	Niccolai, North, Footman, and Hansen (2018)	USA	Semi-structured interviews with 32 clinicians in 2015, questionnaire included general questions regarding clinicians' experiences and practices concerning the HPV vaccination, and questions regarding school requirements of the HPV vaccination, interviews were transcribed	<ul style="list-style-type: none"> <li>lack of requirements for the HPV vaccinations affect health professionals' recommendations, imply non-urgency of the HPV vaccination (framing facet), as well as the low quality thereof</li> <li>recommendations matter, especially when they are made by professionals around the point in time in which the child fits the age range to receive the vaccine, when the vaccine is constantly recommended and its importance and urgency are underlined</li> <li>many professionals recommended the HPV vaccination, despite the implications elaborated above</li> </ul>	qualitative study analysing 32 interviews in iterative thematic approach



				<ul style="list-style-type: none"> <li>● focus on cancer prevention could help without mentioning the non-requirement (framing facet) thereof, as this might delay parents' compliance</li> <li>● professionals from private insurances fear that conversations between health professionals and parents might take longer and become different when schools initiate requirements for the HPV vaccination</li> <li>● professionals working in the private sphere were more critical of HPV vaccination requirements; timely pressures might account as reason for their critical opinions</li> <li>● Another issue raised by professionals was the relatedness of HPV to sex which can be difficult for clinicians to bring up in conversations with parents</li> <li>● political difficulties prevented requirements earlier, though a requirement is thought to raise the HPV vaccination uptake, another issue, the involvement of disagreeing health professionals, arises</li> <li>● some professionals prioritize individual autonomy concerning the reception of vaccinations in general, and specifically in the context of HPV, as the contraction requires sexual activity which they perceive as unlikely at school</li> </ul>	
<b>Study 10</b>	<b>Li, Nowak, Jin, and Cacciatore (2018)</b>	China	two searches for “疫苗”(vaccine), “宫颈癌” (cervical cancer), and/or “HPV” were conducted to find news articles concerning the HPV vaccination, first: on China Core Newspapers Full- text Database, second: used Chinese online search engine, final sample of 253 news articles	<ul style="list-style-type: none"> <li>● 99.2% off all selected articles reported on the relatedness of HPV and cervical cancer, 31.6% reported on its relatedness to other forms of cancer, 36.8% reported on the relatedness of HPV and STIs, such as genital warts, while only 32% explicitly mentioned the sexual transmission thereof</li> <li>● 81.8% of the articles were written in an expository (thematic) frame, while 0.8% applied a narrative (episodic) framing facet, and 17% applied a combination</li> </ul>	content analysis

## Annex 5. Search Strategy and Criteria for German Newspaper Articles



## Annex 6. List of Documents for Sample of German Articles

1. Bartens, W. (2009, August 20). Ohnmacht und Thrombosen; Nebenwirkungen schüren Zweifel an HPV-Impfung. *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 18.
2. Bartens, W. (2009, September 30). Tod nach der Spritze; Zusammenhang mit HPV-Impfung gegen Krebs unklar. *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 16.
3. Bartens, W. (2018, September 20). Streit um die reine Lehre; Schwere Belastungsprobe für Cochrane Collaboration. *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 16.
4. bern. (2009, 20 May). Infektion ohne Sex; HP-Viren finden sich schon bei kleinen Mädchen. *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 20.
5. bern. (2009, August 11). Ratschlag bestätigt; Kommission rät zu HPV-Impfung. *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 14.
6. Berndt, C. (2008, December 20). Ein Brief an die Impfkommision; Bundesausschuss fordert neue Bewertung der HPV-Impfung. *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 22.
7. Berndt, C. (2008, December 5). Ich meide rohes Rindfleisch; Medizin-Nobelpreisträger Harald zur Hausen über krebsauslösende Viren und den Streit um die HPV-Impfung. *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 18.
8. Berndt, C. (2008, January 26). Kleine Stiche, große Freunde; Die für Impfungen zuständige Kommission pflegt allzu enge Industrie- Kontakte und riskiert ihre Glaubwürdigkeit. *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 22.
9. Berndt, C. (2008, January 30). Man kann gut darauf verzichten; Krebs-Impfung nach zwei Todesfällen erneut in der Diskussion. *Süddeutsche Zeitung*, p. 18.
10. Berndt, C. (2008, November 26). Marketing um jeden Preis; Mit einer ebenso subtilen wie aggressiven Kampagne haben die Pharmafirmen ihre Impfstoffe in den Markt gedrückt. *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 16.
11. Berndt, C. (2008, November 26). Schnellschuss mit fehlender Präzision; In einem Manifest kritisieren deutsche Wissenschaftler die Empfehlung, Teenager gegen Gebärmutterhalskrebs zu impfen. *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 16.
12. Berndt, C. (2009, July 7). Höhere Hürde für Viren; Zweiter HPV-Impfstoff schützt besser vor Krebsvorstufen. *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 16.
13. Berndt, C. (2009, June 19). Impfkommision erneut in der Kritik; Die Empfehlung des Gremiums zum HPV-Schutz fußt offenbar auf schlampiger Expertise. *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 18.
14. Berndt, C. (2013, February 22). Das Eindringen der Pharmaindustrie; Ob es um den Wert der Mammografie geht, den Salzkonsum oder den Nutzen einzelner Arzneien: Die Cochrane Collaboration gilt als Hort der Unabhängigkeit. Doch Insider befürchten eine schleichende Übernahme (...). *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 16.
15. Berndt, C. (2013, April 23). Ein erster Erfolg; HPV-Impfung schützt zumindest vor Genitalwarzen. *Süddeutsche Zeitung (inkl. Regionalausgaben)*, p. 16.
16. Brüning, A. (2011, September 20). Schutz vor HPV auch für Jungen; Das Virus löst nicht nur bei Frauen Krebs aus. *Frankfurter Rundschau*, p. 22.
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## Annex 9. Coding Scheme

Source	Variable	Value				
Pența & Băban, (2014, p.982, Table I., but adjusted)	Publishing Outlet					
			FAZ			
			Frankfurter Rundschau			
			Süddeutsche Zeitung			
			taz			
Pența & Băban, (2014, p.982, Table I.)	Year of Publication				2013	
			2007		2014	
			2008		2015	
			2009		2016	
			2010		2017	
			2011		2018	
			2012		2019	
Tu et al. (2019, p.60), based on used definitions	Goal Framing Facet					
		“Gain “	Does the article “emphasize the advantages of performing the advocated action and highlight the benefits of performing preventive behaviors (e.g., regular exercise benefits mental and physical health)” ?			
		“Loss“	Does the article “emphasize the consequences of failing to perform the advocated action, which means the costs of not performing detection behaviors” ?			
Virtanen (2019, p.14), based on conclusions	Feminizing Framing Facet					

		Female	Is the article including information regarding the HPV vaccination “targeted directly at the adolescent girls” ?	
Li et al. (2018, p.589)	“Cervical Cancer-Relation“	Female	“Does the article contain information about the relation between HPV and cervical cancer?”	
Niccolai et al. (2018, p.33), based on conclusions	Non-Urgency/ Non-Requirement Framing Facet			
			Does the article frame the reception of the HPV vaccination as “optional or non-urgent” ?	
Virtanen (2019, p.14), based on conclusions	Rational Choice Framing Facet			
			Does the article discuss the recipient of the HPV vaccination as "rational and responsible subject consciously taking care of (...) health by getting the shot“ ?	
Kim & Nan (2016, p.1092), based on stimuli	Temporality Framing Facet			
		“Present oriented“	Does the article mention that the “the benefits of HPV vaccination would be obtained, (...) in the near future (...)” ?	
		“Future oriented“	Does the article mention that the “the benefits of HPV vaccination would be obtained, (...) in the distant future (...)” ?	
Li et al. (2018, p.589)	“News framing”			
		“Thematic“ (Expository)	Does the article “place issues into a broader social context; focus on the issue or trends over time, include the public (the surrounding environment, public institutions), highlight how to fix the person experiencing a problem, may use historical data, statistics, and expert interviews” ?	
		“Episodic“ (Narrative)	Does the article “present an issue by offering a specific example, case study, or event-oriented report; focus on an individual or a single event, keep its focus on the private realm (an individuals’ psychology, or behaviors within in a family), highlight(s) how to fix the conditions that led to the problem, may use typical storytelling techniques, such as characters, plots, and conflicts” ?	

Yang & Pittman (2017, p.990), based on method	STI-Framing Facet		
			Does the article frame HPV as STI?
Li et al. (2018, p.589)	“Genital Warts Relation“		“Does the article contain information about the relation between HPV and genital warts?”
Li et al. (2018, p.589)	“Sexual Trans-mission“		“Does the article mention that HPV is sexually transmitted?”
Li et al. (2018)	“Sexually transmitted disease (STD) prevention”		Does the article “highlight the goal of HPV vaccination (...) to prevent people from being infected with sexually transmitted diseases, such as warts” ?

## Annex 10. Codebook - Results based on Coding Scheme

(blue indicates “taz”, red indicates “Frankfurter Rundschau”, yellow indicates “FAZ”, and green indicates “Süddeutsche Zeitung”; “1” indicates “detected”, “0” indicates “not detected”)

article	year	gain framing facet	loss framing facet	feminized framing facet	non-urgency/ non-requirement framing facet	rational choice framing facet	expository framing facet	narrative framing facet	present oriented framing facet	future oriented framing facet	STI framing facet
24	2008	0	0	1	1	0	1	0	0	0	1
9	2008	0	0	1	0	0	1	0	0	0	1
50	2009	1	0	1	0	0	1	0	0	0	1
7	2008	0	0	1	0	0	1	0	0	0	0
64	2019	0	0	0	0	0	1	0	0	0	0
44	2018	1	0	0	0	0	1	0	1	0	1
63	2016	1	0	1	0	0	0	0	0	1	1
58	2018	0	1	1	1	1	1	0	0	1	0
42	2009	0	0	1	0	0	1	0	0	0	0
14	2013	0	0	1	0	0	1	0	0	0	0
38	2009	0	0	0	0	0	0	1	0	0	0
48	2012	0	0	1	0	0	0	1	0	0	1
26	2008	0	0	1	1	0	1	0	0	0	1
36	2009	1	0	1	0	0	1	0	0	0	1
59	2008	0	0	0	0	0	1	0	0	0	0
17	2009	0	0	1	0	0	1	0	0	0	0
6	2008	0	0	1	0	0	1	0	0	1	1
15	2013	0	0	1	0	0	1	0	0	0	1
27	2009	0	0	0	0	0	0	1	0	0	0
60	2008	1	0	1	0	0	0	1	1	1	0
23	2015	0	0	1	0	0	1	0	0	0	0
28	2018	0	0	0	0	0	0	1	0	0	0
56	2009	0	0	1	1	0	0	1	0	0	1
12	2009	0	0	1	0	0	1	0	0	0	1
45	2018	1	0	1	0	1	1	0	0	1	1
25	2012	1	0	1	0	1	1	0	0	0	1
47	2010	0	0	1	0	0	1	0	0	0	0
49	2013	1	1	1	0	1	1	0	0	1	0
65	2019	1	0	1	0	0	1	1	0	1	1
13	2009	0	0	1	0	0	1	0	0	0	0
52	2019	0	0	1	0	1	1	1	0	0	0
55	2018	0	0	1	0	0	1	0	0	1	1
21	2018	1	0	1	0	1	1	0	0	1	1
4	2009	1	0	1	0	1	1	0	0	0	1



54	2008	1	0	1	0	0	1	0	0	1	0
35	2008	0	0	1	0	0	1	0	0	0	0
8	2008	0	0	0	0	0	1	0	0	0	0
46	2007	0	1	1	0	0	1	0	0	1	1
57	2009	0	0	1	1	0	1	0	0	1	0
39	2007	0	1	1	1	1	1	0	0	1	1
43	2009	0	0	1	0	0	1	0	0	0	0
22	2009	1	0	1	0	1	1	0	0	1	0
10	2008	0	0	1	0	1	0	1	0	0	0
30	2008	0	0	1	0	0	1	0	0	1	1
41	2008	0	0	1	0	0	1	0	0	1	0
61	2008	1	0	1	0	0	1	0	0	1	1
1	2009	0	0	1	1	0	1	0	0	1	0
19	2007	0	0	1	0	0	1	0	0	0	0
37	2009	0	0	1	0	0	1	0	0	1	1
5	2009	0	0	1	1	0	1	0	0	1	1
11	2008	1	0	1	0	1	1	1	1	1	1
51	2018	0	0	1	0	0	1	0	0	1	1
18	2007	0	0	1	0	0	1	0	0	1	1
16	2011	1	0	1	0	0	1	0	1	1	1
20	2018	1	0	1	0	0	0	1	0	0	0
31	2008	1	1	1	0	0	0	1	0	1	0
3	2018	0	0	0	1	0	1	1	0	0	0
33	2008	0	0	1	0	0	1	0	0	0	0
34	2007	0	0	1	1	1	1	1	1	1	1
2	2009	0	0	1	0	0	1	0	0	0	0
53	2019	1	0	1	0	0	1	0	0	0	0
40	2007	0	0	1	0	0	1	0	1	1	1
32	2019	0	0	1	0	0	1	0	0	0	1
62	2018	0	1	1	1	1	1	0	0	0	1
29	2018	0	0	1	0	0	1	0	0	0	0
N	65	19	6	57	11	13	55	14	6	27	32