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Gendered hate speech in YouTube and YouNow comments: Results of two content analyses

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Abstract: Online hate speech in general, and gendered online hate speech in particular, have become an issue of growing concern both in public and academic discourses. However, although YouTube is the most important social media platform today and the popularity of social live streaming services (SLSS) such as Twitch, Periscope and YouNow is constantly growing, research on gendered online hate speech on video platforms is scarce. To bridge this empirical gap, two studies investigated gendered online hate speech in video comments on YouTube and YouNow, thereby systematically replicating a study by Wotanis and McMillan (2014). Study 1 investigated YouTube in the form of a content analysis of N = 8,000 publicly available video comments that were addressed towards four pairs of female and male German-speaking YouTubers within the popular genres *Comedy, Gaming*, *HowTo & Style*, and *Sports [Fitness]*. Study 2 examined YouNow, with a quantitative content analysis of N = 6,844 publicly available video comments made during the video streams of 16 female and 14 male popular German-speaking YouNowers. Study 1 successfully replicated the findings of Wotanis and McMillan (2014) that compared to male YouTubers, female YouTubers received more negative video comments (including sexist, racist, and sexually aggressive hate speech) (H1a). In addition, they received fewer positive video comments regarding personality and video content but more positive video comments regarding physical appearance (H2a). Study 2 partly confirmed the earlier findings: It found that, compared to male YouNowers, the video comments received by female YouNowers were more sexist and sexually aggressive, but not generally more hostile or negative (H1b). They received more positive video comments regarding their physical appearance but did not receive fewer positive video comments regarding their personality or the content of their videos (H2b). With some exceptions, the findings of study 2 were comparable to the findings of study 1 (RQ1). In both studies, most effect sizes were small. Overall, females on the video platforms YouTube and YouNow seem to be disproportionately affected by both hostile and benevolent sexism expressed in viewer comments. The results are in line with the Expectation States Theory and the Ambivalent Sexism Theory. The total number of public hate comments was probably underestimated because inappropriate comments can be deleted by moderators and users. Future research directions and practical implications are discussed. Supplementary material can be retrieved from https://osf.io/da8tw

Keywords: Online hate speech, online sexism, YouTube, YouNow, media content analysis, replication.

Zusammenfassung: Online-Hassrede im Allgemeinen und geschlechtsspezifische Hassrede im Speziellen sind zu Problemen geworden, die mit zunehmender Besorgnis in öffentlichen und akademischen Diskursen behandelt werden. Dennoch gibt es bisher kaum Studien zu geschlechtsspezifischer Hassrede auf Videoplattformen, und dass, obwohl YouTube heutzutage die wichtigste Social-Media-Plattform darstellt und die Popularität von Social Live Streaming Services (SLSS) wie z. B. Twitch, Periscope und YouNow stetig wächst. Um diese empirische Lücke zu füllen, untersuchten zwei Studien geschlechtsspezifische Hassrede in Videokommentaren auf YouTube bzw. YouNow und replizierten dabei systematisch eine Vorläuferstudie von Wotanis und McMillan (2014). Studie 1 untersuchte YouTube in Form einer Inhaltsanalyse von N = 8.000 öffentlich sichtbaren Videokommentaren, die sich an vier Paarungen weiblicher und männlicher deutschsprachiger YouTuber*innen aus den beliebten Genres *Comedy, Gaming*, *HowTo & Style* und *Sports [Fitness]* richteten. Studie 2 untersuchte YouNow mit einer quantitativen Inhaltsanalyse von N = 6.844 öffentlich zugänglichen Videokommentaren, die während der Video-Streams von 16 weiblichen und 14 männlichen populären deutschsprachigen YouNower*innen geäußert wurden. Studie 1 konnte erfolgreich die Befunde von Wotanis und McMillan (2014) replizieren, dass weibliche im Vergleich zu männlichen YouTuber*innen mehr negative Videokommentare (inklusive sexistischer, rassistischer, und sexuell aggressiver Hassrede) erhielten (H1a). Außerdem erhielten sie weniger positive Videokommentare zu ihrer Persönlichkeit und dem Inhalt ihrer Videos, aber mehr positive Videokommentare hinsichtlich ihres Aussehens (H2a). Studie 2 konnte die vorherigen Befunde teilweise bestätigen: Es wurde festgestellt, dass weibliche YouNower*innen im Vergleich zu männlichen YouNower*innen mehr sexistische und sexuell aggressive Video-Kommentare erhalten, aber nicht generell mehr feindselige oder negative Video-Kommentare (H1b). Sie erhielten außerdem mehr positive Videokommentare zu ihrem Aussehen, aber nicht weniger positive Videokommentare zu ihrer Persönlichkeit oder dem Inhalt ihrer Videos (H2b). Mit einigen Ausnahmen waren die Ergebnisse von Studie 1 mit denen aus Studie 2 vergleichbar (RQ1). In beiden Studien waren die meisten Effektstärken klein. Insgesamt scheinen Frauen auf den beiden Video-Plattformen YouTube und YouNow disproportional von feindseligem und wohlwollendem Sexismus betroffen zu sein, der in den Kommentaren des Publikums zum Ausdruck kommt. Die Ergebnisse stehen im Einklang mit der Theorie der Erwartungszustände und der Theorie des ambivalenten Sexismus. Die Gesamtzahl der öffentlichen Hasskommentare wurde in dieser Studie wahrscheinlich unterschätzt, da diese von Moderator*innen und Nutzer*innen gelöscht werden können. Zukünftige Forschungsmöglichkeiten und praktische Implikationen werden diskutiert. Zusätzliches Material kann unter https://osf.io/da8tw abgerufen werden.

Schlüsselwörter: Online-Hassrede, Online-Sexismus, YouTube, YouNow, Medieninhaltsanalyse, Replikation.

1. Introduction

There is an ongoing public and scientific discussion about online hate speech, which mainly focuses on its negative effects (Citron, 2009; Faulkner & Bliuc, 2016; Gagliardone et al., 2016; Willard, 2007; Wright, 2014). Building upon Meibauer (2013, p. 1), *online hate speech* can be defined as verbal expressions of hate in online settings, typically by using abusive terms that serve to denigrate, degrade, and threaten. The term *hate* addresses the unobservable emotion that supposedly causes those verbal expressions, while the term *hate speech* addresses the observable verbal expressions themselves. However, the terms "online hate"

and "online hate speech" are often used interchangeably. Our article focuses on online hate speech as an observable phenomenon that can be investigated with online media content analyses.

1.1 Definition of gendered online hate speech

One prominent aspect of online hate speech is a *gender bias* that can come in the form of a *hostile* sexist gender bias (i.e., negative prejudice against one gender; e.g., "women cannot think as logically as men" or "men cannot express their feelings as authentically as women") as well as a *benevolent* sexist gender bias (i.e., positive attitudes that view one gender stereotypically and in restricted roles; e.g., "women are the beautiful gender" or "men are the strong gender") (Glick & Fiske, 1997). While the terms "gender bias" and "sexism" leave open which gender is discriminated against, in practice, research shows that women are more often the victims of a sexist gender bias than men in both offline (Nielsen, 2002) and online hate speech (Citron, 2009; Döring & Mohseni, 2019; Gardiner, 2018; Hackworth, 2018; Jane, 2012, 2013, 2016, 2017; Tucker-McLaughlin, 2013; Wotanis & McMillan, 2014). We use the term *gendered online hate speech* to address online hate speech that is addressed towards women or men and has sexist and/or sexually aggressive content (D'Souza, Griffin, Shackleton, & Walt, 2018; Jane, 2016). We prefer the term "gendered online hate speech" (e.g., D'Souza et al., 2018) over the term "sexist online hate speech" (e.g., Lillian, 2016) because it is broader and can cover *sexually aggressive expressions* as an important additional element besides the expression of sexist attitudes (e.g., Aktas Arnas, Ördek Iceoglu, & Gürgah Ogul, 2016). Sexually aggressive messages by strangers and out of the context of a consensual intimate relation (e.g., "you make me hot I have to fuck you") are regarded as part of gendered offline and online hate speech because they sexually objectify, degrade, offend or even scare the victim (Nielsen, 2002). Furthermore, we prefer the term "gendered online hate speech" over "misogynist online hate speech" in order to address not only women but also men (cf. D'Souza et al., 2018).

We restrict our investigation of gendered online hate speech to female and male victims. Nevertheless, we would like to stress that for a full picture of gendered online hate speech, the whole range of currently acknowledged genders should be covered. Since in Germany, the *third gender "divers"* [diverse] has been officially and legally part of the gender spectrum since 2018, future studies on gendered hate speech should explicitly deal (both theoretically and empirically) with gender bias and sexism towards gender-diverse people. Tackling these important and complex issues was beyond the scope of this article, however.

1.2 Consequences of gendered online hate speech

Online hate speech can have several negative consequences of varying severity for victims and bystanders. For instance, YouTube users victimized by online hate speech visit the video platform less regularly (Molyneaux, O'Donnell, Gibson, & Singer, 2008), post fewer comments (Molyneaux et al., 2008), and stop uploading

videos (Moor, Heuvelman, & Verleur, 2010), which puts them at a professional disadvantage if they are trying to earn a living online (Citron, 2009). Victims of online hate speech experience feelings of worry and anger (Obermaier, Hofbauer, & Reinemann, 2018) or pain and depression (Citron, 2009; Lange, 2007). In extreme cases, online hate speech can lead to offline violence (Müller & Schwarz, 2017; Schieb & Preuss, 2016), or to victims of online hate speech committing suicide (Citron, 2009).

For women, the sexist gender bias amplifies the negative consequences: On YouTube, women are more often on the receiving end of gendered online hate speech (Döring & Mohseni, 2019; Szostak, 2013; Tucker-McLaughlin, 2013), with prominent women being no exception (Burgess & Green, 2018, p. 119). In particular, videos containing feminist content seem to attract extreme hate comments (Eudey, 2008; Siddiqui, 2008). *The Guardian*'s evaluation of its own 70 million online articles and related reader comments is in line with these scientific findings, with more hate comments found on articles by female journalists and / or on articles about feminism or rape (Gardiner, 2018). Some studies also found benevolent forms of a sexist gender bias. For instance, an attractive female YouTuber can receive more compliments for her appearance than a comparably attractive male YouTuber (Döring & Mohseni, 2019; Wotanis & McMillan, 2014). Benevolent sexism is probably not detectable at the level of a single comment because it might look like a regular compliment. It can only be recognized if a comparably attractive male does not receive a comparable number of positive comments for his appearance. Benevolent sexism in terms of praising a woman's (but not a man's) beautiful appearance in online comments can foster the gender stereotype that women (but not men) are expected to be good-looking, an expectation related to sexual objectification (Glick & Fiske, 1997).

In addition to the negative consequences for the victims of gendered online hate speech, the sexist gender bias can influence "bystanders" as well, because merely interacting with sexist online content can reinforce sexist attitudes (Fox, Cruz, & Lee, 2015). It is unknown which groups of internet users are confronted and how often with what types of gendered or non-gendered online hate speech and how they react to it. However, it is fair to assume that exposure to online hate speech in the bystander role is common. For instance, Robertz, Oksanen, and Räsänen (2016) found in a four-country study that more than 30% of adolescents and young adults state that they have seen online hate material during the last three months (Germany: 31%; UK: 39%; Finland: 48%; USA: 53%). In Germany, more than 60% of adolescents report life-time exposure to online hate speech (2016: 65%; 2017: 67%; 2018: 78%; Landesanstalt für Medien NRW, 2018), while in Finland, 67% of adolescents report having seen hate material on Facebook during the last three months (Oksanen, Hawdon, Holkeri, Näsi, & Räsänen, 2014).

1.3 Theories of gendered online hate speech

Theories of online hate speech explain why the risk of hostile behavior is higher in online settings. Some theories focus on the special characteristics of online communication that facilitate aggression. For instance, the *Online Disinhibition*

Effect (Suler, 2004) conceptualizes anonymity as one of six facilitating characteristics. Due to being anonymous online, the communicator can avoid responsibility for hate speech comments, which increases their likelihood of occurrence. Other theories focus on the different social processes that facilitate group-based aggression. For instance, the *Social Identity Model of Deindividuation Effects* (Reicher, Spears, & Postmes, 1995) states that anonymity promotes group identification, thus shifting the norms of behavior away from personal norms towards group norms. This can promote hate speech comments if a group norm advocates aggression (e.g., against people with lower social status or against outgroup members).

Theoretical explanations of sexist gender bias focus on social role expectations and gender stereotypes. For instance, the *Expectation States Theory* (Berger, Fisek, Norman, & Zelditch, 1977) conceptualizes gender status beliefs, which attribute less competence and less social status to women, as the cause of discriminatory behavior. If men and women act according to gender status beliefs, gender stereotypes are reinforced, and women are more at risk of being targeted by sexist online hate speech than men. In addition, the *Ambivalent Sexism Theory* explains why sexist gender bias can not only come in a hostile form (e.g., denigrating women through online hate speech), but also in a benevolent form (e.g., complimenting women for their appearance, but not for their performance; Glick & Fiske, 1997).

The theories of gendered online hate speech explain the potential reasons why observable gendered online hate speech material is generated in the form of public comments. The theories, therefore, can be employed to make predictions about the amount and form of gendered online hate speech.

1.4 Prevalence of gendered online hate speech

Regarding the prevalence of online hate speech victimization, only a small number of studies exist. In their four-country study, Robertz et al. (2016) found that 4–16% of adolescents and young adults report life-time victimization by online hate speech (Germany: 4%; UK: 11%; Finland: 11%; USA: 16%). In a school survey in Germany, 31% of adolescents said that they had been mocked, insulted, or threatened via internet or smartphone during the last six months of the school year (Bergmann, Baier, Rehbein, & Mößle, 2017, p. 60). In Finland, 21% of adolescents indicate victimization by online hate speech on Facebook during the last three months (Oksanen et al., 2014). Compared to the prevalence of victimization, however, the prevalence of hate material seems to be lower. For Twitter, Davidson, Warmsley, Macy, and Weber (2017) found that around 5% of tweets contain hate speech. For YouTube, Burgess and Green claim that online hate speech has become "normalized [...], at least for the most popular videos" (2018, p. 119), while studies specify that around 3–5% of the comments on YouTube contain hate speech (Ernst et al., 2017: 3%; Döring & Mohseni, 2019: 4%; Wotanis & McMillan, 2014: 5%). While all these studies address the prevalence of online hate speech in general, there are also studies that deal specifically with gendered online hate speech.

Research to date has shown that gendered online hate speech can be observed on various social media platforms, such as news sites (Gardiner, 2018), online video games (Fox & Tang, 2015; Tang & Fox, 2016), social networking sites like Facebook (Jane, 2016, 2017), or microblogging services like Twitter (Amnesty International, 2018; Fox et al., 2015). Around 10% of social media users report being victimized by gendered online hate speech in the last three months (Oksanen et al., 2014). In the following, the prevalence of gendered online hate speech on the video platforms YouTube and YouNow will be examined in more detail.

Previous research on gendered online hate speech has already investigated the social media video platform YouTube (Döring & Mohseni, 2019; Wotanis & McMillan, 2014). This is not surprising given the importance of YouTube, which is the world's most visited web address after the search engine Google (Alexa Traffic Ranks, 2019). In general, web video enjoys a very high and growing popularity, especially among younger target groups (Defy Media, 2016; Feierabend, Rathgeb, & Reutter, 2018). The previous studies reveal that women are more often the target of gendered online hate speech than men (about 2-4 times in the case of YouTube, Cramér's *V*s ranging between .05 and .19), and that sexist attitudes together with social media characteristics lead to increased gendered online hate speech (Döring & Mohseni, 2019; Wotanis & McMillan, 2014).

However, a relatively new type of social media video platform – so called *Social Live Streaming Services* (SLSS) such as Twitch, Periscope or YouNow – has remained under-researched. SLSS are a combination of Social Networking Services (SNS) and *live streaming* (Friedländer, 2017; Scheibe, Fietkiewicz, & Stock, 2016). Live streaming refers to the simultaneous recording and transmission of online streaming media (mostly video) in real time. The research gap regarding hate speech on SLSS is all the more regrettable as live video is becoming increasingly popular (Friedländer, 2017; Stohr, Li, Wilk, Santini, & Effelsberg, 2015) and is attracting a particularly young audience (e.g., teenagers on YouNow: Scheibe et al., 2016) that is more susceptible to online hate speech (Fleischhack, 2017; Hawdon, Oksanen, & Räsänen, 2016; Oksanen et al., 2014; Robertz et al., 2016). However, as far as we know, no study exists that reports the prevalence of (gendered) hate speech on YouNow.

1.5 Aim of the current studies on gendered online hate speech in YouTube and YouNow comments

Against this backdrop, two media content analyses were carried out to measure the prevalence and types of gendered online hate speech in YouTube and YouNow comments. YouTube and YouNow were chosen because they are two very popular online video platforms. Our studies are designed as systematic replication studies of the original study by Wotanis and McMillan (2014), which is one of the most relevant studies on *gendered online hate speech in video comments* on YouTube. Wotanis and McMillan (2014) found that the popular female U.S. YouTuber Jenna Mourey received four times more negative video comments than the comparably popular male U.S. YouTuber Ryan Higa. This included sexist, racist,

and sexually aggressive hate comments. With the exception of comments regarding her attractive physical appearance, Jenna Mourey also received fewer positive video comments. However, the study only covered a single YouTube genre (Comedy) and a single country (USA). It remains unclear if the findings of Wotanis and McMillan (2014) can be generalized to and across other YouTube genres, other video platforms, and other countries.

Thus, we conducted one replication study covering YouTube with a broader spectrum of YouTube genres (Comedy, Gaming, HowTo & Style, and Sports [Fitness]), plus one replication study that addressed a different video platform than YouTube, namely YouNow. Both replication studies were conducted for a different country than the USA, namely Germany. Although replication studies are very important to validate empirical results and ensure their generalizability (Bohannon, 2015; Simmons, Nelson, & Simonsohn, 2011; Vermeulen & Hartmann, 2015), until recently they have been extremely rare (Makel, Plucker, & Hegarty, 2012). Our aim was to fill a research gap by contributing to both the growing body of research on gendered online hate speech and to the growing number of replication studies.

2. Study 1

Study 1 *systematically replicated* Wotanis and McMillan (2014) insofar as it analyzed online hate speech in video comments that were addressed at male/female pairs of popular *German-language* YouTubers in *four different YouTube genres* and compared the results with those of the original study.

The hypotheses were directly derived from the findings of the original study:

H1a: Compared to male YouTubers, female YouTubers receive more negative (including sexist, racist, and sexually aggressive) video comments.

H2a: Compared to male YouTubers, female YouTubers receive fewer positive video comments regarding personality and video content, but more positive video comments regarding physical appearance.

3. Materials and methods

3.1 Sample

In order to obtain a more diverse sample, the four most popular YouTube genres in Germany (*Comedy, Gaming*, *HowTo & Style*, and *Sports [Fitness]*) were selected for a systematic replication of Wotanis and McMillan, instead of only examining the genre *Comedy* (2014). The popularity of genres was assessed via SocialBladeBlog (Arnold, 2013). For each genre, one male and one female German-speaking YouTuber were identified who were single-handedly operating a currently active YouTube channel (see Table 1). Channels in the same genre had to be as comparable as possible regarding popularity and the main topics of their videos. The popularity of channels was assessed via SocialBlade (2018). Per YouTuber, the 100 most recent comments from the 10 most popular videos were

sampled on April 29, 2015, resulting in a total of N = 8,000 comments. In two cases, up to 13 videos had to be sampled to retrieve the required 1,000 comments per YouTuber (see Table 1). The sampling was conducted in accordance with the guidelines of the research ethics committee of the American Psychological Association (American Psychological Association, 2016). All the videos and video comments analyzed were publicly available, and no commenter usernames were included in the analysis.

Table 1. Sampled pairings of popular, currently active, German-language YouTube channels produced by a single person (study 1)

Genre	Sex	YouTuber's real name	Channel name
Comedy	Female	Kathrin Fricke	Coldmirror
	Male	Davis Schulz	3dudelsack3
Gaming	Female	Jana von Schlotterstein	Thrashtazmani
	Male	Christian Eschenauer	Suishomaru
HowTo & Style	Female	Dagmara N. Buckley	Dagi Bee
	Male	Timo T.	Lionttv
Sports [Fitness]	Female	Anja Zeidler	Anja Zeidler
	Male	Mischa Janiec	Mischa Janiec

Note. Per channel, the 100 most recent top level comments (excluding replies) of the 10 most viewed videos were sampled, resulting in N = 8,000 comments. In the cases of Thrashtazmani and Anja Zeidler, 11 and 13 videos, respectively, had to be sampled in order to attain 1,000 comments.

3.2 Measures

The codebook from the original study (Wotanis & McMillan, 2014) was modified by adding the category "neutral" for value-free comments that were related to the YouTuber or the video (see Table 2). Inter-coder reliability was assessed in a pretest by two independent coders categorizing the two most recent comments per video, resulting in N = 160 comments. The Gwet's AC1 values for most categories were "almost perfect" except for compliments in regard to the video content, neutral comments, and incomprehensible comments where reliability was "substantial" (Landis & Koch, 1997). In comparison, the Cohen's Kappa values were "substantial" to "almost perfect" except for neutral and incomprehensible comments where reliability was "moderate" (see Table 2). The discrepancy between Cohen's Kappa and Gwet's AC1 can be explained by the low total number of comments in the respective categories. In such cases, Gwet's AC1 should be preferred (Wongpakaran, Wongpakaran, Wedding, & Gwet, 2013). Nevertheless, the definition of neutral and incomprehensible comments in the codebook was improved.

Table 2. Categories, examples, and inter-coder reliability/agreement of the negative/positive feedback codebook (study 1)

Category	Examples	Cohen's Kappa	Gwet's AC1	Agreement %
Negative Critical Feedback				
Criticism Video Content	this is not funny at all	.70	.95	95.6
Criticism Personality	who is this retard? and why so many views?	.76	.98	98.1
Criticism Appearance	i don't think she's hot	.74	.99	98.8
Negative Hateful Feedback				
Explicitly or Aggressively Sexual Hate Comment	are you single, and can i lick you?	.74	.99	98.8
Racist or Sexist Hate Comment	This is why ignorant whores like you belong in the fucking kitchen oh my god that accent sounds like crappy american	.66	.99	98.8
Neutral Feedback				
Neutral Comment	What's that song at the beginning?	.56	.76	84.4
Positive Feedback				
Compliment Video Content	this is really funny	.72	.79	88.1
Compliment Personality	Damn you are fuckin funny	.81	.96	96.9
Compliment Appearance	you have a rockin bod!	.69	.96	96.9
Omitted from Analysis				
Spam	watch this video [including a link]	.85	.99	99.4
Unclassified Comment	I would do the same face at you, and we would look each other till one of us drup dead. Huh!	.43	.63	77.5

Note. This codebook was adopted from Wotanis and McMillan (2014). It was slightly modified by adding a category for neutral comments. *N* = 160 comments were coded by two independent coders.

3.3 Procedure

In order to compare the results with those of the original study by Wotanis and McMillan (2014), "one-sided" 2 × 2 chi-square tests with $\alpha = 5\%$ were calculated using SPSS 23 (since the chi-square distribution does not allow for one-sided testing, all one-sided *p*-values were based on Fisher's exact *p*-tests). In the original study, only relative frequencies (percentages) were provided. These added up to 100 percent although categories were not disjunctive. Therefore, absolute frequencies had to be estimated. To make comparisons feasible, relative frequencies were calculated and categories were aggregated in the same way as in the original study.

4. Results

H1a was confirmed: Women received significantly *more negative critical comments* for their personality and the content of their videos than their male counterparts, $\chi^2(1) = 3.0$, $p = .045$, Cramer's $V = .02$, and they received *more negative sexist, racist or sexually aggressive hate comments*, $\chi^2(1) = 22.5$, $p < .001$, Cramer's $V = .05$. Effect sizes were, however, smaller than in the original study (see Table 3).

H2a was also confirmed: Women received significantly *fewer positive comments for their personality and the content of their videos* than their male counterparts, $\chi^2(1) = 9.2$, $p = .001$, Cramer's $V = .03$, but they received *more positive comments for their physical appearance*, $\chi^2(1) = 124.1$, $p < .001$, Cramer's $V = .13$ (see Table 3).

5. Discussion of study 1

Study 1 is a successful replication of Wotanis and McMillan (2014). Women received more negative comments for their personality and more sexist, racist or sexually aggressive hate comments than men (H1a), while also receiving fewer positive comments for their personality and the content of their videos, but more positive comments for their physical appearance (H2a). The results are similar even though the original study was based in the USA and only investigated one YouTube genre while study 1 was based in German-language countries and investigated four YouTube genres. However, the effect sizes found in study 1 were smaller. Nevertheless, the results demonstrate that women have a higher risk of becoming the victims of gendered online hate speech on YouTube.

The findings are in line with the Expectation States Theory (Berger et al., 1977), which predicts that women "are often penalized for being assertive or expressing dominance" (Fox & Tang, 2014, p. 315). Running a successful public YouTube channel is an example of being assertive and violating the traditional feminine gender role. Results are also in line with the Ambivalent Sexism Theory (Glick & Fiske, 1997), which predicts that women can be discriminated against even in seemingly benevolent forms, such as receiving more positive comments for their physical appearance (but not for their performance).

6. Study 2

The goal of study 2 was to examine the generalizability of the findings of study 1 by replicating the findings for YouTube on a different video platform, namely YouNow. Study 2 investigated *YouNow* because it is one of the most popular SLSS. YouNow was launched in 2011 (Friedländer, 2017) as a standalone complement to YouTube so that YouTubers could use YouNow to get in touch with their audiences in real time through live video accompanied by live chat (Scheibe, Zimmer, & Fietkiewicz, 2017). YouNow is mainly used by teenagers and adolescents (Friedländer, 2017; Honka, Frommelius, Mehlem, Tolles, & Fietkiewicz, 2015; Scheibe et al., 2016) who disseminate their live video streams with hashtags like #deutsch-girl (#German girl) or #deutsch-boy (#German boy) (Döring, 2015).

Table 3. Prevalence of negative/positive feedback within the 100 most recent comments of the most viewed YouTube videos created by Jenna Mourey and Ryan Higa (Original study) vs. four pairs of German-language YouTubers (study 1)

	Female		Male				
Type of feedback	*n*	%	*n*	%	χ^2	*p*	*V*
Original study (Comedy)							
Negative feedback							
Content or personality	83	9.0	27	3.0	30.2	<.001	.12
Sexist, racist or sexually aggressive	83	9.0	9	1.0	62.4	<.001	.18
Total	166	18.0	36	4.0			
Positive feedback							
Content or personality	689	75.0	834	94.0	57.9	<.001	.17
Physical appearance	64	7.0	18	2.0	26.9	<.001	.12
Total	753	82.0	852	96.0			
Omitted from analysis	81	8.1	112	11.2			
Grand total	1,000	100.0	1,000	100.0			
Study 1 (Comedy, Gaming, HowTo & Style, and Sports [Fitness])							
Negative feedback							
Content or personality	477	11.9	428	10.7	3.0	.045	.02
Sexist, racist or sexually aggressive	99	2.5	43	1.1	22.5	<.001	.05
Total	576	14.4	471	11.8			
Neutral feedback							
Neutral comment	975	24.4	1,163	29.1	22.6	<.001	.05
Positive feedback							
Content or personality	1,749	43.7	1,884	47.1	9.2	.001	.03
Physical appearance	219	5.5	42	1.1	124.1	<.001	.13
Total	1,968	49.2	1,926	48.2			
Omitted from analysis							
Spam	52	1.3	40	1.0	1.6	.124	.01
Unclassified comment	527	13.2	455	11.4	6.0	.008	.03
Negative feedback appearance[1]	64	1.6	45	1.1	3.4	.041	.02
Total	643	16.1	540	13.5			
Grand total[2]	4,162	104.1	4,100	102.5			

Note. This is a comparison of the results presented in Wotanis and McMillan (2014, p. 919) with the results of our replication study. In the original study, only relative frequencies were provided. These added up to 100 percent although the categories are not disjunctive. Therefore, absolute frequencies had to be estimated. To make comparisons feasible, relative frequencies were calculated in the same way as in the original study. One-tailed significances based on Fisher's exact p-tests are given for χ^2-values. df = 1. Original study: N = 2,000. Study 1: N = 8,000 comments.

[1]Wotanis and McMillan (2014) omitted this category from further analysis for unknown reasons. Therefore, we included it in the category "omitted from analysis".

[2]Due to the non-disjunctive categories, the frequencies do not add up to 100%.

To investigate gendered online hate speech on YouNow, study 1 was chosen for a systematic replication, thus also replicating Wotanis and McMillan (2014). The video streams of 16 female and 14 male popular YouNowers were selected and *all audience comments within these streams* were recorded. To ensure cross-platform comparability of the results, the comments were analyzed using the same codebook as in study 1. The two hypotheses from study 1 were transferred from YouTube to YouNow.

H1b: Compared to male YouNowers, female YouNowers receive more negative (including sexist, racist, and sexually aggressive) video comments.

H2b: Compared to male YouNowers, female YouNowers receive fewer positive video comments regarding personality and video content, but more positive video comments regarding physical appearance.

In addition, study 2 compared the prevalence of gendered online hate speech between the two video platforms.

RQ1: Compared to YouTube, is gendered online hate speech more prevalent or less prevalent on YouNow?

7. Materials and methods

7.1 Sample

For the systematic replication (H1a and H2a of study 1), German-language YouNow streams were selected that were operated by a single person, were broadcasting between 11 a.m. and 11 p.m., and were ranked in first or second place when searching for the most popular German hashtags #deutsch-girl or #deutsch-boy, respectively (see Table 4). The broadcasting times were balanced in two blocks (11 a.m. to 5 p.m. and 5 p.m. to 11 p.m.; cf. Friedländer, 2017; Honka et al., 2015; Scheibe et al., 2016). The comments were sampled from twenty minutes of each stream in February 2016, resulting in n = 3,687 comments (n = 2,212 from female YouNowers' streams and n = 1,475 from male YouNowers' streams). Twenty minutes seemed to be sufficient, as the median YouNow stream lasts sixteen minutes (Stohr et al., 2015). Since even popular YouNow streams are often rather short-lived and/or change greatly in popularity after some time, another n = 3,157 comments (n = 1,806 from female YouNowers' streams and n = 1,351 from male YouNowers' streams) were sampled in October 2016 from the then most popular streams (see Table 4). Again, all the videos and video comments analyzed were publicly available, and no commenter usernames were included in the analysis.

In order to compare YouNow with YouTube (RQ1), the pooled total of study 2's N = 6,844 YouNow comments (n = 4,018 comments from 16 female YouNowers' streams and n = 2,826 comments from 14 male YouNowers' streams) were compared with study 1's N = 8,000 YouTube comments from the four most popular YouTube genres in Germany (*Comedy, Gaming*, *HowTo & Style*, and *Sports [Fitness]*), which were also sampled from German-language channels that

were operated by a single person (n = 4,000 comments from 4 female YouTubers' channels and n = 4,000 comments from 4 male YouTubers' channels).

Table 4. Sampled popular German YouNow streams including number of sampled comments, differentiated by gender and time of sampling (study 2)

Female YouNower		Male YouNower	
Stream name	Comments (n)	Stream name	Comments (n)
	February 2016		
Edith_Blondi	246	Dshos	279
Jacque Sunshine	374	Flury. [Nico]	264
RAJAA	251	KostasTV	466
schokiiiiiiiiiii	424	patrick_shwbl	167
Stella_Minimi	336	ShortMovieFilms	299
Yael.	581		
Total	2,212		1,475
	October 2016		
anothertumblrchick	185	ben	304
celle celle	236	Dario	120
Champanii	209	Lukas	100
ChloeToups	246	Marc	126
emi	105	Marcel	153
Jenefer R.	209	Ogi	142
Lis	60	ShishaPalast [Yannik]	143
MLilly	215	Sven	91
mrsOreo [Alicia]	153	Titrox [Kevin]	172
MrsKeks [Tizi]	188		
Total	1,806		1,351
Grand total	4,018		2,826

Note. N = 6,844 comments were sampled from 16 female and 14 male YouNowers' streams that were operated by a single person and were ranked in first or second place when searching for #deutschgirl or #deutsch-boy, respectively. If the stream name was not unique, differentiating additional information was added (in square brackets).

7.2 Measures

The codebook was adopted from Wotanis and McMillan (2014) in its extended version from study 1. The extended version was further modified by disentangling sexist from racist comments and by adding additional categories for hostile comments, that is, homophobic, violent, and "other" hostile comments. The categories in both codebooks are not disjunctive because more than one category can apply to a single comment. A pretest was conducted in January 2017, in which N = 518 comments were coded by two independent coders. The Gwet's AC1 values for all categories were "almost perfect" (Landis & Koch, 1997). In comparison, the Cohen's Kappa values were "substantial" to "almost perfect" except for critical comments regarding appearance where reliability was "moderate" (see Table 5). As in

study 1, the discrepancy between Cohen's Kappa and Gwet's AC1 can be explained by the low total number of comments in the respective categories, which is why Gwet's AC1 should be preferred (Wongpakaran et al., 2013). Nevertheless, the definition of these categories was improved.

Table 5. Categories, examples, and inter-coder reliability/agreement of the negative/positive feedback codebook (study 2)

Category	Examples	Cohen's Kappa	Gwet's AC1	Agreement %
Negative critical feedback				
Criticism video content	Das Lied ist blöd [The song is stupid]	.62	.96	.97
Criticism personality	Angeber [Poser]	.66	.96	.96
Criticism appearance	bist nicht schön [you are not beautiful]	.58	.97	.97
Negative hostile feedback				
Explicitly or aggressively sexual comment	Ich würde dich gern nackt sehen [I would like to see you naked]	.87	.96	.97
Sexist comment	du bist einfach kein mann [you're just not a man]	.86	.95	.97
Racist comment	verdienst du garnicht... zigeuner [you don't deserve it... gypsy]	.94	.99	.99
Homophobic comment	gaaay ... Younowschwuchtel [gaaay ... Younow faggot]	.97	.99	.99
Violent comment	Ich wünsche mir deinen Tod [I wish for your death]	.80	.97	.97
Other hostile comment	fettsau arschloch blödmann [fatty pig asshole idiot]	.92	.98	.99
Neutral feedback				
Neutral comment	er ist 14 [he is 14]	.83	.94	.96
Positive feedback				
Compliment video content	geile musik [awesome music]	.75	.97	.97
Compliment personality	[...] hat perfekten charakter [... has the perfect personality]	.72	.97	.97
Compliment appearance	du bist huebsch :) [you are pretty :)]	.95	.99	.99
Omitted from analysis				
Spam	kannst du mir auf insta folgen [can you follow me on insta]	.92	1.00	1.00
Unclassified comment	ABCDEFGHIJKLMN	.78	.97	.97

Note. This codebook was adopted from Wotanis and McMillan (2014) in its extended version from study 1. The extended version was slightly modified by disentangling sexist from racist comments and by adding additional categories for hostile comments (homophobic, violent, and "other" hostile comments). Categories are not disjunctive. *N* = 518 comments were coded by two independent coders.

7.3 Procedure

As in study 1, in order to test the hypotheses and the research question, "one-sided" 2 × 2 chi-square tests analyzing the differences between male and female streams were calculated using SPSS 24. Given the large sample sizes and the large number of significance tests, a significance level of $p < .01$ was used to avoid Type I errors. Cramér's V was calculated for all χ^2 significance tests. Related subcategories (e.g., the three criticism categories) were aggregated into the corresponding main categories (e.g., the negative critical feedback category) to achieve a better overview (see Table 6). To make comparisons between YouNow and YouTube feasible (RQ1), the YouNow categories were aggregated in the same way as in study 1 (see Table 7).

8. Results

H1b was partly confirmed: Female YouNowers received significantly more sexually aggressive comments than male YouNowers, $\chi^2(1) = 19.3$, $p < .001$, $V = .05$, and significantly more sexist comments, $\chi^2(1) = 11.2$, $p < .001$, $V = .04$. However, they did not receive significantly more racist comments, $\chi^2(1) = 0.6$, $p = .318$, $V = .01$ (see Table 6), significantly more negative hostile feedback, $\chi^2(1) = 0.9$, $p = .199$, $V = .01$, or significantly more negative critical feedback, $\chi^2(1) = 0.0$, $p = .499$, $V = .00$ (see Table A6 in the Online appendix). Female YouNowers even received significantly fewer "other" hostile comments, $\chi^2(1) = 33.1$, $p < .001$, $V = .07$.

H2b was partly confirmed as well: Female YouNowers received significantly more positive comments regarding physical appearance, $\chi^2(1) = 52.4$, $p < .001$, $V = .09$. However, they also received significantly more (instead of fewer) positive comments regarding personality, $\chi^2(1) = 60.3$, $p < .001$, $V = .09$, and they did not receive significantly fewer positive comments regarding video content, $\chi^2(1) = 0.0$, $p = .446$, $V = .00$ (see Table 6).

Regarding RQ1, which asks whether gendered online hate speech is more prevalent or less prevalent on YouNow than on YouTube, in accordance with the original analysis of the aggregated data in study 1, it was found that females on *YouNow* also received significantly more sexist, racist, or sexually aggressive comments, $\chi^2(1) = 17.0$, $p < .001$, $V = .05$, and significantly more positive comments regarding physical appearance, $\chi^2(1) = 52.37$, $p < .001$, $V = .09$ (see Table 7). In contrast to YouTube, however, they did not receive more *negative* feedback regarding content or personality, $\chi^2(1) = 1.9$, $p = .472$, $V = .00$, and indeed received more *positive* feedback regarding content or personality, $\chi^2(1) = 29.3$, $p < .001$, $V = .07$. The effect sizes did not differ much between the platforms.

Table 6. Prevalence of negative/positive feedback within comments in female/male YouNow streams (study 2)

	Female stream		Male stream				
Type of feedback	*n*	%	*n*	%	χ^2	*p*	*V*
Negative critical feedback							
Criticism video content	63	1.6	35	1.2	1.3	.152	.01
Criticism personality	20	0.5	21	0.7	1.7	.128	.02
Criticism appearance	9	0.2	10	0.4	1.0	.219	.01
Total	92	2.3	66	2.3			
Negative hostile feedback							
Explicitly or aggressively sexual comment	31	0.8	1	0.0	19.3	<.001	.05
Sexist comment	36	0.9	7	0.2	11.2	<.001	.04
Racist comment	9	0.2	4	0.1	0.6	.318	.01
Homophobic comment	2	0.0	5	0.2	2.6	.109	.02
Violent comment	0	0.0	3	0.1	4.3	.070	.03
Other hostile comment	6	0.1	35	1.2	33.1	<.001	.07
Total[1]	84	2.1	55	1.9			
Neutral feedback							
Neutral comment	2,441	60.8	1,967	69.6	56.7	<.001	.09
Positive feedback							
Compliment video content	529	13.2	368	13.0	0.0	.446	.00
Compliment personality	424	10.6	149	5.3	60.3	<.001	.09
Compliment appearance	231	5.7	61	2.2	52.4	<.001	.09
Total	1,184	29.5	578	20.5			
Omitted from analysis							
Spam	18	0.4	11	0.4	0.1	.433	.00
Unclassified comment	260	6.5	164	5.8	1.3	.141	.01
Total	278	6.9	175	6.2	1.4	.127	.01
Grand total[2]	4,079	101.5	2,841	100.5			

Note. One-tailed significances based on Fisher's exact *p*-tests are given for χ^2-values. *df* = 1. *N* = 6,844 comments (*n* = 4,018 comments from female streams; *n* = 2,826 comments from male streams). Categories are not disjunctive.
[1]Due to rounding errors, the single percentages do not add up to the total percentage.
[2]Due to the non-disjunctive categories, the frequencies do not add up to 100%.

Table 7. Prevalence of negative/positive feedback within comments in female/male YouTube channels and YouNow streams (study 2)

	Female stream/ channel		Male stream/ channel				
Type of feedback	*n*	%	*n*	%	χ^2	*p*	*V*
Original study (YouTube channels)							
Negative feedback							
Content or personality	477	11.9	428	10.7	3.0	.045	.02
Sexist, racist or sexually aggressive	99	2.5	43	1.1	22.5	<.001	.05
Total	576	14.4	471	11.8			
Positive feedback							
Content or personality	1,749	43.7	1,884	47.1	9.2	.001	.03
Physical appearance	219	5.5	42	1.1	124.1	<.001	.13
Total	1,968	49.2	1,926	48.2			
Study 2 (YouNow streams)							
Negative feedback							
Content or personality	79	2.0	54	1.9	0.0	.472	.00
Sexist, racist or sexually aggressive	58	1.4	12	0.4	17.0	<.001	.05
Total	137	3.4	66	2.3			
Positive feedback							
Content or personality	948	23.6	513	18.2	29.3	<.001	.07
Physical appearance	231	5.7	61	2.2	52.37	<.001	.09
Total	1,179	29.3	574	20.4			

Note. This is a comparison of the results of study 1 with the results of study 2. One-tailed significances based on Fisher's exact p-tests are given for χ^2-values. *df* = 1. Study 1: *N* = 8,000 comments from which *n* = 1,183 were omitted from the analysis. Study 2: *N* = 6,844 comments from which *n* = 453 were omitted from the analysis. For comments omitted from analysis, see the respective categories in Tables 3 and 6.

9. Discussion of study 2

Study 2 is a largely successful replication of our study 1 and thereby of Wotanis and McMillan (2014). The results show that while female YouNowers received more sexist and sexually aggressive comments than male YouNowers, they did not receive generally more hostile or more negative comments (H1b). Gendered hate speech in the sense of females receiving more negative and hostile comments than males seems to consist predominantly of sexist and sexually aggressive comments (Döring & Mohseni, 2019; Jane, 2012, 2013, 2016, 2017), which can be considered *hostile sexism* (Glick & Fiske, 1997; cf. study 1).

While female YouNowers received more positive comments regarding their physical appearance than male YouNowers, which can be seen as a form of *benevolent sexism* (Glick & Fiske, 1997; cf. study 1), they did not receive fewer positive comments regarding their personality or the content of their videos (H2b). This disparity between YouTube and YouNow could be due to the differ-

ence in gender distribution between platforms: While YouTube is dominated by males (Blattberg, 2015; Döring & Mohseni, 2019; Wotanis & McMillan, 2014) who tend to devalue females (Jane, 2012, 2013, 2016, 2017; Szostak, 2013), the gender distribution on YouNow is almost even (Roker Labs, 2015).

The comparison between YouNow and YouTube (RQ1) revealed that females on both platforms seem to be affected by both hostile and benevolent sexism. It needs to be noted that effect sizes are, however, very low.

10. General discussion

Taken together, the studies show that female video producers did not receive more of every type of hate comment than males, but that they received more sexist and sexually aggressive hate comments. Female video producers also received more positive comments about their appearance, which can foster the gender stereotype that females have to be good-looking, implying sexual objectification. Positive comments about their appearance could also lead female video producers to see "beauty as currency" and thus increase the probability of self-objectification (Calogero, Tylka, Donnelly, McGetrick, & Leger, 2017). In particular, females of (sexual) minority groups (e.g., LGBTIQ) have an even higher risk of being victimized through (gendered) online hate speech. For instance, Wiederhold argues that LGBTIQ youth have a higher risk of becoming victims of cyberbullying (2014), and The Guardian reports that LGBTIQ people receive much larger amounts of online hate speech (Gardiner et al., 2016; Gardiner, 2018). This is in line with Oksanen et al. who report that "hate material most commonly targeted sexual orientation (68%)" (2014, p. 263), and with Silva et al. (2016) who found that sexual orientation is the fourth most common reason to become a target of online hate speech. To compound this, females are generally more vulnerable to verbal attacks (Morimoto, 2001).

Both studies found a low prevalence of online hate speech of 1–3% of all coded comments on the video platforms YouTube and YouNow, which is comparable to the 3–5% found in other studies on YouTube hate comments (Döring & Mohseni, 2019; Ernst et al., 2017; Wotanis & McMillan, 2014). This can be explained by the fact that hate comments can be eliminated by moderators and users on YouTube (Döring & Mohseni, 2019; Lange, 2007) and on YouNow (Reader, 2016). Publicly visible hate comments are probably only the tip of the iceberg. This may have caused an *underestimation* of effect sizes in both the original study and its replications. Furthermore, the interpretation of effect sizes should not only be based on their absolute values, but also on an assessment of their practical implications. Even a small number of hate comments could have strong negative outcomes (Rieger, Schmitt, & Frischlich, 2018) because they are perceived more intensely than positive comments (Pratto & John, 1991).

Both replication studies come with limitations. The codebook as well as the absolute frequencies of the original study by Wotanis and McMillan (2014) could not be perfectly reconstructed due to incomplete reporting in the original publication. This restricts the comparability between the replication studies and the original study. Due to the sampling technique of study 2, more comments were sam-

pled from female than from male YouNowers' streams. With the introduction of new categories, the YouNow and YouTube codebooks were slightly different, which slightly reduced comparability.

Future media content research could expand our knowledge about gendered online hate speech by covering even more video platforms, more countries, and different user populations (e.g., based on different video genres). Complementing manual content analyses of online videos and online video comments with automated content analyses would be another promising step to advance research about online hate (Madden, Ruthven, & McMenemy, 2013; Shah, Cappella, Neuman, Schwartz, & Ungar, 2015; Thelwall & Mas-Bleda, 2018).

Last but not least, media content research needs to be supplemented by media user research. Interview and survey studies could provide data on how YouTubers and YouNowers of different genders and age groups perceive and handle hate comments directed towards them via video comments. We also need data on the video viewers' reactions to hateful video comments and on the video commenters' motives for hate speech. More insights into gendered online hate speech might help to reduce its prevalence and harm with appropriate measures of media regulation and media education.

In practice, how to deal with hate comments on YouTube and YouNow in the most reasonable and efficient way remains an open question. YouTube (2016) recently created a system to report hate comments in order to *remove them automatically*. However, most YouTubers fear losing valuable feedback if low-level hate comments are also deleted (Lange, 2007). Therefore, many do not want YouTube to automatically delete comments. On YouNow, the situation is different due to the platform's live character. YouNowers can block haters or call for moderators in real-time. This reduces the occurrence of hate comments, but does not completely prevent them.

An alternative approach is to counter hate comments with arguments or positive comments. For instance, the fans of YouNowers usually defend them against haters (Reader, 2016). However, empirical investigations of *counter-speech* have just started (Schieb & Preuss, 2016), so only a small number of studies exist. According to Leonhard, Rueß, Obermaier, and Reinemann (2018), factors like the number of bystanders, the reactions of others, and the severity of hate speech have an impact on the willingness to counter-speak. Similarly, Costello, Hawdon, and Cross (2017) found that the reactions of others, the severity of hate speech, having been a victim, and having strong social bonds all raise the likelihood of telling haters to stop and/or defending the victim. Regarding the effects of counter-speech, a sociable moderation style can reduce the incivility (which includes hate speech) of follow-up comments, while a regulatory style can increase it (Ziegele, Jost, Bormann, & Heinbach, 2018). Providing scientific counter-arguments rarely leads to the acknowledgment of the counter-argument, but more often to the continuation of hate speech (Miškolci, Kováčová, & Rigová, 2018). Strategies like warning of the consequences, denouncing the hate, and using humor are more accepted than pointing out hypocrisy or using hostile language (Mathew et al., 2018). Taking this together, it seems that not only is the "if" of counter-speech important, but also the "how."

By examining gendered online hate speech on YouTube and YouNow, the current studies addressed an important and under-researched topic. In addition, study 2 is probably the first study ever to deal with online hate speech on the increasingly popular SLSS. The results successfully replicated the original study's main findings that female YouTubers receive more negative (including hostile) feedback (H1) and less positive feedback (H2) than their male counterparts. More research is necessary to better understand which factors determine and which factors prevent gendered online hate speech on YouTube and YouNow.

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Ethical statement
The studies were conducted in accordance with the guidelines of the research ethics committee of the American Psychological Association (APA).

Online appendix
Supplementary material can be retrieved from https://osf.io/da8tw

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