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Introduction

After decades of progress, it seems that the struggle for equality between women and men has stagnated in recent years. Even in Europe, which played a leading role in this endeavour, there are still tremendous gender disparities: women are still less likely to be promoted into leading positions, make less money than their male colleagues and do more hours of unpaid household chores (European Commission, 2019). In addition to those striking inequalities, studies have shown that most women in Europe and the US are also exposed to everyday sexism (Heilman, 2012). However, while overt sexist behaviour will usually be challenged and confronted, it seems that the sexist mind-set is still widely spread (Ford et al., 2015; Shifman & Lemish, 2010). During the last few years, the internet has played a crucial role in the distribution of sexism, oftentimes disguised as humour (Bemiller & Schneider, 2010). Especially internet memes, a widespread but seemingly innocuous part of internet culture, appear to be a popular vehicle for communicating disparaging attitudes and discrimination in a humorous manner (Drakett et al., 2018; Fersini et al., 2019). And while sexist humour, a form of disparagement humour which is based on the revilement of women, is still oftentimes considered to be harmless, this notion has come under more scientific scrutiny recently. Exposure to sexist jokes was shown to encourage men to express their sexist attitudes through words as well as behaviour and may even increase men's rape proclivity and victim blame (Ford et al., 2015; Viki et al., 2007). But while the consequences of sexist humour are still largely unexplored, empirical studies about its impact on women are even more scarce. The main focus of early research was oftentimes simply the question, if sexist jokes are also enjoyable for women (Brodzinsky, Barnett, & Aiello, 1981; Cantor, 1976; Carroll, 1989; Chapman & Gadfield 1976; Losco & Epstein, 1975; Love & Deckers, 1989; McGhee & Duffy, 1983; Priest & Wilhelm, 1974 as cited in Woodzicka & LaFrance, 1998). Earlier studies seemed to imply that, overall, disparaging humour is perceived equally as funny as neutral humour (Argüello Gutiérrez et al., 2018; Kochersberger et al., 2014; Olson et al., 1999). However, more recent studies have provided evidence that members of targeted groups generally rate disparaging humour as less funny. While results of prior studies on whether women find sexist jokes equally as funny as men were mixed, Woodzicka and LaFrance (1998) found evidence that ingroup identification was an

important moderator for women. Women with higher ingroup identification were shown to evaluate sexist jokes as less funny. These results were in line with dispositional theory, which suggests that women react more negatively to sexist jokes when they strongly identify as women (Zillmann, 1983). These results have later been replicated and expanded by Kochersberger et al. (2014) who found that identification with women as a social group moderates amusement of sexist jokes for both women and men. This effect was also independent from the participants' scores on hostile sexism. Furthermore, results of this study indicated that sexist jokes were generally perceived as less funny by women than by men, corroborating evidence of earlier studies.

Another effect of exposure to sexist humour on women – which was implicated in earlier research and later confirmed – was an increase in negative emotions (Woodzicka & LaFrance, 1998). Analysing the comments in reaction to a sexist meme on the social media platform Twitter (www.twitter.com), Paciello et al. (2021) found that women generally expressed more negative emotions, like contempt, outrage and anger, than men. But effects of sexist humour on women appear to affect more than only their amusement and emotional reactions. A recent study has exposed women to either sexist comedy clips or non-sexist comedy clips and then tested both groups' cognitive performance. Results suggested that the performance of women who were exposed to sexist humour has suffered in numerical and figural intelligence tests afterwards (Weber et al., 2020). These results hark back to other studies which have shown that even subtle clues can trigger a stereotype threat in women, whose performances then suffer (e.g. Schmader, 2002). However, while overtly sexist remarks are usually confronted and contested, when put in a humorous frame, it can have insidious consequences. In their Prejudiced Norm Theory, Ford and Ferguson (2004) hypothesised that exposure to disparagement humour, when interpreted in a humorous manner, may lead to the acceptance of the implicit, but disparaging message. By therefore establishing a new social norm, which allows the denigration of a certain target group this may foster further discrimination and disparagement of said group. Empirical evidence seems to support this theory. An earlier study revealed that participants with high scores in hostile sexism showed greater tolerance of overt sexism, after being exposed to sexist humour first. However, when participants were instructed to interpret the sexist jokes with a serious mindset, the implicit message was rejected and these effects disappeared (Ford, 2000). Furthermore, it appears that

putting sexism in a humorous context discourages critical thinking, which also decreases the willingness to confront it (Ford et al., 2015; Ford et al., 2001; Romero-Sánchez et al., 2010). Expanding on these studies, Mallett et al. (2016) showed that individuals who put sexist statements in a humorous format are perceived as less sexist than those who simply make sexist statements, which also decreases the chances of women confronting them about their sexist remarks. Furthermore, it seems that women who decide to ignore sexist remarks, regardless of whether they are delivered in a serious or humorous manner, are more likely to align their attitudes and report more tolerance of sexual harassment (Mallett et al., 2019). While this underlines the serious consequences that sexist humour can have on women, it also begs the question of whether exposure to sexist humour by itself is enough to shift attitudes – or more specifically stereotypes – about one's own ingroup.

Stereotypes, which make up the cognitive component of our attitudes, can be defined as sets of traits and characteristics that we associate with certain groups (Stangor, 2009). Different from prejudice, which is described as having distinctly negative emotions towards a group, stereotypes can be both positive and negative – although negative stereotypes are usually more prevalent. A good example for this are stereotypes about elderly people, which are mostly focused on the negative aspects of ageing – for example the belief that with higher age individuals will increasingly become a burden on society – and are exceedingly common (Officer et al., 2020). For women, negative stereotypes may manifest themselves as a belief that women individually and as a group are generally more anxious, naïve and over-sensitive than men while positive stereotypes would describe women as more emotional, passionate and empathetic. But gender stereotypes are not exclusive to women. Men are affected as well with many believing that male individuals are generally more rational, practical and solution-focused and – when considering the negative stereotypes – more arrogant, inconsiderate and power-hungry (Berger & Krahé, 2013). Crucially, however, stereotypes are also known to change across different social contexts (Stangor, 2009). As early as 1972, Martineau proposed the hypothesis that disparagement humour can lead to an increase of outgroup stereotyping. While appearing intuitive, the evidence for the notion that disparagement humour can lead to changes in stereotyping is scarce. Although earlier studies appeared to support this hypothesis (Hobden & Olson, 1994; Maio et al., 1997), later studies disputed these findings citing methodical

shortcomings. After adapting the study design, no effects of disparagement humour on attitudes and stereotyping were found (Ford et al., 2001; Olson et al., 1999). In their article, Ford et al. (2015) reviewed the results of several studies on this topic and suggested that exposure to disparagement humour may function as a releaser of prejudice rather than an initiator. According to Prejudiced Norm Theory, hostile sexist people will interpret sexist humour as a shifting in social norm, which allows them to overtly show their sexist attitudes in words and in behaviour rather than increase those negative attitudes. Concerning the hypothesis that exposure to sexist humour can shift attitudes and stereotypes the current research was summarised as follows:

Contrary to Martineau's hypothesis and speculation by other humor theorists and social scientists, recent empirical studies have not found evidence that exposure to disparagement humor affects either the accessibility or evaluative content of the recipient's stereotypes or attitudes toward the targeted group. It does not appear that exposure to disparagement humor fosters or introduces a negative disposition toward the targeted group. (Ford et al., 2015, p.182)

Although both studies cited by Ford et al. (2015) were studying the effects of disparagement humour on stereotyping, the research only focused on outgroup stereotyping. In the study of Olson et al. (1999) stereotyping of men was examined with two all-female samples and for stereotyping of lawyers a sample of undergraduates was used. Ford et al. (2001), while focusing on stereotyping of women, employed an all-male sample. And while evidence points to the fact that exposure to sexist humour does not have an effect on outgroup stereotyping, possible effects on ingroup stereotyping have so far been mostly unexplored. In one pioneering study by Argüello Gutiérrez et al. (2018) participants exposed to disparaging humour about their own ingroup (students) reported more stereotypical evaluations of their ingroup than participants in the neutral humour or disparaging text condition. This, however, was only true for people with a low degree of in-group identification. Participants who strongly identified with their social group did not seem to be affected by disparagement humour in their evaluations. Furthermore, participants with low ingroup identification also reported more negative attitudes towards the ingroup. These effects may be explained by social identity theory (Tajfel & Turner, 1979). Social identity theory postulates that members of the ingroup generally have ingroup

favouritism bias, which can be triggered by the mere existence of an outgroup. This effect is also seen when exposed to disparaging or more specifically sexist humour. Women generally view jokes about men as funnier and more typical of men than men themselves (Abrams & Bippus, 2011). However, one study found that when people who do not identify strongly with the ingroup are confronted with a social identity threat, they distance themselves further from their own ingroup (Ellemers et al., 1993). This could explain why low-identifying participants in Argüello Gutiérrez's (2018) study have shown higher ingroup stereotyping and reported more negative attitudes. Unfortunately, however, no other studies have examined this phenomenon and therefore these effects have not been replicated as of yet.

While the results of all these studies have given a peek into the wide range of detrimental effects of sexist humour, there still remain many questions. Although current research has compared the effects of sexist humour to racist humour (Woodzicka et al., 2015), disparaging humour against men (Abrams & Bippus, 2011; Lawless et al., 2020; Olson et al., 1999), lawyers and most commonly neutral humour (Kochersberger et al., 2014; Olson et al., 1999), it was never compared to ageist humour. Even though it was revealed that ageist mindsets are very common throughout the world and that there can be harrowing long term consequences for the mental and physical health of individuals when confronted with ageism (Officer et al., 2020), hardly any research about the effects of ageist humour has been conducted so far. However, there is some evidence that ageist humour is increasingly present on the internet and may also be spread through the use of internet memes (Lee & Hoh, 2021), although ageist humour still remains a severely understudied topic.

Whether earlier results about sexist humour can even be replicated by utilising digital media, like internet memes, poses another challenge. With few exceptions (such as Paciello et al, 2021) research has focused on the effects of sexist jokes and comedy skits. As of yet, however, it is unknown whether these effects may be influenced by the utilisation of common internet media, such as "image macros", a popular form of internet memes which consists of one or more pictures with a text overlay (Drakett et al., 2018). With the ever-increasing pervasiveness of social media and rising numbers of especially young internet users (European Commission, 2019; Twenge et al., 2019), this raises important questions. Considering the lax content moderation regulations on

social media websites and the lack of accountability in online settings, disparaging humour is much more common on the internet. The simple structure of image macros – or simply memes – also make it relatively easy to replicate and to design novel templates. Several free-to-use websites, for example Imgflip (www.imgflip.com), also feature a meme generator, which includes the possibility to use existing templates and upload new ones. This further facilitates the process of meme creation and also enables people with only marginal levels of digital literacy to partake in it, making “image macros” specifically one of the most prevalent forms of memes to date (Gi97ol, 2021).

While the consequences of the long-term exposure to disparaging humour are largely unexplored, the Prejudiced Norm Theory suggests that the exposure to disparaging memes may help to create social norms which allow for discrimination against the target groups (Ford & Ferguson, 2004). Unfortunately, however, empirical studies on the effects of disparagement humour are scarce and rarely take the digital environment into account, which necessitates further study. The current research therefore aims to focus on the new digital media, utilising the underexplored “image macro” - meme format to explore lingering questions of the possible effects of sexist humour.

The current Research

Amusement and funniness are one of the most studied topics in the field of disparagement humour research. Current studies indicate that the amusement by disparagement humour is connected to the level of identification with the targeted group and the amount of prejudice people hold against them (Kochersberger et al., 2014, Woodzicka & LaFrance, 1998). Overall, most studies on disparaging humour, which use different humour conditions, found no difference in amusement between the conditions (Argüello Gutiérrez et al., 2018; Kochersberger et al., 2014; Olson et al., 1999). However, these effects have never been studied with internet memes before, which leads to the first research question:

(1) How does the use of the internet Meme format influence funniness ratings of sexist, ageist and neutral humour and does ingroup identification have an influence on the perception of funniness?

In exploring this research question several hypotheses have been formulated, which were then empirically explored. The first hypothesis relates to a finding, which was replicated in several earlier studies:

1a) There is no difference in the funniness ratings of sexist, ageist and neutral memes.

Furthermore, studies have indicated that people who identify strongly with the target tend to perceive disparagement humour as less funny than people who identify weakly with the targeted group (Kochersberger et al., 2014; Woodzicka & LaFrance, 1998). Therefore, it can be assumed that sexist memes are generally perceived as less funny by women than by men and that these differences in women are moderated by their level of ingroup identification:

1b) Sexist memes are perceived as less funny by women than by men.

1c) In women, higher gender identification is associated with lower funniness ratings of sexist memes.

Similarly, it can be expected that the identification with elderly people may influence funniness ratings of ageist memes. It has been suggested that age itself works as a good approximation which may moderate effects on age stereotyping, without the need to ask for participants' identification with elderly people (Posthuma & Campion, 2009), which leads to the following hypothesis:

1d) Higher age is associated with lower funniness ratings of ageist memes.

Another understudied aspect of sexist humour is the emotional response, which follows the exposure. Only few studies have examined this topic and their results suggest women report more negative emotions after exposure to sexist humour (Paciello et al., 2021; Woodzicka & LaFrance, 1998). For this reason, the current research aims at expanding on these findings and replicating earlier results, examining the following research question and hypothesis:

(2) What effects does the exposure to sexist memes have on emotions in women?

2a) Women report more negative feelings after exposure to sexist memes in comparison to women who were exposed to non-sexist memes.

2b) Women report more negative feelings after exposure to sexist memes in comparison to men.

One of the main aims of this study is concerned with exploring the effects of disparagement humour on stereotyping. As Ford et al. (2015) summarised, there is currently no evidence to support the hypothesis that exposure to disparagement humour increases outgroup stereotyping. However, the results of Argüello Gutiérrez et al. (2018) indicate that exposure to disparagement humour leads to an increase of ingroup stereotyping and to more negative attitudes towards the ingroup. In order to expand on these results, this research is exploring the differences in women's ingroup stereotyping after exposure to either sexist or non-sexist memes while aiming to replicate earlier results about outgroup stereotyping:

(3) What effects does the exposure to sexist humour have on in- and outgroup stereotyping?

3a) There are no effects on gender outgroup stereotyping in men after being exposed to sexist memes in comparison to non-sexist memes.

3b) Women display stronger gender ingroup stereotyping after being exposed to sexist memes in comparison to non-sexist memes.

As ingroup identification has been shown to be a powerful moderator, it can be assumed that possible effects of exposure to sexist humour are influenced by the level of ingroup identification.

3c) Lower gender identification in women is associated with higher ingroup stereotyping in women.

Similarly, it should be explored if there are differences in age stereotyping after being exposed to ageist memes in comparison to non-ageist memes. The Prejudiced Norm Theory suggests that exposure to ageist humour may create a new social norm and

activate ageist attitudes, which leads to higher age stereotyping (Ford & Ferguson, 2004; Ford et al., 2015). However, these effects may only become visible when controlling for identification with elderly people. Therefore, it is reasonable to expect that age may act as a moderator in this process, and it is hypothesised that any effects only become apparent when controlling for the age of the participants:

(4) What effects does the exposure to ageist humour have on in- and outgroup stereotyping?

4a) Lower age is associated with higher age stereotyping after being exposed to ageist memes in comparison to non-ageist memes.

By exploring these research questions, the current study aims at expanding on the knowledge of the effects of sexist humour on women, while also testing earlier findings in this field by employing a new form of humour stimuli - internet memes. By also examining the consequences of ageist humour, this study hopes to add new and important findings to a hitherto largely unexplored field of study in the realm of disparagement humour research.

Method

Participants

The sample consisted of 185 German native speakers who filled out an online questionnaire, which was distributed on social media sites which are mostly visited by active students. As disparagement humour can be perceived differently depending on the cultural background, it is crucial to control for this by only recruiting German native speakers. And since people who have been studying at an academic institution in the last few years are also much more likely to have been exposed to critical discussions on topics like gender equality and ageism, education also needs to be considered. Therefore, our aim was to recruit a student sample. Another reason we chose to recruit a student sample is that they are more likely to be younger or in company of younger people and therefore more familiar with internet memes as a form of humour. The large majority of participants self-identified as female (71.9%) while around one quarter of the sample identified as male (26.5%), which was expected, considering

that it was an online study (Porter & Whitcomb, 2005). There was also a small percentage of participants who identified as genderfluid (1.1%) and one person (0.5%) who did not indicate their gender. The balance between male and female participants was approximately the same in the experimental conditions (71.2% and 71.4% female) and the control condition (73.2%). The two participants who identified as genderfluid were assigned to each experimental condition and the person who did not share their gender was allocated to the control group. The age range of the sample was rather large for a student sample as participants were between 18-50 years old during data collection. Participants were generally young, however, as shown by the average age ($M = 27.06$, $SD = 5.64$) as well as the median ($Mdn = 26$).

As expected the sample consisted mostly of participants with a high level of formal education. When asked about their highest level of education, almost three quarters of the sample (73.5%) indicated that they have at least one academic degree. Around one fifth (17.3%) stated that they have successfully graduated from secondary school, while 7 participants (3.8%) received vocational training ("*Lehre*") and two (1.1%) attended a vocational school ("*Berufsbildende Schule*"). Another 7 participants (3.8%) listed their highest education as primary school and one person (0.5%) indicated that they have no formal educational certification which is recognised in Austria. Overall, the percentage of participants who were in possession of or actively pursuing an academic degree were similar in every condition.

Overall 145 participants said that they were currently studying and 9 were active in more than one field of study. Participants also indicated a wide range of different fields of study with 44 distinct disciplines, which were mentioned. However, the total distribution of disciplines paints a clearer picture of the composition of the sample: Psychology is mentioned 72 times whereas the second most-studied field of business economics is mentioned merely 11 times. Information Technology (5 times) and Political Science (4 times) follow afterwards. All other fields of study were selected by three or fewer participants with a sizable number of 25 disciplines only mentioned by one person.

Materials and Procedure

The wide-spread use of “*image macros*” as a form of memes makes them an ideal choice for stimuli, as they can easily be created and are found in abundance on the internet. In order to guarantee external validity and because creating and sharing new disparaging memes was seen as undesirable, it was decided to instead search for existing memes for all study conditions. The acquisition of disparaging memes, both sexist and ageist, happened in November 2020. After searching for appropriate material on several different websites – ranging from online search engines, Reddit (www.reddit.com) and meme websites – we downloaded 1715 images (1395 sexist, 300 ageist and 20 neutral memes). In order to acquire the sexist memes, a number of different keywords and search terms were used (e.g. “*female*”, “*girl*”, “*woman*”, “*sexist meme*”). Ageist memes and neutral memes were searched using the term “*ageist memes*” and “*everyday memes*” respectively. All downloaded images were first sorted into one of two categories: “*image macros*” and “*others*”. All “*image macros*” were further examined and unsuitable memes were removed. Criteria for exclusion consisted mainly of formal requirements (e.g. image and text overlay, text must be legible, image should not be a screenshot of social media) and whether or not the memes could actually be considered sexist or ageist. Apart from that, any duplicate versions and memes which are unintelligible without specific pop culture knowledge were also removed. Furthermore, only English memes were included. Afterwards, a selection of 46 sexist memes, 46 ageist memes and 20 neutral memes remained. To further narrow down the material, independent raters – consisting of psychology students who are finalising their master dissertation or pursuing their PhD – assessed the qualities of these memes. While neutral memes were simply rated by the author and four other independent raters on their suitability for a neutral condition, the main criterion for the disparaging memes was to what extent they are perceived to be either sexist or ageist. For analysing the ratings of the disparaging memes, it was decided to calculate Krippendorff’s alpha for ordinal data. Unfortunately, Krippendorff’s alpha was generally low, with only agreement on sexism close to suitable levels ($\alpha = .755$), while agreement on ageism was slightly below acceptable ($\alpha = .570$; Krippendorff, 2004). Therefore, all memes where the raters strongly disagreed about perceived sexism or ageism were filtered out. In conclusion, 24 disparaging memes were selected for the

pilot study according to their respective ageism and sexism rating. All analyses for the ratings were conducted using Microsoft Excel.

Pilot study

Since it was crucial for this study to ascertain that the stimuli were perceived in the intended way a large pilot study was conducted to test the acquired material before administering it in the main study. For this purpose a German online questionnaire was created through SoSci Survey (www.soscisurvey.com) which was distributed through various Facebook (www.facebook.com) groups between the 24th of May and the 27th of June 2021. A short introduction was given at the beginning, asking participants to take a look at memes and answer questions about them. A selection of 24 memes was displayed along with questions about their perceived funniness, sexism and ageism. Neutral memes were not included, as it would increase the length and because they were already evaluated by a small group of raters. At the end of the questionnaire there was a comment field, so that participants could share their feedback or mention issues which may have been overlooked by the author. Overall, 176 valid responses were collected and analysed. As shown in table 1, sexist memes have been perceived as sexist, while having low scores on ageism ratings. Likewise, ageist memes have been perceived as ageist, while having low scores on sexism ratings. Analyses were conducted using Microsoft Excel.

Table 1

Average sexism, ageism and funniness ratings from the pilot study.

Measure	Results			
	Sexist Memes		Ageist Memes	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Ageism	1.37	0.31	4.63	0.13
Sexism	5.84	0.14	1.48	0.48

Note. Ageism and Sexism was rated on a Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree").

The eight memes which were rated as most sexist and the eight memes which were rated as most ageist were selected for the main study. For the neutral condition, the 8 memes which were rated as most funny were added to the final selection. Thus, all three conditions for the main study included eight memes. The ageist and neutral memes were also reviewed to see whether there occurred an imbalance in the depiction of female and male characters to avoid any unforeseen biases. Figure 1 displays the memes which received the highest sexism and ageism rating respectively.

Figure 1

The memes with the highest sexism and ageism rating in the pilot study.



Note. On the left side the meme with the highest sexism rating, 6.16, is displayed while on the left side the meme with the highest ageism rating, 5.26, is shown. Sexism and ageism was rated on a Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree") with higher values indicating greater amusement. Both memes were rated as part of the pilot study.

Main Study

The hypotheses were tested in the main study using an experimental design. For this purpose, another online questionnaire was created through SoSci Survey. The questionnaire was in German with the exception of the memes, which were in English. The structure of the pilot study questionnaire was expanded and in addition to a short introduction in the beginning, questions about education were included and participants were asked for their informed consent. Recruitment for this study was done through social media, mainly utilising the websites Facebook and Reddit. An online questionnaire was published on social media between the 10th and the 30th of January, 2022, and participants were able to take part and fill out the questionnaire during this time.

Meme Stimuli

When participants replied to all sociodemographic questions they were asked to review eight memes, which depending on the condition were either neutral, ageist or sexist. Participants were randomly sorted into one of these three conditions. In order to make sure that participants actively engage with the memes without cuing them about the true purpose of this study, they were asked if they perceive this meme as funny. For this reason, they had to rate each meme on a 7-point Likert scale ranging from 1 (*“strongly disagree”*) to 7 (*“strongly agree”*). This also served to answer the research questions about the funniness of disparaging humour.

In order to explore the emotional reactions to disparaging memes, which were described in the literature, but scarcely replicated, a slider ranging from 0 to 100 was included where participants could indicate if the meme evoked positive (100) or negative emotions (0).

Assessment of Gender and Age Stereotyping

After participants were exposed to the memes, they were asked to fill out part of the Positive Negative Sex-Role-Inventory (PN-SRI) by Berger & Krahé (2013) in order to measure possible effects of meme exposure on gender stereotyping. It followed immediately after exposure to the memes, so that the assessment of participants is unlikely to be biased by other means. The PN-SRI is based on the German version of

the Sex-Role Inventory by Bem (1974), a measure of gender identity that is still broadly used to this day. However, the inventory by Berger and Krahé was developed to also include negative attributes, which are perceived to be either typically male or typically female. Since stereotypes, like attributes, can be both positive and negative, the German version of the PN-SRI was chosen as a tool to measure stereotyping in this study. For the main study 24 items were used. For female attributes, 12 items were presented, six of which included a positive attribute (*“Women are typically empathic.”*) while the other six included a negative attribute (*“Women are typically naïve.”*). Participants asked how typical they believe this attribute is for women in our current society on a Likert-scale from 1 (*“strongly disagree”*) to 7 (*“strongly agree”*). On the next page they were presented with 12 items, which included 6 positive and 6 negative male attributes and they were again asked how typical these attributes are for men (*“Men are typically rational.”*; *“Men are typically reckless.”*). In both cases, negative and positive attributes were displayed on the same page and the order of items was randomised. The reliability of all subscales was assessed by calculating Cronbach’s alpha, which ranged from very good in the subscale for negative female attributes ($\alpha = 0.87$) to excellent in the subscale for positive female attributes ($\alpha = 0.95$), negative male attributes ($\alpha = 0.92$) and positive male attribute ($\alpha = 0.91$). Cronbach’s alpha was calculated using the Statistical Package for the Social Sciences (SPSS) Version 28.

For measuring age stereotyping the German version of the Domain-Specific Views on Ageing and Preparation for Age-Related Changes scale was used (Kornadt et al., 2020). The original 8-point scale and all 10 items were retained while the instructions were simplified and shortened for economic reasons. The order of items was randomised to avoid possible order effects. The reliability of the short scale by Kornadt et al. (2020) used to assess age stereotypes was also examined using a reliability analysis in SPSS. Cronbach’s alpha was calculated and reached acceptable levels ($\alpha = 0.73$).

Gender Identification

A scale for measuring gender identification was adopted from Kollmayer and Kurka (2017) and added to the questionnaire after assessing gender and age stereotyping. This scale was used to control for moderating possible influences of gender identification on ingroup-stereotyping, as similar effects were observed by Argüello

Gutiérrez et al. (2018). This measure was based on a scale devised by Schmader (2002), which was subsequently adapted and translated into German by Kollmayer and Kurka (2017). Their version was slightly adapted by switching out male and female denominations (*"Being a woman / man is an important aspect of myself."*) in favour of gender-neutral terms (*"My gender is an important aspect of myself."*) but was otherwise unchanged. It included four items, two of which were reversed (e.g. *"My gender only contributes little to how I perceive myself."*) with Likert-scale response options ranging from 1 (*"strongly agree"*) to 5 (*"strongly disagree"*). To examine the reliability of the scale Cronbach's alpha was calculated and reached good levels ($\alpha = 0.82$).

Similarly, to the pilot study, a one item self-assessment about the participants' proficiency in understanding English memes was added. This question was also phrased as a statement (*"I understand English memes without any trouble."*) and participants were able to choose Likert-scale response options between 1 (*"strongly agree"*) and 5 (*"strongly disagree"*). After completing the questionnaire, participants were provided with the opportunity to leave comments or feedback and they were presented with a short debriefing text, which clarified the goals of the study. After that, they were asked if they still agree on the use of their data and given the option to deny or allow it.

Results

Missing Data

The online questionnaire for the main study was opened 280 times in total. The neutral condition was assigned 90 times, the ageist condition 95 times and the sexist condition 95 times. However, during the process of preparing the data a large number of cases had to be excluded for a variety of reasons. As a first step, all participants, who did not fill out the whole questionnaire, were removed. Overall, 26% of all cases had missing data in total and 74 cases were excluded from further analyses for this reason. Additionally, there were five cases who finished the questionnaire but who did not agree with the use of their data at the end of the questionnaire. Another 15 participants who selected a response other than *"strongly agree"* or *"agree"* when asked if they are able to understand English memes were removed. One other case was excluded from

all further analyses, because they indicated that they did not fill out the questionnaire in good faith.¹ Therefore, the final number of cases used for analyses is 185. Overall, there were 56 participants assigned to the neutral condition, 63 to the ageist condition and 66 to the sexist condition.

Analyses

All Analyses have been carried out using version 28 of SPSS. In order to analyse our data analyses of variance (ANOVA) and covariance (ANCOVA) were performed with an alpha level of 5%. Cohen's d and η^2 were used as effect sizes and have been categorised according to Cohen (1988).

Research Question 1

A one-way ANOVA with funniness as dependant and the conditions as independent variable was conducted to answer the first hypothesis and determine if the perceived funniness of memes differed between the conditions. Contrary to expectations, there were noticeable differences between the different conditions, when asked about the funniness of the memes, $F(2, 182) = 79.337$, $p < .001$. The effect size implies very large differences between the groups, $\eta^2 = .466$. Table 2 shows the descriptive statistics. Post-hoc tests revealed that perception of funniness was significantly different between all conditions, with sexist memes being perceived as less funny than ageist memes ($p < .001$) and ageist memes being rated as less funny than neutral memes ($p < .001$). A boxplot comparison between the funniness ratings in each condition is displayed in figure 2.

¹ In the field where participants should indicate their gender they replied with "dinosaur". It was therefore assumed that they did not take the questionnaire seriously and they were removed from the dataset.

Table 2

Funniness and emotional response ratings by condition for men and women.

Results (all participants)						
Measure	Sexist		Ageist		Neutral	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Funniness	2.32	1.17	3.55	0.94	4.62	0.89
Emotional Response	25.12	21.21	38.89	16.52	53.76	14.68
Results (female participants)						
Measure	Sexist		Ageist		Neutral	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Funniness	2.11	0.91	3.55	0.93	4.56	0.86
Emotional Response	23.27	20.03	38.09	15.77	52.22	14.29

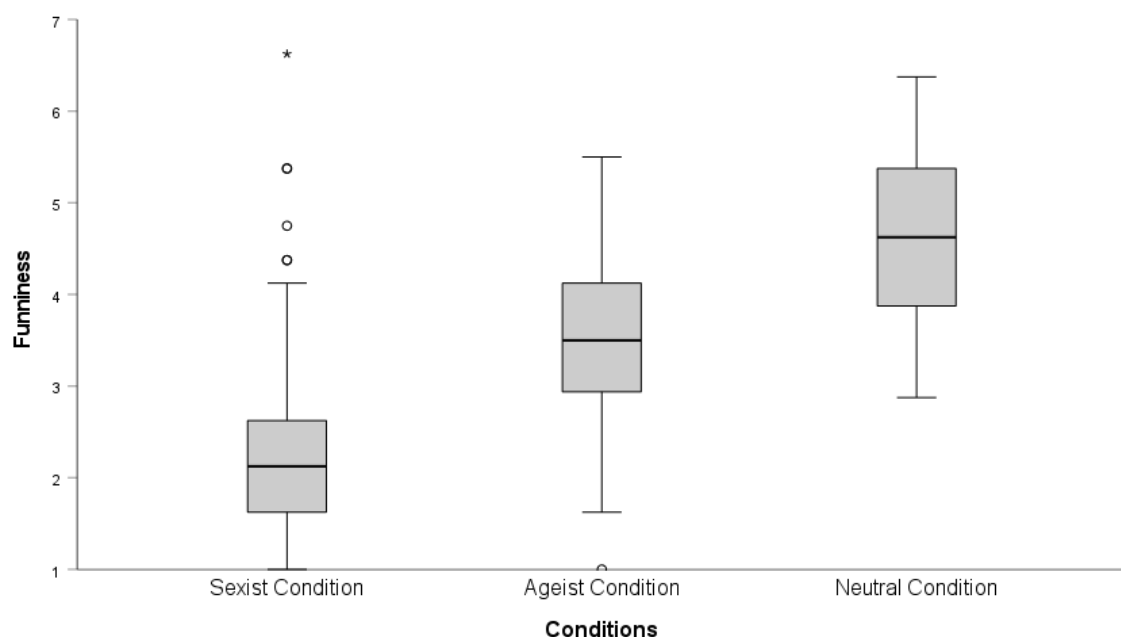
Note. Funniness was rated on a Likert scale between 1 (“*strongly disagree*”) and 7 (“*strongly agree*”), while the emotional response was rated on a slider ranging from 0 (“*negative*”) to 100 (“*positive*”).

The second hypothesis stated that women perceive sexist memes as less funny than men. Another ANOVA with funniness as dependant and gender as independent variable has been performed with all participants who were assigned to the sexist condition. It was revealed that the differences in funniness ratings between men and women are significant and have a medium-to-large effect size, $F(2, 63) = 6.572$, $p = .013$, $\eta^2 = .094$. The third hypothesis states that women with higher gender identification scores show lower funniness ratings for sexist memes. This hypothesis was examined with participants assigned to the sexist condition using an ANCOVA with funniness as the dependant and gender as the independent variable, while including gender identification as covariate. It was revealed that gender was significant, $F(1, 62) = 9.950$, $p = .002$, $\eta^2 = .138$, as well as gender identification, $F(1, 62) = 8.082$, $p = .006$, $\eta^2 = .115$. When adding the interaction term between gender

and gender identification it was also found to be significant, $F(1, 61) = 5.243$, $p = .026$, $\eta^2 = .079$, which implies that the effect of gender identification on funniness differs between men and women. The parameter estimates show that the regression coefficient is positive and significant for men, 0.987 , $CI [0.246 | 1.727]$, $p = .012$, $\eta^2 = .333$, meaning that higher gender identification coincides with higher funniness ratings. While the regression coefficient for women is also positive, it does not reach significant levels, 0.207 , $CI [-0.149 | 0.563]$, $p = .247$, $\eta^2 = .030$.

Figure 2

Boxplots displaying funniness ratings by condition.



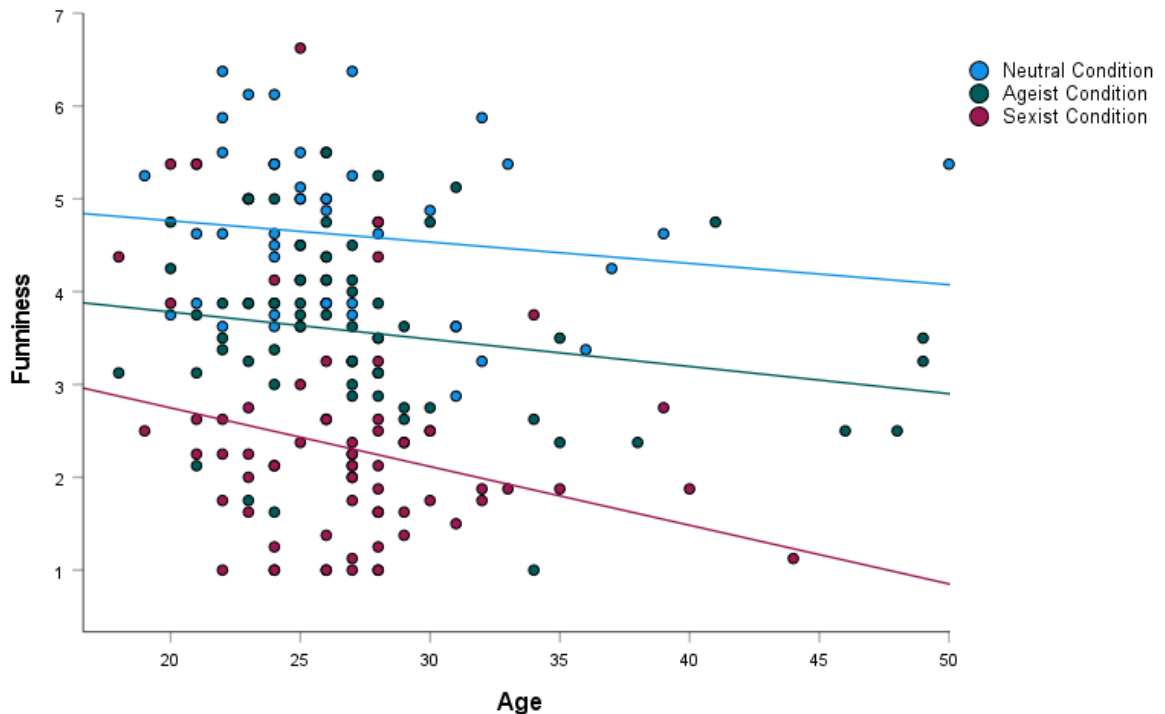
Note. This figure shows the differences in the funniness ratings from the main study between sexist, ageist and neutral memes. Funniness was rated on a Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree") with higher values indicating greater amusement.

The fourth hypothesis states that higher age is associated with lower funniness ratings of ageist memes. To examine this an ANCOVA with age as a covariate, funniness as dependant and conditions as independent variable was conducted and it was revealed that age did have an effect on the funniness ratings, $F(1, 181) = 7.695$, $p = .006$. The effect size was small to medium, $\eta^2 = .041$. The condition was also highly significant, $F(2, 181) = 81.441$, $p < .001$, $\eta^2 = .474$. The interaction term between age and condition was added and was not significant, $p = .480$, which means that the effect was similar for all conditions. The scatterplot in figure 3, which displayed the funniness ratings on

the y-axis and the age of the participants on the x-axis showed that with older age the funniness ratings in all conditions decrease.

Figure 3

Average funniness ratings of memes by condition plotted against age.



Note. This scatterplot shows the differences in the funniness ratings between sexist, ageist and neutral memes, when plotted against age. Dots indicate the funniness ratings of an individual participant. Funniness was rated on a Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree") with higher values indicating greater amusement.

Research Question 2

The second research question is concerned with the emotional response of women after being exposed to sexist memes. Including only female participants, an ANOVA with the emotional response as dependant and conditions as independent variable was performed, which revealed that there are large differences between all three conditions, $F(2, 129) = 31.785$, $p < .001$, $\eta^2 = .330$. Post-Hoc Tests showed that the emotional response to the sexist memes was found to be more negative than to ageist memes ($p < .001$) and the reaction to the ageist memes was more negative than towards the neutral memes ($p < .001$). Another ANOVA which included men was performed with participants who were assigned to the sexist condition. The emotional

response was set as dependant and gender as independent variable. However, there were no significant differences in emotional responses between men and women, who were exposed to sexist memes, $F(2, 63) = 0.996$, $p = .375$, $\eta^2 = .031$. The descriptive statistics for the emotion ratings can be found in table 2.

Research Question 3

The third research question inquired about the links between sexist humour and stereotyping in men and women. Therefore, it was examined whether the exposure to different memes had any effects on the different subscales of the PN-SRI. For this a number of ANOVAs were carried out in which each subscale was designated as the dependant variable and the condition was set as the fixed factor. The number of participants who identified with a different gender was unfortunately too small to conduct any statistical procedures with and were therefore excluded for these analyses. The results of these procedures are listed in table 3. Only the subscale of negative femininity revealed significant differences between the three conditions in women. Post hoc tests using the Bonferroni correction show that women in the sexism condition rated negative female attributes as significantly more typical for women than those who were exposed to ageist memes, $p = .017$. Cohen's d was calculated and implies that this difference has a medium to large effect size (-0.576). Differences between the other groups were not significant. In order to examine the effects of gender identification on ingroup stereotyping in women, two additional ANCOVAs were performed for the female participants with the female subscales. For this gender identification was set as covariate, each of the female subscales as dependant and the condition as independent variable. It was revealed that gender identification has no significant effects on either positive stereotyping, $F(1, 129) = 1.731$, $p = .191$, $\eta^2 = .013$, or negative stereotyping, $F(1, 129) = 0.537$, $p = .465$, $\eta^2 = .004$. The effect of the conditions on negative stereotyping remained significant, $F(2, 129) = 3.691$, $p = .028$, $\eta^2 = .054$.

Table 3

ANOVA results for each subscale for men and women.

Results (female participants)								
Measure	Sexist		Ageist		Neutral		$F(2, 130)$	η^2
	M	SD	M	SD	M	SD		
Ingroup stereotyping								
Negative femininity	3.41	1.22	2.74	1.11	3.22	1.10	4.18*	0.060
Positive femininity	4.31	1.20	4.20	1.24	4.42	1.29	0.344	0.005
Outgroup stereotyping								
Negative masculinity	3.44	1.31	3.06	1.38	3.42	1.05	1.28	0.019
Positive masculinity	3.63	1.11	3.51	1.15	3.76	1.21	0.48	0.007
Results (male participants)								
Measures	Sexist		Ageist		Neutral		$F(2, 46)$	η^2
	M	SD	M	SD	M	SD		
Outgroup stereotyping								
Negative femininity	3.11	1.34	3.25	1.29	3.18	1.42	0.04	0.002
Positive femininity	3.97	1.49	4.48	1.38	4.31	1.56	0.54	0.023
Ingroup stereotyping								
Negative masculinity	3.61	1.20	3.67	1.51	3.57	1.39	0.02	0.001
Positive masculinity	3.58	1.49	4.06	1.29	3.43	1.33	0.91	0.038

Note. For assessing gender stereotyping the Positive Negative Sex-Role-Inventory (PN-SRI) by Berger and Krahé (2013) was used. Participants were presented with statements and were asked to voice their level of agreement on a Likert scale ranging from 1 ("*strongly disagree*") to 7 ("*strongly agree*").

* $p < 0.05$.

Research Question 4

The last research question is concerned with the associations between age and age stereotyping. One ANCOVA was performed to examine the effect of the ageist memes on the scores of the Domain-Specific Views on Ageing and Preparation for Age-Related Changes scale (Kornadt et al., 2020). The participant's age was used as covariate, while the ageism scale was designated as dependant and the conditions as independent variable. There were no significant differences in age stereotyping between the conditions, $F(2, 181) = 1.047$, $p = .353$, $\eta^2 = .011$. However, the participant's age as covariate appeared to have a small but significant effect on age stereotyping, $F(1, 181) = 6.480$, $p = .012$, $\eta^2 = .035$. When adding the interaction term between conditions and age it was not significant, $F(2, 179) = 0.955$, $p = .387$, $\eta^2 = .011$, meaning that age has an effect on age stereotypes independent of the condition.

Discussion

The main aim of the study was to examine the perceived funniness of and emotional responses to disparagement humour, shine light on the relationship of disparagement humour and stereotyping and explore possible effects on ingroup stereotyping. Several research hypotheses have been formulated to replicate findings and answer questions, which remain from earlier studies. The implications that the aforementioned results have for each hypothesis are summarised and discussed below, where they are embedded in the context of current theories and prior studies.

Findings

The first research hypothesis was concerned with replicating earlier findings, which showed that disparagement humour is generally perceived to be equally funny as neutral humour (Argüello Gutiérrez et al., 2018; Kochersberger et al., 2014; Olson et al., 1999). Contrary our expectations, it was revealed that there are stark differences between the funniness ratings of each condition. Sexist memes were perceived as the least funny and ageist memes were rated as funnier than sexist memes, but less funny than neutral memes. Comparisons between the conditions in this study suggest that disparaging humour – even if it does not target most participants directly, as in the case of the ageist humour condition – is perceived notably different from the neutral

condition. While these results contradict earlier findings, prior studies explicitly selected the stimuli in a way that there is no difference in funniness between the disparagement humour condition and the neutral humour condition (Argüello Gutiérrez et al., 2018; Kochersberger et al., 2014; Olson et al., 1999; Woodzicka & LaFrance, 1998). In the current study, however, the stimuli were instead selected according to their disparagement rating while funniness was only a secondary criterion. This may have led to a selection bias, as funniness ratings decrease the more memes are rated as disparaging. As mentioned by Ford et al. (2015) there is substantial evidence that the greater the negative disposition towards the target of disparagement humour the greater is the amusement when interpreted in a non-critical mindset. It appears that the results of this study may be in contradiction to dispositional theory, since the memes which were rated most disparaging were also rated the least funny. Interestingly, this trend that disparagement humour memes were rated as consistently less funny was already apparent during preliminary rating of the material and then later during the pilot study. One explanation in line with dispositional theory may be that the disparaging memes were perceived as so clearly discriminating that it was hard to take them as mere jokes and interpret them in a non-critical mindset. Combined with the fact that these memes were explicitly selected for their disparagement rating, this would suggest that participants knew that it is disparaging humour which in turn may have triggered social desirability bias or caused them to evaluate the memes in a more critical mindset. This would also explain why sexist humour is rated the least funny - because participants were likely to be more mindful about sexist humour than ageist humour - and evaluated sexist humour in line with social expectations. As it has been shown that there are differences between students of various disciplines, it is also possible that the large number of psychology students skewed the ratings since they may be more attentive to these cues (Verbree et al., 2021). Nevertheless, these findings complement other studies, in which the level of funniness was held constant across conditions, and imply that disparaging humour in general can be perceived as less funny than neutral humour.

When looking at the sexist humour condition, the results show that this type of humour is generally perceived as less funny by women than by men. This result was expected, as it is in line with the current literature (Ford et al., 2015; Kochersberger et al., 2014). Interestingly, however, no significant effect of gender identification was revealed for

female participants, conflicting with evidence of similar studies that ingroup identification plays an important role in the evaluation of funniness of sexist humour (Argüello Gutiérrez et al., 2018; Kochersberger et al., 2014; Woodzicka & LaFrance, 1998). This may be explained by the fact that the sexist humour was too disparaging for participants to adopt a non-critical mindset and they were therefore unable or unwilling to perceive them as mere jokes. The clearly discriminating intent could have triggered social desirability bias which would have led women to rate sexist humour as less funny, even if they only have a weak identification with women as a social category. While an earlier study indicated that identification with the target group seems to have an effect independent of an individuals' hostile sexism score, it is also conceivable that smaller effects are only revealed when controlling for hostile sexism (Kochersberger et al., 2014). Interestingly, gender identification did have a strong effect on the amusement of male participants. The stronger they identified as men, the funnier they rated the sexist memes. Similarly, age did have an effect on the funniness ratings of ageist memes. However, this effect was present in all conditions, indicating that older participants generally did not appreciate the kind of humour which was used in the current study. Since older age also appears to be connected with lower enjoyment of memes in general, this may be due to the relative novelty of internet memes as a humorous format, with which they may not be entirely familiar. Therefore, it may only be possible to reveal any significant effects when controlling for the familiarity with memes.

Amusement, however, is not the only emotion that disparaging memes can evoke. As shown by Woodzicka and LaFrance (1998), women can have conflicting responses to sexist humour, by being simultaneously amused and feeling contempt or embarrassment. A more recent study has examined reactions to a sexist meme, which was posted on social media by categorising the emotional responses from the comments. The emotional response was mostly negative, with women and – to a lesser degree – men expressing a wide range of negative feelings including contempt, anger, outrage and sadness which was significantly stronger for women than for men (Paciello et al., 2021). These studies show that sexist humour in particular can trigger a wide range of negative emotions. The results from the current research are mostly in line with these findings. As shown earlier, when compared to the other conditions, sexist memes were shown to elicit the most negative emotions in this study. However,

although women did report more negative responses than men, the differences between the emotional response to sexist memes between men and women were not significant. This could again be explained by selecting stimuli which were disparaging enough to trigger social desirability bias, which resulted in men rating their emotional response as more negative than they otherwise would have. Such an effect could have been aggravated by the sample selection, which mostly consisted of highly educated participants with a large percentage of psychology students, who may be particularly aware of the questionnaire's true intent. Interestingly, emotional responses to the memes, even for the non-disparaging ones, were largely neutral for women or only slightly positive for men. Overall the emotional responses appear to closely track the funniness ratings which were also slightly above the scale midpoint for neutral memes.

The next hypotheses were relating to the influence of disparagement humour on stereotypes. It was postulated that while exposure to sexist humour would not have any effects on outgroup stereotyping, it would lead to a change in gender ingroup stereotyping for women. All results on outgroup stereotyping of women were non-significant, which implied that there are no effects of sexist humour. This confirmed our hypothesis and was in line with earlier findings (Ford et al., 2015; Olson et al., 1999). The results for ingroup stereotyping were more mixed, however. Interestingly, negative ingroup stereotyping was significantly weaker for women, who were exposed to ageist memes, but only when compared to women who were presented with sexist memes. While negative ingroup stereotyping was also lower in the neutral condition, the difference is small and not significantly different from the sexist condition. Contrary to expectations and our hypothesis, these effects have also not been moderated by gender identification. Although there appears to be an effect of disparaging memes on ingroup stereotyping, it is exposure to the ageist condition which leads to a decrease on ingroup stereotyping. One possible explanation for this finding was that it may reflect a positive effect of humour which does not target the participants directly. A similar effect of neutral humour on outgroup stereotyping was found by Olson et al. (1999) in one of their studies about stereotyping of men, although it was not replicated later. It could be conceivable that strong activation of a different stereotype may influence the stereotypical perception on one's own ingroup, leading to a less biased evaluation. In this case women who were exposed to negative ageist stereotypes, may be prone to evaluate their own ingroup as less stereotypical and less negative.

Following from this, it would mean that disparaging humour does not lead to an increase of ingroup stereotyping, as proposed. Instead exposure to disparaging humour appears to decrease ingroup stereotyping, when the disparagement is targeted at a different social group. The similarity between the ratings of the sexist and the neutral condition on negative feminine stereotypes could be explained by an exhaustion effect as the disparagement became obvious to participants. This could be either because of the selection bias for exceedingly disparaging stimuli or as a consequence of over-exposure to the sexist stimuli which blunted overall effects. This explanation harks back to Abrams and Bippus (2011), who indicated that the number of disparagement humour stimuli can have an effect on dependant variables. A similar effect may cause sexist stimuli to become so salient after a while that the humorous context is reconsidered and a more critical mindset is adopted by the participants. If participants engaged with the disparaging stimuli in a more critical manner this may have led them to realise that the content is systematically discriminating against one group, which may reduce or eliminate any subliminal effects on ingroup stereotyping. On the other hand, it could also give the participants time to discover that all memes in their condition are disparaging and then respond according to social desirability. Lastly, there is also the possibility that these findings are simply false positive effects and similarly to outgroup stereotyping, there are no effects of humour on ingroup stereotyping either.

While there were some significant results for the effect of disparagement humour on gender stereotypes, no such effects were found for age stereotyping. The hypothesis that exposure to ageist memes would have an effect on age stereotypes, when controlling for age, could not be confirmed. Since the sample was recruited from a student population the average age in the current sample was relatively young. Therefore, it can be assumed that the majority of the sample did not define themselves as old enough to be targeted by the ageist humour which was used in this study. For this reason, current results complement the findings of similar studies on the effect of sexist humour on outgroup stereotyping, as summarised by Ford et al. (2015), which have also found null effects. While data on identification was not collected in this study, analyses imply that age does play a role for the acceptance of stereotypes: The higher the age of the participants, the more likely they indicate their disagreement with age stereotypes, irrespective what type of humour they were presented with. This is again

in line with earlier literature, which suggests that the age of participants may function as an important moderator, decreasing agreement with age stereotyping when identification with the social category of older people is strong enough (Posthuma & Campion, 2009).

Limitations and Directions for Future Research

While this study has made interesting, although conflicting, findings in the largely unexplored area of disparagement humour research, there are also a number of limitations which need to be kept in mind. Firstly, the meme stimuli, although they were selected from a wide array of sources, were not rated equally disparaging across the sexist and ageist conditions in the pilot study. Sexist memes have been consistently rated as more disparaging. There are several explanations for this: It could be that sexism is generally perceived as a more upsetting form of discrimination. Participants could be less aware of the negative consequences of ageism than of sexism and therefore be less inclined to believe that it constitutes a form of discrimination. Therefore, it is possible that participants rate ageist memes as less disparaging, even if they adopt a more critical mindset while processing them. Another possibility is that discrimination based on sex is qualitatively different and includes facets which are generally perceived as less acceptable and more offensive. Supporting this hypothesis is the fact that the memes which were rated the most sexist were making light of or even promoting violence against women while similar themes were absent from ageist memes. Similarly, the funniness between conditions was also not held equal, which may have had unforeseen consequences. Perhaps, prioritising the disparaging characteristics of the stimuli over funniness has led to a selection of memes, whose discriminating intent was so salient to participants that their overall effect was more similar to non-humorous stimuli.

It is also conceivable that certain unintended effects may be the result of the sample selection, which includes mostly participants who are currently studying or otherwise possess a relatively high level of education and are more sensitised to disparaging cues and especially sexism. While this sample was extremely skewed towards people with higher levels of education, there was also a minority of people with other educational backgrounds. Since they were recruited through social media channels

which are intended for students it was assumed that they are nonetheless related to university in some capacity which would mean that their social environment is comparable to that of students. And because their numbers were equally distributed among the conditions it was believed that if there were any effects they would cancel each other out. Exploratory data analyses have not revealed any notable effects of education in this sample. Nevertheless, the possibility that effects are biased by participants with different levels of education cannot be fully discounted, since they were not excluded and they were too few to reliably conduct statistical examinations. Another limitation that concerns the sample of this study is that the vast majority of participants indicated that they were studying psychology. Their numbers were also equally divided between the conditions. However, as mentioned earlier this may have affected the reception of the stimuli as psychology students could be more attentive to cues of experimental manipulation and the intentions behind psychological questionnaires. Although expected, the large gender imbalance – the large majority of participants were identifying as female – should also be mentioned. Unfortunately, the number of participants who identified neither as male nor as female was too small for separate statistical analyses.

Other limitations are more connected to the questionnaire and the study design. Unfortunately, there were complications with the display of the sliders in the questionnaire, which were used to assess the emotional reaction of participants to the memes. When filling out the questionnaire on a smartphone device, it did not properly display the descriptors for each end of the slider (“positive” and “negative”). Similar problems were discovered during the pilot study and were corrected, however, for some participants in the main study these issues persisted. Since participants who were affected left comments at the end of the questionnaire and explained their (correct) interpretation of the scale ends, it was assumed that the scale was self-explanatory even without visible descriptors. For this reason and because participants who used a smartphone could not be reliably identified after data collection was over, these cases were included in the final data set. However, it is possible that not every participant interpreted the slider correctly and since the number of people who used a smartphone to fill out this questionnaire is unknown, any conclusions from this scale need to be drawn with utmost caution.

Overall, future research on this topic should include a non-humorous condition, as it was employed in several other studies before (e.g. Ford, 2001; Mallet et al., 2019; Mallet et al., 2016; Olson et al., 1999). This could be accomplished by simply presenting participants with neutral or disparaging text statements and using an unrelated or neutral picture in the background. A non-humorous condition may help to isolate effects of memes and to examine whether clearly disparaging memes have different effects from disparaging text statements. It is also advised to examine if the effect that ageist memes has on negative female ingroup stereotyping is specific to ageist humour. Conceivably, this may apply to all forms of disparaging humour which does not target one's own group. Therefore, exploring these effects with disparaging humour targeting a variety of groups is strongly recommended. It may also be helpful to use fewer disparaging stimuli to avoid triggering social desirability bias and ask participants afterwards, if they were aware of the study's intent. Additionally, future studies should strive to recruit participants with more diverse study backgrounds or focus on different groups entirely to further examine these findings across several societal strata. Since some of the effects, which were found in the present research were gender-specific, it should be a priority to also increase the numbers of non-female participants. When conducting research about the role of gender identification on stereotyping it could be helpful to explore these effects on a sample of non-binary participants as well. This would make it possible to examine earlier results with more robust sample sizes and explore the role of gender identification more thoroughly.

Summary

Overall, the findings which were presented in this study make an important contribution to the current state of research about the effects of disparaging humour. In utilising internet memes as humorous stimuli, this study was able to examine the applicability of earlier research. Findings, which show that women generally find sexist humour less funny than men (Ford et al., 2015; Kochersberger et al., 2014; Woodzicka & LaFrance, 1998) were replicated and it was confirmed that this effect also holds true for the new medium of internet memes in the form of macro images. However, it was also discovered that participants generally rated disparaging memes as consistently less funny than more neutral memes, contradicting earlier research which implied that disparaging and neutral jokes have similar amusement ratings. The results of this

study show that disparagement humour can be perceived differently depending on which medium is used and therefore underlines the importance of researching disparagement humour in a digital environment. The addition of an ageist humour condition to the study design also enabled an insightful comparison between two common forms of disparagement humour and shone light on the underexplored topic of ageist humour. One of the most interesting findings of this study, however, is indubitably the fact that exposure to ageist meme stimuli has led to a decrease in negative ingroup stereotyping for women but only when compared to the sexist condition. These unexpected results pose new questions concerning the role of disparaging humour in the context of ingroup stereotyping and they indicate that exposure to disparaging humour, which aims at a different group, may decrease negative ingroup stereotypes. Therefore, the effects of disparaging humour on ingroup stereotyping should be examined more closely in future research.

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Appendix

English Abstract

While there has been much progress in the fight for equal rights in recent decades sexist humour is thriving thanks to lax regulations on social media websites and a lack of accountability in online settings. But while studies on the effects of sexist humour on outgroup stereotyping have found no effects, the consequences on ingroup stereotyping for women are still largely unexplored. In an effort to examine this question and to replicate earlier results with a different popular medium, this study is using a quasi-experimental design to expose a gender-mixed sample of German native speakers ($n = 185$) to either sexist, ageist or neutral internet memes. Our findings indicate that women perceive them to be less funny than men, replicating earlier results with different stimuli. Contrary to earlier research it was also revealed that gender identification did not have an influence on funniness ratings of sexist memes in women. However, results showed that men who strongly identified with their own gender appeared to perceive sexist memes as funnier. Furthermore, sexist memes did not have any effects on ingroup stereotyping in women, but ageist memes appeared to decrease negative ingroup stereotyping when compared to the sexist condition. While unexpected, this might be explained by disparagement humour having a lifting effect on stereotyping, when it does not target the participants. Overall, this study has shown that many earlier findings need to be re-examined in the underexplored field of online settings, making this an important contribution to disparagement humour research.

German Abstract

Trotz vieler ermutigender Fortschritte in Richtung Geschlechtergleichstellung in den letzten Jahrzehnten ist insbesondere sexistischer Humor aufgrund lockerer Moderationspraktiken in sozialen Medien und durch fehlende Rechenschaft in öffentlichen Räumen im Internet stark im Aufschwung. Obwohl frühere Studien keinen Beleg dafür gefunden haben, dass sexistischer Humor die Stereotypisierung steigert, sind die Effekte auf die Selbststereotypisierung von Frauen bis heute kaum untersucht. Die vorliegende Studie hat sich zum Ziel genommen, diese Frage zu untersuchen und frühere Forschungsergebnisse mit einem neuen online Medium, Internet Memes, zu replizieren. Dafür wurde ein quasi-experimentelles Studiendesign gewählt, in dem eine geschlechtergemischte Stichprobe von deutschen Muttersprachler:innen ($n = 185$) entweder sexistischen, altersdiskriminierenden oder neutralen Internet Memes ausgesetzt und danach über Geschlechtsstereotype befragt wurden. Es wurde gezeigt, dass Frauen sexistischen Humor auch in Form von Memes weniger amüsant finden als Männer. Im Gegensatz zu früheren Studien konnte aber nicht nachgewiesen werden, dass Geschlechtsidentifikation von Frauen diesen Effekt moderiert. Interessanterweise konnte aber gezeigt werden, dass Männer mit einer hohen Geschlechtsidentifikation sexistische Memes als lustiger wahrnehmen. Ein Effekt sexistischer Memes auf Selbststereotypisierung von Frauen wurde nicht gefunden. Allerdings konnte nachgewiesen werden, dass altersdiskriminierende Memes negative Selbststereotypisierung von Frauen im Vergleich zur sexistischen Experimentalbedingung verringern. Diese unerwarteten Ergebnisse könnten möglicherweise dadurch erklärt werden, dass diskriminierender Humor, welcher die eigene Gruppe nicht direkt betrifft, negative Stereotype über die eigene Gruppe verringert. Zusammengefasst konnte diese Studie zeigen, dass viele frühere Ergebnisse im Kontext des Internets nachgeprüft werden müssen, wodurch ein wichtiger Beitrag zur Humorforschung geleistet wurde.