

Posters Against Catcalling

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Effects of Catcalling Intervention and Gender on Multiple Factors Related to Catcalling Outcomes

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Abstract

Catcalling is sexual harassment between strangers in the public space. A poster intervention was designed to test its effects and the effects of gender on feelings of security, awareness, likelihood of bystander action, and acceptance of catcalling. Analysis of the questionnaire, filled in by 204 participants, used before and after the introduction of the posters in the public space, revealed significant results for the effect of gender on feelings of security, awareness, and bystander action. All other effects were non-significant. These results showed that women feel less safe, have more awareness concerning the problem of catcalling and are more likely for bystander intervention in harassment situations than men.

Keywords: catcalling, street harassment, intervention, posters, motivation

Catcalling

“Damn girl!” - “Smile!” - “I just saw a thousand bucks!”

A film project initiated by the non-profit organization *Hollaback!* showed a woman walking busily through New York City for 10 hours. Within that time she received over 100 verbal catcalls, this number doesn't include the countless winks, whistles and being followed for up to 5 minutes by persistent men (Bliss, 2014). Catcalling, also known as street harassment, is an unacceptable and unwanted interaction between strangers within a public space, motivated by the harasser's target's (perceived) gender or sexual orientation, always including a sexual connotation (Kearl, 2014). Street harassment covers behaviors ranging from staring, whistling, making kissing noises and nonsexual explicit evaluating comments to more threatening behaviors, such as sexual comments, vulgar gestures, stalking and flashing, to even rarer illegal behaviors like masturbation in front of strangers, sexual touching, assault and rape (Kearl, 2010). However, it is important to not only work on the extreme physically violent side of this behavior and reduce it, since violence against women goes beyond the physical. Violence against women and LGBTQ+ members also includes verbal, emotional and spiritual violence (Dekeseredy, 2010). A quick internet news search on the topic of violence against women by men shows dozens of articles all younger than a week (Google Trends, 2021), which makes it reasonable to describe the problem at hand as a cultural problem. Yet, as the internet search also shows, most articles are related to physical violence against women, neglecting to take verbal, emotional and spiritual violence into account. It is therefore important to take a more holistic approach in counteracting violence against women and LGBTQ+ members. Therefore, the goal of this study is to further the applied scientific insights into preventative strategies for street harassment and to fill the gap in the scientific literature accordingly.

Predictors of Catcalling

The way in which men and women think about safety issues is fundamentally different from each other. Jackson Katz (2006), an educator concerned with developing gender equality programs, shows this discrepancy between how women and men think about their safety via an exercise during his workshops. Through audience participation everyday safety measures men and women take to prevent assault are listed per gender. The exercise visualizes women's worry about staying safe, while men are usually unperturbed concerning safety issues. However, this exercise does not simply show the effects of the constant threat men may pose to women, but it also shows the complete lack of awareness men possess about the problem they could cause. This lack of awareness men can have about their own behavior is

astounding, considering the crime statistics of the German Federal Office of Criminal Investigation (Bundeskriminalamt). In Germany, in 2020, 75% of sexual crime victims were women, while 91% of alleged sexual crime perpetrators were men (Bundeskriminalamt, 2020; 2020). In a society that is half female and half male, this constitutes a pervasive cultural problem, which should not be seen as a “women’s problem”, but a “men’s problem”, since men are the ones causing it (Katz, 2006). It seems, violence against women is a problem created by men, thus even though men may not be concerned about it, they should be made aware of their behavior and its consequences.

One reason for why men may be engaging in catcalling without being aware of it, is the fact that catcalls and compliments share some attributes (Di Gennaro & Ritschel, 2019). This can lead to misunderstandings in situations in which men might want to compliment women to establish a sexual relationship, but they might use wrong phrases or misread the situation completely, leading to them catcalling. Men often catcall with the intention of complimenting, they are simply not aware that their verbal assertions are being received as harassing (Di Gennaro & Ritschel, 2019; Walton & Pedersen, 2021). In addition, men often misinterpret the effects of catcalling behaviors, specifically thinking that women like it (Di Gennaro & Ritschel, 2019). Furthermore, street harassment is seen as common and normal by men, consequently trivializing catcalling behaviors (Camp et al., 2018). These two factors, misinterpretation and trivialization, cumulate in men’s perceived appropriateness of catcalling, which in turn can contribute to a positive relationship between their level of tolerance of street harassment and their level of engagement in it (DelGreco et al., 2020). To summarize, men may have the intention of approaching women to initiate a sexual relationship. However, this act of approaching is moderated by their perceived appropriateness of catcalling, meaning their level of misinterpretation and trivialization of street harassment. More concretely, it seems that if a men’s level of perceived appropriateness of street harassment is high, he is more likely to continue with his attempt at approaching women via catcalling behaviors (Figure 1).

Additionally, research suggests men might catcall out of the social motivation of building up camaraderie within their group (Di Gennaro & Ritschel, 2019). Street harassment is more likely to occur if men are within their peer group, because being in a group offers anonymity and it serves as a bonding function for members within the group (Di Gennaro & Ritschel, 2019). Further, as portraying oneself as masculine is an important social factor for many men, catcalling behavior serves as a way of reinforcing said masculine identity at the expense of objectifying women (Di Gennaro & Ritschel, 2019; Walton & Pedersen, 2021).

Given this social need to be masculine, it is therefore explicable why participation in catcalling is more likely when being in a peer group, since representing one’s masculinity is possible in the situation. Equally important is the normalization of the behavior (Camp et al., 2018). Men thinking it is normal, hence participating in catcalling, could create a perceived descriptive norm around street harassment. To recapitulate, many men may have a need to prove their masculinity to their social group, making catcalling in social groups even likelier than simply given the function of bonding within the group. Taken together with the descriptive norm around catcalling, the social motivation of building camaraderie within the peer group may be very strong and could lead to street harassment towards women by men (Figure 1).

Finally, men’s motivation of controlling women has been shown to be a factor in them participating in street harassment behaviors (DelGreco et al., 2020). In Benard and Schlaffer’s (1984) survey on men, who just catcalled the female experimenters, some men reported to catcall out of a desire to humiliate and anger women. Furthermore, men reported to act out street harassment behaviors because of a perceived power imbalance between them and the harassed women, thinking women have more power than them (DelGreco et al., 2020). Men may perceive themselves to be less powerful than the women and thus could have a need to reinstall their power over women. Hence, men’s perceived power imbalance in combination with a desire to humiliate women, could lead them to a motivation to control women and ultimately to catcall them (Figure 1).

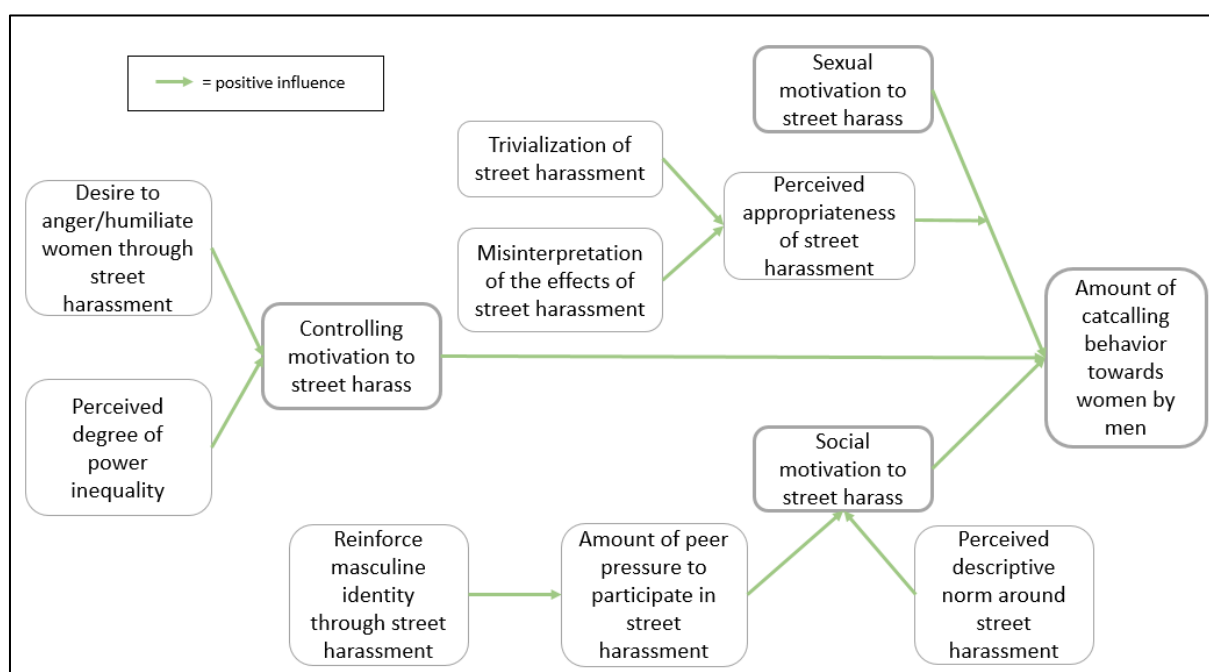


Figure 1. Process model of catcalling motivations

The overall aim of this study is not to test the validity of this process model (Figure 1), but rather if an intervention targeted at some predictors could reduce the negative consequences of street harassment. Thus, based on the three motivations in this model points of possible intervention were identified. This intervention was instrumentalized through posters, addressing different aspects of the process model in their design, which were distributed in the city center of Marburg. Testing of the effectiveness of said posters took place before the implementation, the base line or control group, and once after the implementation, the experimental group.

Consequences of Catcalling

Women experience a multitude of negative consequences because of street harassment, such as anxiety, depression, lower levels of perceived safety and increased fear of rape (Davidson et al., 2016, 2014; Fairchild & Rudman, 2008; MacMillan et al., 2000; McCarty et al., 2013; Schneider et al., 1997; Smith, 1988). According to the objectification theory (Fredrickson & Roberts, 1997) repeated encounters with sexual objectification, like street harassment, lead victims to an internalized, often negative, view of their own bodies. They start to view themselves as less than and confide to the roles assigned to them by the patriarchal society, causing a vicious cycle of experiencing objectification and believing in its perceived truth. Furthermore, victims of sexual harassment classify street harassment, which is perpetrated by strangers, as more severe and impactful than sexual harassment by someone they know (MacMillan et al., 2000; McCarty et al., 2013). This may be due to the perceived arbitrariness of catcalling and the feeling of being unsafe wherever one goes. In order to cope with this lack of feeling safe, victims of street harassment change their behavioral patterns, like taking different routes or transportations, avoiding certain locations, going out at night and specific people (Livingston, 2015). Consequently, an intervention addressing catcalling to prevent it is needed in order to alleviate the negative consequences of street harassment.

Street harassment has been pushed to the side in society and research in favor of focusing on other sexual harassments/violence, such as workplace harassment and partner violence (Saunders et al., 2016). Nonetheless, street harassment has tremendous impact on the culture it is permitted to exist in, and needs to be put back into the spotlight, in order of trying to decrease the behavior and the acceptance of catcalling. In Germany few campaigns have been done to combat street harassment. One prominent self-organized group is the “Ankreiden-Aktion”, which originated from the English “Chalk-Back” movement. These groups collect catcalling experiences and write them down with chalk in public places, later publishing pictures of it online (Deutsche Presse Agentur, 2021). They have somewhat of a

cathartic effect on women, who let go of their anxiety around their experiences (Sandberg, 2020). However, these online posts are met with little understanding from the perpetrators. They reject the idea of having responsibility, but rather portray women as being too sensitive when given a compliment (Deutsche Presse Agentur, 2021). As a result of little awareness in the population and few campaigns, which fail to reach the perpetrators, more needs to be done. To the best of our knowledge no interventions targeting low level catcalling behavior exists. So, not only practical interventions and preventions opposing street harassment are needed, but also research on the topic.

Present Study

The current research aims to fill this gap by designing a catcalling intervention and testing its effects in men and women on subjective feelings of security, awareness about the problem, likelihood of bystander action and acceptance of street harassment. Because only little research has been done on catcalling in general, this paper will first focus on the effects it has on women as victims and men as perpetrators. More research needs to be done concerning catcalling and its effects on the whole population in non-stereotypical gender roles, thus including LGBTQ+ members.

The current research focuses on assessing subjective feelings of security due to the substantial impact catcalling has on its victim's feelings of security (Davidson et al., 2016, 2014; Fairchild & Rudman, 2008; MacMillan et al., 2000; McCarty et al., 2013; Schneider et al., 1997; Smith, 1988). Awareness about the problem is assessed, because perpetrators often explain their behavior as being complimentary, unaware about the negative consequences street harassment has on the victims (Di Gennaro & Ritschel, 2019). Likelihood of bystander intervention is an important factor which needs to be tested in catcalling interventions, since it portrays the third parties' willingness to step up for the victims, being related to a person's level of empathy (Yule et al., 2020). Finally, acceptance of street harassment is measured to see to what extent the behavior is normalized in the population (Camp et al., 2018). The four outcome measures, feelings of safety, awareness about the problem, likelihood of bystander intervention, and acceptance of the problem, are measured according to the independent variables intervention group and gender of the participant.

Thus, for gender on subjective feelings of security it is hypothesized that men will generally feel safer than women (hypothesis 1.1; Davidson et al., 2016, 2014; Fairchild & Rudman, 2008; MacMillan et al., 2000; McCarty et al., 2013; Schneider et al., 1997; Smith, 1988), while for the variable intervention it is hypothesized that the group experiencing the intervention, the experimental group, will feel safer than the control group (hypothesis 1.2).

Both factors, gender and intervention, should also interact (hypothesis 1.3). Specifically, women should feel safer in the experimental group compared to in the control group. Men should feel safer in the control compared to in the experimental group. Men in the experimental group will feel less secure, because the intervention will attack their hierarchal position in the patriarchal society (Gervais et al., 2019). For gender on awareness about the problem, it is hypothesized that women will be more aware, since they are more affected (hypothesis 2.1; Katz, 2006), likewise the experimental group will be more aware (hypothesis 2.2). An interaction effect is hypothesized (hypothesis 2.3). Concretely, women in the experimental group will be more aware than women in the control group. Similarly, men in the experimental group will be more aware than men in the control group. For gender on likelihood of bystander action, it is hypothesized that women will be more likely to interject in harassment situations, due to their higher levels of empathy (Mestre et al., 2009; Nanda, 2013) and their higher likelihood of emotional helping behaviors towards strangers (hypothesis 3.1; Nielson et al., 2017). For the intervention, the experimental group will be more likely to take action (hypothesis 3.2). Here, an interaction effect is hypothesized (hypothesis 3.3), namely women in the experimental group will be most likely to intervene, then women in the control group and men in the experimental group, men in the control group will be least likely to interject in harassment situations. For gender on acceptance of the behavior it is hypothesized that men will be more accepting than women (hypothesis 4.1; Camp et al., 2018). For the intervention it is hypothesized that the control group will be more accepting (hypothesis 4.2). An interaction effect is hypothesized (hypothesis 4.3). Specifically that men in the control group will be more accepting than men in the experimental group. Women in the control group will be more accepting than women in the experimental group.

To investigate the influence of gender and intervention group on subjective feelings of safety, awareness of the problem, likelihood of bystander action, and acceptance of the problem, the study will consist of a 10 minute online questionnaire administered to one group before the intervention consisting of posters is implemented, and another group after the posters are hung up. The participants will have to answer 4 different questionnaire scales pertaining to the four different dependent variables. The target group consists of young adults, 18-30 years old, and people who are often in Marburg, since the intervention is physically limited to that area. The results will be analyzed using a two-way MANOVA.

Method

Participants

A sample size calculation was done using G*Power (Faul et al., 2007), which suggested the use of 194 participants, based on an alpha of 0.05, a power of 0.95, and assuming a small effect size of $f^2=0.06$ for a two-way MANOVA. This assumption is based on the fact that little research has been done in the field of catcalling intervention and prevention. The 204 (154 female [75.5%]) participants, who were filtered for participation requirements, were a convenience sample of people randomly approached on the streets of Marburg and gathered via social media accounts related to the city of Marburg. Participants had a mean age of 22.4 years old ($SD=1.3$), and were mostly inhabitants of Marburg (89.2%), additionally 3.4% reported being in the city almost daily, 3.9% being in the city multiple times a week, and 3.4% being in Marburg at least once every week.

Materials

The study was conducted using Qualtrics as a platform to design the questionnaire. The intervention material, namely the posters, were designed using canva.com through adjusting available poster designs and filling in the influential content. The final posters were printed in A1 format. The specifics concerning posters and questionnaire will be explained below.

Intervention Posters. The intervention consisted of three different poster designs (Appendix A-C). The first design (Appendix A) made use of mandated altercasting (Pratkanis, 1999) with the expression “Echte Männer respektieren Frauen” (“real men respect women”) written under a picture of a man. Altercasting is the process of casting the observer into a role (Pratkanis, 1999). Since people like to see themselves in a positive light (Hoorens, 2014) they are more likely to accept the role thrust upon them of “being a real man by respecting women”. This phrase also reassess the descriptive norm around catcalling to the observer (Ajzen, 2011; White et al., 2009). Each man pictured on this design had a serious expression and was looking down into the camera, which portrays the stereotypical masculine trait of confidence (Elman, 1977; Freeman, 1987; Sczesny et al., 2006). The poster design was kept in cool tones and dark colors to represent masculinity (Picariello et al., 1990; Zhang, 2015), this will make it easier for men to notice these posters, because they align with their need for masculinity (Di Gennaro & Ritschel, 2019; Walton & Pedersen, 2021). For the second design (Appendix B), the main phrase “Ich bin mehr als nur mein Hintern” (“I am more than just my ass”) paired with pictures of serious looking women on the poster was written to elicit empathy in the perpetrators (Hanson, 2011), and empowerment in the victims (Cattaneo et al.,

2020). The second phrase on the poster, “Sprich mit mir auf #Augenhöhe” (“Talk to me on #eyelevel”) conveyed an alternative plan of action to the perpetrators, a sort of implementation intention, linking the meeting of a person to the action of speaking to them respectfully (Prestwich et al., 2015). The third and last design (Appendix C) was meant to appeal to the bystander in street harassment situations. For this appeal and to symbolize that all can interject in harassment situations, pictures of men and women were paired with the phrase “Bei Belästigung greife ich ein!” (“I intervene in the event of harassment”), acting as a positive modeling example (Taylor et al., 2005). The second phrase on the poster, “Mach Mit! Frag die Betroffene, ob sie Hilfe braucht” (“Take part! Ask the person concerned if she needs help”) works as a call to action (Duarte, 2018) and gives the bystanders a concrete plan of action, linking the witnessing of a harassment situation with the act of asking if the harassed needs help (Prestwich et al., 2015). Each design showed four different men or women with different skin tones to make self-identification for different observers more accessible (Behm-Morawitz, 2020; Mastro, 2017). All pictures were taken from the copyright-free site unsplash.com. Furthermore, each design had a stylized eye on it to make people exposed to the poster feel watched and therefore adjust their behavior to act more prosocially (Ernest-Jones et al., 2011; Panagopoulos & Van der Linden, 2017). The hashtag “#stopcatcalling” was printed on each poster to emphasize to the observers which specific behavior was being targeted. Additionally, each poster had the logo of the Radboud University, the city of Marburg, and the anti-violence program of Marburg on it, giving the poster authority and making the observers more likely to positively respond to the messages depicted on the posters (Cialdini, 2009).

Poster validation. The final three designs were chosen based on the results from a validation study on four different variations of each design (Appendix D). The questionnaire asked participants to rate each poster on its noticeability, the degree it prompts one to reflect on its message and the degree of the participants feeling pilloried by the poster’s message. Further, they were asked to pick the slogan from each design, which they would choose if designing an anti-catcalling campaign. After cleaning the data (i.e., taking out incomplete responses and responses with low variability between questions, namely only answering very low or high), the responses of 32 participants (68.8% female) were evaluated. It was concluded from the results of the survey, that none of the possible designs felt attacking or judgmental to the participants, with a mean rating ranging from $M=6.2$, $SD=14.8$ to $M=11.5$, $SD=17.8$ on a scale from zero (not judgmental at all) to one hundred (very judgmental). Furthermore, there was no large difference in rating between posters concerning their level of

standing out and the reported amount they encouraged participants to reflect about them. Participants did, however, have strong opinions concerning which slogan they would pick for a campaign against street harassment, indicating a large preference for “Echte Männer respektieren Frauen” (“Real men respect women”) with 62.5%, and “Mach Mit! Frag die Betroffene, ob sie Hilfe braucht” (“Take part! Ask the person concerned if she needs help”) with 40.6%. Thus, these two designs were chosen. Participants were split in deciding between “Ich bin mehr als nur mein Hintern” (“I am more than just my ass”) and “Ich bin mehr als ein Objekt” (“I am more than an object”), both getting 28.1% of votes. The researcher decided to use the phrase “Ich bin mehr als nur mein Hintern” (“I am more than just my ass”).

Questionnaire scales and reliability. For the main study, four questionnaire scales (Appendix E) were used to examine the four dependent variables respectively. A subscale from Meyer et al.’s (2020) questionnaire was used to examine the subjective feelings of safety of the participants. The 17 items (for an example see Table 1) were judged on a Likert scale ranging from very secure (1) to unsecure (4) and not at all (1) to very much (4). Hence, a high score on this scale indicates feeling less safe. Some items were adjusted to fit more with the targeted population. For the reliability analysis, Cronbach’s alpha was calculated to assess the internal consistency of the subscale for feelings of safety. The internal consistency of the questionnaire was good (Gliem & Gliem, 2003), with Cronbach’s alpha of .89.

Questions for the scale concerning awareness about the problem (see Table 1) were taken and translated into German from the Survey on Sexual Harassment on Campus (2015). All 7 items were answered on a Likert scale ranging from completely disagree (1) to completely agree (5). Thus, a high score indicates having less awareness. The reliability analysis for awareness of the problem reached a Cronbach’s alpha of .68, which indicates a questionable internal consistency (Gliem & Gliem, 2003).

Likelihood of bystander action was assessed using 12 items from Banyard et al. (2003), the items were translated into German and some were added to fit more with the targeted population (see Table 1). The questions were answered on a Likert scale from never (1) to often (5). The Cronbach’s alpha detected through a reliability analysis was .85, representing a good internal consistency (Gliem & Gliem, 2003).

Lastly, 10 items for the measurement of the dependent variable concerned with acceptance of the behavior (see Table 1) were created by the researcher due to an unavailability of a fitting prior scale. The items were measured through the use of a Likert scale ranging from inappropriate (1) to appropriate (5). The internal consistency was

acceptable (Gliem & Gliem, 2003), based on the Cronbach’s alpha of .77, identified using a reliability analysis.

Table 1

Translated example items for each questionnaire scale

Questionnaire Scale	Example Item
Subjective feeling of security scale	“How safe do you feel or would you feel in the public transportation system without company at night?” “How much do you worry about being hit or hurt by someone?”
Awareness of the problem scale	“Please rate the following statements. Sexual harassment is a problem made up by feminists.”
Likelihood of bystander action scale	“Please indicate how likely you would do the following behaviors. If a person is being shoved or yelled at by someone else, I ask if they need help.”
Acceptance of the problem behavior scale	“Please indicate how appropriate you find the following behaviors. Whistling after an attractive person.”

Procedure

The study consisted of two measurements. The first measurement was done before the poster intervention was implemented. The second measurement was done a week after the posters were hung up. The 27 posters were hung up in the city center of Marburg, due to a higher rate of (sexual) crimes in that area (Ahlich, 2020). For each measurement participants were mostly recruited in person by the researcher with the help of flyers in the area where the intervention took place, or via social media accounts linked to Marburg. The flyers for in person recruitment had small sweets stapled to them in order to elicit a feeling of reciprocity in the participants (Cialdini, 2009). Participation was completely voluntary; participants were asked to give their informed consent and were given contact details in case they had any questions. Following this, they filled in a questionnaire about their subjective feelings of

safety, degree of awareness concerning the problem of street harassment, likelihood to interject in witnessed harassment situations, and the degree of acceptance of the behavior as being admissible. Subsequently, demographic data, gender, age, and how often they are in Marburg, were inquired. For the second measurement, participants were presented with the different poster designs and asked to indicate whether they had seen the posters in the city during the last week. This served as a priming tool (Roskos-Ewoldsen, 2007) for the participants, especially for the ones who had not seen the posters, to ensure all participants were exposed to the intervention. Participation could be ceased by participants at all times without any negative consequences. No compensation, except the sweets stapled to the flyers, was given to the participants. Filling out the questionnaire took no longer than 10 minutes.

Data Analysis

Incomplete responses were excluded from the analysis, as well as responses of people younger or older than the target age of 18-30, non-binary indicated gender, and responses of people neither living nor regularly being in Marburg.

Average scores for the dependent variables were analyzed using a 2 (participant's gender: female versus male) * 2 (intervention: control versus experimental) two-way MANOVA in SPSS. The dependent variables were subjective feelings of security, awareness of the problem, likelihood of bystander action and acceptance of the problem. The required assumptions for the analysis were checked in advance.

Results

A two-way MANOVA examining subjective safety, awareness of the problem, likelihood of bystander action and acceptance of the problem as dependent variables, and gender of participant and intervention group as independent variables was prepared. Before analyzing the data, the assumptions of a two-way MANOVA were checked, which revealed irreparable violations, namely a non-normal distribution and an inadequate sample size in one of the groups due to having to remove outliers. For this reason, the non-parametric Mann-Whitney U test was done on each individual predictor and outcome variable. Interaction could therefore not be tested.

Subjective feeling of safety scores of women ($Mdn=2$) were higher than the scores of men ($Mdn=1.41$). A Mann-Whitney U test indicated that this difference was statistically significant, $U=1342$, $z=-6.92$, $p<001$, $r=0.48$. For awareness of the problem the scores were significantly higher for men ($Mdn=1.14$) than for women ($Mdn=1$), $U=2881$, $z=-3.04$, $p=0.002$, $r=0.21$. In likelihood for bystander action women ($Mdn=4$) scored significantly

higher than men ($Mdn=3.58$), $U=2759$, $z=-3.01$, $p=0.003$, $r=0.21$. There was no significant difference between women and men on acceptance of the problem. Additionally, no significant results between groups on any dependent variable were found (see Table 2).

Further exploratory analysis (Appendix F) tested whether consciously seeing the posters would change results, this was not the case.

Table 2

Sample size and median of the Mann-Whitney U test of both predictor variables on the outcome variables

Statistics		Male	Female	Intervention Group	Control Group
N		50	154	127	77
Mdn	Feelings of security	1.41	2	1.82	1.88
	Awareness about the problem	1.14	1	1	1
	Likelihood for bystander action	3.58	4	3.92	3.92
	Acceptance of the problem	1.25	1.2	1.2	1.2

Discussion

In this study, the effects of an anti-catcalling intervention and gender of participants on subjective feelings of security, awareness about the problem, likelihood of bystander action and acceptance of the problem behavior have been investigated. Results show that the intervention did not have a significant effect on any of the dependent variables. Thus, all hypotheses pertaining to differences between intervention groups have been invalidated; the experimental group did not feel safer, was not more aware about the problem, was not more likely to interfere as a bystander, and did not have less acceptance for the behavior. However, participants' gender did have a significant effect on subjective feelings of safety, namely that women felt less safe than men, hence confirming this particular hypothesis. The gender of participants also had a significant effect on awareness, showing that women were more aware about the problem than men, consequently validating the corresponding hypothesis. Lastly, participants' gender also significantly affected likelihood of bystander action, thus corroborating the hypothesis that women are more likely to act if they witness street harassment. No effect was found for participant's gender on acceptance of the problem behavior, thus the hypothesis concerned with gender and acceptance was not confirmed;

women were not less accepting of the problem behavior than men. The hypotheses for the interaction effects could not be tested, hence it remains unknown whether they would have shown an effect.

The findings concerning the effects of participants' gender on their subjective feelings of safety are in line with prior research (Davidson et al., 2016, 2014; Fairchild & Rudman, 2008; MacMillan et al., 2000; McCarty et al., 2013; Schneider et al., 1997). Women feeling less safe than men is to be expected in a patriarchal society, which historically valued women consistently as less than men with subtle cues like the gender pay gap or the passing of the male last name to children (Charles, 2018; Walker, 1999). It is therefore unsurprising that if the cultural norm prescribes women to be less than, that they have consequently been treated worse than their male counterparts. In accordance with this, it has also been proven that women's fear of violent crime, which is greater than the actual chance of being violently victimized, is not because women are more sensitive, but because women have been victimized by men more often, causing their greater fear (Smith, 1988). Thus, women feeling less secure in Marburg might be a direct consequence of the culture they were raised in and the experiences they have made.

Women in Marburg having made negative prior experiences with catcalling (Appendix F) is also the probable explanation for why they are more aware about the problem of catcalling than men. Catcalling is a normal occurrence for women (Farmer & Smock Jordan, 2017). In their review of street harassment literature, Fileborn and O'Neill (2021) show that women are faced with an array of negative consequences, thus indicating a direct link between being catcalled and ruminating about the experience and possible future incidences. This suggests, that as a result of this rumination, it is explicable why women would be more aware about street harassment being a problem in society.

Society may also play a large role in the possible explanation for the effect found of women being more likely of bystander interference when witnessing street harassment. Women have higher levels of empathy (Mestre et al., 2009; Nanda, 2013), and it has been shown that empathy is essential in getting people to help in situations where they are considered bystanders (Yule et al., 2020). However, research has also shown that women's greater empathy levels can be explained through their cultural and societal environment (Löffler & Greitemeyer, 2021), meaning women might be conforming to the gender role of them being more caring and having more empathy. Hence, women are raised through the gender stereotype of being more empathetic, therefore they are more likely become more

empathetic than men. This would suggest that women would be more likely to intervene in street harassment situations.

In this study, women and men were equally unaccepting of the problem, which may be due to the media coverage concerning catcalling slowly raising over the past few years (Google Trends, 2021). It has been shown in research that media coverage about global warming had a positive influence on pro-environmental self-efficacy (Huang, 2016). The same might apply to catcalling, meaning that the larger media presence of the topic influenced the target populations perception of their self-efficacy, leading to them feeling more confident in their assertions of what is acceptable and unacceptable communication between people.

One alternative explanation for the intervention not having any significant effect on any of the four dependent variables could be that the assumed effect of the stylized eyes on the posters was not achieved. Even though literature shows that pictures and stylizations of eyes have an effect on inhibiting antisocial behavior and promoting prosocial behavior (Dear et al., 2019), Ernest-Jones et al. (2011) found in their research that the watching-eye-effect was increased if used in situations with fewer people around. Thus, conversely this would mean that the watching-eye-effect would be decreased if more people were around. Hence, the posters encourage the observers to increase their prosocial behavior. However, the descriptive norm demonstrated by the many people around them serves as evidence to dismiss the encouragement from the poster and to conform to the norm instead. Since the posters were hung up in the city center of Marburg, larger crowds of people were to be expected. In turn, this would mean that the effect of the watching-eye might have been decreased in this intervention, consequently leading to the posters having less of an effect on the four dependent variables.

Similarly, the reason why the intervention had no effect on increasing prosocial behavior, and consequently no effect on feelings of safety, awareness of the problem, likelihood of bystander action, and acceptance of the problem, could be that catcalling behavior is not solely seen as good or bad by the broader population (Di Gennaro & Ritschel, 2019; Saunders et al., 2016). The watching-eye-effect has been shown to work in increasing prosocial behavior for a variety of different antisocial behaviors (Dear et al., 2019). However, one thing those antisocial behaviors, such as littering, dishonesty, and corruption, all have in common is that they are all universally accepted to be bad behaviors. Yet, as literature has shown, catcalling behavior is not prevalingly seen as bad; both men and women are sometimes of the belief that catcalling is complimentary (Di Gennaro & Ritschel, 2019;

Saunders et al., 2016). Therefore, the watching-eye-effect might not have worked due to the indetermination in society whether catcalling is appraised as negative.

Furthermore, some of the influence tactics used could have neutralized each other's effects. The first and third poster design (Appendix A & C) posited a descriptive norm by pairing pictures of people looking similar to the target group, namely young and ethnically diverse, to a supposed quote from that person. The first design represented the descriptive norm of respecting women, while the third design showed the norm of helping in harassment situations. This should have had the effect of the observers taking on that norm and acting according to the suggestion (Ajzen, 2011; White et al., 2009). Further, the posters also represented authority (Cialdini, 2009) through having the logos of the Radboud University, the city of Marburg, and the city of Marburg's antiviolence program printed on them. This display of authority on the posters should have had the effect of an injunctive norm, giving the observers an idea of what they are ought to do (Ajzen, 2011). The interaction of these two norms should have caused observers to adopt prosocial behavioral patterns. However, it is possible that the descriptive norm could have failed in its attempt to represent the peer group. Observers could have seen it as the influence technique which it is and could have developed a negative emotional reaction, namely reactance (Knowles & Riner, 2007). Thus, observers could have reacted with contrariness, so continued their catcalling and non-intervening behaviors. If this happened then the saliency of the reactance effect would have outweighed any positive impact that the injunctive norm could have achieved (Staunton et al., 2015). To summarize, participants could have formed a negative reaction to the descriptive norm, which could have lead participants to adopt the negative norms. This would have counteracted the effect of the injunctive norm. Ultimately, it might not have decreased catcalling behaviors or increased bystander helping behaviors.

Conversely, a more methodological based explanation for the intervention not having an effect on any of the dependent variables could be that participants were already more informed about the topic of catcalling. The topic of anti-catcalling is a progressive thought, related to the idea of equality (Hofstede, 2011; Sánchez & Rodriguez, 2019), which is discussed more often in the politically left spectrum. Marburg is a politically left-leaning city in general (Stadtverwaltung Marburg, 2021) and the targeted population consisted only of young adults. About 25% of Marburg's population are students in higher education (Philipps-Universität Marburg, 2021; Statistik Hessen, 2021). These students are commonly young adults and are more likely to be politically oriented to the left (Fischer et al., 2016). Since participants consisted solely out of young adults in a student heavy city, it is likely that

participants had more knowledge about catcalling than the broader population. Thus, participants were generally less fearful about their safety, had overall more awareness about the problem, were commonly more likely to interfere in street harassment situations, and had broadly less acceptance for the problem behavior, because they were exposed to more information about street harassment (Gaventa & Cornwall, 2008; Pisal et al., 2007). Consequently, even though street harassment in the city center of Marburg is a problem (Ahlich, 2020), the perpetrators could be a very small percentage of Marburg's population but, given the negativity bias (Rozin & Royzman, 2001), leave a more lasting impression on their victims. Therefore, education status and political opinion might play a large role in regards to feelings of safety, awareness of the problem, likelihood of bystander action, and acceptance of the problem. Accordingly, it would be interesting to test for these variables in further research.

In regards to limitations of this study, it should be noted that due to cumulating time constraints, it was only possible to have the intervention material in the public space for one week before the post intervention measurement took place. This most likely interfered with the posters being able to have an effect. A consequential recommendation for further study would be to conduct a second post-measurement to gain more insight into the long-term effects of the intervention posters. Equally important for consideration is the fact that even though men and women were evenly approached by the researcher, women filled in the questionnaire disproportionately more often. This resulted in an underrepresentation of men in the study, heavily skewing the results into a female direction. Furthermore, the study was done using self-report measurements, thus the likelihood of the social desirability effect appearing was high (Grimm, 2010). Lastly, to collect participants, people were approached on the streets of Marburg, and via an Instagram account concerned with catcalling in Marburg. Participants who took part in the study via the Instagram account are likely to have prior knowledge and therefore more concrete beliefs about street harassment. As a consequence, results could be skewed.

As mentioned above, further research in the field of street harassment prevention is needed in general. More specifically, it would be intriguing to include education level and political alignment as predicting variables, as well as an examination of long-term effects of catcalling prevention programs. Furthermore, older population groups should be considered in future research, since catcalling behavior is not limited to one age group of perpetrators. If considering different ages, it is also important to research the effect of catcalling prevention programs in teenagers. Since teenagers are heavily oriented towards their peer group (Di

Gennaro & Ritschel, 2019), it is important to see if an intervention specifically targeted towards the social aspect of catcalling motivation could have an inhibiting effect.

In conclusion, research concerning catcalling is a neglected area within psychological research. Even less research is done with regards to prevention and intervention for street harassment, as a result more research needs to be done to develop strong anti-catcalling programs. While this paper failed in creating such a program, it still raised valuable insight into the factors influenced by street harassment and gender. Further, disproving theories and hypotheses is also important in academic research, since it thereby allows and gives room for other theories to emerge and to be proven correct. Thus, this paper is simply one of the first building blocks of creating sustainable behavior change in the area of street harassment.

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Appendix A



Figure A1. Poster design 1 “Real men respect women”

Appendix B

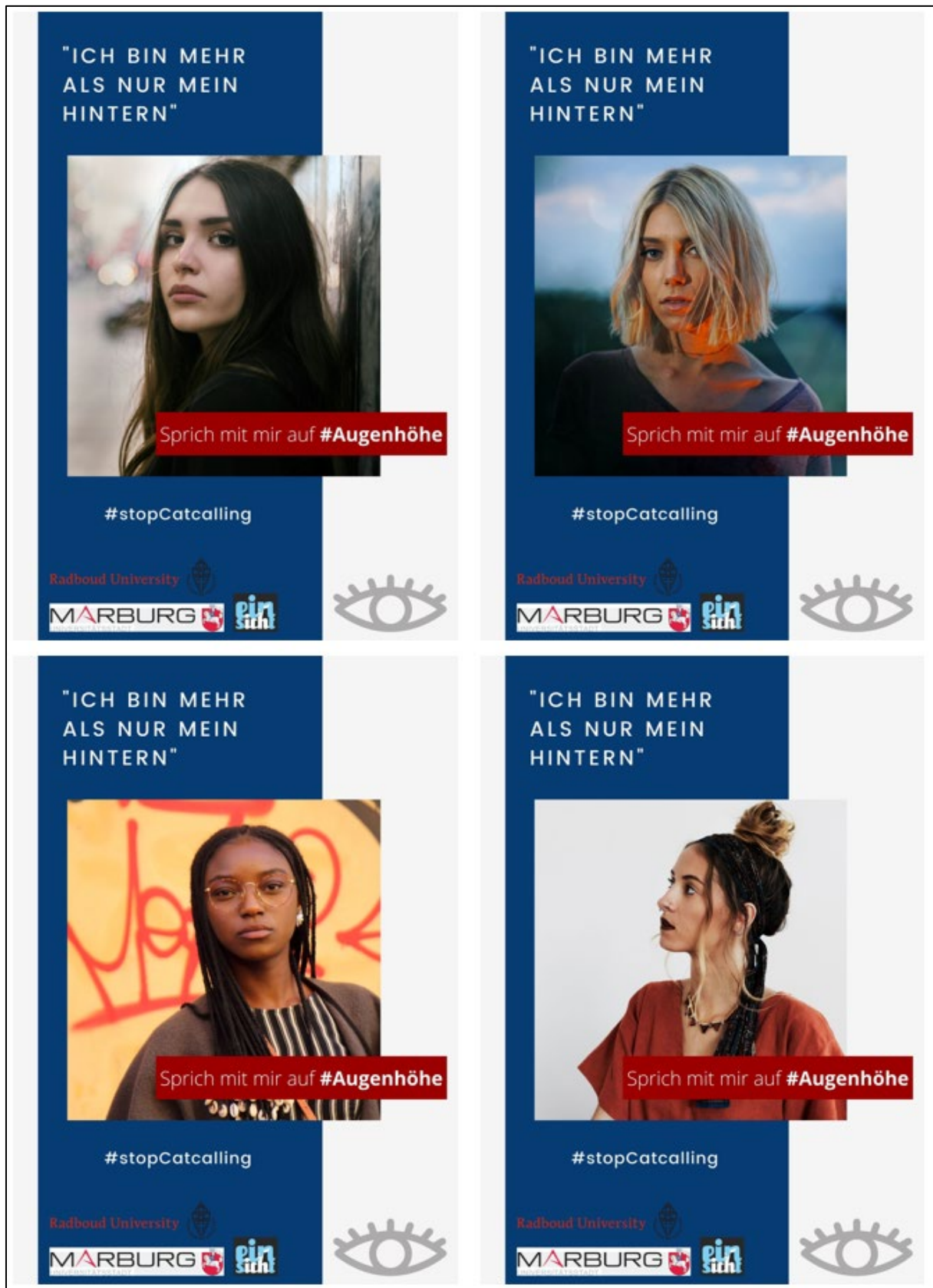


Figure B1. Poster design 2 "I am more than just my ass"

Appendix C

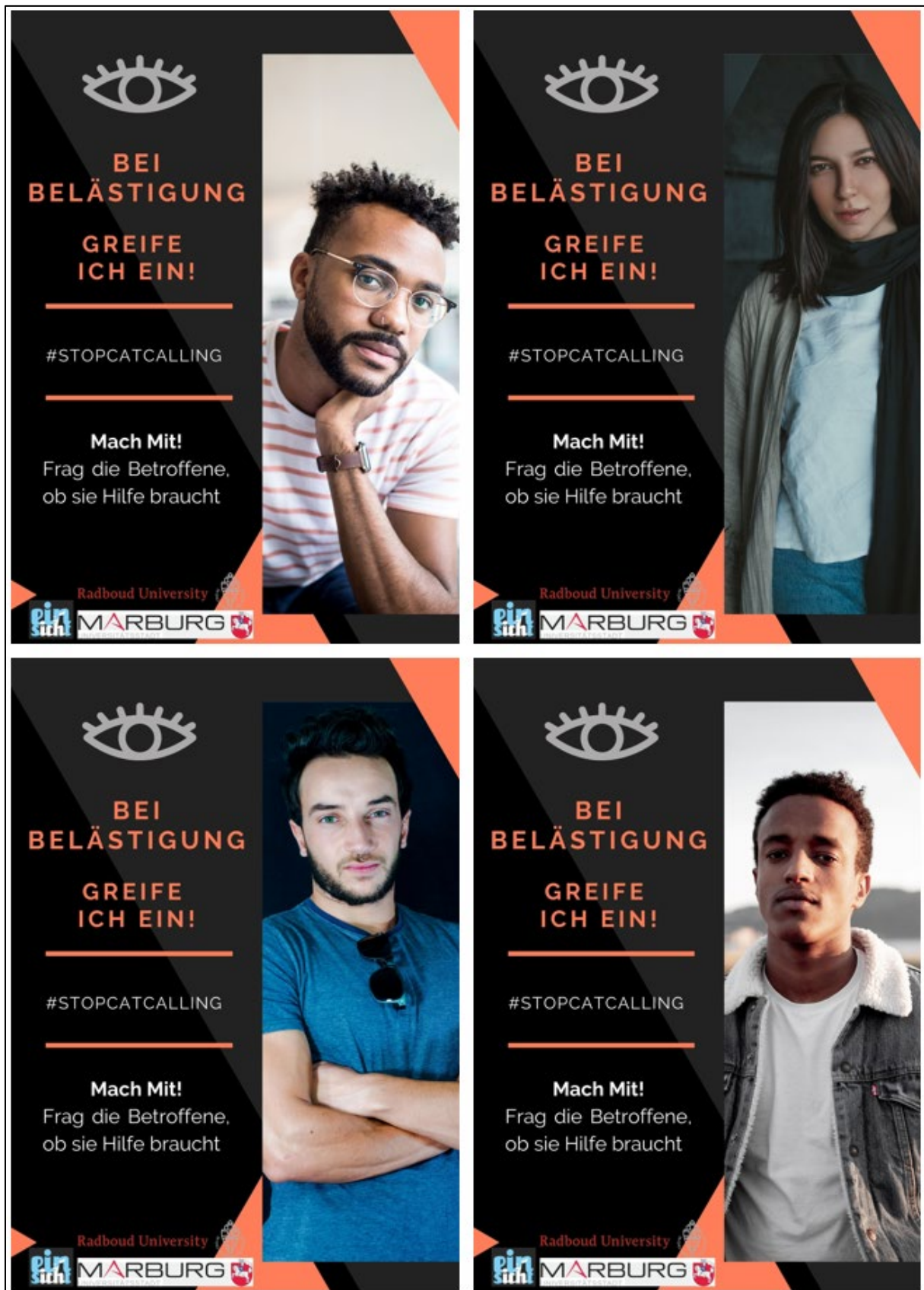


Figure C1. Poster design 3 “I intervene in the event of harassment”

Appendix D

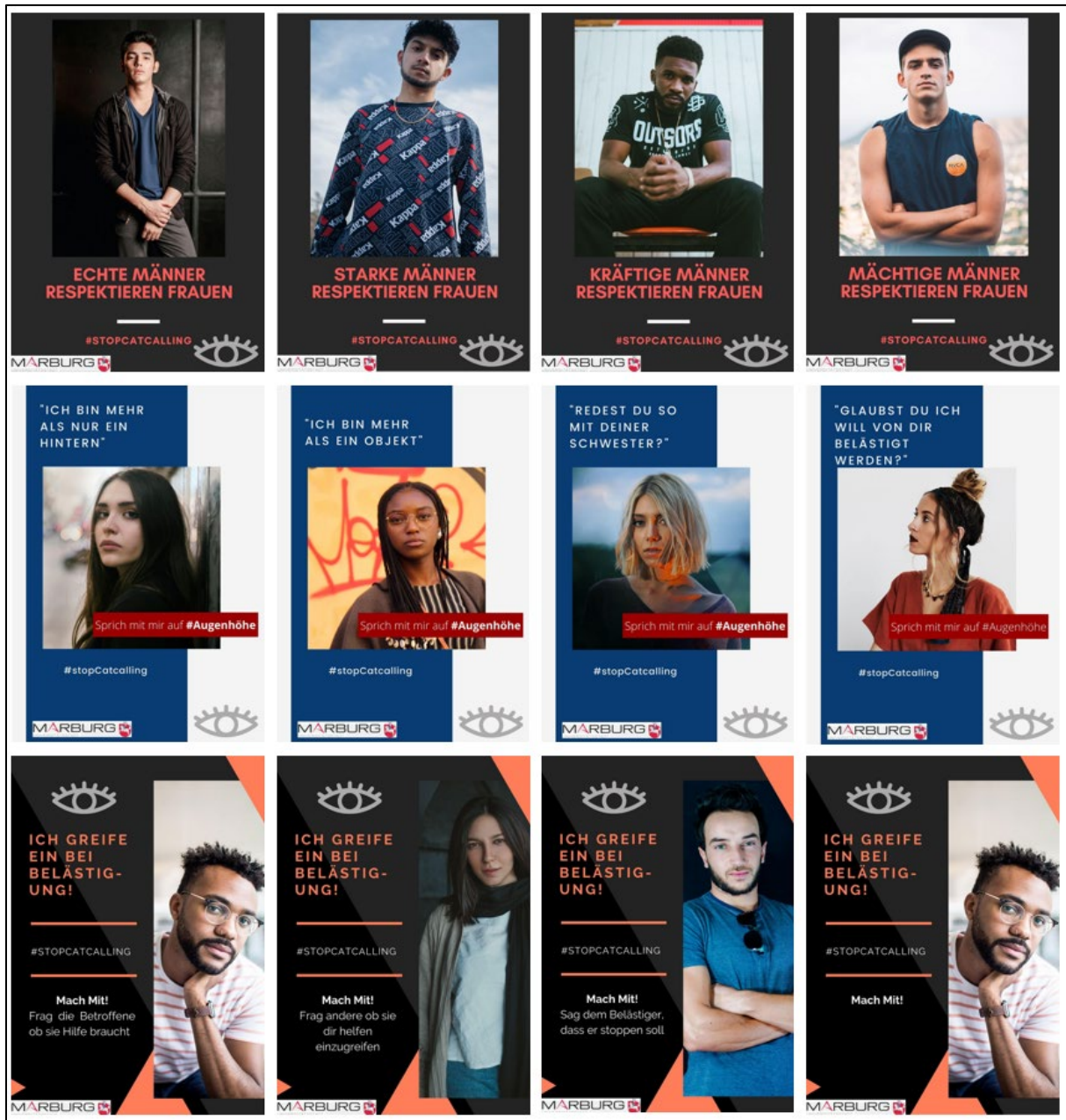


Figure D1. Four variations of each design before poster validation

Table D1

Poster validation questionnaire items, original and translated

Original Item	Translated Item
Bitte beantworten Sie die folgenden Fragen in Prozent (0=sehr wenig / 100=sehr viel)	Please answer the following questions in percentages (0=very little / 100=very much)

EFFECTS OF CATCALLING INTERVENTION AND GENDER ON MULTIPLE FACTORS RELATED TO
CATCALLING OUTCOMES

- Inwieweit finden Sie das Poster auffallend?
 - Inwieweit regt Sie das Poster zum Nachdenken an?
 - Inwieweit fühlen Sie sich durch das Poster an den Pranger gestellt/getadelt?
 - How much do you find the poster to stand out?
 - How much does the poster prompt you to reflect about it?
 - How much do you feel attacked/judged by the poster?
-

Appendix E

Table E1

Subjective feelings of safety questionnaire items, original and translated

Original Item	Translated Item
Wie bewerten Sie die folgenden Aussagen auf einer Skala von 1 (sehr sicher) bis 4 (sehr unsicher)?	How do you rate the following statements on a scale from 1 (very safe) to 4 (very unsafe)?
Wie sicher fühlen Sie sich oder würden Sie sich fühlen...	How safe do you feel or would you feel...
<ul style="list-style-type: none"> • tagsüber alleine in Ihrer Wohnung • nachts alleine in Ihrer Wohnung • tagsüber ohne Begleitung in Ihrer Wohngegend • nachts ohne Begleitung in Ihrer Wohngegend • tagsüber ohne Begleitung im öffentlichen Raum (Straße, Park, Innenstadt) • nachts ohne Begleitung im öffentlichen Raum (Straße, Park, Innenstadt) • tagsüber ohne Begleitung im öffentlichen Nahverkehr • nachts ohne Begleitung im öffentlichen Nahverkehr 	<ul style="list-style-type: none"> • during the day alone in your home • during the night alone in your home • during the day in your neighborhood without company • during the night in your neighborhood without company • during the day in a public space (street, park, city center) without company • during the night in a public space (street, park, city center) without company • during the day in public transportation without company • during the night in public transportation without company
Wie bewerten Sie die folgenden Aussagen auf einer Skala von 1 (gar nicht) bis 4 (sehr stark)?	How do you rate the following statements on a scale from 1 (not at all) to 4 (very much)?
Inwieweit machen Sie sich Sorgen darüber, dass ...	How much do you worry about...

EFFECTS OF CATCALLING INTERVENTION AND GENDER ON MULTIPLE FACTORS RELATED TO CATCALLING OUTCOMES

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| • ihnen etwas gestohlen wird | • something being stolen from you |
| • sie von jemandem geschlagen und verletzt werden | • being violently beaten or hurt by someone |
| • sie überfallen und beraubt werden | • being robbed |
| • sie von jemandem sexuell belästigt werden | • being sexually harassed by someone |
| • sie zu Geschlechtsverkehr gezwungen werden, den sie nicht wollen | • being forced to have intercourse with someone without consent |
| • ihr Eigentum beschädigt wird | • your property being destroyed |
| • sie von Kriminalität im Internet betroffen sein werden | • falling victim to online crimes |
| • in ihre Wohnung/Ihr Haus eingebrochen wird | • your home being broken into |
| • sie wegen äußerlichen Merkmalen angegriffen werden (z.B. Religion, sexuellen Orientierung, Hautfarbe, Geschlecht, geschlechtlichen Identität, Herkunft, sozialen Status, Alter) | • being attacked because of external characteristics (e.g. religion, sexual orientation, skin color, gender identity, ethnicity, social status, age) |

Table E2

Awareness of the problem questionnaire items, original and translated

Original Item	Translated Item
Wie bewerten Sie die folgenden Aussagen auf einer Skala von 1 (lehne völlig ab) bis 5 (stimme völlig zu)	How do you rate the following statements on a scale from 1 (completely disagree) to 5 (completely agree)
<ul style="list-style-type: none"> • Frauen übertreiben das Problem der sexuellen Belästigung 	<ul style="list-style-type: none"> • Women exaggerate the problem of sexual harassment

EFFECTS OF CATCALLING INTERVENTION AND GENDER ON MULTIPLE FACTORS RELATED TO CATCALLING OUTCOMES

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| <ul style="list-style-type: none"> • Sexuelle Belästigung ist ein Problem welches von Feministen erfunden wurde • Sexueller Belästigung ist die Schuld der Frau die sich freizügig anzieht • Sexuelle Belästigung ist nicht mehr als eine über-Reaktion von den Opfern • Die Überempfindlichkeit des Opfers ist die Ursache von dem Phänomen „sexuelle Belästigung“ • Sexuelle Belästigung ist ein Problem von Menschen die nicht mit persönlichen Kontakten klar kommen • Sexuelle Belästigung bringt nur die männliche Bewunderung von Frauen zum Ausdruck | <ul style="list-style-type: none"> • Sexual harassment is a problem made up by feminists • sexual harassment is ist he fault of women wearing revealing clothing • the concept of sexual harassment is an overreaction of the victim • Overly sensitive victims are the cause oft he phenomenon „sexual harassment“ • sexual harassment is a problem of people who do not know how to deal with interpersonal contact • Sexual harassment is simply the adoration men have for women |
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Table E3

Likelihood of bystander action questionnaire items, original and translated

Original Item	Translated Item
Geben Sie bitte an wie wahrscheinlich Sie die folgenden Taten ausüben würden.	Please indicate of likely you would perform the following behaviors.
<ul style="list-style-type: none"> • Wenn eine Person von einem anderen geschubst oder angebrüllt wird, frage ich sie ob sie Hilfe braucht 	<ul style="list-style-type: none"> • If a person is pushed or yelled at, I asked them if they need help

EFFECTS OF CATCALLING INTERVENTION AND GENDER ON MULTIPLE FACTORS RELATED TO CATCALLING OUTCOMES

- Wenn ich einen Freund sehe der seinen Partner schubst oder beleidigt würde ich meinen Freund konfrontieren
- Ich frage Fremde die aufgebracht sind ob alles in Ordnung ist und ob sie Hilfe brauchen
- Ich konfrontiere Freunde die Entschuldigungen vorbringen für beleidigendes Verhalten
- Wenn ich einen sexistischen Witz höre spreche ich mich dagegen aus
- Wenn ich einen homophoben Witz höre spreche ich mich dagegen aus
- Ich spreche mich dagegen aus wenn jemand sagt eine Frau ist daran Schuld vergewaltigt worden zu sein
- Wenn ich einen sexistischen Kommentar höre kritisiere ich diesen
- Ich hole Hilfe wenn ich jemand Fremden in einer Notsituation sehe
- Ich kritisiere meine Freunde wenn sie sich beleidigend gegenüber ihren Partnern äußern
- Ich kritisiere meine Freunde wenn sie andere belästigen
- If I see a friend push or degrade their partner, I would confront my friend
- I ask strangers if they are okay or need help, if they look upset
- I confront friends who bring up excuses for insulting behavior
- If I hear a sexist joke I speak out against it
- If I hear a homophobic joke I speak out against it
- I speak out against statements claiming women to be at fault for being raped
- If I hear a sexist comment I criticize it
- I get help if I see a stranger in an emergency
- I criticize my friends if they say insulting things about their partners
- I criticize my friends if they harass others

- | | |
|---|--|
| <ul style="list-style-type: none"> • Wenn ich einen Freund sehe der einer Frau hinterher pfeift konfrontiere ich ihn | <ul style="list-style-type: none"> • If I see a friend whistle after a women, I confront them |
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Table E4

Acceptance of the problem behavior questionnaire items, original and translated

Original Item	Translated Item
Geben Sie bitte an wie angemessen Sie die folgenden Verhaltensarten finden. Eine/r attraktive/n Person...	Please indicate how appropriate you find the following behaviors.
<ul style="list-style-type: none"> • hinterher laufen um ihre Aufmerksamkeit zu bekommen • lange anstarren • anzüglich angrinsen • an sich ziehen • festhalten um sich zu unterhalten • laut sagen dass die Person attraktiv ist • hinterher pfeifen • eine sexuelle Geste mimen • fragen ob die Person ficken will • versuchen die Geschlechtsteile anzufassen 	<ul style="list-style-type: none"> • following an attractive person to get their attention • starring at an attractive person • smiling suggestively at an attractive person • pulling an attractive person towards oneself • holding on to an attractive person to talk • loudly telling someone that they are attractive • whistling after an attractive person • miming a sexual gesture towards an attractive person • asking an attractive person if they want to fuck • trying to touch the genitals of an attractive person

Appendix F

Exploratory Analysis

Two different Mann-Whitney U test were done to first analyze whether there was a significant different between intervention groups, if for the intervention group only participants who indicated to have seen the posters were included. This analysis proved no significant results. The second Mann-Whitney U test investigated if there was a difference between participants who had seen and not seen the posters in the intervention group. This analysis showed no significant results.

Further, drop-out rates were explored, by intervention group. Results show a low drop-out rate of 15.7% in the control group and 8.6% in the intervention group. It is not possible to test for drop-out in relation to gender, since demographic data was inquired at the end of the survey, making it likely that participants dropped out before indicating their gender.

Additionally, a frequency analysis was done on participants' self-reported prior experience of being sexually harassed. 93% of women indicated they have been sexually harassed before. Of the participating men 32% reported to have been sexually harassed before.