
THE IMPACT OF TATTOOS AS BODY MODIFICATIONS ON PUBLIC PERCEPTION OF THE POLICE: AN EYE-TRACKING STUDY

Verena STUMM

*Charlotte Fresenius Hochschule
Im Media Park 4c, 50670 Cologne, Germany
E-mail: verena.stumm@hs-fresenius.de
ORCID ID: [0009-0008-7423-9790](https://orcid.org/0009-0008-7423-9790)*

Chiara BARAN

*Charlotte Fresenius Hochschule
Im Media Park 4d, 50670 Cologne, Germany
E-mail: chiarabaran@icloud.com
ORCID ID: [0009-0006-1971-8882](https://orcid.org/0009-0006-1971-8882)*

Felix BÖHLKE

*Charlotte Fresenius Hochschule
Im Media Park 4d, 50670 Cologne, Germany
E-mail: felixbb@gmx.de
ORCID ID: [0009-0009-2442-7950](https://orcid.org/0009-0009-2442-7950)*

Lea THIELECKE

*Charlotte Fresenius Hochschule
Im Media Park 4d, 50670 Cologne, Germany
E-mail: thielecke.lea@stud.charlotte-fresenius-uni.de
ORCID ID: [0009-0001-2589-5491](https://orcid.org/0009-0001-2589-5491)*

Nana WERRES

*Charlotte Fresenius Hochschule
Im Media Park 4d, 50670 Cologne, Germany
E-mail: nana.werres@signwriting.de
ORCID ID: [0009-0009-6772-1009](https://orcid.org/0009-0009-6772-1009)*

Christian HORRES

*University of Police and Public Administration of North Rhine-Westphalia
Erna-Scheffler-Str. 4, 51103 Cologne, Germany
E-mail: christian.horres@hspv.nrw.de
ORCID ID: [0009-0000-0425-0208](https://orcid.org/0009-0000-0425-0208)*

DOI: 10.13165/PSPO-25-37-01-09

Abstract. This study investigates the impact of tattoos on police officers' perception by the general public. In recent years, body modifications, particularly tattoos, have gained increasing social acceptance, while hiring policies in the public sector, especially within law enforcement, remain inconsistent regarding the hiring of tattooed applicants. The investigation aimed to analyse the effects of tattoos on public trust in and the perception of the police. To capture the perception, both eye-tracking data and behavioral data were collected. The eye-tracking analysis revealed that tattoos attracted significantly more visual attention than other elements of police equipment, such as the emblem or firearm. Furthermore, behavioral data showed a correlation between the fixation duration on tattoos and the participants' attitudes towards the police: individuals with a negative attitude towards the police fixated on the tattoos significantly longer. The sample consisted of 114 participants, aged 18 to 46 years. Approximately 37% of the participants were tattooed themselves. In addition to eye-tracking data, the study also examined the participants' attitudes toward the police, as well as their personal experiences with police encounters. The results suggest that tattoos on police officers do not have a significant influence on public perception, but they interact with the observer's attitude towards the police. These findings could further stimulate the discussion on introducing uniform agency standards for hiring tattooed candidates within law enforcement.

Keywords: *body modifications, social acceptance, public perception, eye-tracking analysis, employment policies*

Introduction

‘Tattoos are no longer a sign of belonging to a motorbike gang or an indication of having served a prison sentence, but for many people today they are part of their individual personality development,’ explains Patrick Seegers, state chairman of the German Police Union (DPolG) in Lower Saxony (DPolG, 2022, n.p.). This statement reflects the trend in the general population. According to a study conducted by the market and opinion research institute YouGov in 2021 (n.p.), 26% of 25 to 34-year-olds have one or more tattoos. Furthermore, 53% of respondents stated that they find tattoos beautiful.

Nevertheless, official standards regarding the recruitment of applicants with tattoos are still not uniformly standardised. Lars Michaelis, Professor of European and Civil Service Law, explains that uniformed civil servants are subject to stricter standards, as they are primarily seen as representatives of the state and less as individual personalities (dbb beamtenbund und tarifunion, 2023, n.p.). Only unconstitutional, weapon-like or extremist tattoos would constitute hard exclusion criteria for applicants. The hurdles for applicants with tattoos in the civil service therefore appear to be low. At present, there is no data on the proportion of tattooed police officers within the individual authorities in Germany.

However, it is not yet clear how and under what conditions the various tattoos of police officers affect the general population. German police officers are also coming under increasing pressure from the public. According to the European Commission's standard barometer, 77% of the German population as a whole trusted the police in 2021, while 21% expressed no trust. In the summer of 2020, trust in the German police was still at its highest level to date at 84% (European Commission, 2020). Current research on the perception and impact of tattooed police officers on the general public in the context of previous experiences and general attitudes towards the police appears to be limited and is addressed by this survey.

Theoretical approach

Body modifications such as piercings and tattoos are common in the modern Western world. This survey focuses on the effects of tattoos, as these are the most widespread body modifications (Atkinson, 2003).

Historically, tattoos were initially only seen on prisoners, soldiers & sailors (DeMello & Rubin, 2000). In the late 1980s, however, a general trend towards tattoos and piercings developed (Siebers, 2000).

According to Thielgen and Schade (2023), non-verbal communication includes features such as facial expressions or body movements and outward appearance. Tattoos can therefore be categorised as external appearance and thus as non-verbal communication. A study by Degelman and Price (2002) shows that tattoos can influence people's perceptions. High school and university students evaluated a woman who was presented in a photo with or without a visible tattoo on her upper arm with regard to various characteristics such as fashion consciousness or intelligence. Regardless of whether the participants were tattooed themselves, the tattooed woman scored significantly lower in nine out of 13 characteristics.

Applied to the context of this study, the question arises as to whether police officers with tattoos are also rated more negatively in terms of their personality or character in the field. Non-

verbal communication is a key predictor of operational success, as it significantly influences first impressions in the field (Thielgen & Schade, 2023).

While some studies show clear effects of tattoos on perception, others paint a more differentiated picture depending on context and population. Based on their survey, Hauke-Forman, Methner and Bruckmüller (2021) came to the conclusion that police officers with piercings and tattoos are perceived as less competent and less trustworthy. In addition, officers with body modifications were perceived to be more threatening than those without modifications. In contrast, an experimental survey with imprisoned offenders (approx. 70% male) did not show the so-called tattoo effect in any way. This states that the presence of tattoos on uniformed police officers has a detrimental effect on their perception (Thielgen, Schade & Rohr, 2020). In the aforementioned study, significant evidence was found for the profession effect. This implies that police officers in uniform are generally rated more positively by the test subjects than police officers in plain clothes.

According to Schöne (2022), migration policy, the steady rise in drug use and increasing (right-wing) crime are contributing to the fact that the police are increasingly no longer perceived as friends and helpers, but are often criticised.

The public image of the police can be analysed on the basis of affective and cognitive components. Affective components include emotional and spontaneous judgements, such as those caused by headlines with little information. In contrast, cognitive components refer to rational judgements that are strongly influenced by personal experiences with the police, among other things. As a rule, both components work together and have a significant influence on the perception of the police.

The external appearance is also part of the image of the police and has a significant influence on perception. The uniform in particular plays a decisive role: it serves as a means of recognising professional group affiliation and as a non-verbal means of communication (Hermanutz & Weigle, 2017). However, uniforms, handcuffs, batons and weapons can also create a sense of distance that can be perceived negatively (Schädle-Deininger, 2005). In a study by Rylan (2017), police officers in uniform were nevertheless perceived more positively than those in plain clothes. A study by Rosenbaum, Schuck, Costello, Hawkins and Ring (2005) shows that attitudes towards the police are not formed by direct encounters alone. Indirect experiences and existing preconceptions play a central role. Ethnic minorities in particular perceive the police more critically due to frequently negative experiences and social contexts. Changes in attitudes are difficult to achieve due to stable stereotypes and bias.

Stereotypes often contribute to prejudices that can have a negative impact. Amongst other things, police officers are often ascribed abuse of power and a consuming view of authority. In the past, police officers have shown disrespectful behaviour towards foreign citizens in particular (Goff, Jackson, Di Leone, Culotta & DiTomasso, 2014). Common stereotypes also include characteristics such as a willingness to use violence or unfriendliness, which can have a negative impact on the public image of the police and lead to negative attitudes towards police officers. In a study by Schweer, Strasser and Zdun (2008), the perception of the police by ethnic minorities was analysed, with a particular focus on everyday conflicts. It was found that ethnic minorities often perceive the police as marginalising or discriminatory, particularly due to cultural differences and social disadvantage. The study emphasises that stereotypes and police subcultures significantly influence the behaviour of officers and the perception of ethnic groups. These dynamics can increase the potential for conflict in everyday police work. In addition, the public image of the police is further characterised by social events and media coverage. Headlines such as right-wing extremist WhatsApp chats in police groups or the murder of George Floyd, which point to structural problems, encourage greater public criticism of the

police. Such events often lead to the formation of collective movements against police violence (Schöne, 2022). In summary, although there are cases of discriminatory or stereotypical behaviour within the police, these should not be generalised to the entire institution (Schweer et al., 2008). Various factors influence how the police are perceived. These include appearance, e.g. in the form of body modifications (Thielgen & Schade, 2023). Personal experiences with the police, stories from third parties, headlines and the general image also play a decisive role.

It can be assumed that, according to the principle of salience, tattoos on police officers attract more attention than police officers' equipment. Based on the reviewed literature and empirical findings, the following hypotheses were developed to examine visual attention and attitudes toward tattooed police officers. The following hypothesis is derived from this:

H1: Tattoos are generally fixated significantly longer than neutral AOI.

Furthermore, it can be deduced from the literature that tattooed persons are generally evaluated more negatively, regardless of whether the observing persons are tattooed themselves (Degelman & Price, 2002). Police officers with piercings and tattoos are perceived as less competent, less trustworthy and more threatening (Hauke-Forman, Methner & Bruckmüller, 2021). Previous experiences also influence the perception of the police (Rosenbaum et al., 2015). It can be assumed that people who already have a negative attitude towards the police are more likely to fixate on points that confirm this negative attitude. Based on this consideration, the following hypotheses can be derived:

H2: People who have a bad attitude towards the police fixate the tattoos significantly longer than people who have a good attitude towards the police.

H3: People who have had negative experiences with the police fixate the tattoos significantly longer than people who have had no negative experiences with the police.

H4: There are significant differences in attitudes towards the police and in the evaluation of past experiences with the police between the groups presented with the stimuli.

In addition, it should be ascertained whether the interviewees are tattooed themselves. The literature shows that it makes no difference in the evaluation of strangers whether the people being observed are tattooed themselves or not (Degelman & Price, 2002). Furthermore, unknown stimuli attract more attention than familiar stimuli according to the principle of salience and habituation. For this reason, the researchers assume that personal tattoos have no influence on how long the tattoos are fixed.

H5: People with tattoos do not differ significantly in the fixation duration of tattoos compared to those without tattoos.

It also emerges that attitudes towards the police depend on the one hand on indirect experiences, i.e. knowledge of other people's experiences, and on the other hand on previous attitudes and encounters with the police (Rosenbaum, et al., 2015). It is therefore assumed that previous negative experiences with the police influence current attitudes towards them.

At the same time, it is assumed that people who work for the police themselves or have close relatives/acquaintances in this professional field may have had more positive experiences with the police, which in turn could improve their attitude towards this professional group. Hypotheses six and seven are derived from this:

H6: People who have had negative experiences with the police themselves have a worse attitude towards the police than people who have not had negative experiences with the police.

H7: People who work for the police themselves (or their relatives/acquaintances) have a better attitude towards the police than people who have no private contact with the police.

Furthermore, marginalised groups in particular, such as people with a migration background, describe negative experiences in contact with the police (Schwer, Strasser & Zdun,

2008). Within this study, the researchers focussed on one of these marginalised groups, from which the final hypothesis can be derived:

H8: People with a migration background or those whose parents are immigrants have a worse attitude towards the police than people who do not have a migration background.

Methodology

The present study follows a cross-sectional design (Schmidt-Atzert & Amelang, 2012). The subjects were presented with the variables of the eye tracking survey and the items of the questionnaire only once. An individual eye movement pattern to the presented stimulus was recorded for each person, followed by the response behaviour in the presented questionnaire.

A German version of the Perception of Police Scale (POPS) was used to record the perception of police officers (Nadal & Davidoff, 2015). The following control variables were also collected: Acquaintances, family or friends in the police force, experiences with the police, relation to tattoos, age, gender, level of education, migration background, place of residence and faith or religion. The questionnaire was created with the help of SoSciSurvey and the test subjects completed it after the eye tracking survey.

Four different images of police officers with and without different tattoo variations were used to carry out the eye tracking. The original image was provided by the supervising lecturer and the image was processed using the Adobe Firefly programme.

The images were entered into the Tobii Pro eye tracking programme and the areas of interest (AOI), the tattoos, the police emblem and the weapons were defined. After a pre-test, recruitment began. Recruitment took place both on site at the Fresenius University of Applied Sciences in Cologne, where the eye tracking laboratory is also located, and via WhatsApp groups. The only inclusion criterion was that the pupil movement of the subjects could be recorded by the eye tracking tool. The students received subject hours for their participation. The theoretical constructs were recorded using a questionnaire and an eye tracking tool.

The *Perception of Police Scale* (POPS) is used to measure attitudes towards the police (Nadal & Davidoff, 2015). The questionnaire comprises twelve statements that were answered by the respondent on a five-point Likert scale from 'strongly disagree' to 'strongly agree'. Nadal and Davidoff (2015) measured very good internal consistency ($\alpha = .92$) for the scale. The subjects' experiences with the police were recorded using the police-related questions section of the questionnaire from Oberwittler, Schwarzenbach & Gerstner's (2011) school survey on life situations and risks of young people. The items from the police-related questions section used in the present study record whether the test subjects have had contact with the police in the last twelve months and the reason for this contact. In addition, the behaviour of the police officers in the respective situation was recorded and whether the study participants felt that they had been treated with respect. The entire questionnaire was '(...) tested in various pretests for comprehensibility, usability and statistical properties' (Oberwittler, Köllisch & Naplava, 2001, p. 23).

The Tobii Pro eye tracking tool was used for the part of the study in which an image was presented for ten seconds and the eye movements and fixations of the test subjects were recorded. The AOIs recorded included the tattoos, the police emblem, the belt and the weapon. The test subjects were shown only one of the following four images at random.



Figure 1. Images of the test subjects.

The data set of the eye tracking study comprises $N = 114$ participants aged between 18 and 46 years. On average, the participants were $M = 21.63$ years old ($SD = 3.75$) and of the 114 participants, 94 people stated that they felt they belonged to the female gender (82%). In addition, 17 men (15%) took part, one person chose the gender diverse (1%) and two participants did not specify a gender. The sample is divided into 42 people (37%) with tattoos and 71 people (62%) without tattoos. The three most frequently cited reasons for having tattoos were: To remember a special event (26 responses), I just like the way it looks (23 responses) and To express myself (13 responses). Of the 114 respondents, 92 people (81%) stated that they knew someone who worked for the police, 14 participants (12%) had family members in the police force and 73 (64%) had contact with the police through friends.

The study was analysed using the free programming language R (R Core Team, 2021) and the software RStudio as a development environment and graphical user interface (RStudio Team, 2020). In the first step, the two data sets collected were summarised. This was followed by a descriptive analysis of the combined data set and a review of the reliability of the scales collected. The hypotheses were then analysed using inferential statistics. This was done using t-tests for independent samples for $H1$, $H5$, $H7$ and $H8$, as well as Pearson correlations and regression analyses to examine hypotheses $H2$, $H3$ and $H6$. In addition, a MANOVA was calculated to test $H4$.

Results

Descriptive analysis. Table 1 shows the univariate statistics and reliabilities of the POPS scale and the scale for evaluating experiences with the police. Cronbach's alpha for the scale on attitudes towards the police is $\alpha = 0.88$ and for experiences $\alpha = 0.99$.

Table 1. Univariate descriptive statistics and Cronbach's alpha for the POPS (attitude towards the police) and experiences with the police.

Konstrukt	<i>M</i>	<i>SD</i>	<i>Md</i>	<i>Q25</i>	<i>Q75</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>n_miss</i>	α
Attitude towards police	3.46	0.50	3.5	3.08	3.75	2.00	4.75	113	1	0.88
Experience with police	1.60	3.50	2.67	2.67	2.83	0.00	3.00	113	1	0.99

Note. Q25: 25 % quantile, Q75: 75 % quantile.

The average observation periods and other descriptive key figures for the various AOIs can be found in Table 2.

Table 2. Univariate descriptive statistics for the observation period of the different AOIs.

AOI	<i>M</i>	<i>SD</i>	<i>Md</i>	<i>Min</i>	<i>Max</i>	<i>n</i>
Belt	667.	762.	497	0.00	3692	113
Pistol	754.	651.	583	0.00	2850	113
Police- emblem	1195.	1355.	850	0.00	9334	113
Tattoo	1538.	1183.	1300	0.00	5842	101

Note: AOI: Area of Interest.

Table 3 shows the bivariate correlations between the constructs surveyed. Here, a significant correlation was only found between the attitude towards the police and the duration of fixation of the tattoos with $r(113) = -.21, p < 0.05$.

Table 3. Bivariate product-moment correlations for attitudes towards the police, experiences with the police and the duration of fixation on tattoos.

	Attitude towards police	Experience with police
Experience with police	-.10	
Tattoo fixation time	-.21*	-.01

*Note: n = 113, * $p < .05$*

Statistical evaluation of the hypotheses. In the first hypothesis, it is assumed that tattoos attract the attention of the test subjects and therefore the average viewing time of the tattoo AOI is longer than that of the other AOIs. The descriptive data shows a mean viewing time of the tattoo AOI of $M = 1538.31$ ms and a mean viewing time of the neutral AOI of $M = 792.08$ ms. In addition, the t-test for independent samples shows a significant difference between the viewing duration of the AOI, $t(157.83) = 5.609, p < 0.001$.

A linear regression model is set up to test the second hypothesis that people with a poorer attitude towards the police fixate the tattoos for longer. This model shows a variance explanation of $R^2 = .04$ for the criterion of attitude towards the police and this variance explanation is significant with $F(1, 99) = 4.371, p < 0.05$.

Hypothesis three assumes longer observation periods for people with negative experiences with the police. The established linear regression model shows a variance explanation of $R^2 < .01$ for the criterion of experience with the police. The variance explanation with $F(1, 99) = 0.0038, p = 0.9511$ is not significant.

The multi-factorial analysis of variance to test the fourth hypothesis, which assumes differences in attitudes towards the police and the evaluation of past experiences with the police between the groups of the presented stimuli, shows a significant result with $Wilks = 0.935$,

$F(6,870) = 4.991, p < 0.001$. The univariate ANOVA tests show no significant result for the attitude towards the police with $F(3, 436) = 1.688, p = 0.169, \eta^2 = 0.011$ and a significant result for the evaluation of past experiences with the police with: $F(3, 436) = 7.694, p < 0.001, \eta^2 = 0.053$.

To calculate the fifth hypothesis, people with tattoos fixate tattoos for longer, another t-test for independent samples is carried out. This shows no significant difference between the two groups with $t(70.44) = 0.965, p = 0.338$ with an average viewing time of $M = 1689.32$ ms for people with tattoos and $M = 1447.22$ ms without.

The correlation between attitude towards the police and experience with the police to test the fifth hypothesis is not significant at $r(114) = -.10, p = 0.275$.

Hypothesis seven assumes that people with a connection to the police have a better attitude towards the police. The mean value of the POPS is $M = 3.47$ in the group of people with a connection to the police and $M = 3.43$ in people without a connection to the police. Furthermore, the t-test for independent samples shows no significant difference between the attitudes towards the police, $t(27.01) = 0.341, p = 0.274$. To calculate the eighth hypothesis, people with a migration background have a worse attitude towards the police, another t-test for independent samples is carried out. This shows no significant difference between the two groups with $t(33.54) = -0.191, p = 0.8496$ with an average POPS scale value of $M = 3.44$ for people with a migration background and $M = 3.47$ without.

Discussions

In the following section, the results are summarised and interpreted on the basis of the theoretical background. Hypothesis one assumes that people generally look longer at the tattoos than at the neutral AOI. With a mean difference of around $d = 746$ milliseconds between the tattoo AOI and the average viewing time of the neutral AOI (weapon, emblem, belt), there was a significant difference in the t-test ($p < .001$). Hypothesis 1 can therefore be accepted for the time being.

However, it must be clarified how meaningful this difference actually is. Out of a total of 10 seconds in which the image was viewed, test subjects looked at the tattoos for less than one second longer on average than at the neutral AOI. It can be assumed that this is solely due to the salience of the stimulus of a tattoo in the way people process images. According to Sanocki and Sulman (2011), colour disharmony or colour salience of individual stimuli attracts human attention. The colour contrast of the tattoo will therefore naturally attract more attention than police clothing. This can also be proven by the average viewing time of the police emblem ($M = 1195$ ms), which presumably also attracted more attention than, for example, the belt ($M = 667$ ms) due to the colour contrast. In addition, police officers in North Rhine-Westphalia have only been allowed to wear open tattoos since 2018 (Reuter, 2020), which makes an open tattoo as an AOI an unclear attraction. Therefore, it is probably more crucial to look at the fixation time of tattoos in relation to attitudes towards the police, which was done in hypothesis two.

In the linear regression model, the attitude towards the police was able to explain 4% of the variance in the duration of tattoo fixation ($p < .05$). People who had a more negative attitude towards the police therefore fixed the tattoos for longer. Hypothesis two is therefore significant and can be accepted for the time being. The longer fixation time could be due to the principle of selective perception. People who already have a more negative attitude towards the police could therefore be more likely to fixate points that confirm this negative attitude.

Hypothesis three 'People who have had negative experiences with the police fixate the tattoos significantly longer than people who have had no negative experiences with the police'

must be rejected for the time being with a variance explanation of less than one per cent for the criterion of experiences with the police and a significance above the level of 5% ($p = 0.9511$). With a mean value of $M = 1.6$ on a scale from one 'not true at all' to four 'true exactly', on which the behaviour of police officers was to be rated, e.g. 'The police officers treated me/us fairly and with respect', the general experience with police officers is rather negative. It was previously assumed that negative experiences could lead to tattoos being more likely to be fixed, as people with tattoos also tended to be rated negatively in the study and people who think negatively of a group of people would accordingly also fixate negatively connoted attributes. Based on the results, it can be assumed that either the sample was not suitable for determining significant effects or that the negative experience with police officers is possibly not related to tattoos.

The majority of respondents who had tattoos themselves gave the following reasons for getting tattoos: To remind me of a special event (26 mentions), I just like the way it looks (23 mentions) and To express myself (13 mentions). Here, tattoos tended to be experienced as something positively connoted, which raises the assumption that a negative attitude towards the police is not strengthened or weakened by tattoos.

A MANOVA was calculated to test hypothesis four, i.e. whether the different stimuli contributed to people showing different response behaviour in the Attitude towards the police and Experience with the police scales. This showed that the four groups differed significantly in the two-factor model. Looking at the scales individually, only significant differences were found for the Experiences with the police scale. These results are the opposite of those from hypotheses two and three, in which only those people who had seen a police officer with a tattoo were included in the calculation.

For hypothesis five 'People who have tattoos do not differ significantly in the fixation time of tattoos from those without tattoos', a t-test was calculated which showed no significant differences between the groups. The fifth hypothesis can therefore be accepted. When calculating hypothesis six 'People who have had negative experiences with the police themselves have a worse attitude towards the police than people who have not had negative experiences with the police', a slight correlation was found ($r = -.10$), but this was not significant. Furthermore, this is a negative correlation, which would mean the following: the better the attitude towards the police, the worse the experience. This would contradict the previous study situation, which is why it can be assumed that this result came about by chance. For hypothesis seven 'People who work for the police themselves (or their relatives/acquaintances) have a better attitude towards the police than people who have no private points of contact with the police', there was a mean value difference of $d = .04$ and no significant difference between people who have contact with the police and those who do not. However, here too the sample is rather unbalanced. Around 80% know people from their family or circle of friends and acquaintances who work for the police. It is therefore doubtful how meaningful this group comparison is.

Hypothesis eight 'People with a migration background or whose parents are immigrants have a worse attitude towards the police than people who do not have a migration background' is not significant with a mean difference of $d = .03$ and a significance level of $p = .85$ in the t-test and must therefore be rejected. However, previous studies have shown that marginalised groups often have poorer experiences with the police and therefore have a poorer attitude towards them (Schweer et al., 2008). In order to be able to provide an explanation for this result, it is important to emphasise the composition of the sample. Around 80% of the sample in this study had no migration background, 15% of the people had parents with a migration background and 4% stated that they themselves had immigrated. A comparison between people

with and without a migration background, in which only four per cent are actually affected by this themselves, does not appear to make much sense. The present study has some strengths in its methodology, but also various limitations in the significance of its results.

Firstly, it is a strength that both the POPS scale and the Ska-la Experience with the Police scale have good to excellent (Cohen, 1988) internal consistencies (POPS: $\alpha = .88$; Experience with the Police: $\alpha = .99$). However, it can be questioned to what extent an internal consistency of .99 is meaningful, as an internal consistency of 1 would mean that the items measure exactly the same thing. In future surveys, attention should be paid to how experiences with the police can be better operationalised.

How accurately eye tracking is measured depends on the software used, which was of high quality in this study (Digitec, n.d.). It should also be emphasised that the test supervisors all attended the same workshop to familiarise themselves with the eye tracking tool and made a point of presenting the same information about the test to all test subjects. Almost all tests were carried out by two of the researchers, which meant that test leader effects could only arise to a limited extent. In addition, all respondents received the same instructions within the online questionnaire, which contributes to the objectivity of the survey.

The replicable methodology would make it possible to replicate the study and thus establish intersubjectivity, or to diversify and enlarge the sample, which has limitations in this survey. The theoretical background shows that past negative experiences with the police in particular have an influence on attitudes towards them and that people belonging to minorities in particular have had more such experiences (Schweer et al., 2008). However, the sample consists mainly of people who were recruited at the Fresenius University of Applied Sciences. They are therefore predominantly very privileged individuals. Only 95% stated that they had a general higher education entrance qualification or a higher educational qualification, which indicates an educated sample that does not represent the average of society (Statistisches Bundesamt [Federal Statistical Office] degelma, 2022). In addition, only 2% of respondents stated that they had had contact with the police because they were suspected of a criminal offence. Nevertheless, the experience with the police was below average, which could have to do with the negative media presence in recent years. In future studies, greater attention should be paid to marginalised groups, as the current literature shows that these groups in particular have had negative experiences with the police (Schweer et al., 2008). Within this survey, only the migration background was surveyed, which was less than 20%. It would make sense, for example, to also record sexuality and ethnicity or to choose an additional qualitative format.

When interpreting the recording of gaze fixations, it is also important to bear in mind that all data only relates to a white, slim, male person, as the participants only saw pictures of this person. This means that even though police officers are repeatedly mentioned, the conclusions can strictly speaking only be drawn for male police officers.

Furthermore, over 80% of the sample was female, which makes it difficult to transfer the findings to the general population. In general, it can be said that the only hypotheses that were actually significant (hypotheses one and two) did not show any really large effects. This raises the question of whether tattoos have an actual influence on the perception of police officers or whether other attributes are more likely to be decisive. However, this must be verified in further studies.

Conclusions & recommendations

For future research, variables such as the heterogeneity of the sample, the recording of more relevant control variables such as sexuality, ethnicity or attitudes towards tattoos and the revision of the instruments used, especially the scale on experiences with the police, would be useful starting points. It would also be advisable to include further attributes in the image presentation. People of different genders, different skin colours or different physiques could be presented randomly. As there was also no difference in the duration of observation between the various tattoo modifications, it would be sufficient to use only one tattoo.

For work in the police service, this survey shows that tattoos do not appear to play a significant role in the perception of the police.

At the beginning of this study, tattoos were considered as a means of personality development and their effect on police officers was scrutinised in relation to the general population. Connections were found between the duration of viewing such tattoos and attitudes towards the police. Experiences in dealing with the police also show a connection to the viewing of such body modifications by uniformed police officers. In a separate analysis of attitudes towards the police, neither the influence of a migration background nor the influence of acquaintances in the police force on attitudes towards the police could ultimately be confirmed. As this result does not correspond to the current state of research, it would be interesting for future research to investigate these hypotheses with the help of a representative sample. The confirmed correlations emphasise the relevance of an intensive examination of the influence of body modifications in police officers on their everyday work situation. The findings may contribute to ongoing discussions about how visible body modifications in police officers are perceived – and whether existing recruitment standards should be re-evaluated in light of empirical evidence.

References

1. Atkinson, M. (2003). *Tattooed: The Sociogenesis of a Body Art*. Toronto: University of Toronto.
2. dbb beamtenbund und tarifunion (2023). *Beamtenrecht und Tattoos: dbb fordert bundesweit gleiche Standards*. Verfügbar unter: <https://www.dbb.de/artikel/beamtenrecht-und-tattoos-dbb-fordert-bundesweit-gleiche-standards.html> (15.05.2024).
3. Degelman, D. & Price, N. D. (2002). Tattoos and Ratings of Personal Characteristics. *Psychological Reports*, 90, 507–14.
4. Degelman, D. & Price, N. D. (2002). Tattoos and Ratings of Personal Characteristics. *Psychological Reports*, 90, 507–14.
5. DeMello, M. & Rubin G. S. (2000). *Bodies of Inscription: A Cultural History of the Modern Tattoo Community*. Durham: Duke University Press.
6. Digitec. *Bewertungen für Tobii Eye Tracker 5 (PC)*. (o. J.). Verfügbar unter: <https://www.digitec.ch/de/product/ratings/tobii-eye-tracker-5-pc-gaming-controller-13452943> (8. Juli 2024).
7. DPoIG (2022). *Liberalerer Umgang und individuelle Beurteilung von Tätowierungen bei der Polizei muss Weg der Zukunft sein*. Verfügbar unter: <https://www.dpolg.org/aktuelles/news/liberalerer-umgang-und-individuelle-beurteilung-von-taetowierungen-bei-der-polizei-muss-weg-der-zukunft-sein/>

8. Goff, P.A., Jackson, M. C., Di Leone, B. A., Culotta, C. M. & DiTomaso, N. A. (2014). The essence of innocence: Consequences of dehumanizing Black children. *Journal of Personality and Social Psychology*, 106, 526-545.
9. Hauke-Forman, N., Methner, N., & Bruckmüller, S. (2021). Assertive, but Less Competent and Trustworthy? Perception of Police Officers with Tattoos and Piercings. *Journal of Police and Criminal Psychology*, 36, 523–36.
10. Hermanutz, M. & Weigle, L. (2017). Das Image der Polizei, die Dienstleistungsqualität und die Zufriedenheit der Bevölkerung- Zusammenhänge und Möglichkeiten zur Verbesserung. In J. Stierle, D. Wehe & H. Siller (Hrsg.). *Handbuch Polizeimanagement* (S. 945-962). Wiesbaden: Springer.
11. Jung, E. G. (2007). *Kleine Kulturgeschichte der Haut*. Berlin: Springer-Verlag.
12. Kluger, N. (2015). Epidemiology of Tattoos in Industrialized Countries. *Current Problems in Dermatology* 48, 6–20.
13. Mourtgos, S. M., & Adams, I. T. (2019). Assessing Public Perceptions of Police Use-of-Force: Legal Reasonableness and Community Standards. *Justice Quarterly*, 37(5), 869–899.
14. Muldoon, K. A. (1997). Body piercing in adolescents. *Journal of Pediatric Health Care*, 11, 298–301.
15. Nadal, K. L. & Davidoff, K. C. (2015). Perception of Police Scale (POPS): Measuring Attitudes towards Law Enforcement and Beliefs about Police Bias. *Journal of Psychology and Behavioral Science*, 3, 1-9.
16. Oberwittler, D., Blank, T., Köllisch, T. & Naplava, T. (2001). *Soziale Lebenslagen und Delinquenzen von Jugendlichen: Ergebnisse der MPI-Schulbefragung 1999 in Freiburg und Köln*. Edition iuscrim.
17. Oberwittler, D., Schwarzenbach, A. & Gerstner, D. (2011). Polizei und Jugendliche in multiethischen Gesellschaften. Ergebnisse der Schulbefragung, 2014-7.
18. R Core Team (2021). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.
19. Reuter, M. (2020). *Tätowierungen bei Polizisten am Beispiel des Landes Nordrhein-Westfalen*. Verfügbar unter: <https://ksv-polizeipraxis.de/tatowierungen-bei-polizisten-am-beispiel-des-landes-nordrhein-westfalen/> (25.06.2024).
20. Rosenbaum, D. P., Schuck, A., Costello, S. K. Hawkins, D. F. & M. K. Ring. (2005). Attitudes Toward the Police: The Effects of Direct and Vicarious Experience. *Police Quarterly*, 8, 343-365.
21. RStudio Team (2020). *RStudio: Integrated Development for R*. RStudio, PBC, Boston, MA URL <http://www.rstudio.com/>.
22. Rylan, S. (2017). The Police Officer Perception Project (POPP): An experimental evaluation of factors that impact perceptions of the police. *Journal of Experimental Criminology*, 13, 393-415.
23. Sanocki, T., & Sulman, N. (2011). Color relations increase the capacity of visual short-term memory. *Perception*, 40(6), 635-648.
24. Schädle-Deininger, H. (2005). Kleider machen Leute oder - was hat Dienstkleidung mit der Aufgabe von Beziehung, Alltags- und Milieugestaltung psychiatrischer Pflege zu tun?. *Psychiatrische Hilfe Heute*, 11, 204-211.
25. Schöne, M. (2022). *Polizei und Rassismus. Eine wissenschaftliche Bestandsaufnahme*.

- Wiesbaden: Springer.
26. Schweer, T., Strasser, H., & Zdun, S. (2008). *Das da draußen ist ein Zoo, und wir sind die Dompteure*. Wiesbaden: VS Verlag für Sozialwissenschaften.
 27. Siebers, T. (2000). *The Body Aesthetic: From Fine Art to Body Modification*. Ann Arbor: University of Michigan Press.
 28. Statistisches Bundesamt (2022). Bildungsstand: Verteilung der Bevölkerung in Deutschland nach höchstem Schulabschluss. Verfügbar unter: <https://de.statista.com/statistik/daten/studie/1988/umfrage/bildungsabschluesse-in-deutsch-land/> (17.12.2022)
 29. Thielgen, M., Schade, S. & Rohr, J. (2020). How Criminal Offenders Perceive Police Officers' Appearance: Effects of Uniforms and Tattoos on Inmates' Attitudes. *Journal of Forensic Psychology Research and Practice*, 20(3), 214–40.
 30. Thielgen, M. & Schade S. (2023). Das Erscheinungsbild und nonverbale Verhalten von Polizist*innen im Polizeieinsatz. In M. S. Staller, B. Zaiser, und S. Koerner (Hrsg.). *Handbuch Polizeipsychologie*. Wiesbaden: Springer Fachmedien Wies-baden.
 31. YouGov (2021). *Umfrage in Deutschland zu Tattoos nach Altersgruppen 2021*. Verfügbar unter: <https://de.statista.com/statistik/daten/studie/1253983/umfrage/um-frage-in-deutschland-zu-tattoos-nach-altersgruppen/> (05.06.2024).

