Federal Ministry
Republic of Austria
Interior

Federal Police Academy

SIAK-Journal – Journal for Police Science and Practice

Baier, Dirk/Manzoni, Patrik (2020):

Police Attitudes toward Body-Worn Cameras. Changes during the period of a pilot project

SIAK-Journal − Journal for Police Science and Practice (International Edition Vol. 10), 4-18.

doi: 10.7396/IE_2020_A

Please cite this articel as follows:

Baier, Dirk/Manzoni, Patrik (2020). Police Attitudes toward Body-Worn Cameras. Changes during the period of a pilot project, SIAK-Journal − Journal for Police Science and Practice (International Edition Vol. 10), 4-18, Online: http://dx.doi.org/10.7396/IE_2020_A.

published online: 9/2020

Police Attitudes toward Body-Worn Cameras

Changes during the period of a pilot project

DIRK BAIER,
Head of the Institute for Delinquency and Crime Prevention at the Zurich University of Applied Sciences.

PATRIK MANZONI,
Lecturer at the Zurich University of Applied Sciences.

Violence against police officers is a current issue in Germany, Austria and Switzerland. The use of body-worn cameras is increasingly being discussed as a measure against this violence. In German-speaking countries, there are now various model projects in which the use of body-worn cameras is tested and scientifically evaluated. This article presents the findings of such a model project, which was carried out in the city of Zurich in 2017. The study addresses the question of how prevalent different attitudes toward body-worn cameras are among police officers and how these attitudes changed throughout the pilot project. The findings show that body-worn cameras are rated very differently. Almost all police officers appreciate the technical features and the additional possibilities for securing evidence. However, significantly fewer respondents think that they protect them against violence. All in all, however, more than half of the police officers are in favour of body-worn cameras. Comparing the two surveys, which were slightly longer than half a year apart, there is a significant drop in the approval of body-worn cameras.

1. INTRODUCTION

Violence against police officers is a current issue in Germany, Austria and Switzerland. On the one hand, harsher sentences, among other things, are being discussed as measures against the apparent increase in violence. On the other hand, body-worn cameras are receiving increasing attention in the hope that they can prevent violent attacks or provide better evidence to prosecute the perpetrators if violence occurs.

It cannot yet be said with certainty whether these desired effects will actually occur. The scientific research in this area is still relatively recent; so far there have been only a few evaluation studies which have adopted an experimental approach to testing the consequences of the use of the body-worn camera. Since these studies have been conducted mainly in Anglo-Saxon countries and since the reduction of police violence was the primary reason for the introduction of body-worn cameras in these countries, the existing studies focus on this impact area. The study results tend to indicate that body-worn cameras may reduce police violence (cf. Baier/Manzoni 2018). Ariel et al. (Ariel et al. 2015), for example, demonstrate on the basis of an experiment in Rialto (California) that the use of body-worn cameras significantly reduces the amount of violent police behaviour. A study by Ready and Young (Ready/Young 2015) in Mesa (Arizona) also found a significant reduction in citizen complaints against police

officers who use body-worn cameras. The experiment conducted by Jennings et al. (Jennings et al. 2015) in Orlando (Florida) also showed evidence of the impact of the use of body-worn cameras: The authors reported that there was a significantly lower frequency of use of force and of complaints in the group that used body-worn cameras than in the group that did not. Similar findings on the effectiveness of body-worn cameras can also be found in studies by Katz et al. (Katz et al. 2015) or White et al. (White et al. 2017).

Findings on whether body-worn cameras are appropriate for reducing the violent behaviour of the population, on the other hand, are found less frequently than findings on the violent behaviour of police officers. In their overview of body-worn cameras, Maskaly et al. (Maskaly et al. 2017) report that the limited available research findings do not support the assumption that body-worn cameras positively influence the behaviour of the civilian population. A study conducted by Hedberg et al. (Hedberg et al. 2016) in Arizona also shows that body-worn cameras do not reduce unruly behaviour. Ariel et al. (Ariel et al. 2016) even report that violent behaviour increases among citizens when police officers wear body-worn cameras.

Apart from the effectiveness of body-worn cameras, the question arises as to how police officers perceive the introduction of body-worn cameras.[1] The attitudes of the group of persons who are mainly affected by the introduction of body-worn cameras have hardly been examined so far in a systematic and empirical manner. It is implicitly assumed, especially in Continental Europe, that the mere claim that body-worn cameras may protect the police against assaults is sufficient for police officers to have a predominantly positive attitude toward the introduction of this new equipment. International research shows, however, that the approval of body-worn cameras cannot simply be assumed:

- Jennings et al. (Jennings et al. 2014) report the findings of a police survey conducted in Orlando, Florida. This showed that only about half of the respondents or even fewer of them shared the view that body-worn cameras should be introduced for all police officers of the unit or that body cameras improve the behaviour of the population. Only about 20 % of the respondents thought that the body-worn cameras improved their own behaviour. Only very few police officers (3 %) stated that wearing body-worn cameras reduced their own use of coercion and force.
- In the study conducted by Smykla et al. (Smykla et al. 2016), which included police officers in leadership positions, only about 50 % of the respondents were in favour of introducing body-worn cameras. However, more than half of the respondents agreed that body-worn cameras are used to secure evidence – so they can be helpful in this respect.
- Katz et al. (Katz et al. 2014) report the findings of a survey of police officers in Phoenix, a repeated survey before and after the introduction of body-worn cameras. In general, the survey shows "that there was resistance among officers toward wearing the BWCs" (ibid., 40). Only a small proportion of respondents agreed, for example, with the statement that body-worn cameras should also be introduced in other police departments – this proportion increased slightly over time. The technical features of the body-worn cameras are rated as good by the majority. Similarly, a majority felt that the quality of evidence increased by the use of body-worn cameras. The police officers are rather sceptical about the potential effect of body-worn cameras on citizens, and this scepticism even

increased over time: "By the end of the study period, for example, only 25.7 % of target group officers believed BWCs result in citizens being more cooperative, 28.6 % agreed that citizens will be more respectful" (ibid., 23).

There are currently no findings available from German-speaking countries on police attitudes toward body-worn cameras. This was the reason for conducting a study in addition to an impact evaluation as part of a pilot project for introducing body-worn cameras in the city of Zurich. This study should address, among other things, the following questions:

1. How common are different attitudes toward body-worn cameras among police officers? Are there any differences between different groups of police officers in this respect, e.g. between male and female police officers or between young and older police officers?
2. How do these attitudes change during the pilot project? How can these changes be explained?

2. THE STUDY

In order to examine the attitudes toward body-worn cameras, a pilot project was carried out in collaboration with the Zurich city police.[2] In the period from 1 March 2017 to 1 November 2017, body-worn cameras were used. Officers of the city police force were equipped with body-worn cameras on even weeks, but not on odd weeks. This is a randomised treatment and control group method which allows statements about the effect of body-worn cameras. The focus was on the question whether body-worn cameras help to reduce violence against and by police officers. The findings of this experiment are briefly discussed below in an excursus; they have already been published elsewhere (Manzoni/Baier 2018; Baier/Manzoni 2018). Before and after the experiment, the police officers were asked to answer a short questionnaire on their attitudes toward body-worn cameras and related topics.

The pilot project was not implemented in the entire city of Zurich, but only at three of the five regional police stations (City, Aussersihl and Industrie) and at the special commissariat. These are all those police stations which have a comparatively higher incidence of violence in Zurich. All police officers at these police stations were sent a written questionnaire and a sealable return envelope. The completed questionnaires were collected by a project staff member at the end of the survey period. A total of 350 police officers were involved in the pilot project. 306 of these police officers took part in the first survey, representing a very good response rate of 87.4 %. Nix et al. (Nix et al. 2017) report an average response rate of 64 % based on 497 police surveys.

In the second survey, 273 police officers participated, representing a response rate of 78 %. The response rates fluctuate between the organisational units involved (cf. Manzoni/Baier 2018): The City and Aussersihl regional police stations had the highest response rate in both surveys. In all organisational units, the response rate of the second survey was lower than the response rate of the first one. The response rates of the special commissariat differ markedly (87.5 to 60 %). One reason for the lower response rate of this police station to the second survey may have been that, in the first survey, many of the participants were younger officers who, after a four-month compulsory period, were transferred to various regional police stations and were therefore no longer available for the second survey, at least in part, if they changed to regional police stations which were not part of the pilot project.

The samples are composed as follows: In the first survey at the beginning of the pilot project, 15.8 % of the participants were female, 84.2 % of them were male. In the second survey, the percentage of female respondents was 14.8 %. The average age of the respondents was 34.3 years in the first survey and 34.6 years in the second survey. Approximately one in five respondents (21.3 % and 20.6 %, respectively) held a leadership position.

Although the survey was repeated within a short period of time, the participants of both surveys are only partially identical. In total, survey results for the first and second survey are available for 212 police officers; this includes longitudinal data or a so-called "panel sample". The connection between the first and second survey was established by means of a short code (first letter of one's first name, date of mother's birthday, and first letter of the father's first name). Unfortunately, some respondents did not provide any information regarding the short code, probably because they saw it as a threat to their assured anonymity. The combination of questionnaires from the first and second survey makes it possible to examine changes in the same person and thus potential causes of changes in attitudes. The panel sample has the following socio-demographic characteristics: 13.2 % of respondents were female; the average age of the participants at the time of the first survey was 34.5 years; 21.4 % held a leadership position.

3. FINDINGS

3.1. Attitudes toward the body-worn camera

In the first and second survey, police officers were asked to answer a total of 36 statements about body-worn cameras, including six answer categories ranging from "1 – not true at all" to "6 – completely true". All 36 statements cannot be presented here. Instead, Figure 1 (see page 8) presents eleven items, some of which could be partly assigned to superordinate attitudinal dimensions (scales) (cf. Manzoni/Baier 2018). These scales contain two to eight items and are sufficiently reliable.[3] Figure 1 shows one item per scale that is characteristic of the scale (e.g. due to a high degree of selectivity). Two items are also listed that could not be assigned to a scale, but at the same time depict typical views of body-worn cameras. The percentage of respondents who expressed their agreement is shown, in which the answers "4 – somewhat true", "5 – true to a large extent" and "6 – completely true" have been summarised.

First of all, it can be seen that almost all respondents hold the view that the body-worn cameras have good technical features. The statement that body-worn cameras are easy to use was supported by 97.3 % in the first survey and 97.8 % in the second one. The specific experiences with body-worn cameras during the pilot project did not change the attitudes regarding the technical features. It should be noted at this point that the Zurich city police used cameras that had to be worn in the chest area. The battery life of these body-worn cameras was also rated as sufficient by the clear majority of respondents (without representation). In the second survey, 97.4 % agreed with the statement that the battery life was adequate – even at the department of the special commission, where the average patrol service was considerably longer (approx. eight hours) than at the other stations (97.9 % agreed here).

Statements relating to the quality of securing evidence also received a high level of agreement. In the first survey, 93.7 % of police officers stated that body-worn cameras would improve the quality of the evidence, while in the second sur-

Source: Baier/Manzoni

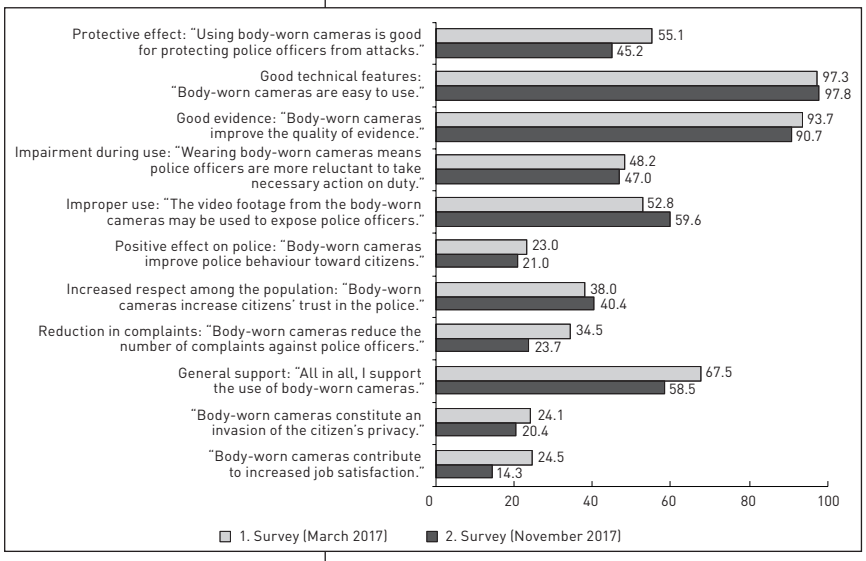

Figure 1: Agreement with various statements on body-worn cameras (in %)

vey the figure was slightly lower at 90.7 %. However, the pilot project could not examine whether the body-worn camera actually had this characteristic: During the entire project period, the body-worn camera was only used 57 times to record video footage. None of these uses were followed by criminal proceedings in which the body-worn camera recordings could play a role. The pilot project does not make it possible to say whether the body-worn camera facilitates cooperation with the public prosecutor's office as 72.1 % of respondents to the second survey thought (first survey: 75.8 %; no representation). Overall, the evaluations show that agreement to "body-worn cameras providing good evidence" tends to decline over the pilot project period.

In addition to these views, there are a total of four attitudinal dimensions on which approximately half of the respondents expressed their agreement:

1. Body-worn cameras protect police officers against attacks – one of the core arguments in the discussion about their introduction – was stated by 55.1 % in the first survey and 45.2 % in the second survey; the agreement drops significantly ($p < .05$). Agreement also decreases for all other statements on this scale, so that the percentage of respondents who confirm a protective effect of the body-worn cameras significantly drops from 48.4 % to 38.5 % ($p < .05$; without representation).
2. In the first survey, 48.2 % of police officers stated that body-worn cameras have the consequence of making officers more reluctant to take action; in the second survey, the percentage was similarly high at 47.0 %. A substantial percentage of the respondents believe that body-worn cameras may also have problematic implications for their work. One interview partner – a total of twelve qualitative interviews with police officers were conducted in the project[4] – formulated this as follows: "This means that the police are less assertive because afterwards the police officer has the feeling that these video recordings are watched and then criticised. (...) And that's exactly what (...) I see with the body-worn camera. The police officers are inhibited from asserting themselves more, to assert themselves and this will probably be talked about. If the police are less assertive, more can be allowed."[5]
3. Half of the respondents also consider it a problematic implication that body-worn cameras in principle are capable of being improperly used for exposing the individual police officer; agreement with this statement rose from 52.8 % to 59.6 % throughout the pilot project (not significant at $p < .05$). The second statement of this scale was "body-worn cameras may be used by superiors to search for information that can be used against a police officer" (without representation). The agreement with this statement increases significantly from 46.4 % to 60.1 % when both surveys are

compared ($p < .01$). In summary, this results in an increase in agreement with improper use from 41.0 % to 53.7 % (significant at $p < .01$). Possible reasons for these changes will be discussed below.

4. At the beginning of the pilot project, 67.5 % of the respondents agreed with the statement that they were all in all in favour of the use of body-worn cameras; at the end of the pilot project, this rate was 58.5 % (significant at $p < .05$). There is also a decline in agreement with the other items of the corresponding scale; the percentage of police officers who agree dropped from 66.1 % to 55.3 % with respect to the "general support" scale"(significant at $p < .01$; without representation). At the same time, however, this means that more than half of the police officers were still positive about body-worn cameras, even after the pilot project had been implemented.

Only a minority of respondents agree with the other attitudinal dimensions shown in Figure 1 (see page 8). 24.1 % and 20.4 % stated that body-worn cameras represent an intrusion into the privacy of citizens. 23 % and 21 % of respondents stated that they agreed with the view that they would have a positive effect on the work of the police, provided that they improved police behaviour toward citizens. 38 % and 40.4 % of respondents assume that the body-worn cameras have a positive influence on the citizens' trust in the police. There are no significant changes for all three attitudes over time.

However, changes resulted regarding two other aspects: First of all, the percentage of respondents who rate body-worn cameras as a means of improving job satisfaction fell significantly from 24.5 % to 14.3 % (significant at $p < .01$). Second, the agreement with the view that body-worn cameras lead to a reduction in complaints against police officers decreased from 34.5 % to 23.7 % (significant at $p < .01$).

Source: Baier/Manzoni

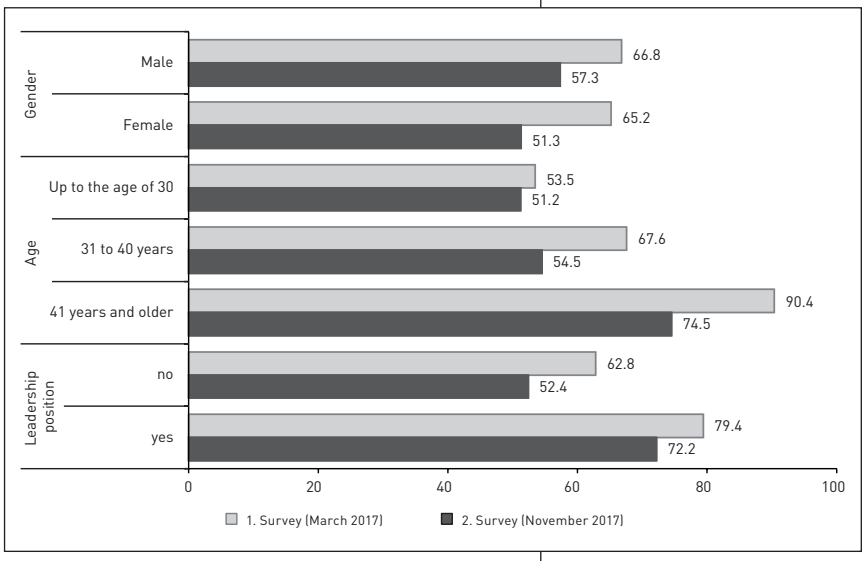

Figure 2: Support for the body-worn camera by different groups (in %)

Since the "general support" scale is a measure for the general attitude toward body-worn cameras, we will focus on it below. This scale consists of a total of five items. In addition to the items listed in Figure 1, the statements integrated into the scale analysis were as follows: "All in all, equipping police officers with body-worn cameras makes their job easier", "The advantages of body-worn cameras outweigh their disadvantages", "Body-worn cameras should also be introduced to other police divisions in Switzerland" and "I support the use of body-worn cameras". The reliability of the scale can be classified as very good at the time of both surveys (Cronbach's Alpha = .93 or .94). As mentioned earlier, acceptance of this scale fell significantly from 66.1 % to 55.3 % throughout the pilot project. Figure 2 reports the level of agreement and its change over time for different demographic groups.

There was no significant difference between male and female respondents' agreement with body-worn cameras at the time

of both surveys, even though the percentage of female police officers agreeing to body-worn cameras in the second survey was lower than that of male police officers. Agreement among both genders decreases; however, only the change among the male interviewees is shown to be significant ($p < .05$).[6]

With view to age, it can be seen that older respondents had a significantly higher rate of agreement than younger respondents at the time of both surveys. Among the younger respondents, there was no change in agreement over the project period, whereas there was change among the 31-to-40-year-olds and the older officers: agreement decreases significantly in both groups (at $p < .05$).

The respondents' position is also relevant for the attitude toward body-worn cameras: At both times of the survey, respondents in leadership positions were more positive about the body-worn cameras. At the same time, a significant decrease in agreement (at $p < .05$) can only be found among respondents who do not hold a leadership position.

3.2 Explanation for the change in attitudes

3.2.1 Trend evaluations

According to the evaluations presented, the approval of body-worn cameras ("general support" scale) decreased significantly between the first and second survey. This leads to the question of which variables might be relevant for this change. It should be initially pointed out that the actual experiences with body-worn cams were not collected for any survey. It cannot be examined to what extent the decline is related to the frequency of the use of the body-worn cameras with specific experiences during their use, etc. Instead, the decline can only be explained by variables from two domains: 1. other attitudes related to body-worn cameras, 2. further views and experiences.

The other views related to body-worn cameras were reported in the previous section. These are listed again in Table A1 in the Annex (see page 17), together with the mean scale values of the two surveys. There are no significant changes in the mean scale values for three attitudes (impairment during use, positive effect on the police and increased respect in the population). These attitudes therefore do not need to be examined to determine whether they are generally responsible for a decline in the approval of body-worn cameras since the missing changes cannot explain any change. The other five attitude scales (protective effect, good technical features, good evidence, improper use and reduction of complaints) are taken into account in the following analysis.

Table A1 also lists further views and experiences. A detailed presentation of these measuring instruments can be found in Manzoni and Baier (Manzoni/Baier 2018). At this point, it is of particular interest whether there are changes in these variables over time. This is only the case for three variables:

- The percentage of respondents who experience organisational demands at least once a week (e.g. completing tasks in a very short period of time and being interrupted repeatedly during actual work) rose from 69 % to 77 %.
- Social cohesion is declining. In order to measure this, the police officers should answer statements such as "Our colleagues at the station/in the unit support each other" or "We stick together at the station/in the unit".
- The demand for harsh sentences is declining. Statements such as "The courts should punish persons who use violence against police officers more severely" or

"Violence against police officers must be punished more consistently" had to be evaluated.

There must not only be a significant change in the comparison of both surveys for the different variables to be an explanation for the declining trend. It is also necessary that these variables should be correlated with the general attitude toward body-worn cameras. Linear regression analyses can be used to verify whether there are any correlations. At the same time, it can be verified whether the decline can be explained by the variables. Table 1 presents a total of three models. The shown coefficients represent standardised coefficients that can assume values between 0 and 1 or -1. The stronger a coefficient moves toward 1 or -1, the stronger a correlation is defined.

Source: Baier/Manzoni

	Model I	Model II	Model III
2. Survey	-.09 *	.05 *	.06 *
Protective effect		.49 ***	.49 ***
Good technical features		.04	.03
Good evidence		.28 ***	.28 ***
Improper use		-.29 ***	-.28 ***
Reduction in complaints		.02	.02
General organisational demands at least once a week			.01
Social cohesion			.02
Demand for harsher sentences			.00
N	**560**	**560**	**560**
R^2	**0.006**	**0.647**	**0.645**
* p < .05, ** p < .01, *** p < .001			

Table 1: Factors influencing attitudes to body-worn cameras in general (OLS regression, standardised coefficients; pairwise exclusion of missing values)

Model I initially shows that there is a decline in approval for body-worn cameras in general; the corresponding coefficient is negative and significant at $p < .05$. If additional attitudes related to body-worn cameras are taken into account, the decline is fully explained; the coefficient for the second survey is even positive now. This means that if there had been no changes in other attitudes, the general approval of body-worn cameras would have increased. The coefficients from Model II show that three attitudes related to body-worn cameras in particular have had a negative impact on the development of general approval: the assessment of the protective effect, the quality of evidence and improper use. Respondents who confirmed a high level of protective effect, a high quality of evidence or a low level of improper use are generally in favour of body-worn cameras. The view of the technical features and the possibilities of reducing complaints, on the other hand, are not correlated with the general attitude toward body-worn cameras.

Model III finally shows that the further views and experiences also have no correlation with the general attitude toward body-worn cameras. In summary, this means that the development of the general attitude toward body-worn cameras can only be explained by the development of other attitudes related to body-worn cameras. The approval of body-worn cameras is declining because police officers more frequently acknowledge improper use and less frequently a protective effect and a good quality of evidence.

At this point, these findings can be further elaborated. Since the view that body-worn cameras provide good evidence is decreasing during the pilot period, this cannot be the result of the experience of the pilot project, in which, as stated earlier, no criminal proceedings took place in which body-worn camera recordings were used as evidence. In general, it should also be said with regard to this specific view relating to the body-worn camera that the decline is fairly minor (mean value of approval from 4.44 to 4.28; see Table A1 in the Annex, page 17).

On the other hand, the decline with regard to the approval of the protective effect is more significant (from 3.44 to 3.14; see Table A1). The experience gained

during the period of the pilot project may well have been relevant here. These were ambivalent, which the additionally conducted qualitative interviews confirmed. The interviews show that the police officers wore the body-worn cameras about 15 times, i.e. once a week. Some respondents reported that the body-worn camera had a de-escalating effect. However, the other person must still be approachable, i.e. not too drunk or in a state of psychological emergency, for such an effect to occur. One respondent formulated experiences as follows: "People are already reacting very well to the camera. They are really calming down." Another respondent remarked: "I know we've said it a few times. Look, if this keeps on, I'll turn the camera on. And because of this threat, the situation calmed down a bit." Although no respondent reported that the body-worn camera had an escalating effect, it was repeatedly reported in the interviews that the reference to carrying the body-worn camera proved fruitless. One police officer described one such case as follows: "I threatened to use it and wanted to (...) That didn't help and he wasn't drugged (...) But that didn't impress him at all. He didn't really give a damn." The decline in the approval of the protective effect could therefore be explained by the fact that the hopes that the police officers receiving the equipment at the beginning of the pilot project adjusted to reality in which some protective effects were shown, but others were not.

The change in the view of improper use (mean value from 3.47 to 3.78; Table A1, page 17) can also be justified on the basis of qualitative interviews. A specific incident may have played a decisive role in this. Shortly after the beginning of the pilot project, recordings made by mistake with the body-worn camera showing the misconduct of a police officer were viewed by superiors and prompted grounds for a talk. This incident was discussed at all the police stations involved and led to the fact that potential disadvantages of the use of body-worn cameras were strongly taken into account, and consequently, as mentioned earlier, the view of the statement "Body-worn cameras can be used by superiors to search for information that can be used against a police officer" changed. The incident was described as follows in an interview: "We were told that these videos would not be viewed. But then they were and these police officers were more or less called to account because of a private conversation that was previously on this camera. And of course that caused a lot of anger. (...) The ones who were of course already negative about it, for them it was of course a confirmation, and the others obviously didn't appreciate it either (...). [Interviewer: 'But it became an issue throughout the whole police station?'] Yes, throughout the whole city."

Even if the statement were not correct that a police officer was "called to account" because of remarks made on the body-worn camera (it led to a discussion that did not result in sanctions), the story about this incident spread quickly and shaped the attitudes of the police officers. At the same time, it seems that not only attitudes were affected. Changes in behaviour were also reported, because the body-worn camera was no longer switched on when leaving the police station, but only when it was considered necessary due to the situation. For example, one respondent stated: "Well, I turn the camera on as soon as I put it on at the police station. But I've already noticed that colleagues haven't switched them on outside on patrol, but only when they go on into action. Probably because everything you say is recorded." This change in practice could have at least two negative effects: on the one hand, the police officers have to switch on

the body-worn camera twice on duty (first the ring buffer recording and second the recording which is permanently stored), which could cost significant time for other measures. On the other hand, important evidence could be lost. The body-worn cameras were equipped with ring buffers, i.e. they recorded both images and sounds as soon as they were switched on. However, these were overwritten every 30 seconds. It was only when the recording was saved by the police officer that the (previous) 30 seconds and all subsequent recorded information were permanently saved (until the recording was stopped). If the ring buffer recording must be first activated in a situation, the recordings for the previous 30 seconds are lost.

3.2.2 Panel analyses

The panel sample of 212 police officers also makes it possible to explain the change and even causal analyses can be carried out on the basis of this sample. In the sample, the general attitude toward body-worn cameras (mean value) decreased significantly from 3.80 in the first survey to 3.57 in the second one ($p < .01$). At the same time, the view of the first survey correlates with that of the second survey with $r = .64$. The general attitude toward body-worn cameras is a characteristic that is quite stable over time.

At this point, the panel sample will only be used to verify whether the three identified influencing variables of the general attitude toward body-worn cameras (protective effect, good evidence and improper use) also prove to be relevant factors in the longitudinal study, which would support the results of the trend evaluations reported above. Table 2 shows the findings of two linear regression analyses. Model I examines to what extent the three aforementioned attitudes related to the body-worn camera at the time of the first survey predict the general support of body-worn cameras of the second survey. On the basis of the time interval between the two surveys, this answers the question as to whether these attitudes actually represent influencing factors. The findings confirm this: respondents, who, in the first survey, acknowledge that body-worn cameras had a high protective effect, saw it as a means of securing better evidence and believed that there was a low risk of improper use, and expressed more support for body-worn cameras in general in the second survey. In particular, the presumed protective effect and the evidential character prove to be relevant for the general attitude toward body-worn cameras which was expressed six months later.

Source: Baier/Manzoni

	Model I: General support survey 2	Model II: General support difference, surveys 1 and 2
Protective effect/difference Survey 1 and survey 2	.35 ***	.38 ***
Good evidence/difference Survey 1 and survey 2	.26 ***	.27 ***
Improper use/difference Survey 1 and 2	-.15 *	-.30 ***
N	**211**	**209**
R^2	**0.328**	**0.359**
* p < .05, ** p < .01, *** p < .001		

Table 2: Factors influencing attitudes toward body-worn cameras in general (OLS regression, standardised coefficients)

Model II explores the relationships between difference measures. Although the general attitude toward body-worn cameras is stable over time, there are intraindividual changes. In the analysis, the attitude at the first survey was subtracted from the attitude at the second one. The same was done for the other three measures of attitudes. These variables can be used to examine whether the change in the general attitude is accompanied by similar changes in the other three attitudes. This is clearly the case: if the attitude declines toward

protective effect or securing evidence, the attitude also generally declines toward body-worn cameras; at the same time, this attitude declines if the attitude toward improper use becomes more prevalent. Both analyses thus underline that the three attitudes related to the body-worn camera and their changes are significant for the attitudes toward body-worn cameras in general.

EXCURSUS: FINDINGS ON THE USE OF FORCE BASED ON RANDOMISED EXPERIMENTS

Table A1 in the Annex (see page 17) already points out that there has been a decline in the incidence of violence during the period of the pilot project: The percentage of respondents who reported experiences of verbal violence at least once a week (based on the last six months before the survey) fell from 21 % to 19 %, and the percentage of respondents who reported experiences of physical violence from 42 % to 36 %. In the first survey, 45 %, in the second survey, 42 % confirmed that a police officer had charged a citizen; it was also less frequently reported (with a decrease from 12 % to 9 %) that a citizen had made a complaint. Although all these indicators point to a decline in violence, they are not reported as being significant. During the period of the pilot project, which was covered by the second survey, there only tended to be a decline in violence.

However, the survey data only provide an initial indication of possible changes due to the use of the body-worn camera. In order to explore the influence of the body-worn cameras through such a survey, it would have been necessary to conduct surveys at the same time in comparable police stations in Zurich or other cities where no body-worn cameras were used. It is conceivable that there is a general trend toward a decrease in violence, which would also be evident at other police stations. However, such a comparative survey was dispensed with in favour of a real experimental test of the use of body-worn cameras.

This experiment was designed in such a way that body-worn cameras were used in patrols on even weeks, not odd weeks at the same police stations, where interviews were conducted. At the end of patrol duty, the police officers of the task force had to complete short questionnaires in which, among other things, they reported the violence they had experienced during potential operations and the measures they had taken (including physical measures). The comparison of the even weeks with the odd weeks and thus the comparison of operations with and without body-worn cameras offers a conclusion on the effectiveness of the body-worn cameras. A total of 8,108 operations performed without body-worn cameras can be included in this comparison, compared with 7,727 operations performed with body-worn cameras.

First, the results of the comparison show that violence is a very rare occurrence. For example, physical violence against police officers (pushing/shoving or punching/kicking) occurred in 0.5 % of all operations. Second, there is a somewhat lower overall rate of violence for operations with body-worn cameras: For example, police officers are less likely to report the experience of physical violence (0.38 % with body-worn camera vs. 0.58 % without body-worn camera); on the other hand, police measures are less likely to be threatened in these operations (2.52 % vs. 2.96 %). In operations with the body-worn camera, verbal violence against police officers is also less common, as police officers themselves are less likely to take certain measures. All these differences, however, are not shown to be significant at $p < .05$, which is why the results of the experiment only tend to indicate a reduction

in violence owing to the use of the body-worn camera.[7] At the same time, the differences are not trivial: on the basis of estimation, for example, it can be projected that the use of body-worn cameras could prevent approximately 47 violent attacks on police officers each year.

4. DISCUSSION

The results of the survey show that body-worn cameras are rated very differently. Almost all police officers appreciate the technical features and the additional possibilities for securing evidence. Fewer respondents believe that they protect them against violence; the clear majority of respondents do not see a positive effect on their own behaviour. All in all, however, more than half of the police officers are in favour of body-worn cameras. Male and female respondents do not differ in this view. It should be noted, however, that older respondents and respondents in leadership positions are significantly more positive. At this point, it is uncertain why younger officers, who are generally considered to be more technology-oriented, are more critical of body-worn cameras. It is conceivable that they have less routine in operations or training and might fear that mistakes during operations will become visible as a result of using the body-worn camera.

In the comparison of the two survey points in time, which were slightly longer than half a year apart, there is a significant drop in the approval of body-worn cameras. One possible explanation for this is that the experience gained in the period of the pilot project did not always reflect the original hopes and, for example, the violence-reducing effect in the actions of the police opponent could not always be established. It should also be noted that in the course of the pilot project there was an incident relevant to police attitudes which was characterised by the fact that a video recording[8] taken accidentally prompted a police officer to a talk with a superior. This incident confirmed the concern that body-worn cameras are primarily used to control the behaviour of police officers.

It should be noted, however, that despite this incident, and in particular despite the narratives spread about it[9], more than half of respondents still spoke out in favour of body-worn camera after the pilot project was completed: 58.5 % of the respondents agreed with the statement "All in all, I support the use of body-worn cameras". It cannot be concluded that there is a general scepticism toward body-worn cameras, motivated by police officers not wanting to be monitored.

Police officers are less concerned that their behaviour can be monitored through the use of body-worn cameras. Instead, there is uncertainty about how privacy and social interaction could change under the influence of the body-worn camera. Police officers have trained practices for their professional work, i.e. they know how to address the other person, how to behave in dangerous situations, etc. – they have fewer problems filming these practices. However, when it comes to everyday actions, e.g. private conversations with colleagues, chances that these could be filmed appear to be problematic for police officers. A comparison with other occupational groups can illustrate this: if, for example, a substantial percentage of teachers viewed it as an unreasonable demand that their teaching be filmed in class, they would be unanimously opposed to private conversations being recorded in the staff room. It is exactly this area that is affected by the body-worn cameras: "Generally, it can be said that we are being totally monitored, including the previous 30 seconds. And we no longer have any privacy", as one respondent stated in a most exag-

gerated way. And this already has consequences for social interaction: the survey showed that social cohesion was declining during the period of the pilot project. One respondent states: "Social interaction has changed to the point that if you have the body-worn camera with you and it doesn't matter where it is, you are more reserved even if it is switched off. You feel insecure and you feel watched." As a result, a new practice has already developed: the body-worn cameras are no longer used after leaving the police station, but only when they are actually needed in action.

At this point, we will not discuss further whether the police officers' concerns are justified, whether there is or can be any privacy during police duty or whether this constitutes something that is well worth protecting; likewise, we cannot continue to evaluate the advantages and disadvantages of the observed changes in practice. It is crucial that the relationship between privacy and professional practice is redefined by the body-worn cameras and that this is apparently important for the police officers and should therefore receive sufficient attention in the implementation of body-worn cameras. The interviews show how this can be done. This is what one respondent states: "Clearly you would have to go deeper into what really happens to the recordings. Who looks at them, what are they used for, what is not looked at, from which stage is it looked at, who is allowed to look at it how, where and when." Another respondent similarly states: "But then it should be clearly regulated that something that does not belong to the offence would be cut at a certain supervised stage, so that it would not be allowed as evidence at all." Overall, this is about clearer regulations regarding the handling of video footage, i.e. ultimately about the fact that a "police officer must not be put at a disadvantage just because of a body-worn camera".

Annex

Source: Baier/Manzoni

	Mean value, survey 1	Mean value, survey 2	Significance difference
General support	3.73	3.52	*
Protective effect	3.44	3.14	***
Good technical features	4.94	5.06	*
Good evidence	4.44	4.28	*
Impairment during use	3.28	3.20	
Improper use	3.47	3.78	**
Positive effect on police	2.77	2.61	
Increased respect among the population	3.18	3.08	
Reduction in complaints	3.36	3.15	*
Experience of verbal violence at least once a week	0.21	0.19	
Experience of physical violence at least once	0.42	0.36	
Police officer has charged citizen	0.45	0.42	
Citizens have filed a complaint	0.12	0.09	
Attitudes toward violence	3.14	3.15	
General organisational demands at least once a week	0.69	0.77	*
Additional service requirements at least once a week	0.86	0.88	
Operational requirements at least once a week	0.68	0.75	
Depersonalisation	2.83	2.86	
Reduced efficacy experience	2.84	2.80	
Social cohesion	5.29	5.17	*
Organisational commitment	4.83	4.87	
Support for citizen-oriented police work	4.79	4.81	
Perceived increase in violence	4.99	4.93	
Fear of assault	3.29	3.22	
Demand for harsher sentences	5.54	5.39	**
Good cooperation with the public prosecutors	3.62	3.69	
* p < .05, ** p < .01, *** p < .001			

Tab. A1: Mean values of various survey variables

[1] *Another important question is how the population sees the introduction of body-worn cameras. Since no representative data were collected as part of the empirical research project presented below (only a small sample of business people in two districts of Zurich were interviewed), this question is no longer dealt with here. American studies show that a large part of the population is in favour of introducing body-worn cameras (cf. Sousa et al. 2015). A population survey conducted in Zurich in 2016 also showed that residents are relatively open to the use of body-worn cameras (Stadt Zürich 2016).*

[2] *The authors would like to thank the city police of Zurich, namely Commander Daniel Blumer and the former police chief/city councillor Richard Wolff, for the opportunity to conduct such a study as well as for its financing. At the same time, the SBB Transport Police in Zurich and Lausanne implemented a similar pilot project, which the authors also evaluated. The findings of this project are not presented here (cf. Manzoni/Baier 2018), as the tasks of the police differ in part between the city police and the transport police. At this point, the authors would also like to thank the SBB transport police, in particular the former commander Jürg Monhart, for evaluating this pilot project.*

[3] *Cronbach's Alpha as a measure of reliability lies between .57 and .94.*

[4] *These are guided interviews. They took place at the police stations concerned and lasted on average about 45 minutes. The audio recordings were transcribed and summarised in a content analysis. A total of 12 police officers were interviewed, nine of whom were city police officers. Among the interview participants were eleven male police officers and one female police officer. The age span ranged from 27 to 56 years.*

[5] *Another quote on this point was: "What I have noticed is that if you know that the*

body-worn camera is there, you are much more active in your choice of words. It's not necessarily positive; it can also be tense."

[6] *Despite a stronger decline overall, the change in the number of female respondents was not found to be significant due to the significantly lower number of cases.*

[7] *It should also be pointed out that the criterion of significance is of lesser significance due to the nature of the study. The operations examined are not a sample of all operations – in such a sample case, significance would be of vital importance Instead, more or less all operations were surveyed during the period of the pilot project, so that the difference in the population was determined and no sample difference with a more or less high probability of error in the population was estimated.*

[8] *The recordings were erroneous because there was no "punishable act" or "a physical or verbal escalation imminent" (Stadt Zürich 2016a).*

[9] *A description of the incident in the interviews was, for example, "I noticed that someone had apparently said something wrong. I don't know what else happened but that's why this person was fired" – which is a clear exaggeration of what actually happened.*

Sources of information

Ariel, Barak et al. (2015). The effect of police bodyworn cameras on use of force and citizens' complaints against the police: a randomized controlled trial, Journal of quantitative Criminology (31), 509–535.

Ariel, Barak et al. (2016). Wearing body cameras increases assaults against officers and does not reduce police use of force: Results from a global multisite experiment, European Journal of Criminology (13), 744–755.

Baier, Dirk/Manzoni, Patrik (2018). Reduzieren Bodycams Gewalt gegen Polizistinnen und Polizisten? Ergebnisse eines kontrollierten Experiments in Zürich, Kriminalistik (72), 285–291.

Hedberg, Eric C. et al. (2016). Body-worn cameras and citizen interactions with police officers: estimating plausible effects varying compliance levels, Justice Quarterly (34), 627–651.

Jennings, Wesley G. et al. (2014). Cops and Cameras: Officer Perceptions of the Use of Bodyworn Cameras in Law Enforcement, Journal of Criminal Justice (42), 549–556.

Jennings, Wesley G. et al. (2015). Evaluating the impact of police officer bodyworn cameras (BWCs) on response-to-resistance and serious external complaints: Evidence from the Orlando police department (OPD) experience utilizing a randomized controlled experiment, Journal of Criminal Justice (43), 480–486.

Katz, Charles M. et al. (2014). Evaluating the Impact of Officer Worn Body Cameras in the Phoenix Police Department, Phoenix, Arizona.

Katz, Charles M. et al. (2015). Smart Policing Initiative. Evaluating the impact of police officers bodyworncameras. CNA analysis and solutions, Phoenix, Arizona.

Manzoni, Patrik/Baier, Dirk (2018). Evaluation des Pilotprojekts zum Einsatz von "Bodycams" bei der Stadtpolizei Zürich und der Transportpolizei, Zürich.

Maskaly, Jon et al. (2017). The effects of bodyworn cameras (BWCs) on police and citizen outcomes: A state-of-the-art review, Policing: An International Journal of Police Strategies & Management (40), 672–688.

Nix, Justin et al. (2017). Police Research, Officer Surveys, and Response Rates, Policing and Society, Online First, DOI: 10.1080/10439463.2017.1394300.

Ready, Justin T./Young, Jakob T. N. (2015). The impact of on-officer video cameras on policecitizen contacts: findings from a controlled experiment in Mesa, AZ, Journal of Experimental Criminology (11), 445–458.

Smykla, John O. et al. (2016). Police Bodyworn Cameras: Perceptions of Law Enforcement Leadership, American Journal of Criminal Justice (41), 424–443.

Sousa, William H. et al. (2015). Body Worn Cameras on Police: Results from a National Survey of Public Attitudes, UNLV Center for Crime and Justice Policy, July 2015, 1–8.

Stadt Zürich (2016). Befragung der Bevölkerung 2016: Die Stadtzürcher Bevölkerung stellt der Stadtpolizei ein sehr gutes Zeugnis aus, Online: https://www.stadt-zuerich.ch/pd/de/index/stadtpolizei_zuerich/medien/medienmitteilungen/2016/dezember/bevoelkerungsbefragung-2016-die-stadt-zuercherbevoelkerung-stel.html.

Stadt Zürich (2016a). Reglement über den Pilotversuch Bodycam bei der Stadtpolizei, Online: https://www.stadt-zuerich.ch/portal/de/index/politik_u_recht/amtliche_sammlung/inhaltsverzeichnis/5/551/121-reglement-ueber den-pilotversuch-bodycam-bei-der-stadtpolizei.html.

White, Michael D. et al. (2017). Exploring the Potential for BodyWorn Cameras to Reduce Violence in Police-Citizen Encounters, Policing (12), 66–6.