

AUTHORITY AND FACTORS RELATED TO SENSE OF AGENCY

The Obedient Brain: Authority in Relation to Perceived Coercion to Obey, Sense of Control,
Sense of Responsibility and Legitimacy

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Abstract

Law enforcement aims at ensuring safety within society. However, the rules and regulations that civilians are obligated to follow may restrict their freedom of choice. This can impact their intrinsic experience when they are confronted with law enforcement. The present study investigated the effect of authority level on perceived coercion to obey, sense of control and sense of responsibility. In addition, the relationship between authority and legitimacy was investigated. Lastly, the interrelationship between perceived coercion to obey sense of control, sense of responsibility and legitimacy were researched. An online experiment has been set up where 121 participants were confronted with authority figures of different rank and were asked to report about their experience. At the end of the experiment, participants scored the authority figures on legitimacy. Results indicated that a higher authority level resulted in a higher perceived coercion to obey, a lower sense of control, and a lower sense of responsibility. Results also revealed that legitimacy was not predicted by authority level. Finally, the results indicated that there are direct links between legitimacy and perceived coercion to obey, between perceived coercion to obey and sense of control and between sense of control and sense of responsibility. This is the first study to show the direct effect of authority level on intrinsic experience. The findings are discussed and interpreted within the context of previous literature, limitations of the present study were addressed, and directions for future research were provided.

Keywords: sense of agency, authority, legitimacy, law enforcement, forced decision

Table of contents

Introduction	4
Work method	10
Results	14
Discussion.....	19
References	27

Introduction

The purpose of law enforcement is to ensure that laws and regulations are followed, and it aims to ensure the safety, quality of life and well-being of citizens. If people disobey the laws and regulations, this will often have negative consequences for the society. Penalties such as fines and imprisonment are used to prevent rule violations as much as possible.

However, there are also consequences for our intrinsic experience when we obey to the laws and regulations. The present study addresses what happens with our intrinsic experience when we obey to laws and regulations. Obligation to the laws and regulations undermines a person's autonomy. Rules limit people's behavior and thus a person's freedom of choice, that is to say that a person is restricted in her autonomy as one's behavior is externally regulated (Ryan & Deci, 2006). The feeling of being forced to obey a law enforcement officer, i.e. the perceived coercion to obey, can negatively affect the sense of agency, which is the extent to which people feel control over their behavior and the associated consequences (Moore, 2016; Haggard, 2017). Due to experiencing restrictions in personal autonomy people experience less control over their actions. Important to state is that it is about the feeling of being in control and not about being in control. People may experience control when there is none and vice versa. Research also shows that a sense of agency is also related to a feeling of responsibility (Caspar et al., 2016; Dogge et al., 2012; Fennis & Aarts, 2012; Haggard et al., 2002; Moore et al., 2009). When people experience less control over their behavior, they in turn tend to report less responsibility for their own behavior. This research examines three aspects closely related to the sense of agency: perceived coercion to obey, sense of control and sense of responsibility.

In an ideal situation, people do obey laws and regulations without feeling coerced to do so and maintaining a sense of control and a sense of responsibility. Therefore, it is important for law enforcement to not make people feel restricted in their freedom of choice. People who feel coerced may feel limited in their autonomy and therefore feel less responsible and in charge of their own behavior. (Caspar et al., 2016).

The perceived coercion to obey, sense of control, and sense of responsibility may be affected by several factors. These factors include the perceived legitimacy of the law enforcement officer, the way in which the order is communicated, the authority and gender of the law enforcement officer, and the consequences of disobeying the order (Caspar et al., 2018). Therefore, it is interesting to examine the relationship of these factors with perceived coercion to obey, sense of control and sense of responsibility as changes in these factors may indicate a change in a person's perceived autonomy and sense of agency. This research

examines how authority rank is related to the perceived coercion to obey, sense of control and sense of responsibility. In addition, legitimacy is explored as a potential explanation for differences between authority ranks.

Authority

Authority is the power or right to give out orders, make choices and enforce obedience. One's authority is objective and determined by one's rank within law enforcement, a traffic controller for example has less authority than a police officer. Authority is visualized by the clothing of a law enforcement officer. The clothing someone wears is a strong indicator for forming impressions. It serves as a mental shortcut and aids us in the identification of one's status, group membership, and occupation (Johnson et al., 2002; Joseph & Alex, 1972). It has also been found that clothing influences impressions about the competence and the professionalism of law enforcement officers (Durkin & Jeffery, 2010; Johnson et al., 2015; Shaw, 1973; Singer & Singer, 1985).

Factors related to sense of agency

Perceived coercion to obey

Generally speaking, people do not like to be told what to do as this restricts their freedom of choice. Research on different experiences of coercion is limited to situations regarding mental health care admissions (Sheehan & Burns, 2011). Here patients who experienced more coercion during their admission also had a bad therapeutic relationship, which is the most crucial factor for mental health care.

The disputed research of Milgram (1974) showed that less people obey to the orders of an authority figure dressed in civilian clothes rather than an authority figure dressed in a grey lab coat. It is most likely that this was due to lower perceived coercion to obey, although was not examined in the study of Milgram, and later studies did not replicate the change of authority figure variation. A study by Bickman (1974) examined the social power of a uniform. He found that more people obeyed a request when the person was wearing a guard uniform rather than civilian clothes or a milkman uniform. The perceived obligation to obey the law was not measured but coercive power was suggested as an explanation of the outcome. If higher authority would lead to more coercive power, one would expect that citizens also should experience more coercion in an interaction with a high authority figure than with a low authority figure. According to the system justification theory, people justify the authority of those who have the most power in the system they are part of (van der Toorn

et al., 2011). The more power, or authority, one has, the more this is justified. Experimental research on the impact of different authority figures on perceived coercion to obey is limited and this research is therefore exploratory. Although direct evidence is limited, based on the aforementioned studies it is hypothesized that higher authority is associated with higher perceived coercion to obey.

Sense of control

An important part of the explicit sense of agency is one's judgement of feeling in control (Gallagher, 2012). Note again that one does not have to be in control, but one has to feel that she is in control. Barlas et al. (2018) found that the feeling of control ratings decreased in a task when people are forced into a certain choice. Studies on the sense of agency, a concept almost directly linked to the sense of control, come to the similar conclusion: when people are restricted in their autonomy, they show a decrease in the feeling of being in control (Caspar et al. 2016). Similar results were found when commands were given by humanoid robots (Barlas, 2019). These studies all use an experimental design with two conditions. One in which participants can make their own decision (free choice) and one in which they are commanded or instructed to make a certain decision (forced choice). The choice to make was to, for example, press a key, administer a shock or take money away from another participant (Barlas, 2019; Barlas et al., 2018; Caspar et al., 2016). As previously mentioned, we tend to justify the authority power of those people who have the most power in the system we are part of (van der Toorn et al., 2011). Based on this notion, we would expect that one experiences a lower sense of control when commanded by a higher authority figure. Therefore, it is hypothesized that higher authority is associated with a lower sense of control.

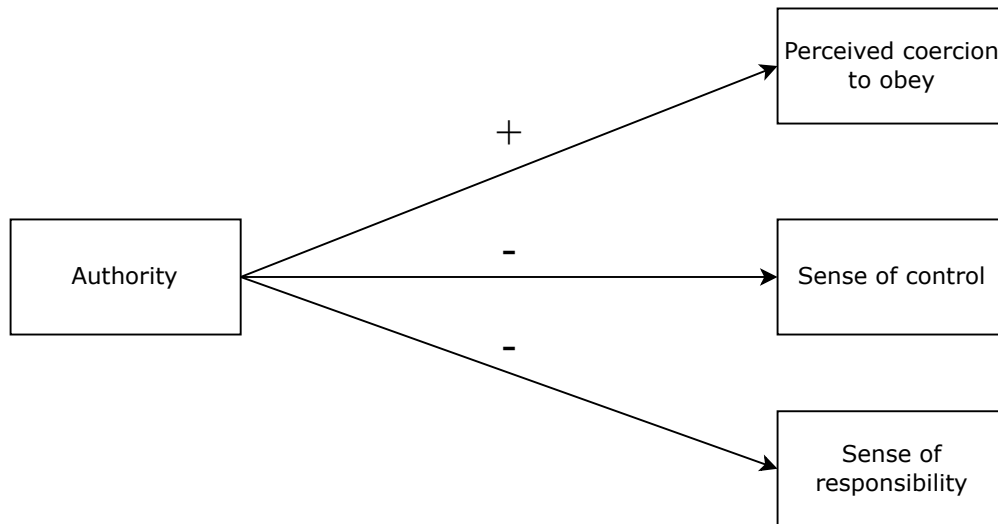
Sense of responsibility

Denying the responsibility for one's actions during the Second World War was the reason the first studies on obedience were conducted. More recent studies found that people who obey orders also feel less responsible for the consequences of the order (Caspar et al., 2016). Studies do however show a strong effect of a free versus forced choice on the sense of agency, which in turn is also strongly linked to the sense of responsibility (Barlas, 2019; Caspar et al., 2020). It is therefore hypothesized that a higher authority is associated with a lower sense of responsibility.

An overview of the hypotheses related to the effects of authority on perceived coercion to obey, sense of control and sense of responsibility is shown in Figure 1.

Figure 1

Schematic Representation of the Effect of Authority on Perceived Coercion to Obey, Sense of Control and Sense of Responsibility

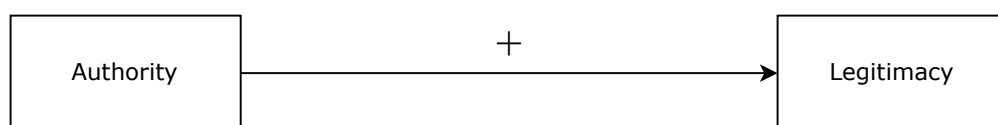


Legitimacy

An invisible aspect related to authority is the subjective counterpart of authority: legitimacy. Legitimacy entails both the judgements that citizens make about the rightfulness of law enforcement as the felt obligation to obey to law enforcement (Worden & McLean, 2017). Trust, respect, accountability, and reliability are important predictors of legitimacy (Grimmelikhuijsen & Meijer, 2015; Hinds, 2008; Tyler, 1997). Previous research has shown that wearing a uniform increases respect, accountability, feelings of safety, and favorable character impressions (Balkin & Houlden, 1983; Nickels, 2008; Simpson, 2017). Van der Toorn et al. (2011) showed that authority is a source of perceived legitimacy. Being dependent on an authority figure for security and justice is positively associated with appraisals of legitimacy. Based on this notion, it is hypothesized that a higher authority rank is associated with more legitimacy. This hypothesized effect is shown in Figure 2.

Figure 2

Schematic Representation of the Effect of Authority on Legitimacy



The interrelationship of legitimacy, perceived coercion to obey, sense of control and sense of responsibility

In addition to their relevance as dependent variables, it is also important to consider the interrelationship of legitimacy, perceived coercion to obey, sense of control and sense of responsibility. Not all these variables are directly related to each other. An overview of the factors that are related is given.

First, it is hypothesized that there is a positive relationship between legitimacy and perceived coercion to obey. A questionnaire study confirms that trust in law enforcement, a part of the legitimacy construct, is a strong predictor of the experienced obligation to obey the police (Hough et al., 2013). Thus, the more legitimacy, the more perceived coercion to obey.

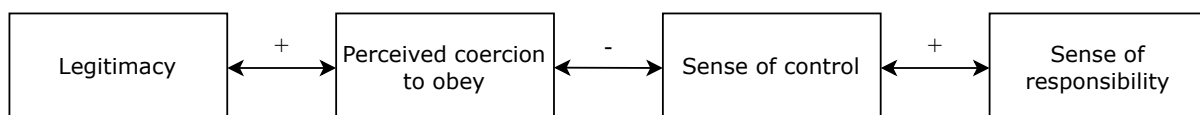
Second, it is hypothesized that there is a negative relationship between perceived coercion to obey and the sense of control. The sense of control and perceived coercion are each other opposites. As argued before, the more one is forced or coerced into a certain action, the more their autonomy and freedom of choice is undermined (Barlas, 2019; Caspar et al., 2016).

In turn, the sense of control is hypothesized to be positively associated with the sense of responsibility. The sense of control governs the sense of responsibility in some way. The sense of control allows us to have the feeling that we are the cause of our actions and that we could have performed an action differently (Frith, 2014). Thus, the sense of control is inseparable from the sense of responsibility.

An overview of the hypotheses related to the interrelationship between legitimacy, perceived coercion to obey, sense of control and sense of responsibility is shown in Figure 3.

Figure 3

Schematic Representation of the Interrelationship of Legitimacy, Perceived Coercion to Obey, Sense of Control and Sense of Responsibility



The present study

This study investigates the effect of authority on factors related to sense of agency, namely perceived coercion to obey, sense of control and sense of responsibility. In addition, the concept of legitimacy and how it is related to authority is investigated. Lastly, the interrelationship between perceived coercion to obey sense of control, sense of responsibility and legitimacy is researched.

An online experiment has been set up where participants were confronted with authority figures of different rank. The authority figure commands or requests the participant to make a forced decision. Participants will have no option other than to obey the command. After each interaction they will indicate to what extent they experienced coercion to obey to the command, control of their decision, and responsibility for their decision. At the end of the experiment the participants will score the authority figures on legitimacy.

This research is relevant because it helps predict how law enforcement affects the intrinsic experience of autonomy and the degree to which people feel responsible for their own behavior. If it turns out that obeying law enforcement is associated with a reduced feeling of control and responsibility, it could mean that the way law enforcement is applied has an undesirable impact on human functioning. By obeying law enforcement, a person's behavior is perceived as less autonomous, which also reduces a person's sense of responsibility: one is less able to decide for themselves if and when action is needed and what the consequences are. This can have far-reaching consequences for our behavior in society.

Effective law enforcement contributes to the prevention of undesirable behavior and thus has an important role in society. This study focuses on the intrinsic experience of limitations in freedom of choice and aims to provide new insights that lead to a different view on how law enforcement can be tailored to prevent people from abandoning their sense of responsibility when following orders from authority figures.

Work method

Participants

For this study, 121 participants were recruited through Prolific, an online research participant recruitment platform. Participants lived in the Netherlands and spoke Dutch fluently. Since no previous studies have used a similar experimental approach, a small to medium effect size f of .175 was used to calculate the sample size. To achieve a power of .80 for this effect size, the estimated sample size was 96 (Faul et al., 2009).

Of the 121 participants, 61 were men (50.4%), 57 were women (47.1%) and 3 classified as other (2.5%). The age of participants ranged from 18 to 72 years ($M = 28.25$; $SD = 9.160$). Finally, 53 had WO as their highest education (43.8%), 33 HBO (27.3%), 8 MBO (6.6%), 15 VWO (12.4%), HAVO (9.1%), 1 VMBO (0.8%).

Before the start of the experiment there was informed consent by which participants had to actively consent before starting the experiment. Without consent, the experiment could not be completed.

A total of 136 participants participated in this study, of which 124 participants fully completed the online experiment. The 12 participants who did not fully complete the experiment were not included in this study. These participants had quit before or during the practice trials. One participant was not included in the study because his answers only existed of outsides of the scale and because they were inconsistent, this participant also indicated not to be fully attentive during the experiment. Two participants were removed from the data due to having two significant outliers at the $p < .05$ level and one significant outlier at the $p < .001$ level. In the end, this study consists of 121 participants. This is more than the pre-calculated 96 participants needed to achieve a power of .80 at a small to medium effect size of .175 (Faul et al., 2009).

Procedure

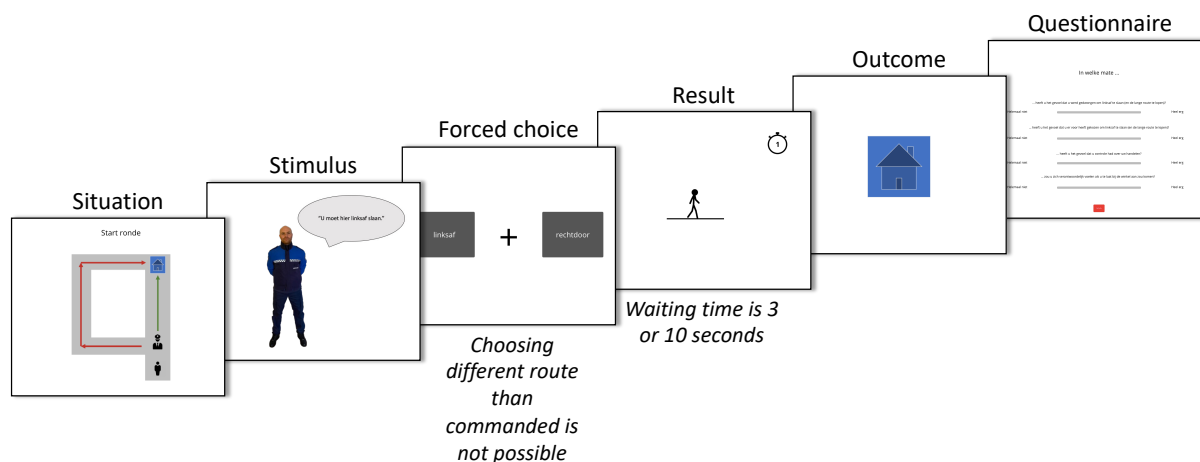
An experiment was conducted from April 11 2022 to April 12 2022 and from April 26 2022 to April 28 2022. The experiment was designed in the online testing platform Gorilla. Participants took part in the experiment once. The experiment was only available in Dutch. The duration of the experiment was 15 to 20 minutes. Participation was voluntary and participants were financially rewarded after completing the experiment. Prior to the experiment, participants were informed about anonymity, confidentiality, and the duration of the experiment. Participants were informed that they could stop the experiment in the study at

any time and that participation in the experiment did not involve any risks. After the experiment, participants were asked if they performed the experiment attentively. An option for comments or questions was given and the participant was thanked for its participation.

The experiment consisted of a behavioral task in which the participant was told to pick up a package from the store. On their way to the store the participants were confronted with an authority figure that forces a choice upon the participant to either take the left or the straight route to the store. Participants could then choose which route to take but only the route ordered by the authority figure continued the experiment. After choosing a route the route was visualized by a walking stick figure for a time interval of 3 seconds in case of the short route (straight) and 10 seconds in case of the long route (left). After every trial the participant was asked to answer questions about to what extent they felt coerced, to what extent they experienced control, and to what degree they experienced responsibility for their behavior. See Figure 4 for an example of a trial.

Figure 4

Schematic Representation of the Course of a Trial in the Behavioral Task



Note. Illustration of trial procedure.

There were three factors that varied on a trial-by-trial basis: authority (low authority, moderate authority, or high authority), communication style (directive order or suggestive order), and outcome valence (short route to the store or the long route to the store). Thus, the experiment follows a 3x2x2 within-subject design. The current study only focused on the authority figure. Participants were confronted with a traffic controller (low authority), an enforcement officer (moderate authority), and a police officer (high authority). Within the

Dutch society these different authority figures have different powers and are therefore of different authority level.

The experiment started with three practice trials where the participants got familiar with the procedure of the experiment. The practice rounds did not include any experimental conditions. During the experiment the trials were randomized so the order of the trials could not have an effect on the outcome. The experiment made us of three persons that were dressed as the authority figures, the authority level and accompanying person were counterbalanced to rule out the effect of posture, facial expression, or other physical characteristics.

After all the trials have been completed the participant concluded the experiment by filling out a questionnaire on the legitimacy of the three types of authority figures. The order in which the participants indicated the legitimacy score of an authority figure was counterbalanced with six different counterbalancing conditions to prevent the order from having an impact on the outcome. To conclude, the participants indicated their age, gender, and highest education level. After completing the experiment and questionnaire the participants were rewarded for their participation.

Operationalization

Perceived coercion to obey

The dependent variable, perceived coercion to obey, was measured with a single question that differed slightly based on outcome valence. When a participant was forced to go straight the question asked was: “To what extent did you feel you were forced to walk straight (the short route)?”. When a participant was forced to go left the question asked was: “To what extent did you feel you were forced to walk left (the long route)?”. Participants used a slider to indicate their score between 0 and 100. A higher score meant more perceived coercion to obey.

Sense of control

The dependent variable, sense of control, was measured with a single question. The question asked was: “To what extent did you feel you had control over your actions?”. Participants used a slider to indicate their score between 0 and 100. A higher score meant more sense of control.

Sense of responsibility

The dependent variable, sense of responsibility, was measured with a single question. The question asked was: “To what extent would you feel responsible if you arrived at the

store late?”. Participants used a slider to indicate their score between 0 and 100. A higher score meant more sense of responsibility.

Legitimacy

The legitimacy of the authority figures was measured on the basis of an adapted and translated version of several legitimacy scales (Grimmelikhuijsen & Meijer, 2015; Hinds & Murphy, 2007; Murphy et al., 2008). The scale consisted of 4 items. An example of an item was: “I have respect for the police.”. Participants indicated on a slider to what extent they (dis)agreed with the items (0 = completely disagree, 100 = completely agree). A high score referred to the authority group being seen as legitimate, a low score referred to the authority figure being seen as illegitimate. The reliability of validated scales like the one used in this study were good (Grimmelikhuijsen & Meijer, 2015; Hinds & Murphy, 2007; Murphy et al., 2008). A factor analysis showed that the variable consisted of one factor according to the Kaiser criterion. 87.6% of the variance was explained by this factor. The factor loadings were between .93 and .95. The reliability of the scale in this study was excellent ($\alpha = .95$). The construct of legitimacy was created by taking the mean scale score of the items.

Data analysis

To obtain more insight into the complex relationship between authority and perceived coercion to obey, sense of control and sense of responsibility and the relationship between authority and legitimacy the data was processed and analyzed in SPSS. To examine the effect of authority on perceived coercion to obey, sense of control, and sense of responsibility, a repeated measures MANOVA was used with the authority condition as within-subject independent variable and perceived coercion, sense of control, and sense of responsibility as dependent variables. A repeated measures ANOVA with pairwise comparisons was used as a follow-up analysis. In addition, a repeated measures ANOVA with pairwise comparisons was used with the authority condition as within-subject independent variable and legitimacy as dependent variable. A correlation analysis with Pearson's r was used to identify correlations between the average scores across all conditions of perceived coercion to obey, sense of control, sense of responsibility and legitimacy. In all tests a p -value of $<.05$ was considered significant.

Results

Table 1 shows a representation of the descriptive statistics of the variables measured.

Table 1

Descriptives of Dependent Variables

	Range	Total	Low	Moderate	High
		<i>M (SD)</i>	authority <i>M (SD)</i>	authority <i>M (SD)</i>	authority <i>M (SD)</i>
Perceived coercion to obey	0-100	61.7 (13.6)	55.5 (17.1)	62.2 (14.5)	67.3 (14.5)
Sense of control	0-100	41.0 (15.0)	47.5 (17.3)	40.5 (15.6)	35.0 (16.7)
Sense of responsibility	0-100	49.3 (22.6)	52.2 (22.8)	49.3 (22.7)	46.5 (24.1)
Legitimacy	0-100	70.4 (14.8)	73.8 (16.4)	61.7 (21.3)	75.7 (18.5)

Authority and factors related to sense of agency

Wilks's Λ showed that there was a significant difference between the three different authority conditions on perceived coercion to obey, sense of control and sense of responsibility, $\Lambda = .023$, $F(3, 118) = 1670.51$, $p < .001$, $\eta_p^2 = .98$. Univariate tests were performed to examine the individual differences.

Perceived coercion to obey

Mauchly's test indicated that the assumption of sphericity has been violated, $\chi^2(2) = 19.31$, $p < .001$. Therefore, the degrees of freedom are Huynh-Feldt ($\epsilon = .88$) corrected. A repeated measures ANOVA determined that the perceived coercion to obey differed statistically significantly between at least two of the different authority conditions ($F(1.76, 211.54) = 55.4$, $p < .001$, $\eta_p^2 = .32$). Bonferroni-corrected post hoc comparisons showed that participants reported a significantly higher score on perceived coercion to obey in the high authority condition ($M = 67.3$, $SD = 14.5$) than in the moderate authority condition ($M = 62.2$, $SD = 14.5$), mean difference = 5.07, $p < .001$, and than in the low authority condition ($M = 55.5$, $SD = 17.1$), mean difference = 11.80, $p < .001$. The participants also scored significantly higher on perceived coercion to obey in the moderate authority condition than in the low authority condition, mean difference = 6.73, $p < .001$.

Sense of control

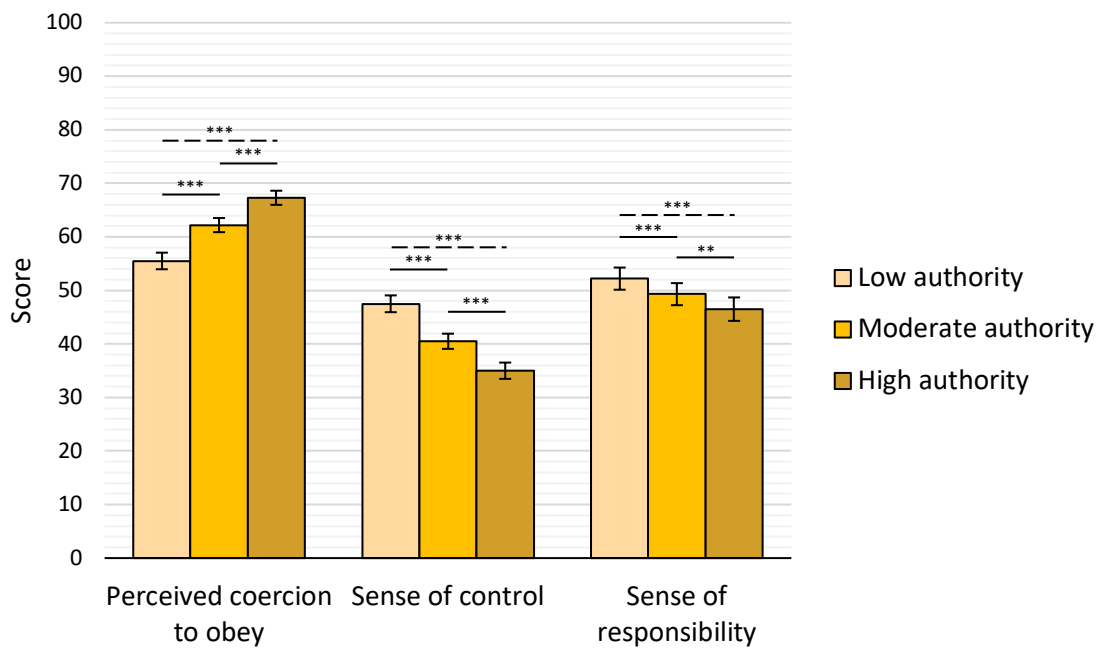
Mauchly's test indicated that the assumption of sphericity has been violated, $\chi^2(2) = 26.68, p < .001$. Therefore, the degrees of freedom are Huynh-Feldt ($\epsilon = .84$) corrected. A repeated measures ANOVA determined that reported sense of control differed statistically significantly between at least two of the different authority conditions ($F(1.69, 202.34) = 65.3, p < .001, \eta_p^2 = .35$). Bonferroni-corrected post hoc comparisons showed that participants reported a significantly lower score on sense of control in the high authority condition ($M = 35.0, SD = 16.7$) than in the moderate authority condition ($M = 40.5, SD = 15.6$), mean difference = $-5.47, p < .001$, and than in the low authority condition ($M = 47.5, SD = 17.3$), mean difference = $-12.53, p < .001$. The participants also scored significantly lower on sense of control in the moderate authority condition than in the low authority condition, mean difference = $-7.06, p < .001$.

Sense of responsibility

Mauchly's test indicated that the assumption of sphericity has been violated, $\chi^2(2) = 13.01, p = .001$. Therefore, the degrees of freedom are Huynh-Feldt ($\epsilon = .92$) corrected. A repeated measures ANOVA determined that reported sense of control differed statistically significantly between at least two of the different authority conditions ($F(1.84, 220.63) = 23.3, p < .001, \eta_p^2 = .16$). Bonferroni-corrected post hoc comparisons showed that participants reported a significantly lower score on sense of responsibility in the high authority condition ($M = 46.5, SD = 24.1$) than in the moderate authority condition ($M = 49.3, SD = 22.7$), mean difference = $-2.76, p = .002$, and than in the low authority condition ($M = 52.2, SD = 22.8$), mean difference = $-5.73, p < .001$. The participants also scored significantly lower on sense of responsibility in the moderate authority condition than in the low authority condition, mean difference = $-2.96, p < .001$.

Figure 5

Scores on Perceived Coercion to Obey, Sense of Control and Sense of Responsibility for the Authority Figure Conditions



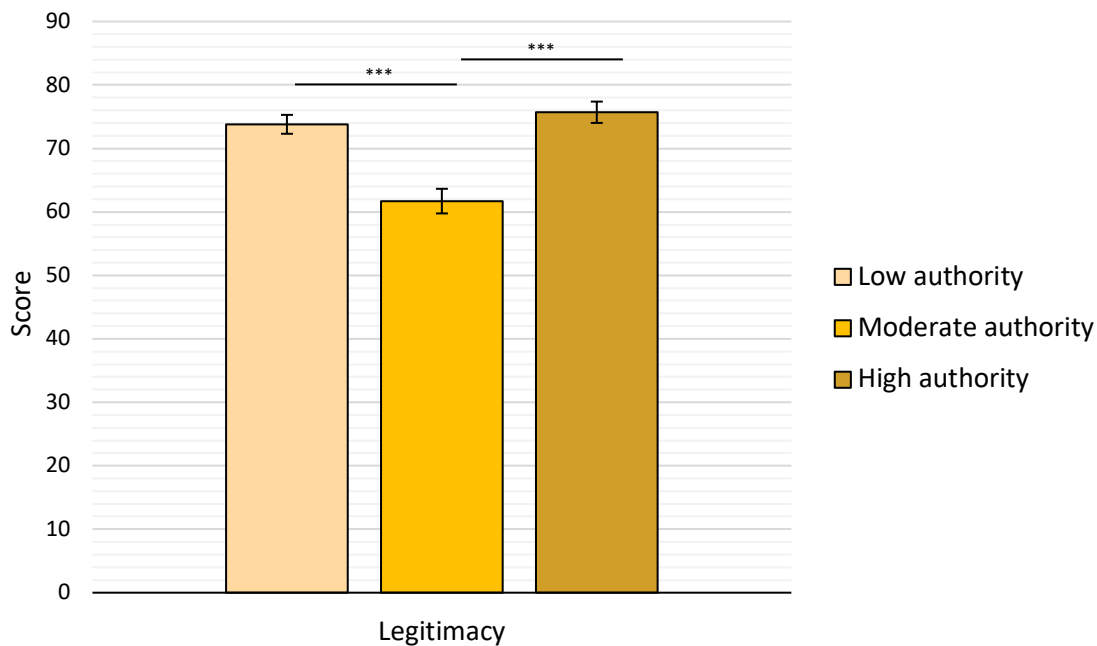
Note. Mean scores for perceived coercion to obey, sense of control and sense of responsibility are shown for the low authority, moderate authority, and high authority conditions (error bars represent standard error). ** $p < .01$, *** $p < .001$ (two-tailed).

Legitimacy

Mauchly’s test indicated that the assumption of sphericity has not been violated, $\chi^2(2) = 1.05, p = .592$. A repeated measures ANOVA determined that the reported legitimacy differed statistically significantly between at least two of the different authority conditions ($F(2, 240) = 33.9, p < .001, \eta_p^2 = .22$). Bonferroni-corrected post hoc comparisons showed that participants reported a significantly higher score on sense of responsibility for police officers ($M = 75.7, SD = 18.5$) than for enforcement officers ($M = 61.7, SD = 9.2$), mean difference = 13.97, $p < .001$, but not significantly higher than for the traffic controller ($M = 73.8, SD = 16.4$), mean difference = 1.91, $p = .930$. Participants also reported a significantly lower legitimacy score for enforcement officers than for traffic controllers, mean difference = -12.07, $p < .001$.

Figure 6

Scores on Reported Legitimacy for the Authority Conditions



Note. Mean scores for perceived legitimacy are shown for the low authority, moderate authority, and high authority figures (error bars show standard error). *** $p < .001$ (two-tailed).

Correlations between factors related to sense of agency and legitimacy

Table 3 shows the correlations between the variables. The results showed that the score on perceived coercion to obey was significantly negatively associated with the score on sense of control ($r = -.35, p < .001$). Participants who scored higher on perceived coercion to obey, scored lower on sense of control. The score on perceived coercion was significantly positively related to the mean score on legitimacy ($r = .22, p = .02$). The higher the participants scored on perceived coercion to obey, the higher they scored on legitimacy. Furthermore, the score on sense of control was significantly positively associated with the score on sense of responsibility ($r = .21, p = .02$). Participants who scored higher on sense of control, also scored higher on sense of responsibility.

Table 3*Correlation Matrix of the Dependent Variables*

	1.	2.	3.
1. Perceived coercion to obey			
2. Sense of control	-.35***		
3. Sense of responsibility	.092	.21*	
4. Legitimacy	.22*	.007	.067

Note. * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed).

Discussion

This study investigated the effect of authority on factors related to sense of agency, namely perceived coercion to obey, sense of control and sense of responsibility. In addition, the concept of legitimacy and how this concept is related to authority was investigated. Lastly the interrelationship of perceived coercion to obey, sense of control, sense of responsibility and legitimacy was examined.

The present study found that a higher authority level resulted in more coercion to obey, less sense of control and less sense of responsibility. A figure of higher authority was not necessarily perceived as being more legitimate. Finally, direct links were found between legitimacy and perceived coercion to obey, between perceived coercion to obey and sense of control and between sense of control and sense of responsibility.

In the following sections, these findings will be discussed in more detail and interpreted within the context of previous literature, limitations of the present study will be given, theoretical and practical implications will be given and directions for future research will be provided.

Authority and factors related to sense of agency

Perceived coercion to obey

First, it was hypothesized that a higher authority level was associated with a higher perceived coercion to obey to this authority figure. Results confirmed this hypothesis, as can be seen in Figure 5. The results of the experiment showed that participants reported the highest score on perceived coercion to obey in the high authority condition, this was significantly higher than the moderate authority condition, which in turn was significantly higher than in the low authority condition. Thus, the higher the authority level, the higher the perceived coercion to obey. This finding is in line with early theories on obedience by Milgram (1974) and Bickman (1974). Milgram found that an authority figure in a gray lab coat was obeyed by a higher percentage of participants than someone wearing civilian clothes. Bickman found similar results and concluded that authority figures that wear a uniform that is associated with security or trust had more coercive power, and more coercive power would mean more perceived coercion to obey. Van der Toorn et al. (2011) explain why figures of a higher authority level also induce more coercion to obey. Because these figures have the highest power within our society, their power is also seen as the most justified and is associated with high levels of trust and security. The results of this study are in line with these findings.

Sense of control

Second, it was hypothesized that a higher authority level was associated with a lower sense of control. Results confirmed this hypothesis, as can be seen in Figure 5. The experiment showed that participants reported their sense of control to be the lowest in the high authority condition. This was significantly lower than in the moderate condition. They reported the highest score of sense of control in the low authority condition. In line with the findings of Barlas et al. (2018) this study showed that participants that are forced into a choice report a low level of sense of control, as the sense of control was significantly lower than the middle of the scale in all conditions. In addition, the current study demonstrated that this effect is apparently strengthened when the person who gives the order is of higher authority level. This is most likely explained by the system justification theory that states that we justify the authority of those people who have the most power in the system we are part of (van der Toorn et al., 2011).

Sense of responsibility

Lastly, it was hypothesized that a higher authority level was associated with a lower sense of responsibility. Results confirmed this hypothesis, as can be seen in Figure 5. The results of the experiment showed that participants reported the lowest score on sense of responsibility in the high authority condition, this score was significantly lower than in the moderate authority condition. Participants reported the highest score of sense of responsibility in the low authority condition, this was significantly higher than the other two authority conditions. Thus, the higher the authority level, the lower the sense of responsibility. These findings are in line with studies on sense of agency, a concept that is closely related to sense of responsibility (Barlas, 2019; Caspar et al., 2016; Caspar et al., 2020).

Authority in relation to legitimacy

Next to the factors that are related to sense of agency, this study also investigated what role legitimacy plays within this framework. The first step was to see whether legitimacy differs across the different authority levels. It was hypothesized that a higher authority level is associated with a higher legitimacy score. This hypothesis was not fully supported by this study, as can be seen in Figure 6. Participants reported significantly higher legitimacy scores for the low and high authority levels than for the moderate authority level. The difference between the low and high authority levels was small and not statistically significant.

When reflecting upon these results in the context of theory and previous findings, there are two principles that could potentially explain the current findings. First, an explanation could be that the participants were of opinion that the uniform of the enforcement officer that represented the moderate authority level did not represent trust, respect, accountability, or reliability which are all important predictors of legitimacy (Grimmelikhuisen & Meijer, 2015; Hinds, 2008; Tyler, 1997). According to the system justification theory those who have the most power within our system are the most justified (van der Toorn et al., 2011). Enforcement officers have more power and should, according to the theory, have a higher legitimacy score than traffic controllers. This explanation is therefore deemed unlikely as it is in contrast with the literature.

The second explanation is considered to be more likely. According to the system justification theory we appraise more legitimacy to the people we are dependent upon (van der Toorn et al., 2011). This would mean that participants are of the opinion that they are more dependent on traffic controllers than on enforcement officers. On the one hand, this could be due to the context of the task, which represented a traffic situation. This could explain the high legitimacy score of the traffic controller and therefore relatively low legitimacy score of the enforcement officer. On the other hand, it could be due to the general reputation of enforcement officers. Within the Dutch society not everyone is very fond of enforcement officers. This can also be seen in some quotes that participants left in the comments: "Because of some personal experience with enforcement officers, I find them all incredibly useless." and "I find enforcement officers to be power-hungry losers who were not suited for the police academy and therefore almost always try to abuse their power." In my view the most compelling explanation for the present set of findings is a combination. The situation was more fitted for the traffic controller and therefore they had a higher legitimacy score and the moderate authority level, the enforcement officers, have a bad reputation within the participant population.

The interrelationship of legitimacy, perceived coercion to obey, sense of control and sense of responsibility

Finally, the interrelationship of legitimacy, perceived coercion to obey, sense of control and sense of responsibility was investigated. This was done to confirm that perceived coercion to obey, sense of control and sense of responsibility are indeed closely related to each other, as suggested in the literature study and to see if legitimacy was related to the concepts. First, it was hypothesized that there is positive relationship between legitimacy and

perceived coercion to obey. Results confirmed this hypothesis, as can be seen in Table 3. The experiment showed that the average score on legitimacy was positively significantly associated with a higher average score on perceived coercion to obey. This result is consistent with previous literature showing that trust in the police was associated with a higher felt obligation to obey the police (Hough et al., 2013). The unique contribution of the current study is that perceived coercion to obey was measured in an experiment instead of a questionnaire, which may be a stronger indicator for real-life situations (Hough et al., 2013).

Second, it was hypothesized that there is negative relationship between perceived coercion to obey and sense of control. Results confirmed this hypothesis, as can be seen in Table 3. The experiment showed that the average score on perceived coercion to obey was negatively associated with a lower average score on sense of control. The present results are consistent with Barlas' (2019) and Caspar et al.'s (2016) work that reported that the more one is forced or coerced into an action, the more their autonomy and freedom of choice is undermined.

Third, it was hypothesized that there is a positive relationship between sense of control and sense of responsibility. Results confirmed this hypothesis, as can be seen in Table 3. The experiment showed that the average score on sense of control was positively significantly associated with the average score on sense of responsibility. This confirms the results of Firth (2014) who found that the sense of control enables us to see ourselves as the cause of our actions.

Limitations

There are at least four potential limitations concerning the results of this study. A first limitation concerns that the present study made use of explicit measures in which participants express how much of certain feeling they experience over a decision and its outcome. These kinds of measurements depend on asking participants directly about their experiences, a method that is prone for error and noise. For example, a participant may not correctly recall whether they experienced a certain degree of control or responsibility over their past decision. This risk was reduced by asking questions directly after the interaction. The way of measuring that was used in the present study reflects judgements about feelings rather than actual feelings. It therefore does not cover the discrepancy between the judgements of feelings and actual feelings (Moore et al., 2012). This does not mean that the results are less valuable, but rather that the intrinsic experience was not directly measured which can bring along risks. A similar study to the present study that makes use of intentional binding

measures can show if there is indeed a discrepancy between judgements of feelings and actual feelings.

A second potential limitation was that the experiment did not sufficiently resemble a situation that might occur in the real world. First, during the experiment there was no option to disobey to the authority figure. In real life you can choose to not follow up on the order that you are given, with the consequences that brings. Having the option to disobey may influence perceived coercion to obey, sense of control and sense of responsibility in our study. Second, in real life there is the option to interact with the authority figure. This way it can become clear why another direction must be taken or for how long this detour will last. The reasoning behind the detour may influence the dependent variables. Taking the detour because of an emergency or because of a road construction may make a difference. During the experiment no reason was given why the participant was forced into a direction. In real life visual cues or an interaction with the authority figure would give you this information.

The third limitation concerns the particular scenario that is used in the experiment. As described above, the context of the situation may have an influence on perceived coercion to obey, sense of control and sense of responsibility. Different situations may lead to different results. For example, people may feel more perceived coercion to obey in situations that are more relevant to the authority figure. We generally listen to traffic controllers when they tell us where to park or which way to go as that is a relevant situation, but results may change when a traffic controller asks us to pick up a paper bag as this is not a relevant situation. In this study a traffic situation was used. Participants may be biased by this situation as this is generally a situation that involves traffic controllers. By using different scenarios that are not directly related to any of the authority figures, like picking up a paper bag or giving a dime to a stranger. This would eliminate the bias of the situation.

The fourth limitation concerns the outcome of the forced behavior. The design made a discrepancy between a beneficial and a disadvantageous outcome. In the beneficial outcome the participant only had to wait three seconds to arrive at the store, in the disadvantageous outcome this was ten seconds. It is unknown whether the participants experienced a significant difference between the two outcomes and due to the design of the analysis the present study did not control for these different outcomes.

Theoretical and practical implications

Despite these limitations, these results suggest several valuable theoretical and practical implications. The results on the effect of authority on perceived coercion to obey,

sense of control and sense of responsibility is highly relevant on an academic level as well as a societal basis. They show that next to the differences on free versus forced choice in previous research, the authority level of an authority figure providing instructions is of great importance, and they show that higher levels of authority lead to more perceived coercion to obey, sense of control and sense of responsibility. All these factors are closely related to sense of agency. The present study is the first study to show that the authority level of the person who gives the orders has a direct influence on the outcomes of the aforementioned variables. In practice, these findings show that not only the authority figures themselves may behave differently, as addressed by Pech and Caspar (2021), but also that wearing a uniform has an effect on the intrinsic experience of the person they are interacting with. Awareness of this fact may help law enforcement officer to approach situations in a right manner.

No direct relation between authority level and legitimacy was found. This result indicates that the authority level of the authority figure may be a more important predictor for perceived coercion to obey, sense of control and sense of responsibility than the legitimacy of the authority figure. Although the direct effect of legitimacy has not been tested due to the design of the study, the results show that even though the legitimacy of traffic controllers is lower than for enforcement officers, participants still score lower on perceived coercion to obey, higher on sense of control and sense of responsibility when confronted with a traffic controller than with an enforcement officer. This indicates that within a law enforcement perspective in the Netherlands it is more important to look at the authority level than at perceived legitimacy, these findings have to be taken with caution as this is the first study to examine this relationship.

The fact that the result shows that enforcement officers are seen as less legitimate than traffic controllers while being of higher authority level and having more power in society also has practical implications. These results indicate that the legitimacy of enforcement officers is something to be examined further in future studies, either academic or in a public setting. Police in North Zealand have improved their legitimacy by focusing on crime prevention instead of law enforcement and thereby increased their perceived legitimacy, which is explained to be a partial factor in the reduction of crime (Calam & Dillon, 2018). Enforcement officers in the Netherlands would be an ideal case study to see whether increased legitimacy has an effect on the intrinsic experiences of civilians or other beneficial outcomes such as a reduction in small crime. The methods on how to achieve a higher legitimacy are beyond the scope of the present study but could provide useful information for enforcement officers.

Directions for future research

In terms of future research, it would be useful to extend the current findings by examining additional measurements, conditions, and stimuli. First, it would be interesting to measure the sense of agency through intentional binding. This is an implicit method to measure sense of agency by asking participants about the experienced time interval between their action and the consequence (Moore & Obhi, 2012). Actions that feel voluntary lead to participants estimating that the time interval is shorter than it really was. In contrast, when the action feels like it's forced this effect is opposite (Caspar et al., 2016). By using intentional binding as a measurement, the intrinsic experience of sense of agency is directly measured. This method also reduces judgement errors as it does not rely on the judgement of the participant to indicate to what extent someone felt in control over their own actions and consequences. Also, we can see whether there is indeed a discrepancy between the judgement of feelings and actual feelings, like Moore et al. states (2012).

Second, future research should include a free to disobey condition next to a forced choice condition. This is not the same as free choice condition, in which participants are not told what to do. In this new condition participants still interact with an authority figure that gives them a command, but the participant has the option to disobey this command. With the addition of this condition two new hypotheses can be tested. First, to see if the dependent variables perceived coercion to obey, sense of control and sense of responsibility are significantly different between the forced and the free to disobey condition. This better represents real life interaction with enforcement officers. If the experiment is designed in this way, it can be examined if different authority figures are disobeyed more than others and in what way disobedience is related to perceived coercion to obey, sense of control and sense of responsibility.

Third, future research could choose different authority figures that don't necessarily have more authority or power and that are independent of cultures. First, this could help to further investigate the relationship legitimacy has with the dependent variables. Second, by choosing authority figures that are independent of cultures, like doctor or lawyer, it can be tested if there are cultural differences in the factors related to sense of agency.

Closing statement

In summary, the present study has found several interesting findings that provide a starting point for future research on authority, perceived coercion to obey, sense of control, sense of responsibility and sense of agency. Despite its limitations this study has enhanced

our understanding of the relationship between authority, legitimacy and the factors related to sense of agency. I hope that the current research will stimulate further investigation of this important area.

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