"Privacy or Security?": A Meta-Analysis Exploring Determinants of Attitudes towards Surveillance

Context: State of the Art, Research Problem and Aim of the Study

The field of surveillance research has been actively developing since the beginning of the 21st century[1]. At the same time, the theoretical and empirical corpus of this field still lacks consensus on what social and political factors have the greatest impact on the attitude of citizens to the surveillance practices. At the level of scientometric indicators, researchers are paying increasing attention to the phenomenon of surveillance. They identify a number of potential predictors of attitude to surveillance, including institutional trust, conformism, right-wing authoritarianism, support of a strong state[2]. They do not ignore another group of factors, which include levels of digital literacy, privacy protection behavior, privacy cynism, and, more generally, privacy concerns[3].

However, the determinants of attitudes towards surveillance have not been systematically analyzed due to the multifaceted nature of the concept. Existing meta-analyses focus only on self-disclosure and privacy protection behavior[4]; some papers focus on the effectiveness of CCTV in reducing crime[5]. We state that there is a lack of works devoted to meta-analysis of factors determining lay attitudes towards surveillance. Thus, the **aim of the study** is to identify the factors determining attitudes towards surveillance; after that, to identify the moderators of the relationship between the identified factors and attitudes towards surveillance using the meta-analysis procedure.

The **main hypothesis** of the study is formulated as follows: the stronger the privacy concerns, the worse the attitude towards surveillance; at the same time, the stronger the perceived threats (security concerns), the better the attitude towards surveillance.

---

[1] For more on the concept of surveillance and the history of the development of this subject area, *see* Lyon, D. (2022). Surveillance. *Internet Policy Review*, 11(4), 1-18; Galič, M., Timan, T., & Koops, B. J. (2017). Bentham, Deleuze and beyond: An overview of surveillance theories from the panopticon to participation. *Philosophy & Technology*, 30, 9-37.

[2] *See* Kalmus, V., Bolin, G., & Figueiras, R. (2024). Who is afraid of dataveillance? Attitudes toward online surveillance in a cross-cultural and generational perspective. *new media & society*, *26*(9), 5291-5313; Nam, T. (2019). What determines the acceptance of government surveillance? Examining the influence of information privacy correlates. *The Social Science Journal*, *56*(4), 530-544.

[3] *See* Ioannou, A., & Tussyadiah, I. (2021). Privacy and surveillance attitudes during health crises: Acceptance of surveillance and privacy protection behaviours. *Technology in Society*, *67*, 101774; Thompson, N., McGill, T., Bunn, A., & Alexander, R. (2020). Cultural factors and the role of privacy concerns in acceptance of government surveillance. *Journal of the Association for Information Science and Technology*, *71*(9), 1129-1142; Lutz, C., Hoffmann, C. P., & Ranzini, G. (2020). Data capitalism and the user: An exploration of privacy cynicism in Germany. *New media & society*, *22*(7), 1168-1187.

[4] *See* Baruh, L., Secinti, E., & Cemalcilar, Z. (2017). Online privacy concerns and privacy management: A meta-analytical review. *Journal of Communication*, *67*(1), 26-53; Maseeh, H. I., Jebarajakirthy, C., Pentecost, R., Arli, D., Weaven, S., & Ashaduzzaman, M. (2021). Privacy concerns in e-commerce: A multilevel meta-analysis. *Psychology & Marketing*, *38*(10), 1779-1798.

[5] *See* Piza, E. L., Welsh, B. C., Farrington, D. P., & Thomas, A. L. (2019). CCTV surveillance for crime prevention: A 40-year systematic review with meta-analysis. *Criminology & public policy*, *18*(1), 135-159.

Empirical Base for Meta-Analysis

We used Web of Science as the main tool for searching for articles. We selected publications in Russian and English that belonged to the WoS Research Area – "Social Sciences". We downloaded 10,770 articles meeting the specified search conditions (*see below*).

```
TS = ((surveillance OR dataveillance)
AND (accept* OR attitude* OR support* OR approv* OR tolerance OR consent*))
```

After keyword analysis and affiliation with more specialized areas within the social sciences, 7,801 articles were excluded. Among the remaining 2,969 articles, there were still articles that were not relevant to tacit surveillance research in the context of interest. We were faced with the task of selecting only those articles that would be suitable for further meta-analysis thematically. The selection of articles for meta-analysis was done in *four steps* (*see* Figure 1).

In the first stage, a random forest model was built to classify 2,969 articles: the training sample included 15% of observations and the validation sample included 5%. The classification model included k-fold cross-validation and hyperparameter tuning. Using the final model (accuracy = 0.87, f1 = 0.91, auc = 0.68), 934 articles were selected.

In a second step, articles were evaluated by coders on three criteria: (1) fit with the topic area; (2) presentation of the results of quantitative analysis of survey data; and (3) attitudes toward observation were presented as the dependent variable. The average percentage of agreement of the coders to which the articles were randomly assigned is 89.67%. At this stage, 117 papers were identified that met all three criteria. Another 34 articles that were not indexed in the WoS database but met the criteria joined these.

At the third stage 151 articles were analyzed in detail. As a result, it was obtained that the most investigated potential predictors of attitudes towards surveillance were a set of political and social characteristics (*see* Table 1).

Table 1. Predictors of attitudes toward surveillance: frequency of occurrence in studies.

Predictor (independent variable)	**n papers (out of 151)**
Trust (intuitional, social, political etc.)	43 (28.48%)
Privacy concerns	*38 (25.17%)*
Perceived threats	*30 (19.87%)*
Political views / political orientation	24 (15.89%)
Support of government	18 (11.92%)
…	…
Perceived security	*8 (5.30%)*

At the fourth stage, we added additional research materials to the database that met all the necessary conditions but had not been selected earlier. These materials included unpublished reports, student papers, dissertations, and preprints.

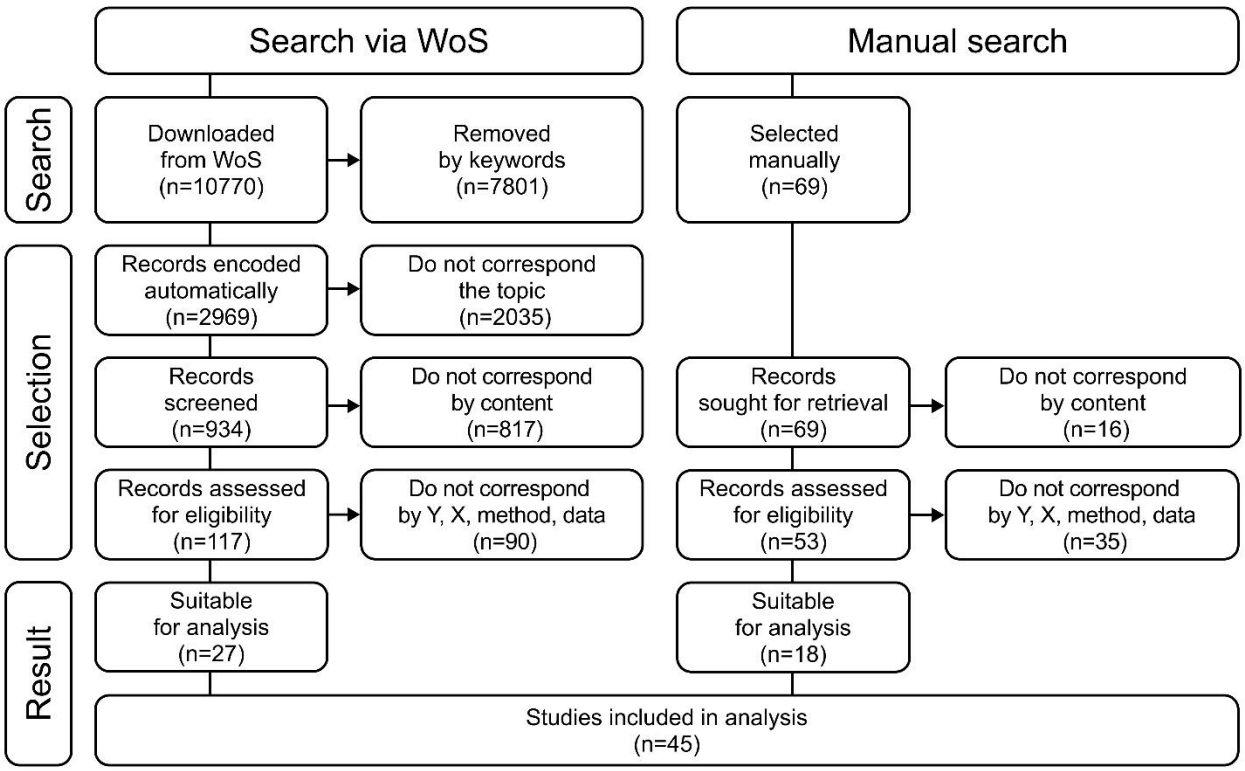

Figure 1. PRISMA diagram for the meta-analysis materials.

Results of Meta-Analysis

The meta-analysis included 149 effect sizes from 45 studies. All extracted effect sizes are presented separately (*see* Figure 2).

The heterogeneity parameters in the fixed effects model argue in favor of the need to address the random effects model. In turn, the random effects model (es = 0.0526, t = 2.18, $p < .05$) does not preclude the investigation of more complex mixed effects models.

A mixed-effects model with subgroup analysis by predictor type indicated the presence of statistically significant effects (Q = 86.15, $p < .001$): privacy concerns reduced support for surveillance (es = -0.1376 [-0.1896; -0.0849], $p < .001$), while perceived threats increased it (es = 0.2139 [0.1612; 0.2654], $p < .001$). Examining confidence intervals of group mean effect sizes, we are cautious to note that the strength of the association of surveillance support with perceived threats is higher than with privacy concerns. The findings argue in favor of testing the robustness of the differences found when including other variables in the meta-regression.

A meta-regression with the inclusion of effect size moderators was constructed on the data (*see* Table 2). We find the overall quality of the model in terms of explained heterogeneity of effects to be satisfactory with $R^2 = 0.4782$. We note that predictor type, the first independent variable in the model after the constant, remains the only consistently statistically significant at $p < .0001$. The direction of the relationship remains unchanged, providing no reason to reject our hypothesis.

Table 2. Coefficients of the meta-regression model.

Coefficient	B	se	T
Intercept	-0.0942	0.1238	-0.7605
IV Type: Perceived threats (ref. 'Privacy concerns')	0.3570***	0.0378	9.4414
Agent of Surveillance: Private companies (ref. 'Government')	0.0923	0.0956	0.9655
Surveillance Data (ref. 'All data')			
Surveillance Data: Internet	-0.0157	0.0471	-0.3339
Surveillance Data: Physical	-0.0646	0.0494	-1.3083
Sampling Type (ref. 'Convenience sample')			
Sampling Type: Quota	0.1315*	0.0590	2.2264
Sampling Type: Representative	-0.0149	0.0734	-0.2031
External Indicators			
Homicides on 100 000 population (Our World in Data)	-0.0348**	0.0118	-2.9418
Democracy Index (V-Dem, 2024)	-2.7867**	0.8498	-3.2793
Political Regime (V-Dem, 2024)	0.5801**	0.1816	3.1942
Human Rights Compliance (V-Dem, 2024)	0.6793	0.3998	1.6992

We additionally note that statistically-significant differences are observed in terms of:

(a) *sampling type* – effect sizes are higher in quota samples compared to convenience samples; (b) *homicide rate* – as the homicide rate per 100,000 population increases, the effect size decreases; (c) *democracy index* – as the democracy index increases, the effect size decreases; and (d) *political regime* – as the political regime is liberalized, the effect size increases.

The results of the study show that privacy concerns are negatively related to support for surveillance, while perceived threats are the opposite. It is cautiously observed that the former relationship is weaker than the latter. Moreover, it is shown that these relationships are also moderated by external predictors describing the countries in which the research was conducted: crime rate, democracy index and type of political regime.

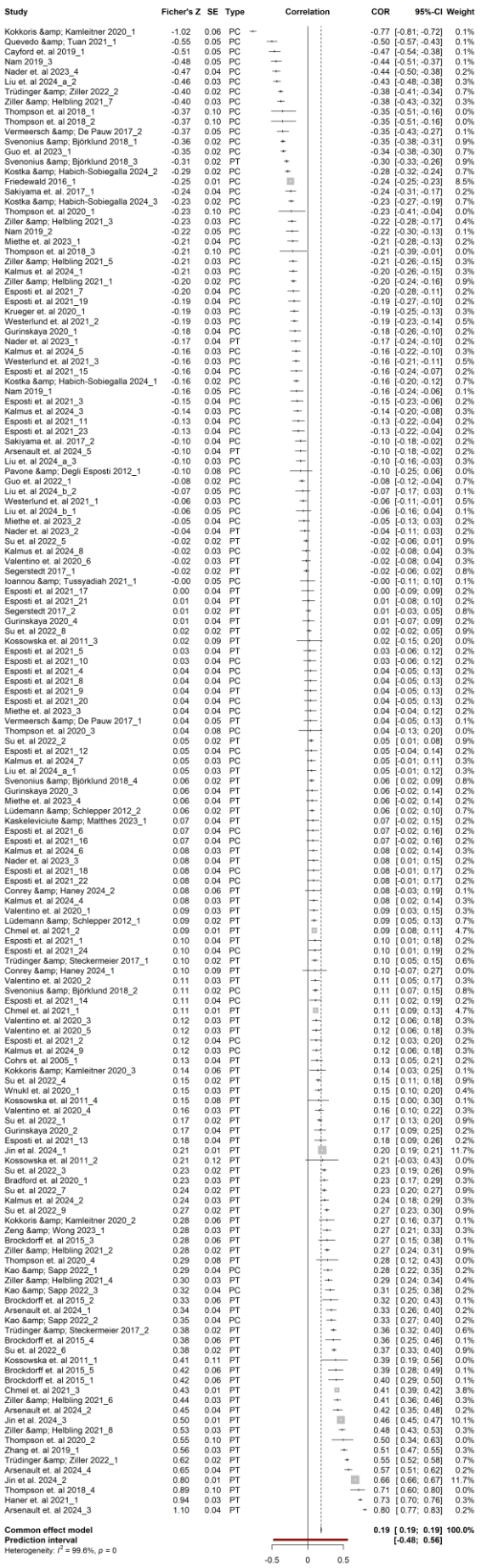

Figure 2. Forest diagram for the detected effect sizes.