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Snapshot

Correlates of Beliefs in Misinformation

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Correlates of Beliefs in Misinformation

Nathanael Gratias Sumaktoyo[1]

This chapter examines correlates of beliefs in misinformation. What factors predict an individual's likelihood to believe misinformation? Furthermore, are there differences between factors that predict election-related misinformation and general misinformation?

In answering this question, I examine three categories of variables that existing works have argued are important in shaping beliefs in misinformation or conspiracy theories in general (Abalakina-Paap et al. 1999; Badrinathan 2021; Berinsky 2017; Douglas et al. 2019): demographic variables, level of political knowledge, conspiracy mentality, and level of education in the social network.

This chapter is structured as follows. First, I outline how the dependent variables, beliefs in misinformation, are measured. Second, in several sections I present statistical models where I sequentially predict the dependent variables with demographic predictors, level of political knowledge, conspiracy mentality, and level of education in social network. I also describe the theoretical rationales for examining these variables. Third, I provide a brief discussion on the results' implications for our understanding of misinformation and how to best counter them.

Dependent Variables: Electoral and General Misinformation

In operationalizing susceptibility in misinformation, I simply define the concept as a likelihood of believing in false information about politics or other relevant issues. I am agnostic in regards to whether this false information is part of a broader disinformation campaign or simply an individual's misperception of a political phenomenon.

Given that the 2024 national elections are in the horizon, I differentiate false information into two categories: one concerning the elections and one concerning general social and political issues. Each of these types of misinformation was measured with seven questions. The fourteen questions used to capture levels of belief in electoral and general misinformation are presented in Table 1.

Figures 1 and 2 present some descriptive statistics from these questions. Figure 1 presents the percentage of respondents who believed each of the false information. Figure 2 presents the percentage of respondents by the number of false information that they believed. I operationalize *susceptibility in electoral misinformation* as believing at least one false information about the elections and *susceptibility in general misinformation* as believing at least one false information about general social and political issues. On each of these variables, a value of 0 thus represents not believing any of the false information and a value of 1 represents at least one false information. Overall, the majority of respondents believe none of the false information, which is encouraging.

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Table 1. Questions Used to Measure Beliefs in Misinformation

Electoral Misinformation	General Misinformation
1. Ballots are already marked and the winners of the election are already pre-decided. 2. There is a deliberate attempt to bring in Chinese workers to support a certain candidate. 3. There is an attempt to produce fake KTPs (id cards) to boost support for a particular candidate or party. 4. Members of the electoral commission are pre-screened to include mainly people who support a certain candidate or party. 5. The number of voters has been inflated to advantage a certain candidate or party. 6. There will attempts to steal votes to benefit a certain candidate or party. 7. The 2024 will be delayed because the government doesn't have sufficient funds.	1. There is a chip planted in the COVID-19 vaccine that can track movements of the vaccinated individual. 2. COVID-19 is a weapon of mass destruction. 3. The Minister of Religious Affairs changed the *halal* logo from what was previously an Arabic letter into a Javanese shadow puppet (*wayang*). 4. The passing of the Law on the Elimination of Sexual Violence was intended to legalize free sex. 5. There are attempts to revitalize the Indonesian Communist Party. 6. The earth is actually flat, not spherical as taught in school. 7. Vladimir Putin has converted to Islam.

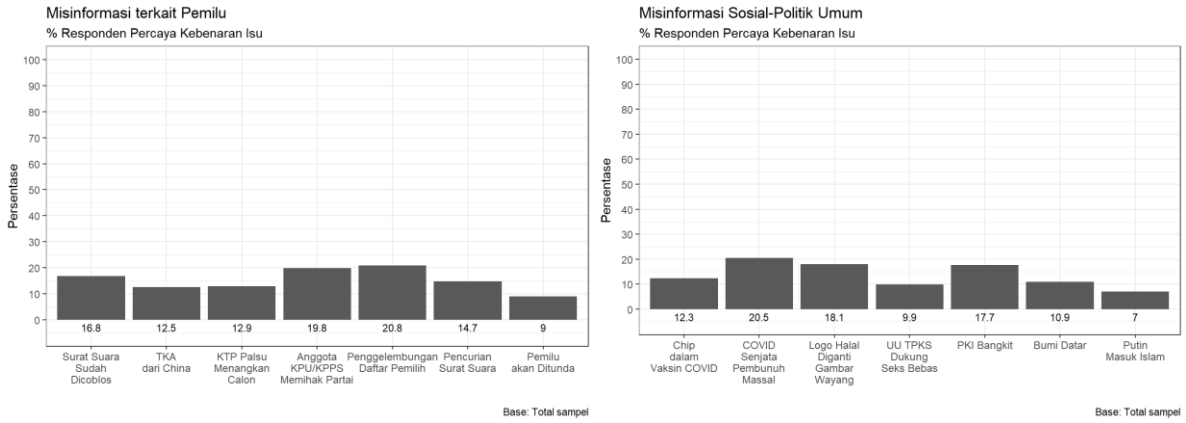

Figure 1. Percentage of Respondents Who Believe Each of the False Information

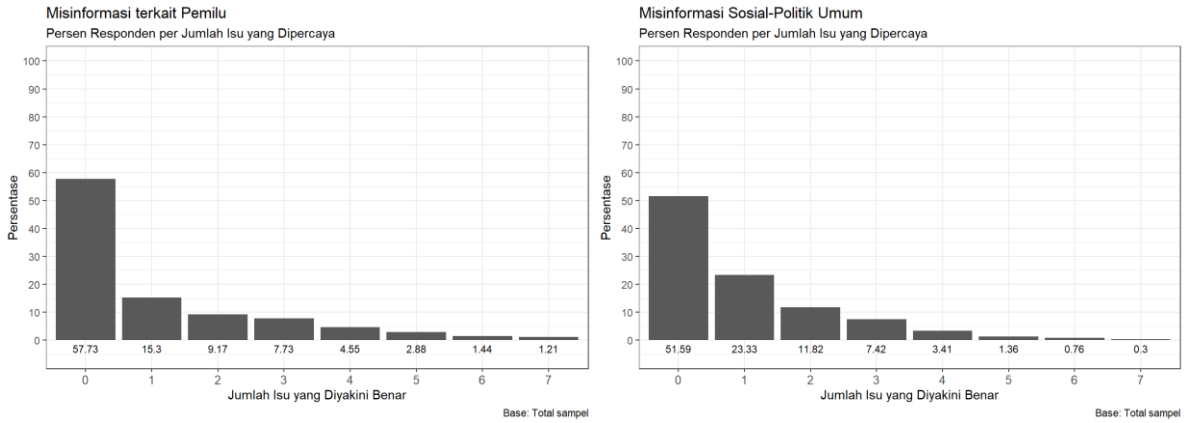

Figure 2. Percentage of Respondents by the Number of False Information Believed

Demographic Correlates of Beliefs in Misinformation

A natural starting point to understanding factors that predict beliefs in misinformation is an examination of demographic correlates. Are males more or less likely to believe misinformation than females? What is the relationship between age and beliefs in misinformation? Insights into these questions is essential to understanding which segments of the society may be particularly vulnerable to misinformation and, thus, to any policymaking efforts to counter misinformation.

I focus on six demographic characteristics: sex, age, level of education, urban/rural living, Java island residence, and monthly household expense. Given men tend to be more politically involved, it is possible that they are more exposed to political (mis)information and thus are more likely to believe false information than women. The same logic may also apply to age. By being less active on social media or less exposed to political discourse, older people may actually be less likely to believe misinformation.

The inclusion of education allows us to test the hypothesis of education as a "universal solvent" that contributes to democratic attitudes, in this case a lower likelihood to believe misinformation (Converse 1972). Here, education is captured on a 6-point scale of no schooling (1), primary school (2), junior high school (3), senior high school (4), college or diploma (5), and post-graduate education (6).

Residence in an urban setting, living in the Java island, and household monthly expenses actually invite contrasting predictions. On the one hand, these variables may represent higher socioeconomic status, which theoretically should correlate with better abilities to recognize false information. On the other hand, these variables also represent higher likelihood to be exposed to politically relevant information, whether true or false, and thus may be positively correlated with beliefs in misinformation.

Figure 3 presents logistic regression models that regress electoral and general misinformation on the aforementioned demographic characteristics. Regression coefficients of each of the predictors are presented as circles. The figure also presents the 95% confidence interval for each of the coefficients. If the confidence interval of a predictor overlaps with the red line (that is set at zero), it means that the predictor does not significantly predict beliefs in misinformation at alpha = .05.

Two general patterns are evident. First, age is the only predictor that is significantly related to beliefs in misinformation. It is negatively related to both electoral and general misinformation. Older people, in general, are less likely to believe any of the false information presented, whether related to the elections or to general social and political issues.

Second, the other variables tend to have consistent relationships with both measures of misinformation although they may not significantly predict both. Women are less likely to believe false information. The relationship, however, is only significant for electoral misinformation. Living in an urban area or in the Java island are both positively related to beliefs in misinformation although only significantly so when it comes to general misinformation. Similarly, household monthly expenses is positively related to beliefs in misinformation but is only statistically significant when it comes to predicting electoral misinformation. The only exception to this pattern is education. Education is significantly related to neither electoral misinformation nor general misinformation.

Overall, these results highlight the importance of exposures to social and political information, whether true or false, as a major factor that shapes beliefs in misinformation. All the demographic characteristics that are positively related to beliefs in misinformation are ones that also theoretically correlate with higher information exposure (urban living, residing in the Java island, and higher household expenditures). Conversely, variables that negatively correlate with beliefs in misinformation are ones that are likely

associated with lower information exposure (being female and being older).

This examination of demographic correlates of beliefs in misinformation looks into the influence of some of the most basic predictors of the construct. One can build on this basic, foundational analysis by examining the influence of other factors. What factors predict beliefs in misinformation above and beyond the effects of demographic characteristics? To this end, I examine the influence of three factors: political knowledge, a psychological predisposition called conspiracy mentality, and level of education of one's social circle.

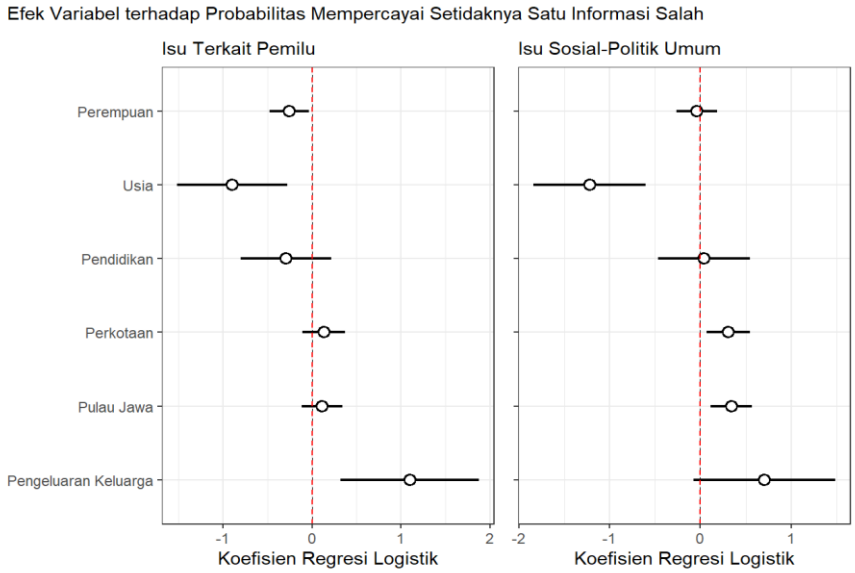

Figure 3. Logistic Regression Models of Beliefs in Misinformation on Demographic Characteristics

The Roles of Political Knowledge

Social scientists have long placed a premium on political knowledge, studying it extensively and also highlighting its benefits for the quality of democracy (Carpini and Keeter 1997; Lupia 2016). Higher levels of political knowledge equip people to better understand and appreciate how the political system works, in effect enabling them to be "better" citizens. They may be critical, but not necessarily skeptical about the political processes.

In the same vein, political knowledge may also be related to beliefs in misinformation. People with higher political knowledge can be expected to have higher capacities and resources to separate false from true information. They should be less likely to believe misinformation, whether about elections or about general social and political issues.

I measure political knowledge with seven questions that tap into factual knowledge about political affairs. These questions asked respondents their knowledge about: (1) the name of the institution that is responsible for conducting judicial reviews of a legislative product, (2) how many times the constitution has been amended, (3) the structure of the People's Consultative Assembly (MPR), (4) the name of the vice president, (5) the party of the president, (6) the date of the upcoming election, and (7) the length of a presidential term. Each of these questions was presented as a multiple-choice question with five possible answers. The relatively high number of possible choices ensures that the probability of a random answer being correct was low (20%).

Political knowledge is then operationalized as the total number of questions that the respondent correctly answered. Figure 4 presents the percentage of respondents who correctly answered each question and also the percentage of respondents by the number of correctly answered questions. The figure suggests that respondents had relatively good knowledge about current political affairs, namely the name of the vice president, the origin party of the president, and also the length of a presidential term. Yet, they knew less about constitutional affairs, such as abut which institution is tasked with conducting judicial reviews of legislative products or about the number of constitutional amendments.

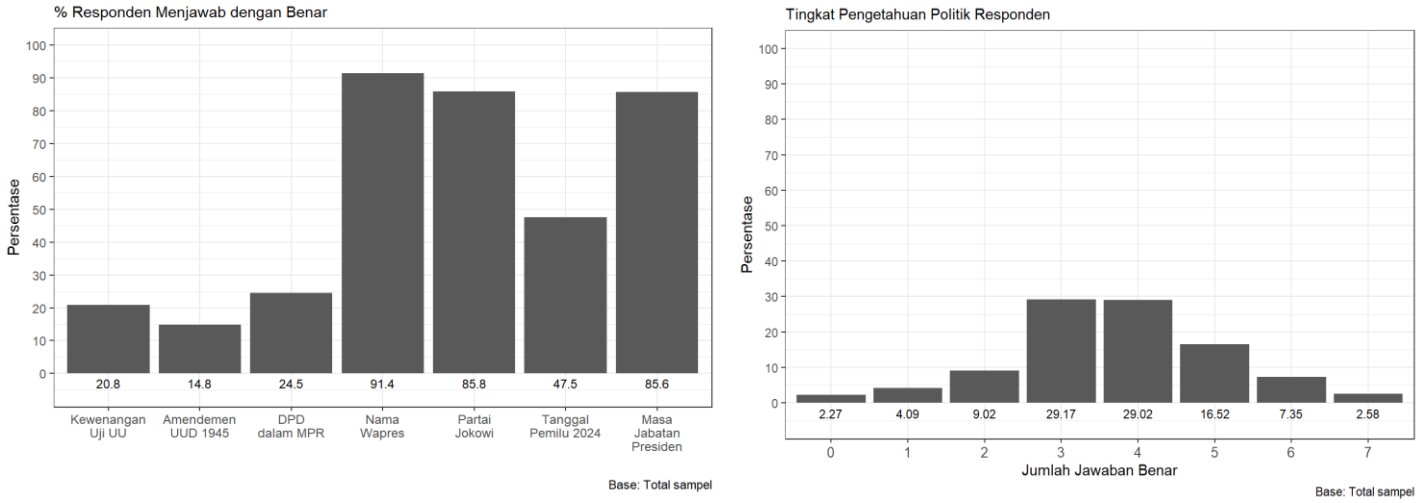

Figure 4. Level of Political Knowledge in the Sample

To understand the effect of political knowledge on beliefs in misinformation, I simply regress the two beliefs in misinformation variables on the level of political knowledge, controlling for the same set of demographic characteristics analyzed in the previous section. Figure 5 presents results from these logistic regression models. We observe that political knowledge is significantly and positively related to beliefs in general misinformation. The more knowledgeable an individual is about political affairs, the more likely they are to actually believe at least one of the false information presented in the study. To the contrary, political knowledge is weakly and negatively related to believing in electoral misinformation. This relationship, however, is not statistically significant.

This pattern does not conform to our expectation regarding the roles of political knowledge., What we know about political knowledge suggests that it should be negatively related to susceptibility in misinformation. Yet, here we observe that it is either positively related to beliefs in misinformation or unrelated to it at all. There is not a ready explanation for this and future research should aim to probe these findings further. However, what it suggests is that, at least in the Indonesian context, how much one knows about politics might not be a good predictor of one's immunity or susceptibility to misinformation.

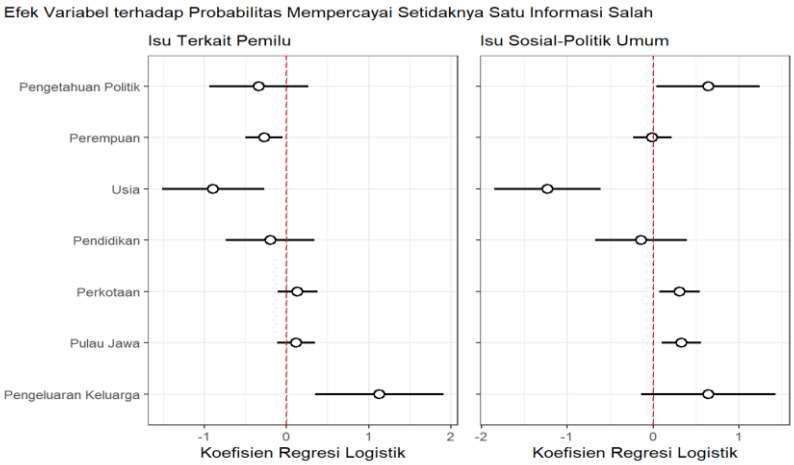

Figure 5. Logistic Regression Models of Beliefs in Misinformation on Political Knowledge

The Roles of Conspiracy Mentality

The second potentially significant predictor of beliefs in misinformation is what psychologists call conspiracy mentality (Imhoff et al. 2022; Imhoff, Bertlich, and Frenken 2022). The construct captures a general psychological tendency to endorse conspiracy theories and thus is unrelated to specific conspiracy beliefs. It taps more into the psychological dimension of misinformation, which is different from the more cognitive dimension captured by political knowledge. By examining conspiracy mentality I thus hope to establish a link between psychological predispositions and susceptibility to misinformation in the Indonesian context and with a sample representative of the general population.

The conspiracy mentality was measured with five questions adapted from Bruder et al. (2013), presented in Table 2. On each of these items, respondents could indicate the extent to which they disagreed or agreed with the item on a 4-point scale ranging from strongly disagree to strongly agree. I then operationalize conspiracy mentality as a simple average across the five items with higher scores represent stronger conspiracy mentality.

Table 2. Conspiracy Mentality Questions

No	Question
1	I think that many very important things happen in the world, which the public is never informed about.
2	I think that politicians usually do not tell us the true motives for their decisions.
3	I think that government agencies closely monitor their citizens.
4	I think that events which superficially seem to lack a connection are often the result of secret activities.
5	I think that there are secret organizations that greatly influence political decisions.

I utilize the same regression framework as in the preceding sections to examine how conspiracy mentality relates to beliefs in electoral and general misinformation. Results from these logistic regression models are presented as Figure 6. It is clear from the figure that conspiracy mentality is significant and positively related to both measures of information. The more psychologically predisposed an individual to endorse conspiracy theories is, the higher their susceptibility to electoral and general misinformation.

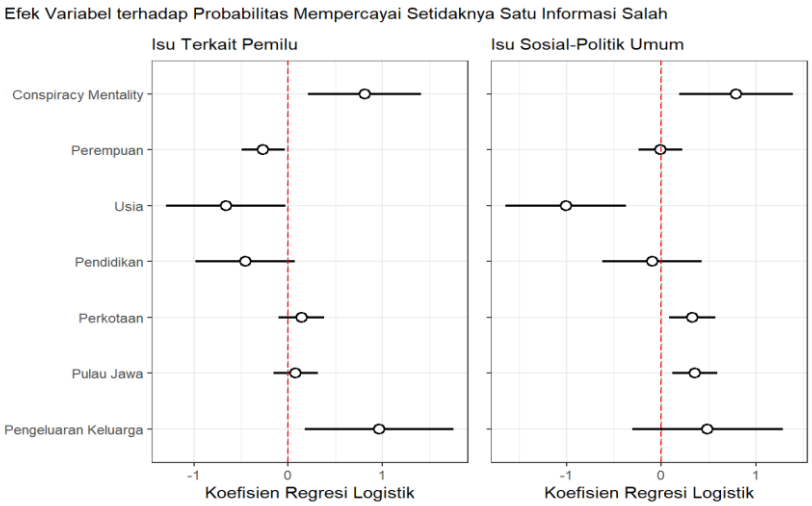

Figure 6. Logistic Regression Models of Beliefs in Misinformation on Conspiracy Mentality

To further illustrate these effects of conspiracy mentality, I plot these effects as predicted probabilities in Figure 7. When the value of conspiracy mentality is at its minimum (1), holding other variables at their means, the average person would have 34% probability to believe one of the false information about the 2024 elections. When the value of conspiracy mentality is at its maximum (4), on the other hand, the average person would have 54% probability to believe one of the false information. This is an increase of 20 percentage points and is substantively and significantly significant. The magnitude of the effect of conspiracy mentality on susceptibility to general misinformation is similarly large, with the lowest score of conspiracy mentality corresponds to 40% probability of believing at least one of the false information on general sociopolitical issues and the highest score corresponds to 59% probability.

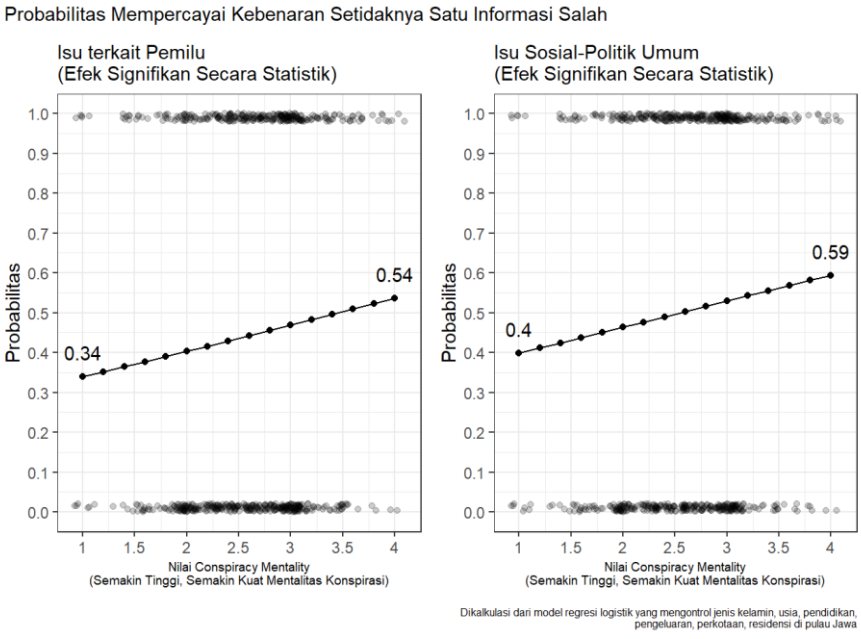

Figure 7. Predicted Probabilities of the Effects of Conspiracy Mentality

The Roles of Social Networks

While the first predictor (political knowledge) approaches the topic of misinformation from a cognitive perspective and the second predictor (conspiracy mentality) approaches it from a psychological perspective, the third predictor approaches the topic from a sociological perspective.

No humans are an island. The psychologist Kurt Lewin has long posited that behavior is a function of predispositions and the environment (Lewin 1936). Recent studies also have highlighted how social networks shape political behavior and attitudes (Ben-Nun Bloom and Bagno-Moldavsky 2015; D. E. Campbell 2013; Sumaktoyo 2021a, 2021b). It is thus important to also understand how one's social network shapes one's susceptibility to misinformation.

To this purpose, the survey employed a name generator approach (Klofstad, McClurg, and Rolfe 2009). Respondents were first asked to list the names of four people with whom they talked about important matters at least twice in the last 12 months. Then, for each of the mentioned discussants, respondents were asked to provide information about the discussant, such as their religion, their level of education, or how different the respondent's view on sociopolitical and religious affairs is from that of the discussant.

I am particularly interested in the discussants' levels of education. Arguably, having discussants who are more highly educated should help individuals to more effectively recognize false information. As in the operationalization of respondents' levels of education, discussants' levels of education are also represented by a 6-point scale ranging from no schooling (1) to post-graduate degree (6). For each respondent, I simply averaged the level of education of their four discussants to calculate the respondent's network's level of education.

Figure 8 presents results from logistic regression models that regress the two measures of misinformation on social circle's level of education, controlling for a set of demographic characteristics similar to the preceding sections. While there is a theoretical basis to expect social circle's level of education to negatively predict beliefs in misinformation, the empirical evidence does not seem to support this prediction. There are no statistically significant relationships between social circle's level of education and electoral misinformation or general misinformation. It does not seem to matter much whether one discusses important issues with discussants who have high or low levels of education.

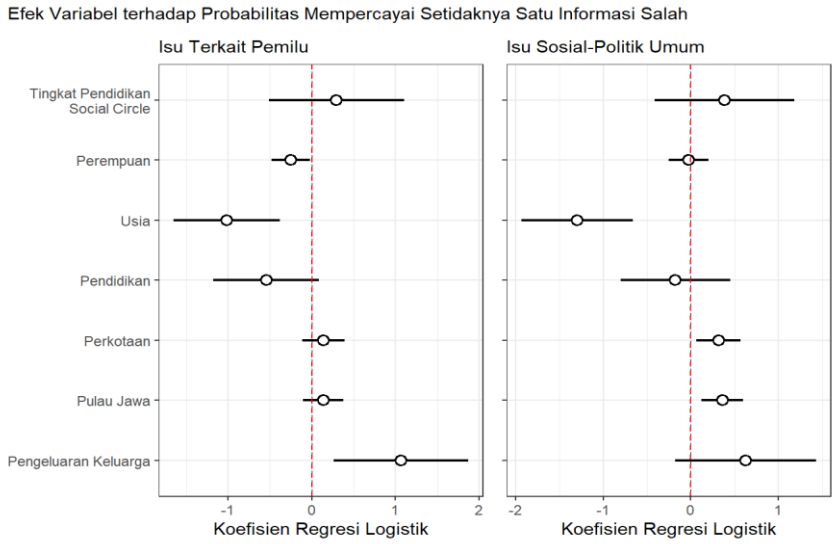

Figure 8. Logistic Regression Models of Beliefs in Misinformation on Social Circle's Education

DISCUSSION

The preceding analyses show that predicting susceptibility to misinformation is not exactly straightforward. Some of the theoretical predictions derived from existing studies in the literature simply do not receive empirical support. Notwithstanding this complication, there are at least two insights that can be drawn from this exercise.

First, one of the more consistent predictors of beliefs in misinformation actually is exposure to information. Variables such as living in an urban area, residing in the Java island, or household monthly expenses tend to be positively correlated with exposure to information and throughout the statistical models they also tend to be positively associated with susceptibility in misinformation. Conversely, being female and being of older age tend to be negatively correlated with exposure to information and the statistical results also suggest they tend to be related to lower likelihood to believe any of the false electoral or general sociopolitical information.

A policy implication of such a relationship where exposure to information has a direct and considerable connection with the likelihood of believing misinformation would be that government and other relevant stakeholders need to keep the proportion of false information in public discourse minimal. Interested stakeholders should not rely on citizens' ability to filter out misinformation unassisted. Social media platforms, especially, need to take steps that ensure a health information environment that minimizes the chance of users being exposed to false information.

The second insight that can be drawn from this exercise is that education, at least formal education, may not be the panacea for the problem of misinformation. In none of the statistical models is education, whether operationalized as the respondent's own level of education or the level of education of the respondent's social circle, negatively related to susceptibility in misinformation.

This result may look surprising to those who are predisposed to see education as a solution for many social problems. However, studies actually have highlighted how education in conservative or non-democratic societies may actually contribute to anti-democratic attitudes, in part due to their lack of emphasis on liberal or critical thinking (Sumaktoyo and Kilavuz 2023; Thomsen and Olsen 2017). In that sense, policy initiatives aimed at countering potential harms of misinformation by leveraging educational institutions need to focus not only on boosting formal education completion rates but also on actually instilling the spirits and skills of critical inquiries in the students.

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