

Article

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CC BY 4.0**Predictors of Information Seeking in the Context of Antibiotic Resistance****Janine N. Blessing¹** 

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Abstract

By 2050, ten million people may die every year due to antibiotic resistance, which heightens the importance of individual knowledge regarding this contemporary challenge. When antibiotic resistance is understood as an impersonal risk, it may alter motivational factors underlying knowledge gain through information seeking intentions. Guided by an adapted version of the planned risk information seeking model (PRISM), which considers individuals' health-related involvement and interest in one's own health, we conducted a survey ($N = 1,584$) using an online access panel of the German adults aged 18 and over. While our findings support the applicability of the PRISM in the context of antibiotic resistance, both additional components provide only small additional explanatory contributions. These results suggest that engagement with antibiotic resistance is motivated less by personal concerns and provide further evidence that general health involvement is not automatically translated into intentions to seek information about antibiotic resistance.

Keywords

Antibiotic resistance, impersonal risk, health-related involvement, health information seeking, planned risk information seeking model.

Antibiotic resistance (AR) poses one of this decade's greatest societal challenges (Salam et al., 2023; World Health Organization, 2001). By 2050, ten million people could die every year (O'Neill, 2014) because of infections that were once easily treatable but have become resistant

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to antibiotics. According to Salam and colleagues (2023), this silent pandemic necessitates urgent action, including increasingly responsible antibiotic use and support for policy interventions (see Salam et al., 2023 for a comprehensive list of strategies).

Information seeking plays a vital role in addressing this public health crisis. By seeking health-related information, individuals can enhance their awareness and update risk assessments. This can help them foster a greater sense of control and empowerment, which have been shown to be critical for improving the efficacy of individual-level interventions (Gray et al., 1998; Nikbakht Nasrabadi et al., 2015). Moreover, information seeking can deepen individual comprehension of health conditions (Kobayashi & Ishizaki, 2019; Reifegerste & Baumann, 2018) and alleviate feelings of anxiety (Brereton & Nolan, 2002; for an overview of information seeking's potential benefits see also Blessing, 2025). Thus, seeking information about AR's causes and consequences is a critical first step toward combatting this global health threat by recognizing its relevance, adopting preventive measures, and contributing to larger mitigation strategies.

To understand the specific details associated with AR-related information seeking, it is essential to consider the distinction between impersonal and personal risks. Personal risks have tangible, individual consequences, such as treatment failure, prolonged illness, or mortality, while impersonal risks primarily affect others or society at large, including the broader environment (Kahlor, 2003; Kahlor et al., 2006). Based on individuals' subjective assessments, AR is typically perceived as an impersonal risk. This is because, for most people, it currently entails little or no direct personal consequences and is primarily framed as a future-oriented or systemic problem. While models such as the Planned Risk Information Seeking Model (PRISM; Kahlor, 2010) focus on personal risks, impersonal risks can also drive information seeking behaviour, as initial evidence from the context of climate change suggests (e.g., Ho et al., 2014). However, to our knowledge, comparable research on future-oriented, impersonal risks in the health domain, such as AR, is rare (Liu & Yang, 2021; Liu & Yang, 2023). To explore how AR-related constraints affect impersonal risks, we rely on a key assumption specific to the health context. Specifically, we assume individuals differ in the degree to which they attribute personal relevance to general health-related issues. We propose that individuals who consider health to be highly relevant personally are more likely to cognitively engage with impersonal health threats and are therefore more likely to develop intentions to seek related information. Thus, the personal relevance of health topics may function as a motivational bridge that promotes information seeking even when risks are perceived to be impersonal. Precisely, we rely on health-related involvement and general interest in health information as proxy variables for personal relevance. Prior research in health communication and related fields suggests that higher involvement and interest reflect higher perceived significance of a topic, and are associated with greater attention, processing, and engagement with information (Bloch & Richins, 1983; Silvia, 2006; Park & Go, 2016). Accordingly, individuals scoring higher on involvement and interest are expected to perceive impersonal risks such as AR as sufficiently relevant to motivate information seeking.

To examine these relationships, the present study relies on the PRISM (Kahlor, 2010), which is one of the most comprehensive frameworks for understanding health information-seeking behaviours and has been shown to have strong cross-contextual validity (Ho et al., 2014; Kahlor et al., 2018; Yang et al., 2025). While the PRISM considers risk-specific and information seeking variables, it does not account for the broader psycho-motivational drivers that shape individuals' general orientation toward health and health information. Health-related

involvement and general interest in health information both reflect an individual's general orientation toward health, independent of their immediate experience with a specific risk. This may be particularly important for impersonal or future-oriented risks such as AR, where the direct personal stakes are low. To address this gap, this study extends the PRISM by incorporating variables on health-related involvement and interest in health information (Gantz et al., 1991; Kahlor et al., 2006) as additional predictors of information-seeking intention. The study aims to examine the extent to which these factors directly and indirectly predict influence information-seeking intentions. In doing so, we aim to provide a meaningful enhancement of the original PRISM while informing strategies for promoting informed decision-making in mitigating the threats posed by AR.

The Assumptions of the Planned Risk Information Seeking Model

The Planned Risk Information Seeking Model (PRISM; Kahlor, 2010) is an extension of the Risk Information Seeking and Processing (RISP) model developed by Griffin et al. (1999). It has been applied to a variety of risk-related contexts, ranging from personal risks such as the COVID-19 pandemic (Liu et al., 2021) and cancer (Hovick et al., 2014), to more impersonal threats like climate change (Ho et al., 2014) and emerging technologies (Blessing, 2025; Link et al., 2024).

As a theoretical framework, the PRISM identifies seven key predictors of individuals' intentions to seek information: attitudes toward information seeking, subjective norms, perceived knowledge, perceived knowledge insufficiency, risk perception, affective risk responses, and perceived seeking control (see Figure 1).

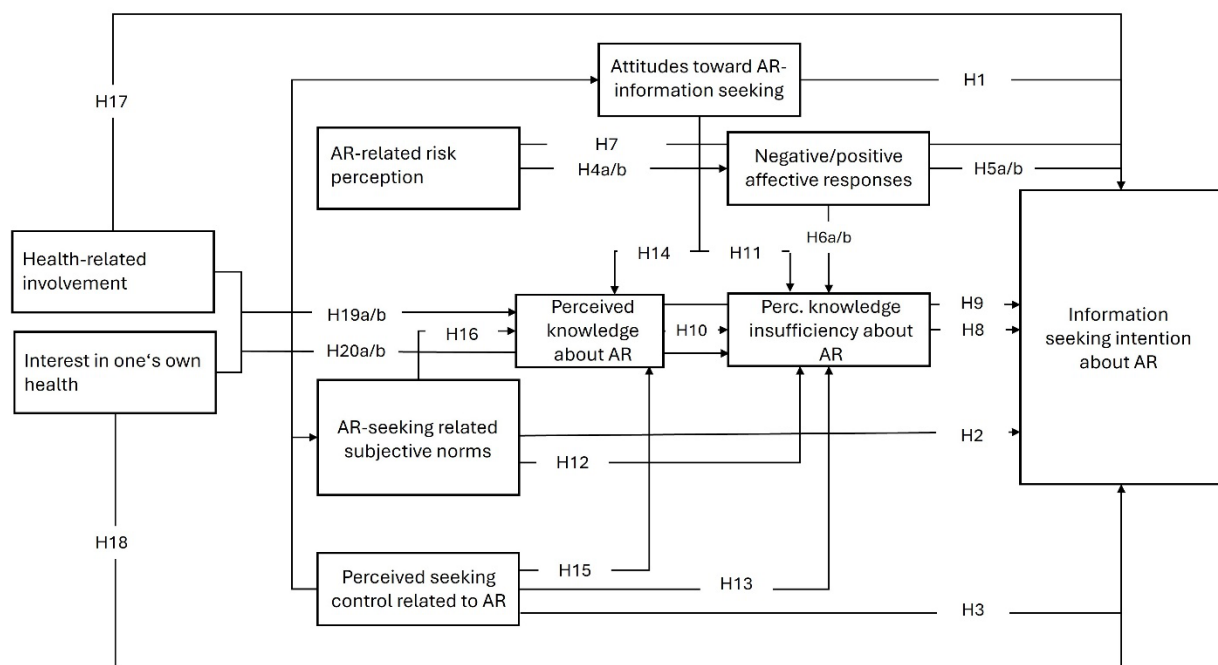


Figure 1. Overview of the Proposed Model of the Predictors of Information Seeking Intention about Antibiotic Resistance

Drawing on the Theory of Planned Behavior (TPB; Ajzen, 1991), the model includes attitudinal

and normative components to predict information-seeking intentions. Attitudes toward information seeking reflect evaluations of the behaviour's desirability (H1, see Figure 1). Subjective norms are further divided into descriptive norms, referring to what others in one's social group typically do, and injunctive norms, referring to what others expect one to do in terms of seeking information (H2; Kahlor, 2010). In addition, perceived seeking control can be understood as individuals' confidence in their ability to find and understand relevant information (H3).

To capture the perceived relevance of a threat, we rely on risk perceptions and affective risk responses (Kahlor, 2010). Risk perceptions combine cognitive perceptions of severity and susceptibility of a threat like AR (Griffin et al., 1999), while affective risk responses serve as mental shortcuts for assessing a threat such as AR (So, 2013). The PRISM assumes a causal pathway in which risk perceptions lead to negative affective responses (H4a), which in turn influence intentions to seek information (H5a). Also, negative affective risk responses are positively related to perceived knowledge insufficiency (H6a). These assumptions align with elements of the Extended Parallel Process Model (EPPM; Witte, 1992, 1998) and the RISP model (Griffin et al., 1999). While the original PRISM model focuses only on negative affective responses, several scholars (e.g., Yang et al., 2011; Yang & Kahlor, 2013) also stress the role of positive affective responses. In line with Yang and Kahlor (2013), we posit that risk perceptions will be negatively related to positive affect (H4b), which in turn will be positively related to one's information-seeking intention (H5b). We expect to find this relationship as positive affect can facilitate cognitive processes for problem solving. We further assume that positive affect will be negatively related to perceived knowledge insufficiency (H6b; see Yang & Kahlor, 2013). Consistent with most current studies and meta-analyses (e.g., Ahn et al., 2021; Ou & Ho, 2022; Wang et al., 2021), we further postulate that risk perceptions will also be directly associated with information-seeking intention. H7 expects a positive relationship between risk perceptions and information-seeking intentions, where an increase in perceived risk is considered to motivate self-protective behaviours (Rimal & Real, 2003).

According to recent research applying the PRISM (Link & Baumann, 2025; Volkman et al., 2023; Yang et al., 2014), perceived knowledge insufficiency—the gap between what individuals believe they know and what they feel they need to know (H8)—and perceived knowledge both directly (H9) and indirectly (H10) act as motivational drivers for information-seeking intentions. This effect is largest when perceived insufficiency is high, consistent with the Heuristic-Systematic Model (HSM; Chaiken, 1980; Yang et al., 2014). According to Kahlor's (2010) assumptions, attitudes, norms, and perceived seeking control are also associated with one's perceived knowledge insufficiency (H11–H13) and perceived knowledge (H14–H16). Thus, hypotheses 1–16 represent the latest PRISM-based proposed relationships and examine the model's applicability in the context of AR.

Extending the PRISM Regarding Indicators of Personal Relevance

To further examine the role of personal relevance within the PRISM, we consider the role of one's health-related involvement and interest in information about one's health (Bloch & Richins, 1983; Park & Go, 2016; Silvia, 2006). While the PRISM already stresses the role of psycho-motivational factors, which are personal by nature, these variables are either specific to information seeking or to a particular risk or disease, rather than capturing a person's general

motivation and engagement with health issues. In the context of impersonal risks such as AR, individuals may not yet perceive the risk as directly relevant to themselves. Here, general health involvement and interest provide a broader motivational dimension, reflecting the readiness to attend to emerging health risks and potentially seek information proactively. Thus, in the present study involvement refers to the degree of personal engagement with the general topic of health (Wirth, 2006).

Krugman (1965) conceptualised involvement as the “conscious bridging experiences, connections, or personal references that a viewer makes [...] between his or her life and a stimulus” (p. 356). The more personally relevant an issue such as health is perceived to be, the higher an individual’s level of involvement (Zaichkowsky, 1985; Celsi & Olson, 1988). Moreover, it determines how motivated people are to invest attention and cognitive effort (Petty & Cacioppo, 1986; Celsi & Olson, 1988): when the overall topic of health feels personally relevant, individuals are more motivated and thus it is more likely that they engage deeply, process information more thoroughly, and take action (Petty & Cacioppo, 1986; Richins & Bloch, 1986). Prior research suggests that involvement influences information-seeking behaviour (Park & Go, 2016; see also Dutta-Bergman, 2004 regarding the role of health consciousness). However, the findings are not entirely consistent: Kessler and Zillich (2019), for instance, found no significant association between involvement and time spent on information seeking. Based on the theoretical understanding of the role of involvement, we nevertheless postulate that health-related involvement is positively associated with information-seeking intentions about AR (H17, see Figure 1).

In contrast to involvement focusing on the attributed importance of an issue, interest is understood as an individual’s motivation to learn information about a certain issue (Howell & Shepperd, 2016; Silvia, 2006). Therefore, similar to involvement, interest is understood as a driving force of cognitive exploration and knowledge acquisition (Silva, 2006; Zhang & Hou, 2017). However, it does not aim at making better decisions immediately but to satisfy a personal interest, form attitudes, and to gain knowledge for future decision-making (Takahashi & Tandoc, 2016; Zhang & Hou, 2017). As interest explicitly captures one of the preceding motivational forces underlying information-seeking behaviours (Van der Rijt, 2000), we derived H18 postulating that interest in health information is positively related to higher information-seeking intentions (see Figure 1).

Preliminary studies and meta-analyses considering indicators of personal relevance such as the familiarity with a risk topic and distinguishing between personal and impersonal risks (Yang et al., 2014; Liu et al., 2022; Liu & Yang, 2023) suggest that the effectiveness of models like the PRISM or RISP depends on personal relevance. The findings indicate that personal relevance not only impacts information-seeking intent but is also related to the predictors of perceived knowledge and perceived knowledge insufficiency (see also J.Z. Yang & Zhuang, 2020). This aligns with insights from dual-process theories (Petty & Cacioppo, 1986), which argue that perceived personal relevance encourages deeper, more analytical engagement with information increasing the state of current knowledge but also the need for further information. Therefore, we postulate that involvement as well as interest are positively related to perceived AR-knowledge (H19/20a) and perceived AR-knowledge insufficiency (H19/20b).

Methods

To test the hypotheses, an online survey of the German population was conducted in January 2025 using a German online access panel of pre-registered participants who receive invitations to scientific studies (SoSci-Panel, Leiner, 2016). Participation is voluntary, and panel members are invited to a maximum of four studies per year. Participants were not incentivised. No formal sampling strategy was applied; participants were recruited from the panel on a first-come, first-served basis. Consequently, no weighting of the data was performed, as the sample was not intended to be representative of a larger population. Nevertheless, recruitment aimed to achieve a high variance in age and gender. The final sample consisted of $N = 1,584$ participants after excluding individuals who did not give their informed consent ($n = 12$), did not complete the questionnaire ($n = 256$) and showed an inadequate relative speed index for completion ($n = 43$; Leiner, 2019). Although the mandatory response requirement could be bypassed, there were no missing values in the final sample. The respondents aged between 18 and 89 years ($M = 53.2$; $SD = 15.0$) and half identified as female (54%). The sample was comprised of individuals with a high level of education: 64% of respondents had a university degree, 15% had a high school diploma and 14% had a lower secondary school diploma.

Ethical Considerations

In line with German research standards, this type of online survey does not require formal approval from an ethics committee. Nevertheless, all ethical principles were fully upheld throughout the study. Participants were provided with detailed information about the study's objectives and procedures and gave informed consent before beginning the survey. The informed consent procedure was implemented in accordance with recommendations for communication science (<https://www.forschungsethik-kmw.de/>) and APA ethical standards for research involving human participants (American Psychological Association, 2023). They were explicitly informed of their rights, including the option to withdraw at any time without any consequences. Data was collected via the SoSci Panel, which guarantees that personal information is not shared with third parties and is used solely for study invitations. Since this study is part of a larger project, participants also received detailed information and further links to inform themselves about antibiotic resistance at the end of the survey. These measures ensured that participants' autonomy, privacy, and well-being were carefully protected throughout the study.

Measures

All measurements were adapted from earlier literature (e.g. Kahlor, 2010; Yang & Kahlor, 2013) and applied to the context of AR. In former research, the established measures were translated into German using a team translation approach. The item wording, the type of scale used, the fit of the measurement models, and the descriptives can be found in Table 1. Unless otherwise stated, all items were measured on 5-point Likert-type scales ranging from 1 “Does not apply” to 5 “Fully applies”.

Antibiotic Resistance-Related Information Seeking Intention. To describe respondents' intention to seek information about AR, we used a three-item measure adapted from Kahlor (2010) and Link et al. (2021). The selected items indicated different levels of respondents' willingness to seek information about AR in the near future. The internal consistency and fit of the measurement model were adequate (see Table 1).

Table 1. Overview of the Measures and Fit of the Measurement Models to the Data

| Construct | Examples of item wording | Response scale | Descriptive | Model fit to the data | Source |
|--|--|---|---------------------------|--|---------------|
| AR-seeking intention | <p>SI1: I plan to seek information about antibiotic resistance in the near future.</p> <p>SI2: I will try to seek information about antibiotic resistance in the near future.</p> <p>SI3: I intend to find more information about antibiotic resistance.</p> | five-point Likert-type scale from 1 “does not apply” to 5 “applies fully” | $M = 3.0$, $SD = 1.1$ | $\alpha = .91$ [.91; .92]; $\chi^2(1) = 10.27$, $p = .006$; CFI = .99; RMSEA = .05, 90%CI [.02; .08], SRMR = .03 | Kahlor (2010) |
| Attitudes towards AR-related information seeking | <p>How do you feel about seeking information about antibiotic resistance? Seeking information about antibiotic resistance is</p> <p>AT1 - ... bad or good.</p> <p>AT2 - ... harmful or beneficial.</p> <p>AT3 - ... unhelpful or helpful.</p> | five-point semantic differential scale | $M = 4.0$, $SD = 0.7$ | $\alpha = .91$ [.90; .91]; $\chi^2(14) = 91.30$, $p \leq .001$; CFI = .98; RMSEA = .06, 90%CI [.05; .07], SRMR = .02 | Kahlor (2010) |
| AR-seeking-related subjective norms | <p>SN1: Most people who are important to me think that I should be informed about antibiotic resistance.</p> <p>SN2: Most people whose opinion I value inform themselves about antibiotic resistance.</p> <p>SN3: Most people who are important to me approve that I seek information about antibiotic resistance.</p> | five-point Likert-type scale from 1 “does not apply” to 5 “applies fully” | $M = 2.4$, $SD = 1.1$ | $\alpha = .90$ [.90; .91]; $\chi^2(2) = 18.79$, $p \leq .001$; CFI = .99; RMSEA = .07, 90%CI [.05; .09], SRMR = .01 | Kahlor (2010) |
| Perceived seeking control | <p>PSC1: I know where to look for information about antibiotic resistance.</p> <p>PSC2: When it comes to information about antibiotic resistance, I know how to separate facts from fiction.</p> | five-point Likert-type scale from 1 “does not apply” to 5 “applies fully” | $M = 3.8$, $SD = 0.9$ | $\alpha = .88$ [.87; .89]; $\chi^2(2) = 2.06$, $p \leq .357$; (2010) CFI = 1.00; RMSEA = .004, 90%CI [.00; .05] | Kahlor (2010) |

Table 1. Overview of the Measures and Fit of the Measurement Models to the Data (continued)

| Construct | Examples of item wording | Response scale | Descriptive | Model fit to the data | Source |
|--|---|--|-----------------------------|--|----------------------|
| Perceived seeking control (continued) | PSC3: I can readily access all the information about antibiotic resistance that I need. PSC4: When it comes to finding information about antibiotic resistance, I know where to go. | five-point Likert-type scale from 1 “does not apply” to 5 “applies fully” | $M = 3.8$, $SD = 0.9$ | $\alpha = .88$ [.87; .89]; $\chi^2(2) = 2.06$, $p \leq .357$; CFI = 1.00; RMSEA = .004, 90%CI [.00; .05], SRMR = .005 | Kahlor (2010) |
| Perceived knowledge about AR | Please rate your current knowledge about antibiotic resistance on a scale of 0 to 100. Zero means knowing nothing. 100 means knowing everything you could know about antibiotic resistance. | Scale from 0 to 100 | $M = 52.4$, $SD = 25.4$ | | Kahlor (2010) |
| Perceived knowledge insufficiency about AR | Think of that same 0 to 100 scale again. This time, estimate how much information you need to deal adequately with antibiotic resistance. How much information would be sufficient for you, that is, good enough for your purposes? | Scale from 0 to 100 | $M = 72.0$, $SD = 20.1$ | | Kahlor (2010) |
| AR-related risk perception | RP1: Please rate the overall level of risk posed by antibiotic resistance. RP2: How serious are the risks posed by antibiotic resistance? | five-point Likert-type scale from 1 “very low/serious” to 5 “extremely high/serious” | $M = 4.0$, $SD = 1.0$ | $\alpha = .74$ [.71; .76]; $\chi^2(2) = .61$, $p = .739$; CFI = 1.00; RMSEA = .00, 90%CI [.00; .03], SRMR = .004 | Kahlor et al. (2020) |

Table 1. Overview of the Measures and Fit of the Measurement Models to the Data (continued)

| Construct | Examples of item wording | Response scale | Descriptive | Model fit to the data | Source |
|-----------------------------------|--|---|---------------------------|---|--------------------------|
| Negative affective risk responses | When you think about how you feel about antibiotic resistance: How... AFF1: ... worried do you feel? AFF2: ... scared do you feel? AFF3: ... uncertain do you feel? | five-point Likert-type scale ranging from 1 “not at all” to 5 “extremely” | $M = 3.1$, $SD = 1.0$ | $\alpha = .82$ [.82; .85]; $\chi^2(1) = .94$, $p = .333$; CFI = 1.00; RMSEA = .00, 90%CI [.00; .00], SRMR = .008 | Yang & Kahlor (2013) |
| Positive affective risk responses | AFF4: ... excited do you feel? AFF5: ... hopeful do you feel? AFF6: ... happy do you feel? | five-point Likert-type scale ranging from 1 “not at all” to 5 “extremely” | $M = 1.6$, $SD = 0.6$ | $\alpha = .62$ [.58; .65]; $\chi^2(1) = 18.42$, $p \leq .001$; CFI = .98; RMSEA = .07, 90%CI [.05; .10], SRMR = .05 | Yang & Kahlor (2013) |
| Health-related involvement | How important is it to you personally to engage with information about your health? | five-point Likert-type scale from 1 “not at all important” to 5 “extremely important” | $M = 4.2$, $SD = 0.8$ | | Fowler et al. (2018) |
| Interest in health information | HI1: I want to know everything about my health. HI2: It is important to me to know everything about my health. HI3: Even if it will upset me, I want to know everything about my health. | five-point Likert-type scale from 1 “does not apply” to 5 “applies fully” | $M = 4.0$, $SD = 1.0$ | $\alpha = .90$ [.89; .91]; $\chi^2(1) = 13.83$, $p \leq .001$; CFI = .99; RMSEA = .06, 90%CI [.04; .09], SRMR = .04 | Howell & Shepperd (2016) |

Attitude Toward Information Seeking. The attitude toward information seeking about AR was assessed using seven five-point semantic differential items (Kahlor, 2010), asking respondents whether they assessed information seeking as useful or helpful in the given context. The measurement model showed an adequate fit to the data (see Table 1).

Seeking-related subjective norms. Subjective norms were measured through the inclusion of injunctive and descriptive norms. Based on Kahlor (2010), a five-item measure covered whether information seeking was common and accepted within an individual's social environment, and whether it was expected by others. The items showed an adequate fit to construct a latent variable representing seeking-related subjective norms (see Table 1).

Perceived Seeking Control. In line with past applications of the PRISM (Kahlor, 2010; Kahlor et al., 2020; Yang & Kahlor, 2013), we assessed perceived seeking control using four items describing participants' knowledge of how to seek information about AR and their belief in whether they were able to do so. The four-item construct was of satisfying fit (see Table 1).

Perceived Knowledge Insufficiency. According to the traditional PRISM (Kahlor, 2010), perceived knowledge insufficiency was measured by asking the participants to describe their current level of knowledge about AR and their desired level of knowledge. For both measures, the level of knowledge was assessed on a scale between 0 and 100.

Risk Perception. Risk perceptions about AR were measured with four items covering one's overall risk assessment as well as the components of seriousness, susceptibility, and severity (Kahlor et al., 2020). The measurement showed an adequate fit to the data (see Table 1).

Affective Risk Responses. Consistent with Yang and Kahlor (2013), participants indicated their positive and negative affective responses. For positive and negative responses, three affective responses were used (see Table 1). Both measurement models were evaluated as satisfying.

Health-Related Involvement. To assess one's health information involvement, the respondents were asked to assess their ascribed importance to engage with information about their health. The single item measure was adapted from Fowler et al. (2017).

Interest in Information About One's Health. To measure interest in one's health, we relied on three items of the Information Avoidance Scale designed by Howell and Shepperd (2016). We selected the items focusing on the general tendency to be knowledgeable about health information. Based on an adequate fit of the data, a latent measurement model was constructed (see Table 1).

Data Analysis

To examine the paths and model fit of the proposed model, a latent variable structural equation model was conducted in R using the package lavaan. We used two-step modelling. In a first step, all measurement models were verified using confirmatory factor analysis. In the second step, the structural model was tested. Indicators of model fit in both steps included chi-square, comparative fit index (CFI; values close to or greater than .95), root mean square error approximation (RMSEA; values lower than .08), and standardised root mean residual (SRMR; values lower than .08; Hu & Bentler, 1999).

Results

The extended PRISM showed a satisfactory model fit ($\chi^2(494) = 1377.64, p \leq .001, CFI = .97, RMSEA = .03, 90\% CI [.03, .04], SRMR = .05; CN = 599.99$). In total, the predictors accounted for 45% of the variance in individuals' intention to seek for information about antibiotic resistance. Of the 25 hypothesised relationships in the PRISM model, 21 were confirmed in predicting information seeking intent about antibiotic resistance (see Table 2). Regarding the original version of the PRISM, supported direct relationships with AR-information-seeking intention included attitudes toward information seeking (H1; $\beta = .28; p \leq .001$), AR-seeking-related subjective norms (H2; $\beta = .29; p \leq .001$), AR-related risk perception (H7; $\beta = .19; p \leq .001$), negative (H5a; $\beta = .14; p \leq .001$) and positive affective risk responses (H5b; $\beta = .12; p \leq .001$), individuals' perceived knowledge insufficiency (H8; $\beta = .14; p \leq .001$) and perceived knowledge (H9; $\beta = -.10; p = .001$). Attitudes towards information seeking and subjective norms were the most influential predictors of one's seeking intention. Only the path between perceived seeking control and AR-information seeking intention was not significant ($\beta = -.01; p = .978$). Therefore, H3 was not supported.

Regarding the original version of the PRISM, our evidence is consistent with the theoretical assumption that AR-related risk perceptions are positively associated with negative affective risk responses (H4a; $\beta = .63; p \leq .001$). At the same time, the relationship between AR-related risk perceptions and positive affective responses was negative and moderately large (H4b; $\beta = -.16; p \leq .001$). Further, perceived knowledge insufficiency was found to be related to negative affective risk responses (H6a; $\beta = .18; p \leq .001$), perceived knowledge (H10; $\beta = .41; p \leq .001$), attitudes toward information seeking (H11; $\beta = .16; p \leq .001$), subjective norms (H12; $\beta = .05; p = .038$), and perceived seeking control (H13; $\beta = -.10; p \leq .001$). Also, perceived AR knowledge was supported to be significantly associated with a more positive attitude toward information seeking (H14; $\beta = .11; p \leq .001$) and more pronounced perceived seeking control (H15; $\beta = .33; p \leq .001$) as well as subjective norms (H16; $\beta = .20; p \leq .001$). In contrast to H6b, the findings revealed that positive affective risk responses were not related to perceived knowledge insufficiency (H6b; $\beta = .01; p = .760$).

Looking at the proposed extensions of the model, individuals' health-related involvement was positively but weakly related to information-seeking intent (H17; $\beta = .05; p = .05$). Involvement further contributes to greater knowledge about AR ($\beta = .07; p = .01$) and a more pronounced perceived knowledge insufficiency ($\beta = .12; p \leq .001$). Although both paths were rather weak, H19a and b were supported. In contrast, we could not support that interest in health information was significantly related to either seeking intention (H18; $\beta = .03; p = .24$) nor one's perceived AR knowledge (H20a; $\beta = .04; p = .19$). It was only supported that the level of interest in health information was weakly associated with a higher perceived knowledge insufficiency (H20b; $\beta = .06; p = .05$).

Table 2. Results of the Hypotheses Tests of the Postulated Model for Predicting Information Seeking Intention About Antibiotic Resistance

| Proposed model paths by the PRISM | β -coefficients | $b(SE)$ | 95%CI | p -values | Supported (✓) / Not supported (X) |
|--|-----------------------|-----------------|------------------|-------------|-----------------------------------|
| H1 Attitudes toward AR-information seeking → AR-information seeking intention (+) | .28 | 0.40 (0.04) | [0.32; 0.48] | < .001 | ✓ |
| H2 AR-seeking-related subjective norms → AR-information seeking intention (+) | .29 | 0.26 (0.02) | [0.22; 0.31] | < .001 | ✓ |
| H3 Perceived seeking control → AR-information seeking intention (+) | .00 | 0.01 (0.03) | [-0.06; 0.06] | .978 | X |
| H4a AR-related risk perception → negative affective risk response (+) | .63 | 0.68 (0.04) | [0.61; 0.76] | < .001 | ✓ |
| H4b → positive affective risk response (-) | -.16 | -.07 (.02) | [-0.11; -0.04] | < .001 | ✓ |
| H5a Negative affective risk response → AR-information seeking intention (+) | .14 | .15 (.04) | [0.07; 0.23] | < .001 | ✓ |
| H6a → perceived AR-knowledge insufficiency (+) | .18 | 3.69 (.64) | [2.43; 4.95] | < .001 | ✓ |
| H5b Positive affective risk response → AR-information seeking intention (+) | .12 | .30 (.07) | [0.16; 0.44] | < .001 | ✓ |
| H6b → perceived AR-knowledge insufficiency (+) | .01 | .42 (1.38) | [-2.30; 3.13] | .760 | X |
| H7 AR-related risk perception → AR-information seeking intention (+) | .19 | .23 (.05) | [0.14; 0.32] | < .001 | ✓ |
| H8 perceived knowledge insufficiency → AR-information seeking intention (+) | .14 | .007 (.001) | [0.005; 0.010] | < .001 | ✓ |
| H9 perceived AR-knowledge → AR-information seeking intention (+) | -.10 | -.004 (.001) | [-0.006; -0.002] | .001 | ✓ |
| H10 perceived AR-knowledge → perceived AR-knowledge insufficiency (+) | .41 | .32 (.02) | [0.28; 0.36] | < .001 | ✓ |
| H11 Attitudes toward AR-information seeking → perceived AR-knowledge insufficiency (+) | .16 | 4.29 (.72) | [2.87; 5.70] | < .001 | ✓ |
| H12 AR-seeking-related subjective norms → perceived AR-knowledge insufficiency (+) | .05 | .86 (.41) | [0.05; 1.66] | .038 | ✓ |

Table 2. Results of the Hypotheses Tests of the Postulated Model for Predicting Information Seeking Intention About Antibiotic Resistance (continued)

| Proposed model paths by the PRISM | β -coefficients | $b(SE)$ | 95%CI | p -values | Supported (✓) / Not supported (X) |
|---|-----------------------|-------------|----------------|-------------|-----------------------------------|
| H13 Perceived seeking control → perceived AR-knowledge insufficiency (+) | -.10 | -2.28 (.60) | [-3.46; -1.10] | < .001 | ✓ |
| H14 Attitudes toward AR-information seeking → perceived AR-knowledge (+) | .11 | 3.83 (.90) | [2.08; 5.59] | < .001 | ✓ |
| H15 Perceived seeking control → perceived AR-knowledge (+) | .33 | 9.52 (.79) | [7.98; 11.07] | < .001 | ✓ |
| H16 AR-seeking-related subjective norms → perceived AR-knowledge (+) | .20 | 4.47 (.55) | [3.40; 5.54] | < .001 | ✓ |
| Extension of the PRISM | | | | | |
| H17 Health-related involvement → AR-information seeking intention (+) | .05 | .07 (.04) | [0.01; 0.14] | .05 | ✓ |
| H18 Interest in health information → AR-information seeking intention (+) | .03 | .04 (.03) | [-0.03; 0.11] | .24 | X |
| H19a Health-related involvement → perceived AR-knowledge (+) | .07 | 2.23 (.88) | [0.51; 3.95] | .01 | ✓ |
| H19b → perceived AR-knowledge insufficiency (+) | .12 | 2.89 (.70) | [1.52; 4.25] | < .001 | ✓ |
| H20a Interest in health information → perceived AR-knowledge (+) | .04 | 1.15 (.87) | [-0.55; 2.86] | .19 | X |
| H20b → perceived AR-knowledge insufficiency (+) | .06 | 1.33 (.68) | [0.01; 2.67] | .05 | ✓ |

Note. Standard. β -coefficients, p -values.

Discussion

The aim of this study was to examine whether the PRISM can be applied to AR-related information seeking-intentions and suggest a context-specific extension of the original framework, focusing on the role of attributed personal relevance to health in explaining risk-specific seeking intent. Personal relevance indicators, such as health-related involvement and interest, offer insights into how perceptions of personal versus impersonal risk shape information-seeking behaviours in the context of AR. In the following, we highlight the key findings on the PRISM before assessing the role of personal relevance.

Key Findings on the Application of the PRISM to AR

Overall, the findings support the cross-contextual validity of the PRISM. The model explained an adequate amount of variance in AR-related information-seeking intention, and, with two exceptions, the relationships proposed in the hypotheses were supported by the data. Consistent

with previous findings, seeking-related subjective norms (Yang et al., 2014; Liu et al., 2022) and attitudes toward AR-information seeking emerged as the strongest predictors of information-seeking intention in the context of AR (see also Ou & Ho, 2022). Thus, gaining knowledge about AR and staying up to date on this topic is determined by whether information seeking is perceived as favourable and by the extent to which individuals perceive social expectations to stay informed within their environment. Notably, the mean values of attitudes are rather high, indicating that the majority of respondents positively assessed information seeking (see Table 1). In contrast, the seeking-related subjective norms tended to be relatively low, suggesting a low level of perceived social pressure in this topic context. Given the distinction between impersonal and personal risks as well as the inconclusive findings on whether the role of norms depends on the type of risk (Liu & Yang, 2021; Liu & Yang, 2023), further research should examine the interaction between norms and individual or societal risk perceptions. This would help clarify whether the relevance of norms varies with personal relevance (Liu & Yang, 2023) and how they differ between more salient personal and impersonal risks (Liu et al., 2022).

The latest adjustments to the PRISM model regarding the direct relationship between risk perceptions and positive affective risk responses have produced heterogeneous or limited results (e.g., Yang et al., 2011; Yang & Kahlor, 2013). Our findings extend this evidence to the context of AR, supporting the notion that AR-related risk perceptions not only drive information seeking via affective responses but are also directly related to a higher intent to acquire knowledge about AR (Ahn et al., 2021; Ou & Ho, 2022; Wang et al., 2021). Further, our findings support the role of positive affective responses (Yang et al., 2011; Yang & Kahlor, 2013) as a meaningful extension of the theoretical framework. In contrast to negative affects, positive ones were not found to be related to one's perceived AR-knowledge insufficiency, stressing the need for a theoretically driven modelling of the role of positive affective responses in the PRISM. This suggests that negative and positive affect serve different functions and activate seeking via distinct mechanisms. However, the mental shortcuts of negative and positive affective responses were found to be equally relevant for triggering or impeding information-seeking intentions.

The only integral predictor of PRISM (Kahlor, 2010; Ou & Ho, 2022) that was not relevant in the current context was perceived seeking control. The findings revealed an indirect relation to information-seeking intentions via perceived AR-knowledge (insufficiency) but a direct association between perceived seeking control and AR-information seeking intention was not found. As most respondents felt equally capable of acquiring, assessing, and understanding information about AR, information seeking may not primarily be a question of ability.

To sum up, rather than indicating fundamentally different mechanisms for personal versus impersonal risks, these findings suggest that largely the same core processes remain relevant across risk contexts. In particular, socio-normative influences emerge as the most consistent and powerful predictors of information-seeking intentions (Ou & Ho, 2022; Yang et al., 2014), irrespective of whether a risk is personal or impersonal. One potential point of differentiation concerns the role of seeking control. While this motive is often considered central in health information behaviour, it may be less salient in the context of impersonal risks, where individuals have limited perceived agency to influence outcomes. Aside from this nuance, however, the findings point toward substantial consistency in the mechanisms underlying health information seeking.

The Role of Personal Relevance Within the PRISM

Integrating health-related involvement and general interest in health information (Bloch & Richins, 1983; Park & Go, 2016) into the PRISM resulted in only modest additional explanatory power for AR-related information-seeking intentions. The findings suggest that these constructs function primarily as background conditions shaping perceived knowledge insufficiency rather than as proximal or dominant drivers of information-seeking intentions. Consistent with conceptualizations of involvement and interest as general forces of cognitive exploration and knowledge acquisition (Silva, 2006; Zhang & Hou, 2017), higher attributed relevance of health appears to increase awareness of information needs (J. Z. Yang & Zhuang, 2020). However, whether such needs translate into actual behavioural intentions depends on other, more situationally salient factors.

Although the extended constructs of personal relevance were of low importance, this pattern underscores an important conceptual distinction: general orientations toward health and health information cannot be straightforwardly translated into engagement with specific health topics. Thus, high general interest in and involvement with health does not necessarily imply increased information seeking about particular health risks such as AR, especially when these risks are framed as abstract or future-oriented.

From a theoretical perspective, the present results therefore contribute less to a structural extension of the PRISM and more to its refinement. They clarify which components of the model are robust across different types of health risks and which are sensitive to contextual characteristics such as perceived seeking control. In doing so, the study advances the health information behaviour literature by highlighting the limits of inferring topic-specific engagement from general health orientations and by reinforcing the central role of socio-normative processes across diverse risk contexts.

Limitations and Future Research

While this study offers an initial understanding of the role of personal relevance of health in the context of personal versus impersonal risks, several limitations should be acknowledged. First, it should be critically assessed whether health-related involvement and interest in information about one's health are adequate proxies for personal relevance supplementing risk perceptions. As an alternative understanding, personal relevance can refer to a specific topic such as AR, instead of the broad concept of health. Personal relevance can also stem from indirect experiences, such as having a close family or friends who are especially at risk from a particular health threat (e.g., Spence et al., 2012). Also, other designs can be used to examine the role of personal relevance. For example, Liu and Yang (2023) examined the role of personal relevance in an experimental study. Second, the present study focused exclusively on the intention to seek information, suggesting the need for future studies to examine information-seeking behaviours and additional outcome variables. Blessing (2025) for example focused on the intention to engage in interpersonal communication. Particularly in the context of AR, where impersonal risks are prominent, interpersonal communication with friends and family may represent a key avenue for information exchange and risk awareness. Third, the use of a convenience sample and cross-sectional nature of the data restricts the generalizability of the findings. In particular, the sample's high level of education may have influenced their interest in health-related topics. To enhance the external validity of future research, efforts should be made to recruit more nationally representative samples. Fourth, the measurement instruments

used in this study have some limitations. Perceived seeking control was operationalized using the original scale developed by Kahlor (2010) as part of the PRISM model. While the scale is well-established, it should be rated critically whether the items capture all crucial aspects of one's confidence in their ability to find and understand relevant information. The selected items only considered the accessibility of information, source selection and aspects of the credibility evaluation. In addition, personal relevance was measured with only a single item, which limits the precision of this construct. Future research could consider alternative or expanded operationalizations to better capture these dimensions. As a fifth limitation, it should be noted that the present study focuses exclusively on antibiotic resistance. While we expect that some findings may generalize to other contexts, future research should examine additional topics involving impersonal risks, such as climate change (Kahlor et al., 2020), to test the broader applicability of the results.

Conclusions and Practical Implications

The study stresses the cross-contextual validity of the PRISM. In the context of impersonal risks such as AR, the findings revealed that the personal relevance of health is of limited importance in explaining AR-related information-seeking behaviour. When health involvement and interest are understood as a pattern of general health information-seeking behaviours, the findings indicate that general patterns have limited influence in shaping topic-specific seeking intentions. These findings stress the relevance of extending research to differentiate between personal and impersonal risks. Considering cognitive and affective dimensions of risk perceptions was shown to be more relevant than direct assessments of health involvement and interest in health information.

Besides the theoretical contribution, the findings provide insights into preparing communication efforts to increase awareness for and gain knowledge about AR. Central mechanisms are campaigns and public communication efforts addressing subjective norms to be informed and stay up to date about AR and highlighting why knowledge is favourable, for example to cope with its consequences and apply individual-level measures to combat it. In the context of AR, risk perceptions and affective responses are also key drivers of information-seeking decisions. Both can be triggered by communication that emphasises the personal and societal consequences of AR, such as untreatable infections or increased mortality. By using emotionally engaging narratives and vivid imagery, such communication can enhance awareness and motivate behavioural change.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

During the preparation of this work the authors used ChatGPT-4o and Claude Sonnet 4.6 to translate sentences and improve readability of the manuscript. After using these tools, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

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Conflict of Interest

The authors report that they have no competing interests to declare.

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