ARTICLE

The Role of Harm, Misinformer Age, and Information Scrutiny on Adolescents' Trust in Misinformation

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Abstract

Adolescents' online habits may contribute to the spread of misinformation due to their preference for trusted peers as sources of information over credible sources. This propensity can also make adolescents a population more vulnerable to misinformation, particularly during crises when misinformation levels surge. In situations of uncertainty and risk, such as during public health crises, trust plays an important and influential role. This study explored whether adolescents' trust in an individual sharing misinformation, and trust in their misinformation about Covid-19, differed based on adolescents' perceived risk of harm from Covid-19 (risk vs reduced risk) and the age of the misinformer (peer vs adult). When shown misinformation about a hypothetical Covid-19 variant, adolescents ($N = 131$; 14–17 years old) trusted a misinformer more when there was a perceived risk of harm to their age group. Adolescents were also asked to provide open-ended justifications for their trust evaluations which were analysed in accordance with the elaboration likelihood model. We found that adolescents who reported to more regularly scrutinising information were more likely to consider information and source credibility when there was a perceived risk of harm to their age group. Adolescents who reported engaging in less information-scrutinising behaviours were more likely to consider their relationship with the misinformer when the misinformer was a peer. These findings suggest how the elaboration likelihood model can play an important role in risk communication amongst adolescents and emphasise the need for educating adolescents about the importance of scrutinising information, particularly during crises.

Keywords

adolescents; Covid-19; information scrutiny; misinformation; risk of harm; trust

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1. Introduction

For young people growing up in the digital age, the ever-changing media landscape presents a number of challenges. One challenge is the rise of online misinformation, which can be defined as false or misleading content that spreads as reliable information (Wardle, 2018). Young people are particularly vulnerable to misinformation online (Kops et al., 2025) and struggle to investigate the reliability of sources (Breakstone et al., 2021; Coiro et al., 2015). Studies suggest adolescents' propensity to trust specific sources over their propensity to verify information as a reason for their susceptibility to misinformation. For instance, adolescents are more likely to share claims on social media based on whether they trust the source of the claim as opposed to whether the claim itself is credible (Herrero-Diz et al., 2020), whereas older adolescents assert a tendency to trust news stories received from friends by default, irrespective of doubts about the stories' accuracy (Duffy et al., 2020). As such, who adolescents trust emerges as an important factor in their scrutiny of information, particularly due to their increased reliance on digital technologies as they form relationships and develop their identities (Kops et al., 2025). Therefore, it is important to investigate which aspects and sources of misinformation influence adolescents' evaluations of trust. In order to undertake this investigation, the Coronavirus pandemic is used as the context in which adolescents' trust evaluations were examined.

Trust plays an important role during public health crises where uncertainty and anxiety are high (van der Werff et al., 2019). During the Coronavirus pandemic in 2020, people were more likely to share information about Covid-19 if they believed the source was trustworthy (Lu et al., 2021). However, there was a dramatic surge of false and misleading Covid-19 information online, particularly on social media (Naeem & Bhatti, 2020). In the UK, almost half of the surveyed people reported seeing misinformation about Covid-19, with 66% claiming to have seen false stories daily (Ofcom, 2020). The impact of the Coronavirus pandemic was widespread and required members of the public to be well-informed and guided by information from credible and trusted sources, such as the World Health Organisation. Covid-19 misinformation, however, prevented individuals from being accurately informed about the Coronavirus. Research with adults showed that participants who rated Covid-19 misinformation as accurate also tended to perceive Covid-19 as less threatening to their health, and subsequently reported less engagement in Covid-19 preventative behaviours (e.g., social distancing; Olivett et al., 2023). Though adolescents were less at-risk of developing severe symptoms of Covid-19 compared with adults (Lee et al., 2020), they were still prone to contracting the virus and transmitting it to those at higher risk (Schneiderman et al., 2022) and even reported coming across Covid-19 misinformation (Chen et al., 2024). The present study explores how adolescents' trust evaluations of a misinformer and their misinformation differ based on (a) the risk of harm to the participants' age group and (b) the age of the misinformer. In this study, to further understand trust evaluations, we also explored adolescents' open-ended justifications and self-reported information scrutiny levels utilising an elaboration likelihood model (ELM; Petty & Cacioppo, 1984, 1986) framework.

The ELM is a prominent dual-process theory that posits that there are two routes involved in the processing of messages: the central route and the peripheral route. The central route of processing occurs when a message is critically and carefully analysed in terms of the logic and evidence provided, whereas the peripheral route of processing occurs when an individual relies on simple cues or mental shortcuts to evaluate the message. According to Petty and Cacioppo (1984, 1986), the use of these routes is dependent on the individual's circumstances and characteristics. For instance, when an individual is highly motivated or

has the ability to evaluate a message thoroughly and systematically, otherwise known as being in a state of "high elaboration likelihood," they will be likely to engage in central route processing. However, when an individual lacks motivation or the ability to evaluate a message critically, also referred to as a state of "low elaboration likelihood," they will be likely to engage in peripheral route processing. After message processing occurs, decisions about the message are formed. In the context of processing information received online from different sources, these decisions can involve judgments about how trustworthy the information and its source are (Pee & Lee, 2016). The present study also investigates trust evaluations in relation to both the misinformer and their (mis)information.

Individuals are in a state of high elaboration likelihood when they are highly motivated to centrally engage with the content of the message (Petty & Cacioppo, 1984, 1986). The motivation to engage in central processing may be determined by personal relevance, for instance, being actively involved with a topic (Koch et al., 2023; Petty et al., 1983). In the context of Covid-19, most adolescents may have seen information about the spread of the virus as less personally relevant due to their lower likelihood of becoming hospitalised from symptoms (Lee et al., 2020). In the present study, we therefore manipulated how much of a risk a new (imaginary) strain of Covid-19 would pose to adolescents. The aim was to explore whether being at risk of severe illness from the new strain would influence trust evaluations of the misinformer who shares false information about the transmission of the strain as well as trust evaluations of their misinformation. According to previous research, being engaged in central processing can result in heightened scrutiny of a message's arguments, resulting in the dismissal of arguments that are deemed weak (Petty et al., 2009). Consistent with this research, it is most likely that in the present study, adolescents who read about a new strain that posed a risk to their age group will be in a state of high elaboration likelihood, and subsequently will be more likely to find the misinformer or their misinformation untrustworthy.

Another determinant of being in a state of high elaboration likelihood is having the ability to process a message through the central route (Petty & Cacioppo, 1984, 1986). Being the more cognitively effortful route, ability refers to the individual's level of skill in processing information (MacInnis et al., 1991). In the current study, this can involve how much the adolescent is able to scrutinise information. Teenagers who place value on the importance of credible news display a better ability to detect misinformation (Nygren & Guath, 2022). This has been attributed to a "mindset" of critical understanding amongst those teenagers. Furthermore, adolescents who claim to have a habit of tracking news sources also perform well at critically analysing news stories (Ku et al., 2019). For the current study, we asked our adolescent sample to report their own engagement in information-scrutinising behaviours as a measure of their ability to process information centrally. We expected participants with higher self-reported information scrutiny levels to also be in a state of high elaboration likelihood, and so to also be less likely to find the misinformer or their misinformation trustworthy.

Adolescents pay particular attention to the source of information when making decisions about whether a social media post should be shared, above considerations of the credibility of the information itself (Herrero-Diz et al., 2020). During adolescence, peers start to emerge as increasingly influential (Somerville, 2013) and, in experimental research, can be regarded positively even when they share misinformation (Farooq et al., 2022). According to the ELM, relying on one's relationship with the information source to guide judgments about trustworthiness suggests that the peripheral route of processing is being engaged (Cialdini, 1994; Shin et al., 2018). As such, it would be expected that individuals in a state of low elaboration likelihood would be more likely to rely on such cues. In the present study, we therefore manipulated the age

of the misinformation source (peer vs adult) to investigate whether participants in a state of low elaboration likelihood would be more likely to trust a source closer in similarity to them. It is expected that for adolescents in a low state of elaboration likelihood, the peer source would be regarded as more trustworthy and their information also more trustworthy, relative to the adult source.

We also asked participants to provide reasoning to justify their trust evaluations. These responses were used to determine which factors participants focus on when "elaborating" on their evaluations and whether the factors are more in line with central or peripheral routes of processing. As we asked participants explicitly about the misinformer and their misinformation, we expected that those in a state of high elaboration likelihood would be more likely to refer to message-relevant factors (message logic, argument, evidence) when reasoning about their trust evaluations. We would attribute this to their heightened motivation or existing ability to centrally process information outlined by ELM research (Petty et al., 2009; Wagner & Petty, 2011). In the context of the current study, we would expect this to involve considerations of how credible the information presented by the misinformer is and how credible they are as a source of scientific information. On the other hand, we expected those in a state of low elaboration likelihood to be more likely to refer to external or simple cues (Rucker & Petty, 2006). In this context, we expected this to involve references to their relationship with the source, other characteristics of the source unrelated to their credibility, or references to their own feelings about the source or their information.

1.1. The Present Study

The aim of the present study was to use the ELM to explore whether the risk of harm (risk of harm vs reduced risk of harm) and the age of a misinformer (peer vs adult) were related to adolescents' evaluations of the trustworthiness of the misinformer and their information. To manipulate a sense of harm to one's age group, we asked half of our sample to imagine a new variant of Covid-19 had emerged and that this was either (a) different to previous variants and more harmful for adolescents (risk of harm), or (b) like previous variants and less harmful for adolescents (reduced risk of harm). To manipulate the misinformer's age, half of the sample was asked to imagine they received a message from a friend the same age and gender as them (peer) while the other half was asked to imagine the message was from an adult family friend (adult). The message contained the same misinformation about the spread of the Coronavirus. We also asked participants to justify their trustworthiness evaluations by asking them "why?" to assess the reasons underlying these choices. Furthermore, the present study also aimed to explore adolescents' evaluations of their own engagement in scrutinising information in relation to both their trustworthiness evaluations and their reasoning.

Our hypotheses are as follows:

H1: Participants will be less likely to trust the misinformer and their misinformation when there is a risk of harm to their age group.

H2: Participants who report a high level of engagement in information-scrutinising behaviours will be less likely to trust the misinformer and their misinformation compared to those who report a low level of engagement.

H3a: Participants in the condition where there is a reduced risk of harm will be more likely to trust the misinformer and their misinformation when the misinformer is a peer rather than an adult (H3a)

H3b: Participants who are less engaged in information scrutiny behaviours will be more likely to trust the misinformer and their misinformation when the misinformer is a peer rather than an adult.

H4a: When justifying their trustworthiness evaluations, participants reading about a variant which poses a risk of harm to their age group will be more likely to reference the credibility of the misinformer, their information, and their source.

H4b: When justifying their trustworthiness evaluations, participants who self-report higher levels of information scrutiny will be more likely to reference the credibility of the misinformer, their information, and their source.

H5a: When justifying their trustworthiness evaluations, participants reading about a variant which poses a reduced risk of harm to their age group will be more likely to reference their relationship with or feelings about the misinformer (H5a).

H5b: When justifying their trustworthiness evaluations, participants who self-report lower levels of information scrutiny will be more likely to reference their relationship with or feelings about the misinformer.

2. Method

2.1. Participants

Participants were recruited from a school in the southwest of the UK. A total of 203 participants from two different year groups took part. However, after the removal of participants who failed to pass the manipulation checks, the final sample consisted of 131 participants. A power analysis for regression analyses with multiple predictors was conducted using G*Power, with an alpha of .05, a power of .90, and a medium effect size of $\eta^2 = .15$ (Faul et al., 2007). This calculation estimated a required sample size of 130. The final sample of participants (14–17 years, Mage = 15.53 years, SD = 1.08 years) included 65 males, 51 females, 4 non-binary, 1 other, and 10 undisclosed. The sample was approximately 76% White British, 4% mixed race/dual-heritage, 5% British Asian, .5% Black British, 6% other ethnicity, and 8% did not disclose. Ethical approval for the study procedure and materials was granted by the ethical committee of the first author's institution. Participants under the age of 16 provided parental consent as well as their own agreement to participate, whereas participants 16 and over provided their own informed consent.

2.2. Design and Procedure

This study used a 2 (harm: risk of harm vs reduced risk of harm) x 2 (misinformer age: peer vs adult) between-subjects design.

In regards to the harm manipulation, participants were randomly assigned to one of two conditions:

1. Risk of harm: Participants were asked to imagine a new variant of Covid-19 had been discovered, known as the Omega variant. Participants were told that, unlike previous variants, the Omega variant can affect teenagers. Even when vaccinated, teenagers can develop symptoms (see Appendix A in the Supplementary File for an example).
2. Reduced risk of harm: Participants were asked to imagine a new variant of Covid-19 had been discovered, known as the Omega variant. Participants were told that, like previous variants, the Omega variant was less likely to affect teenagers. Teenagers are less likely than older adults to develop symptoms.

In regards to the misinformer age manipulation, participants were presented with a misinformation manipulation in one of two conditions: They saw a WhatsApp-style text chat graphic that was either labelled School Group or Local Group:

1. Peer: Participants were asked to imagine they received a message in their School Group chat group from a friend the same age and gender as themselves (Sam), also attending their school. The message read: "Have you all heard the new news about the omega variant? I just read that apparently it can't be spread as much through the air as older variants could be?" accompanied by a link to an article on "thecovidchronicles.net" (see Appendix B in the Supplementary File for an example).
2. Adult: Participants were asked to imagine they received a message in their Local Group chat group from an adult family friend (Sam). The message was the same as in the peer condition.

Participants then proceeded to answer two manipulation check questions to ensure they had understood and paid attention to the context in their condition. Participants who incorrectly answered one or both manipulation checks were excluded from the final analyses (see Appendix C in the Supplementary File).

2.3. Measures

The study employed four measures: trustworthiness of the misinformer, trustworthiness of the misinformation, reasoning, and information scrutiny.

In the first measure, trustworthiness of the misinformer, participants were asked to indicate how trustworthy they found the misinformer: "How trustworthy is Sam?" They then selected their response from a 7-point Likert scale ranging from 1 (*not trustworthy at all*) to 7 (*very trustworthy*).

In the second measure, trustworthiness of misinformation, participants were then asked to indicate how trustworthy they found the information provided by the misinformer: "How trustworthy do you think Sam's information is?" They selected their response from a 7-point Likert scale ranging from 1 (*not trustworthy at all*) to 7 (*very trustworthy*).

To assess reasoning directly after each of their trustworthiness evaluations, participants were asked the open-ended question: "Why do you think so?" Initially, reasoning responses for both trustworthiness measures were coded in accordance with a framework developed based on a reading of the data. Based on this reading, the following four types of answers were the most prevalent amongst participants' reasoning:

(a) relationship, referencing the familiarity or relationship with the misinformer; (b) credentials, referencing the misinformer's credentials or lack thereof; (c) personal, referencing to the misinformer's individual traits, characteristics, or mental state; and (d) credibility, referencing to the credibility of the misinformer's source, information, or research process. Responses that did not align with any of these categories were coded as "other." Two trained coders conducted the coding for participant's reasoning based on these four categories. Interrater reliability calculations suggested a high level of agreement between coders on 20% ($n = 40$) of the responses for both reasoning about the trustworthiness of the misinformer (Cohen's $\kappa = .96$) and for reasoning about the trustworthiness of the misinformation (Cohen's $\kappa = .98$). Where use of reasoning was present, the code "1" was given; where the reasoning was not used, the code "0" was given for each reasoning response. To analyse participants' responses in line with the ELM framework and test our hypotheses, the four categories were then collapsed into two categories. These two categories were labelled "central" and "peripheral" accordingly to the ELM framework (see Table 1 for this final framework with examples).

Table 1. Reasoning categories, with examples of participant responses.

Reasoning Category	Example
Central	
1. Credibility References to the credibility of the misinformer's information/source	"Because it is not what the NHS stated"
2. Credentials References to the misinformer's credentials or lack thereof	"Because Sam isn't a medical expert"
Peripheral	
3. Relationship References to familiarity with or relationship to the misinformer	"It's a local group chat, so chances are I know the bloke"
4. Personal References to the misinformer's individual attributes, or their own feelings about the misinformer	"He hasn't done anything wrong and is just trying to inform others"

The final, fourth measure pertains to information scrutiny. Here, participants were asked to indicate how much they agreed with statements about how much they engaged in behaviours associated with systematically scrutinising information. Participants were asked "how much do you agree or disagree with the sentences below" for each of the six items. The items were developed for this study and were designed to measure engagement in behaviours that involve the investigation of the reliability and validity of information. The items were, for example, "When I come across a news article, I investigate how trustworthy the claims in that article are." See Appendix D in the Supplementary File for the complete scale. Participants selected their response from a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). There was a high internal consistency across the items ($\alpha = .88$) and therefore an overall average information scrutiny score was created for analyses.

2.4. Plan of Analyses

To examine H1, H2, and H3, which concerned the evaluations of the trustworthiness of the misinformer and the trustworthiness of the misinformation, linear regression analyses were conducted. In each analysis, the following were added as predictors: harm (0 = *risk of harm*, 1 = *reduced risk of harm*), misinformer age (0 = *peer*, 1 = *adult*), and self-reported information scrutiny levels (self-report). The interaction terms between each of the variables were also added to a separate model; however the inclusion of the interaction terms did not significantly account for the variance in the outcome interest in the overall model, resulting in their exclusion from the final models.

To examine participants' reasoning about their trustworthiness of the misinformer and their trustworthiness of the misinformation evaluations (H4 and H5), separate binary logistic regression analyses were conducted to explore differences in participants' use of the two different ELM reasoning categories as a function of harm, misinformer age, and self-reported information scrutiny levels. For the reasoning analyses, the two reasoning categories based on the ELM framework (central and peripheral) were the outcome variables, and separate regressions were run for each of the trust evaluations that participants reasoned about. The interaction terms between predictors were also added to a separate model and significant interactions were broken down using simple slopes analyses.

Correlations between all study variables, including demographics, were explored with Bivariate correlation analyses (see Table 2).

Table 2. Correlations between the study variables.

Study Variables	1	2	3	4	5	6	7
1. Participant age	1						
2. Gender	−.04	1					
3. Harm	.00	.00	1				
4. Misinformer age	.04	−.06	.07	1			
5. Trustworthiness of the misinformer	−.13	−.10	−.25*	.02	1		
6. Trustworthiness of the misinformation	.03	−.09	−.10	.06	.47*	1	
7. Self-report	.00	−.01	.01	.06	.00	.05	1

Notes: Gender—0 = male, 1 = female; harm—0 = risk of harm, 1 = reduced risk of harm); misinformer age—0 = peer, 1 = adult; * $p < .01$ (2-tailed).

3. Results

3.1. Trustworthiness of the Misinformer

A multiple linear regression analysis showed that the model with all variables added as predictors (harm, misinformer age, self-report) was significant ($F(3, 128) = 2.70$, $p = .049$), explaining 6% ($R^2 = .06$) of the variance in participants' trustworthiness of the misinformer evaluation which is a modest indication of the explanatory power of this effect (see Table 3 for proportions of participants' scores by experimental condition). Harm was a significant predictor of participants' trust in the misinformer (see Table 4). In contrast to H1, participants perceived the misinformer to be *more* trustworthy when there was a risk of harm

compared to when there was a reduced risk of harm. However, none of the other predictors were significant, contrary to H2. As the model with interaction terms was not significant, there was no support for H3.

Table 3. Proportions of participants' trustworthiness of the misinformer (1) and trustworthiness of the misinformation (2) scores by experimental condition.

Experimental Condition	M	SD	No. of Participants
1. Trustworthiness of the misinformer			
Harm: Risk of harm	3.97	1.20	59
Harm: Reduced risk of harm	3.37	1.13	70
Misinformer age: Peer	3.63	1.08	64
Misinformer age: Adult	3.66	1.31	65
Total	3.64	1.20	129
2. Trustworthiness of the misinformation			
Harm: Risk of harm	2.88	1.35	57
Harm: Reduced risk of harm	2.61	1.24	69
Misinformer age: Peer	2.66	1.28	61
Misinformer age: Adult	2.80	1.31	65
Total	2.73	1.29	126

Table 4. Multiple linear regression with predictors of trustworthiness of the misinformer (1) and trustworthiness of the misinformation (2).

Predictors	B (Unstandardized Coefficient)	SE	B (Standardized Coefficient)	t	Sig.
1. Trustworthiness of the misinformer					
Harm	−.59	.21	−.25	−2.84	.005
Misinformer age	.07	.21	.03	.36	.723
Self-report	.00	.08	.00	−.03	.979
2. Trustworthiness of the misinformation					
Harm	−.27	.23	−.10	−1.14	.256
Misinformer age	.16	.23	.06	.68	.498
Self-report	−.05	.09	−.05	−.55	.583

3.2. Trustworthiness of the Misinformation

Another multiple linear regression analysis showed that the model with all variables added as predictors (harm, misinformer age, self-report) was not significant ($F(3, 125) = .68$, $p = .564$) in explaining the variance in participants' trustworthiness of the misinformation evaluation (Table 3). This was contrary to predictions made in H1 and H2. Again, the model with interaction terms was not significant, so there was no support for H3 in relation to misinformation trustworthiness evaluations. See Table 4 for proportions of participants' scores by experimental condition.

3.3. Reasoning About the Trustworthiness of the Misinformer

A series of binary logistic regression analyses were run to examine whether the study predictors (harm, misinformer age, self-report) were associated with participants' use of the two different reasoning categories (central and peripheral) when justifying their trustworthiness of the misinformer evaluations. In the first step, the predictors were added to the model. In the second step, interaction terms between all predictors were added to the model.

In relation to participants' use of central reasoning, the model with all three predictors added was a significant fit—(χ^2 (3, 131) = 15.31, Nagelkerke R^2 = .15, p = .002)—in relation to the null model (see Table 5). Participants who self-reported higher information scrutiny levels were more likely to utilise central reasoning. The model with interaction terms was also significant—(χ^2 (3, 131) = 11.20, Nagelkerke R^2 = .25, p = .011). There was a significant interaction between harm and participants' self-reported information scrutiny levels.

Table 5. Binary logistic regression analyses for participants' use of reasoning in relation.

	B	SE	Wald	df	p	OR	95% CI LL	95% CI UL
Central								
Model 1								
Harm	−.12	.38	.11	1	.743	.88	.42	1.85
Misinformer age	−.59	.38	2.46	1	.117	.55	.26	1.16
Self-report	.52	.15	11.96	1	<.001	1.68	1.25	2.26
Model 2								
Harm*Misinformer age	1.60	.87	3.41	1	.065	4.94	.91	26.93
Harm*Self-report	1.03	.39	7.15	1	.007	2.81	1.32	6.00
Misinformer age*Self-report	.14	.32	.19	1	.662	1.15	.61	2.16
Peripheral								
Model 1								
Harm	−.23	.36	.39	1	.532	.80	.39	1.63
Misinformer age	.29	.37	.65	1	.420	1.34	.66	2.75
Self-report	−.36	.14	6.43	1	.011	.70	.53	.92
Model 2								
Harm*Misinformer age	−.63	.77	.66	1	.416	.53	.12	2.42
Harm*Self-report	−.15	.30	.24	1	.623	.86	.47	1.56
Misinformer age*Self-report	−.92	.31	8.78	1	.003	.40	.22	.73

To investigate the interaction between harm and self-reported information scrutiny levels on the use of central reasoning, a moderation analysis was conducted using the PROCESS macro in SPSS, Model 1 (Hayes, 2018), where self-reported information scrutiny was added as the independent variable, central reasoning was the dependent variable, and harm was the dichotomous moderator variable. The moderation analysis revealed that the relationship between self-reported scrutiny and use of central reasoning is significantly moderated by harm (b = −.85, 95% CI [−1.52, −.17], t = −2.46, p = .014; see Figure 1.
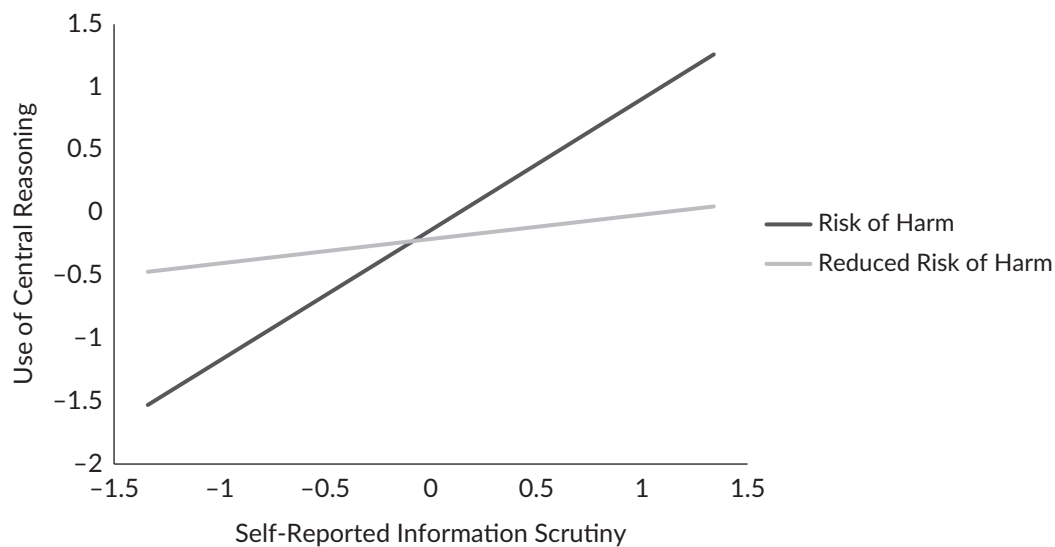
Figure 1. Simple slopes analysis showing how the relationship between self-reported information scrutiny and use of central reasoning by participants is significantly moderated by harm.

Results of a simple slopes analysis showed that for the participants who were in the condition where there was a risk of harm to their age group, there was a significant relationship between self-reported information scrutiny and use of central reasoning ($b = 1.04$, 95% CI [.47, 1.62], $t = 3.56$, $p < .001$). For the participants who read about a reduced risk of harm to their age group, this relationship was not significant ($b = .20$, 95% CI [−.16, .55], $t = 1.08$, $p = .278$). This analysis shows that only amongst the participants who read about a risk of harm to their age group, there was a positive association between self-reported information scrutiny levels and using central reasoning to justify their trustworthiness of the misinformer evaluations. This supports H4b.

In relation to participants' use of peripheral reasoning, the model with predictors added indicated a marginally significant fit (χ^2 (3, 131) = 7.57, Nagelkerke R^2 = .08, $p = .056$) in relation to the null model. As shown in Table 5 and in support of H5b, participants who self-reported lower information scrutiny levels were more likely to utilise peripheral reasoning. The model with interaction terms was also significant (χ^2 (3, 131) = 10.76, Nagelkerke R^2 = .18, $p = .013$). Table 5 shows that the interaction between the misinformer's age and participants' self-reported levels of information scrutiny was significant.

To investigate the interaction between misinformer age and self-reported information scrutiny levels on use of peripheral reasoning, a moderation analysis was conducted using the PROCESS macro in SPSS, Model 1 (Hayes, 2018), where self-reported scrutiny was added as the independent variable, peripheral reasoning was the dependent variable, and misinformer age was the dichotomous moderator variable. The moderation analysis revealed that the relationship between self-reported information scrutiny levels and use of peripheral reasoning is significantly moderated by the misinformer's age ($b = .92$, 95% CI [.32, 1.54], $t = 2.98$, $p = .003$; see Figure 2).
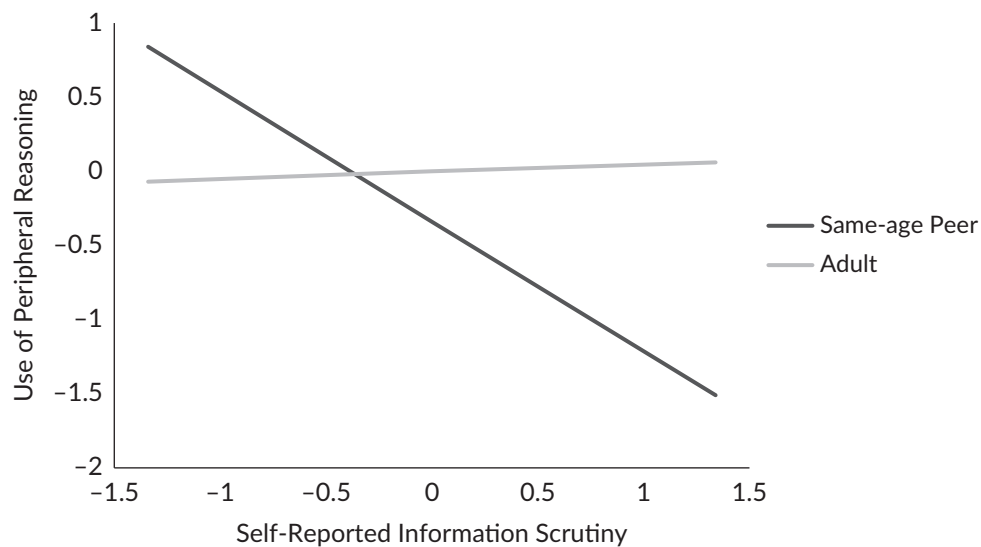
Figure 2. Simple slopes analysis showing that the relationship between self-reported information scrutiny and use of peripheral reasoning is significantly moderated by the misinformer's age.

Simple slopes analysis showed that for the participants who were in the condition where the misinformer was a peer, there was a significant relationship between self-reported information scrutiny and use of peripheral reasoning ($b = -.88$, 95% CI [-1.4, $-.39$], $t = -3.55$, $p < .001$). For the participants in the condition where the misinformer was an adult, this relationship was not significant ($b = .05$, 95% CI [$-.32$, .42], $t = .27$, $p = .789$). Taken altogether, this analysis shows that only amongst the participants who received misinformation from the peer, there was a negative association between self-reported information scrutiny levels and using peripheral reasoning to justify their trustworthiness of the misinformer evaluations. See Figure 3 for the proportions of participants' reasoning about their trustworthiness of the misinformer evaluations, by experimental condition.
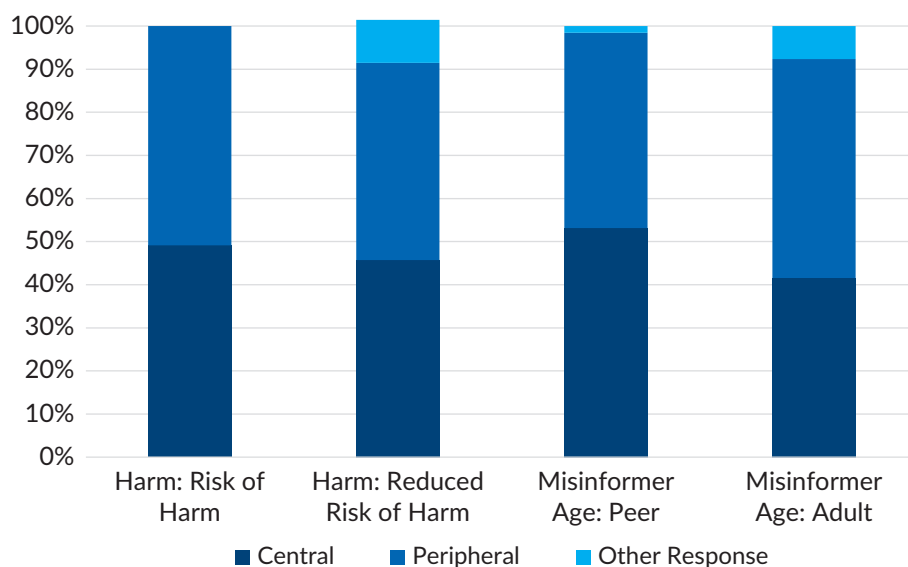

Figure 3. Percentage proportions of participants' reasoning about their trustworthiness in the misinformer scores by experimental condition.

3.4. Reasoning About the Trustworthiness of the Misinformation

Another series of binary logistic regression analyses was run to examine whether the study predictors (harm, misinformer age, self-report) were associated with participants' use of the two different reasoning categories (central and peripheral) when justifying their trustworthiness of the misinformation evaluations.

First, in relation to participants' use of central reasoning, the model with predictors added was not a significant fit—(χ^2 (3, 131) = 3.86, Nagelkerke R^2 = .05, p = .277)—in relation to the null model. The model with interaction terms added was also not significant—(χ^2 (3, 131) = 6.55, Nagelkerke R^2 = .12, p = .088; see Table 6).

Table 6. Binary logistic regression analyses for participants' use of reasoning in relation to their trustworthiness of the misinformation evaluations.

							95% CI	
	B	*SE*	*Wald*	*df*	*p*	*OR*	*LL*	*UL*
Central								
Model 1								
Harm	−.31	.46	.45	1	.500	.73	.30	1.81
Misinformer age	−.55	.46	1.44	1	.230	.58	.23	1.42
Self-report	.24	.17	2.02	1	.155	1.28	.91	1.79
Model 2								
Harm*Misinformer age	−1.39	1.02	1.85	1	.173	.25	.03	1.84
Harm*Self-report	.70	.37	3.49	1	.062	2.01	.97	4.18
Misinformer age*Self-report	.06	.37	.03	1	.863	1.07	.52	2.18
Peripheral								
Model 1								
Harm	.14	.63	.05	1	.823	1.15	.34	3.95
Misinformer age	1.75	.80	4.84	1	.028	5.78	1.21	27.62
Self-report	.01	.23	.00	1	.963	1.01	.64	1.60
Model 2								
Harm*Misinformer age[1]	—	—	—	—	—	—	—	—
Harm*Self-report	.10	.60	.03	1	.866	1.11	.34	3.61
Misinformer age*Self-report	−1.24	.90	1.90	1	.168	.29	.05	1.69

Note: [1] There were insufficient participants in each condition who used peripheral reasoning.

Next, in relation to participants' use of peripheral reasoning, the model with predictors added was also not a significant fit—(χ^2 (3, 131) = 6.56, Nagelkerke R^2 = .11, p = .087)—in relation to the null model. The model with interaction terms added was also not significant—(χ^2 (3, 131) = 6.69, Nagelkerke R^2 = .21, p = .082; see Table 6). For proportions of participants' reasoning about their trustworthiness of the misinformation evaluations by experimental condition, see Figure 4.
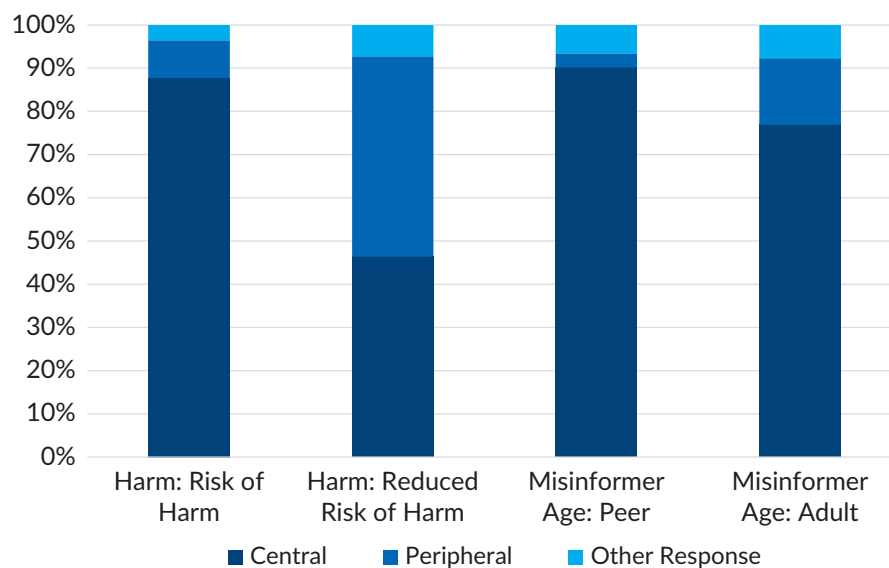
Figure 4. Percentage proportions of participants' reasoning about their trustworthiness in the misinformation scores by experimental condition.

4. Discussion

In this study, we examined whether risk of harm, the misinformer's age, and adolescents' self-reported information scrutiny levels were related to their trustworthiness evaluations of a misinformer and their misinformation. To undertake this examination, we utilised the ELM framework (Petty & Cacioppo, 1984, 1986) for the first time, to our knowledge, in the context of adolescents' trust perceptions. Contrary to our predictions, participants who were told about a variant which posed a risk of harm to their age group were *more* likely to trust the misinformer. In other words, the adolescents who imagined a scenario where their health was at higher risk reported an increased likelihood of trusting someone who was sharing misinformation about the spread of the virus.

Though we had predicted participants in the at-risk condition to be in a state of high elaboration likelihood, resulting in them being more likely to dismiss those who present weak arguments (Petty et al., 2009), this was not the case. Instead, it is possible that, for adolescents, being more motivated due to being *more* at risk may have had the opposite effect on their ability to dismiss weak arguments, albeit to a modest extent. For instance, past research has demonstrated that during crises, general trust levels increase because of the increased need for information caused by the uncertainty that usually follows a crisis (Hagar, 2013). Indeed, heightened emotional arousal during such crises may guide information processing (Lu et al., 2021). As such, it is possible that the increased motivation the adolescents in this experimentally manipulated group faced increased their likelihood of trusting informants, even if their information was false. With reports implicating adolescents as a group likely to breach Covid-19-related public health guidelines (Andrews et al., 2020), it is important to recognise that in possible future public health crises where adolescents are more vulnerable to risk, their likelihood to follow public health guidelines may hinge on their exposure to trustworthy and credible sources of health-related information. This is further emphasised by the lack of empirical support for H2 and H3, where participants' trust evaluations did not differ by their level of engagement in information-scrutinising behaviours, or the misinformer's age. Participants' reasoning responses reveal the nuanced logic underlying these evaluations and how this differs based on the individual's scrutinising abilities.

When asked to elaborate on their trust evaluations of the misinformer, participants who self-reported higher levels of information scrutiny were more likely to utilise central reasoning. This meant that participants who claimed to engage in more behaviours investigating the validity and reliability of the information they came across were also more likely to justify their trust evaluations with references to considerations of the credibility of the misinformer, their source, and their information. This was in line with our predictions and in accordance with ELM research which suggests that having the ability to process messages can increase the likelihood of engaging in central route processing.

Further, the results of the moderation analysis suggest that this relationship was conditional on the harm manipulation. A positive association between self-reporting engaging in information scrutinising behaviours and using central reasoning to support their trustworthiness of the misinformer evaluations was only seen amongst the participants who read about a risk of harm to their age group. This finding suggests that while the adolescents reading about a risk of harm to their group were overall more likely to trust the misinformer, it is possible that considerations of the credibility of the misinformer, their source, and their information were contingent on how much they claimed to be engaging in information-scrutinising behaviours in the first place.

As a result, we can infer that even though adolescents may be more inclined to trust an individual who shares misinformation when they are at personal risk, those who engage in information-scrutinising behaviours may be more likely to consider the credibility of the individual and their presented information. This is promising, as past research has shown that participants who value information credibility tend to perform well on misinformation detection tasks, due to a supposed "mindset" of being critical (Nygren & Guath, 2022). While this mindset may have extremes, such as being inherently sceptical of even credible information, there are merits to having a moderate, "healthy" scepticism when encountering information online. Research with adolescents also shows that those who reported practicing news literacy by checking sources were best able to apply their critical thinking mindset to the real news stories they were faced with (Ku et al., 2019). Given that the participants in our sample who claimed to be highly engaged in information scrutinising behaviours also tended to scrutinise the credibility of the misinformer and their information, it is probable that this mindset was active amongst these participants too. Overall, these results indicate that amongst adolescents, the state of high elaboration likelihood may rely on having *both* the motivation (the risk of harm) and the ability (scrutinising information). Further ELM research on adolescents' trust evaluations is therefore warranted to examine this possibility, as this can have vast implications for how adolescents develop trust in individuals or information that is unreliable, particularly in crisis situations.

Furthermore, we found support for the ELM amongst adolescents' reasoning about their trust evaluations in terms of their use of the peripheral processing route. Participants who reported being less likely to engage in information scrutinising behaviours were more likely to utilise peripheral reasoning when justifying their trust evaluations of the misinformer. This is consistent with ELM research which argues that having less ability to process information in terms of its message and arguments results in the use of the peripheral processing route (Petty & Cacioppo, 1984, 1986). A closer look at the results suggested that only where the misinformer was a peer, participants who self-reported as being less engaged in information scrutinising behaviours were more likely to use peripheral reasoning. For instance, these participants were more likely to point out factors such as their relationship with the misinformer or the characteristics of the misinformer when justifying their evaluations of the trustworthiness of the misinformer. Previous research has shown that when a source is perceived as similar to oneself and persuasive, the source can be regarded as

trustworthy even if it is of low credibility (Briñol & Petty, 2009). Relying on one's relationship with the misinformer, or other mentions of the source's qualities, indicates that the peripheral route of processing is active (Cialdini, 1994; Shi et al., 2018). Our results show that for adolescents in a state of low elaboration likelihood, receiving misinformation from a peer may result in dependence on the features of the source that make them trustworthy beyond their credibility. This supports previous research on adolescents' propensity to focus on sources rather than information quality when receiving information from friends (Duffy et al., 2020; Herrero-Diz et al., 2020), though it sheds light on the role that being engaged in information-scrutinising behaviours plays in this tendency. Identifying adolescents who are less engaged in such behaviours and providing them with the necessary tools and digital literacy education to be able to confidently scrutinise the information they encounter online could contribute to a reduction in the spread of and belief in misinformation.

It is important to note that we asked participants two distinct questions about their trust in the misinformer and their trust in the misinformation. The latter question, as well as reasoning in relation to this question, did not yield any differences by the study's predictors. For instance, the misinformer's age did not influence trust evaluations. This could have been due to the countering effects of trust in peers during adolescence and the trust in adult figures who are usually responsible for disseminating public health information. Future research may consider comparing different types of peers (friends vs non-friends) or different types of adults (influencers, health officials, etc.). Furthermore, most participants used central reasoning when justifying their evaluations of how trustworthy the misinformation was, suggesting that this question prompted most adolescents to focus on factors relating to credibility, even if this was not the case for them when answering the question about the misinformer themselves. In hindsight, this question may have been leading, and thus resulted in participants' over-consideration of the message-relevant factors. In future research, a more general question could be implemented, or the order of these questions could be counterbalanced, to tease apart whether adolescents are affected by the phrasing of the questions.

Altogether, these findings imply that when it comes to adolescents' trust in false information, it is important to consider *who* they receive the information from, how the information affects them personally, and how much they practice scrutinising information as these factors can all have an impact on the *way* they will consider that information. More specifically, being at risk of harm may increase adolescents' likelihood of finding a misinformer trustworthy if their misinformation is harm-relevant. However, amongst adolescents who engage in information-scrutinising behaviours, there is an increased likelihood that even under the risk of harm, they will consider the credibility of the individual and their presented information. On the other hand, participants who self-reported to be less engaged in information scrutinising behaviours were more likely to consider their relationship with the misinformer, and their other attributes, when the misinformer was a peer. If attitude-consistent behaviour change is to be encouraged amongst adolescents, particularly during crises, it is important to consider the distinction between adolescents who claim to engage more in information-scrutinising behaviours and those who claim to engage less in such behaviours.

Finally, this research also suggests how the ELM can play a crucial role in public health messaging amongst adolescents. Distinguishing between the two routes of processing outlined by the model is not just important for understanding which aspects of a message have been attended to but can also have implications for behaviour or attitude change. For instance, attitudes changed as a result of the central processing route tending to be more enduring and likely to lead to behaviour consistent with that attitude, a

direct consequence of the more cognitively demanding and thorough analysis of the message during processing. While decisions or attitudes shaped by the peripheral processing route may be effective in the short-term, these are also more vulnerable to fluctuating or fading due to the weaker foundations formed when processing is based on peripheral cues (Rucker & Petty, 2006; Wagner & Petty, 2011). Hence, the ELM can be used to highlight when attitude-consistent behaviour is more likely to occur and sustain over time. In the context of processing information about public health crises such as Covid-19, where attitude change can influence behaviour relating to minimising the spread of the disease (e.g., adhering to public health guidelines), elaboration likelihood and the processing route can have important implications for the spread of the virus. Thus, this research highlights the role the ELM can play in shaping adolescents' responses to future public health crises.

This research is not without its limitations, which must be considered when interpreting its findings. Firstly, the study was conducted with a limited sample of adolescents in the UK during a very particular and unprecedented context in the pandemic. As such, it is important to note that the findings of this study lack generalisability and, while they may help us understand how adolescents could respond to future health crises, it is difficult to extend them to other contexts. Secondly, it is also important to consider the limitations of the measures used in the study. To capture whether the adolescents were using the central processing route for the information they came across, we relied on self-reported behaviours. This scale was created for this research and had not been validated beforehand. Indeed, while similar methods of self-reporting information-related behaviours are used in research with adolescents (Kops et al., 2025), this measure does not represent how adolescents would *actually* scrutinise information. For future research, incorporating a task that measures performance could be useful both for validating such scales and also for providing a more robust measure of central processing.

5. Conclusion

In summary, this research adapted the ELM to provide the lens through which adolescents' trust evaluations of a misinformer and their misinformation were understood using the salient context of Covid-19. The present study is the first to ask adolescents to justify their trust evaluations in the context of misinformation and is therefore able to provide novel insights into how adolescents think differently about misinformation from different sources, under contrasting levels of harm, and with varying abilities to scrutinise information.

Conflict of Interests
The authors declare no conflict of interests.

Data Availability

Data can be made available on request.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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