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Public Perceptions of Water Fluoridation: The Influence of Political Ideology and Media Coverage

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ABSTRACT

Purpose: The aim of this study is to investigate how media framing, agenda-setting, risk perception, and politics determine the people's perception of water fluoridation. Mass communication theory combined with the two-step flow theory attempts to comprehend the role of media and political orientation in the perceived public opinion of fluoridation particularly in the face of controversial issues such as public healthcare policies.

Methods: The data was collected from people living in Shanxi Province China, using online questionnaire, an area that suffers from severe fluoride contamination.

Results: The practical finding from the nonlinear regression analysis provided a new understanding of how media framing and agenda setting impact political ideology and general public ideologies towards fluoridation. Apart from that, perception of hazards like negative effects of fluoridation is also influenced by political orientation, implying that people view the potential dangers of fluoridation against their particular political positions. People's understanding of how mass media conveys messages and issues on the water fluoridation health safety policy is polarized due to advocacy of specific political beliefs operating in people's heads.

Conclusion: This study highlights the need to view political ideology as a dimension of the context which needs to be taken into account in formulating public health communication strategies. Political ideologies of opposing factions need to be accepted in the public health messages, and the media ought to be fair and factual in reporting about fluoridation to enable the public make an informed choice.

Key-words: Fluoride, Media framing, Agenda-Setting, Political Ideology Public health Communication

1. Introduction

Fluoride, which is found in nature as a mineral, is very useful in preserving oral health. Fluorine compounds are normally added to the public water supply, a process and measure known as water fluoridation to promote and enhance the general wellbeing of the populations and in particular oral health [1]. Water fluoridation has been described as one of the top ten achievements of public health during the 20th century. However, excess fluoride can lead to dental and or skeletal fluorosis, whilst in regions with fluoride deficiency the addition of fluoride to or other methods of Fluoride supplementation, reduces the incidence of dental caries. Fluoridation is identified as an efficient and inexpensive option for the enhancement of oral hygiene according to CDC, 2020; WHO, 2019 [2]. A large body of empirical studies supports the assumption that water fluoridation leads to significant decreases in the prevalence of dental caries, improved cost-effectiveness of dental treatment and cost-effectiveness for both individuals and dental health care systems [3]. Still, this public health practice is controversial in nature as the viewpoint on its advantages and risks is polarized along the political and ideological spectrum. The supporters argue that there are enough studies which prove the benefits of fluoridation. The opponents, on the other hand, argue that there are certain health risks, ethical concerns relating to the use of peoples and government intervention [4].

Numerous epidemiological studies over the past four decades have assessed the effectiveness of dental caries prevention using this method and shown that this public health approach leads to a substantial decrease in dental decay, especially in pediatrics population has reduced the need for dental care for patients and to the public health services [5]. The health practice of fluoridating of water supplies by WHO and other international health organizations has been found to be effective and inexpensive in the enhancement of oral health in populations where there is prenatal deficiency in fluoride levels in the water [6, 7]. In this regard, China has the highest prevalence of fluorosis and faces the most serious harmful effects of fluorosis in the world, as shown in the figure 1.

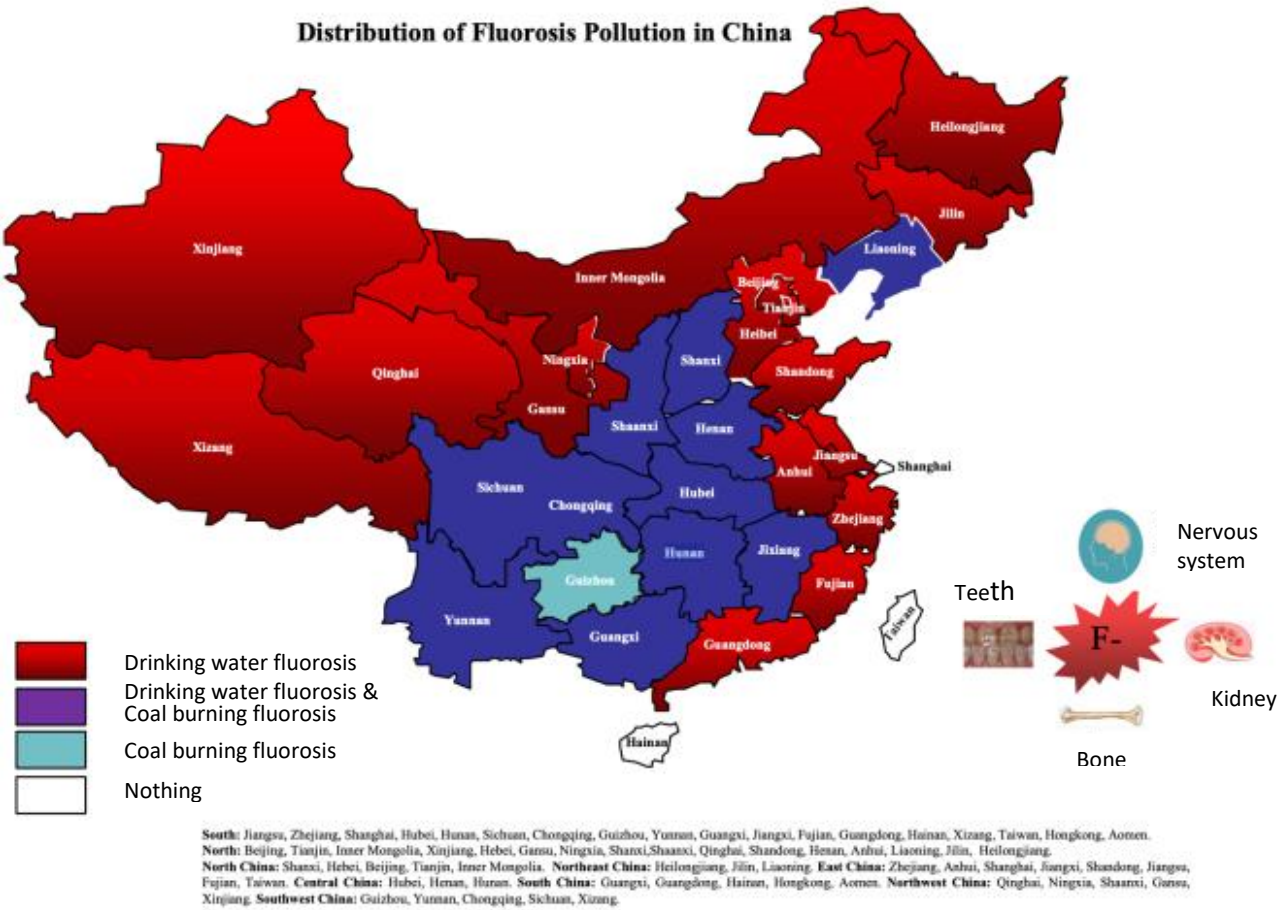

Figure 1: Fluoride pollution in China. Source: Wang, Li [12]

Rather, these claims have been regarded as distortions made by antifluoridation, as real discussions about water fluoridation ended several decades ago. The majority of professional dental and health care organizations are in favor of water fluoridation or have not found any correlation between it and any health risks [8].

The political beliefs of an individual have effects on the perception of water fluoridation [9]. In this regard, it is the political extremes that appreciate personal choice the most; a libertarian or conservative will be especially against regulation. They may think that adding fluoride to the water is a form of government intrusion and a violation of the right to make personal health decisions [10]. Such perspectives fall under a broader umbrella of mistrust of government and its attempt to impose health-related solutions leading to the resistance to fluoridation. In contrast, those who identify as being more liberal or progressive tend to be more supportive of the protective health measures and view water as a sanitation resource with the aim of enhancing health, rather than addressing disease solely [11]. These cleavages demonstrate how political paradigm can turn water fluoridation from a health centered issue to an argument on the limits of state power over the health of the population and individuals.

Although there has been much attention paid to both the science and the public health advantages of fluoridation, there lacks a coherent explanation

of the ways political ideology and the media help shape the public. Most researchers have dwelt on the biomedical interests of fluoridation while a reasonable number have explored the socio-political interactions which affect public views [13]. This study investigates media, political ideology, and public perception to advance public health advocacy's underlying theories. Growing divisions and false information are context, proving necessary to understand such phenomena when trying to communicate with the general public about fluoridation or related biomedical interventions. This study integrates the mass communication theory and two step flow theory to understand how the changes in the media coverage of water fluoridation influence public opinion on the same issue. Such an approach tries to contribute to developing public health communication that decreases the stigma regarding fluoridation by examining the ways in which political and media-constructed frames affect people's perceptions. Mass communication theory tackles the effects of mass media and its impact on public opinion while concentrating on how mass media influences the construction of issues and the agenda of discussion for the public. By answering these questions RQ1: How does media framing influence the public perception of water fluoridation? RQ2: What role does agenda-setting by media outlets play in shaping public awareness and perceptions of fluoridation? RQ3: How does political ideology moderate the relationship between media framing and public perception of fluoridation? This research, therefore, aims to help build the communication strategies that encourage the use of scientific information in decision-making processes while at the same time catering to people with different ideological views.

2. Theoretical Background

Water fluoridation, as a strong tool in the promotion of public health through the reduction of dental caries, which has received criticism recently. Although it has been proven to have many benefits towards the well-being of people, its practice has faced backlash from communities all over the world. This resistance takes a more political nature, this is shaped by the fact that there are differences in how the general public views the notion and this is created through media and by politics. In order to identify how these factors deal with the shaping of public opinion, it would be necessary to apply some communication theories that have been proven to be applicable. This study applies Mass Communication Theory and two step Flow Theory in the information about the treatment and its analysis in regards to water fluoridation. Owing to Mass Communication Theory, it states that mass media serves as a tool for cultivating public opinion concerning an issue, because of the strategies it develops in constructing the issues [14]. It compares it with the other theory, the Two-Step Flow Theory that places emphasis on opinion leaders who are regarded as influential people within a society who acquire mass media knowledge and help disseminate the same knowledge but through persuading the other members [15]. This theoretical framework is employed so that the study can trace the form of relationships that exist between political discourses and media framing on the perceptions of the general public about fluoridation.

This study attempt to relate Mass Communication Theory to the understsnd how a certain media or information affects society particularly with regards to social change which entails the behavioral change in the society. More specifically which seems very relevant in mass communications. Mass media acts as a means to spread information, that is, presenting views and persuading the audience. The concept of framing in a mass communication perspective to the analysis of water's fluoridation is justified. Framing which is one of the elements is one of the mass communication fator that focus on water fluoridation. According to Ervin Goffman's Framing Theory (1974) [16], whenever any event or any story is presented in the different forms of the mass media, it is conventional for the presentation to decide how the audience should comprehend the message. Media outlets present the story about fluoridation of water from a

different perspective emphasizing various aspects of the story. For example, it can be considered as a public health emergency measure with adequate evidence or it can be seen as a hot state interventionism that can even harm population health. The frames relate to the members of the society's opinions on safety and usefulness, and even the need for fluoridation.

While mass communication theory seeks to explain the direct impact of the mass media as a source, the Two Step Flow Theory [17] completes the picture by introducing the notion that media effects do not occur in a straight line and are always first filtered through opinion leaders. On the basis of this theory, that when the media conveys the information or some other form of appeal, that appeal is targeted firmly to Opinion Leaders first, and then the opinion leaders are expected to disseminate that appeal to the general public. This two-direct approach of flow explains as to why not every one of the members of the general public is influenced to the same level by the media provisions with regard to fluoridation.

In the contemporary world, opinion leaders have acquired new perspectives in the area of social media. Influencers, bloggers, and social media activists play the roles of contemporary 'opinion leaders' who read and distribute information about fluoridation from the media to their followers [18]. These opinion leaders have been observed to be more credible than the media itself and this boosts their power over the public opinion. For instance, a person with a huge following and posts 'anti-fluoridation' contents is likely to have most of his followers hold skeptical views regardless of the mass media trying to sell the health benefits of fluoridation to the public. Furthermore, the political ideology, active or passive, is another domain that tends to inform the opinion leader that an individual is likely to listen to or follow. Conservatives may be drawn towards opinion leaders who view fluoridation as an excessive regulation by the government, while progressives may go towards opinion leaders who view fluoridation as a matter of social justice and whose benefits would accrue to disadvantaged groups.

The political absolutism is one of the key underlying variables which accounts for the relationships between mass media, opinion shapers and the general public with respect to water fluoridation. Selective Exposure Theory indicates that people choose media consumption that serves their beliefs and value systems, which are often elite oriented. In this respect, conservatives who don't believe in the government doing anything may look for media and other opinion leaders portraying fluoridation in an unhealthy way or as a government encroachment enhancing their discontent about the practice. Individuals with more liberal ideologies may, on the contrary, be more willing to trust the media and opinion leaders in favor of fluoridation as a useful measure in population health management. Thus the linkage between the media and the opinion leaders with the intervening variable as the political orientation explains the differences in public opinions about water fluoridation. In such an environment, there are media and opinion leaders who advocate against any form of government action as coercion, and strategies advocating fluoridation will be met with resistance leading to escalation of opposition. On the other hand, in settings of high public health and social equity values, there are media and opinion leaders who invoke these collective benefits of fluoridation in the populace and hence more support.

3. Model and Hypotheses

3.1 Research Model

While looking into the interactions among media framing, agenda-setting, risk perception, political orientation, and the society's view on water fluoridation. The model states that it is media framing and agenda-setting which shape public perception, through the mediating mechanisms of political ideology and risk perception. These relationships are studied with the perspective of mass communication theory and two step flow theory.

3.2 Hypotheses

Media framing is the way in which the media deals with certain issues so that facts can be viewed in a certain manner. In the case of health

related policies such as fluoridation, the content strategy which the media adopts—whether it is the good side of fluoridation or the bad side—will definitely affect how the public views the situation [19]. Other works provide evidence that, in fact, there is a bias in more or less health-related media in relation to the majority opinion of observers [18]. If the media espoused the public believe that fluoridation should be practiced and advanced health rationale court include the court order adding fluoride communal water, then the expectation will be that the policy in implementation will be well accepted by the people. On the other hand, if the media articulated about fluoride ingestion moratorium with emphasis on the associated complications or the moral aspect, then, with this understanding, the public acceptance of the policy will be low [20]. Therefore, the following hypothesis is proposed:

H1: Positive media framing of fluoridation significantly influence political ideology.

According to the agenda-setting theory, the media determines the issues that the people think about rather than what they should actually think [21]. And on the basis of decreasing the number of subjects, the mass media also raises the weight of the said matters within the masses. For instance, in the case of fluoridation, if the media covers the policy in question repeatedly, the topic becomes part of the public dialogue therefore changing its prominence in the eyes of the people [22]. More recent studies also corroborate that the media agenda tending is important in determining debates within the public health domain. The focus on particular health communication subjects [23] such as vaccinations or fluoridation, can also raises such subjects within the health debate [24, 25]. And as the consumers become more clamorous about the media's focus on fluoridation, so, do the attitudes of the public change to this particular aspect of the controversy. Hence, tjis study proposes the following hypothesis:

H2: Agenda Setting on fluoridation significantly influences political ideology.

Risk perception encompasses the arbitrary evaluations conducted by individuals regarding the gravity of risks and the seriousness of any harm to be obtained from an issue [26]. Concerning fluoridation, the appetite for journalistic coverage of this issue and the reinforcement of [27] illustrate how risk perception is often mediated by the media, especially when there are health risks or ethical dilemmas focusing on fluoridation. It was noted that if media reports about the practice of fluoridation give emphasis to its dangers, then people are likely to view it as a dangerous practice which consequently affects their overall attitude towards the introduction of fluoridation [28]. Therefore, this study proposes the following hypothesis:

H3: Risk perception of fluoridation signifcantly influence political ideology.

Individuals are not only consumers of news as information but also interpret and make meaning of it using a political lens. This is especially true for people holding opposing political beliefs towards the same issues. When faced with the public health issue of fluoridation, conservatives and libertarians tend to oppose the policy arguing that such government intervention is unacceptable, while liberals tend to argue that it is a necessary measure for communal health [29]. Studies have found that political orientation provides a potential moderator of the relationship between media framing and public perception of health policies [30]. For instance, studies show that risk framing influences the acceptability of health policies for different political orientations of the participants [31]. Political orientation thus seems to explain the disparity between media framing and public reception of fluoridation. Therefore, following hypothesis is proposed:

H4: individual's political ideologies significantly mediate the relationship between media framing, agenda-setting, risk perception and Public Perception of Fluoridation (PPF).

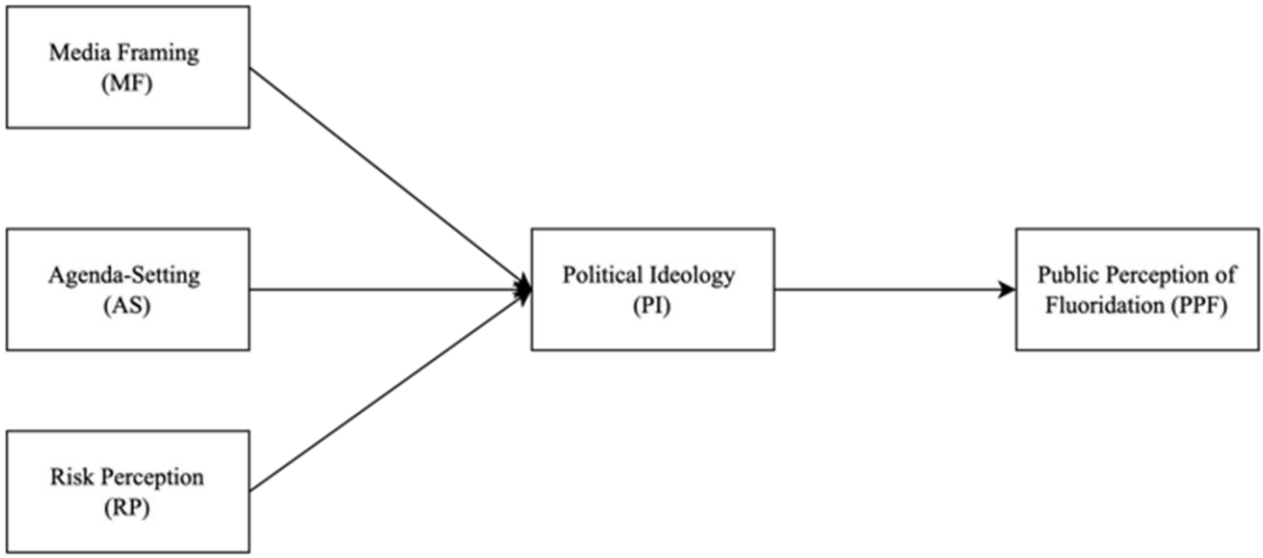

Figure 2: Path model

4. Methodology

The data for this study was collected online on an extensive survey to test the proposed research model. Due to the high fluoride level, this study was performed with residents in Shanxi Province in China through direct communication. We selected this region because they are particularly germane to the study of fluoride regulation and public health. The upcoming part describes the measurements, the sample and how data was collected.

4.1 Measures

To ensure the contente validity of these constructs the authors adopted most of the items in this survey from previous studies on which the scale was grounded. Table 1 summarizes the items adapted. Generally, the scale for Media framing was adopted from [32], scale for agenda setting was adopted from [33]. The scale for risk perception was adopted from [27, 28]. Moreover, the scale for political ideology and Public perception of Fluoride was adopted from [34, 35] and [36]. The survey adopted a seven-point Likert scale that provided responses as (1) Strongly disagree to (7) Strongly agree.

Table 1. Measures of Construct

Variable	Items	Source
Media Framing (MF)	MF1: The media often highlights the health benefits of fluoridation in its coverage.	[20, 32]
	MF2: Negative media coverage emphasizes the potential health risks of fluoridation.	
	MF3: The framing of fluoridation as a government overreach is common in media reports.	
Agenda-Setting (AS)	AS1: Media coverage has increased public s of the fluoridation debate.	[33]
	AS2: News outlets frequently focus on fluoridation as an important public health issue.	
	AS3: The frequency of media discussions influences how the public perceives the importance of fluoridation.	
Risk Perception (RP)	RP1: People believe fluoridation poses significant health risks based on media reports.	[27, 28]
	RP2: Public perception of fluoridation risks is shaped by how media frames potential harms.	
	RP3: Fluoridation is seen as a dangerous government intervention by certain groups	
Political Ideology (PI)	PI1: Conservative individuals are more likely to oppose fluoridation due to concerns about government overreach.	[34, 35]
	PI2: Liberal individuals tend to support fluoridation as a necessary public health measure.	
	PI3: Political ideology significantly influences whether people trust scientific evidence about fluoridation.	
Public Perception of Fluoridation (PPF)	PPF1: The public perceives fluoridation positively when media emphasizes its health benefits.	
	PPF2: Negative media coverage leads to greater public skepticism about fluoridation.	
	PPF3: Public perception of fluoridation is largely shaped by political and media narratives.	

4.2 Sample and Data Collection

We used the online survey method and provided questionnaires in local languages (Chinese). A pilot study was first conducted, in which 20 participants from Shanxi Province in China were invited to participate in the survey. The participants were local residents, and their answers to the questionnaire included feedback, which was used to refine the measurement items. The modified questionnaire was distributed in March to May 2024 over a period of two months. Participants were assured of the confidentiality of their information and were requested to volunteer in the study by completing a questionnaire that explored their opinions on fluoride regulation.

Table 2 summarizes the demographics of the respondents in the final sample. The age of most respondents ranged from 25 to 50 years. Male and female respondents comprised 45% and 55% of the sample, respectively. Respondents who have lived in areas with high fluoride levels for more than 10 years comprised 60% of the sample. Most of the surveyed population had at least a secondary education level (70%) and was aware of local public health policies (65%).

Table 2: Demographic Characteristics of Respondents

Category	Percentage
Age (25-50 years)	76%
Male	45%
Female	55%
Lived in high-fluoride areas >10 years	60%
Secondary education or higher	70%
Aware of local public health policies	65%

4.3 Data Collection Process

The link to the questionnaire was distributed to 900 residents, of whom 750 returned the questionnaires. A total of 50 responses were discarded due to incomplete information, resulting in a final sample consisting of 700 valid responses. We checked for non-response bias by comparing the responses from the questionnaires completed earlier with those completed later. The results did not show any significant difference between the two groups. Hence, we conclude that our sample is not influenced by non-response bias.

5. Data Analysis and Results

To assess our measurement and structural model, we applied the structural equation modeling using the SmartPLS version 4.0. SmartPLS is a highly operational method that combines the principal components analysis to establish CFA and regression to estimate both the measurement and structural model. It has also been very beneficial in dealing with formative measures and moderating relationships. According to [37], SmartPLS not only capable of developing a formative model for the latent constructs but also does not make specific assumptions about the distribution of data and can manage complex models very well. Therefore, we used SmartPLS 4.0 softwares to run CFA and structural model testing in our study.

5.1 Measurement Model

5.1.1 Reliability and Validity

We performed exploratory factor analysis using Smart PLS version 4 to test whether the measures' indicators can show factor loadings higher than 0.4. Results are shown in the provided tables 3. EFA is typically used to check the accuracy of item-factor matching and prepare for factor relationship analysis. The EFA results indicate that the indices for the overall fit of the proposed model are valid because the resulting values fall within the desired cut-off for loading values. All values are above the recommended level, indicating a lack of cross-loading issues.

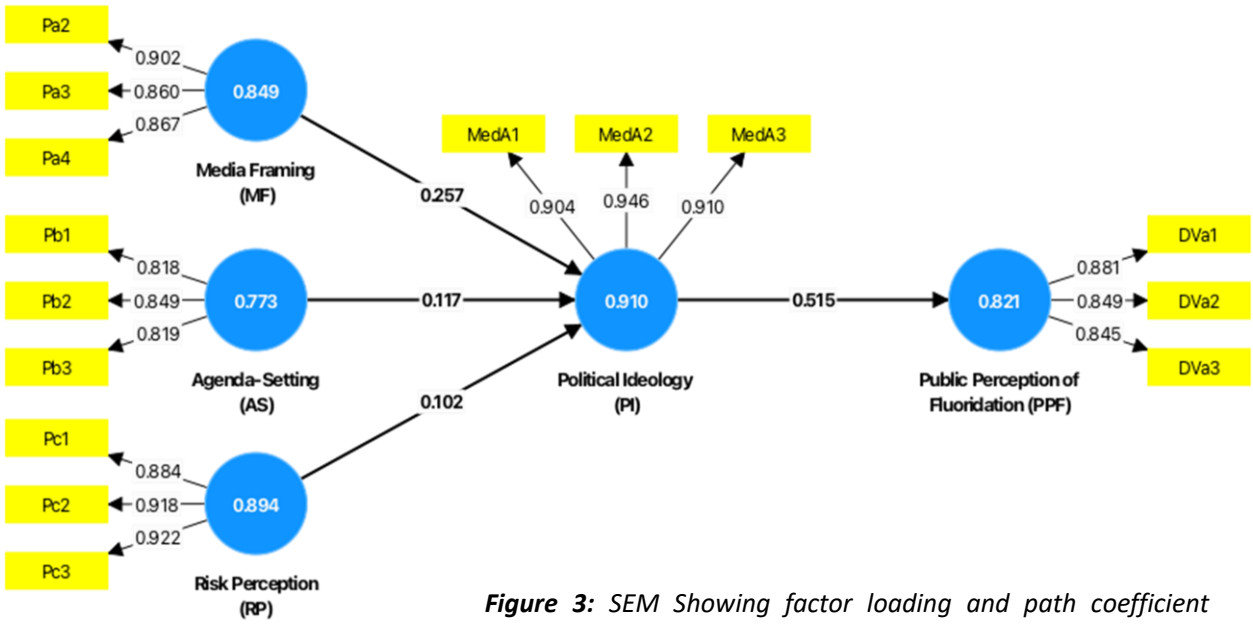

Figure 3: *SEM Showing factor loading and path coefficient among latent variables and observed variables.*

Convergent validity was assessed by testing the value of the factor loadings, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). The CFA results show that all item loadings are above 0.7. Next, we assessed the reliability and validity of the data using Cronbach's alpha, CR, and AVE. Cronbach's alpha is considered acceptable if it is 0.70 or higher, the variables in this study range between 0.733 and 0.910, which are considered satisfactory. The values for CR and AVE should be 0.70 and 0.5, respectively, or higher. In this study, CR values range between 0.778 and 0.915, and those for AVE range between 0.687 and 0.847. Both results are above the recommended values, thereby indicating valid measures as shown in table 3.

Table 3: Construct Reliability and Validity

Constructs	Items	Loadings	Cronbach Alpha	CR	AVE
Agenda-Setting (AS)	AS1	0.818	0.773	0.778	0.687
	AS2	0.849			
	AS3	0.819			
Media Framing (MF)	MF1	0.902	0.849	0.858	0.768
	MF2	0.860			
	MF3	0.867			
Political Ideology (PI)	PI1	0.904	0.910	0.915	0.847
	PI2	0.946			
	PI3	0.910			
Public Perception of Fluoride (PPF)	PPF1	0.881	0.821	0.821	0.737
	PPF2	0.849			
	PPF3	0.845			
Risk Perception (RP)	RP1	0.884	0.894	0.899	0.825
	RP2	0.918			
	RP3	0.922			

The discriminant validity of the measurement model is assessed by comparing the square root of AVE for each construct with the inter-construct correlations shown in table 4. Such a conclusion arises since the AVE square root for each of the constructions when compared with all correlated inter-constructs were higher. For instance, the Ageda-Setting (AS) Square root of AVE is 0.829 which is above the correlation with Media Framing (MF) at 0.876, and Public ideology (PI) 0.920. Comparable trends can be seen in the other constructs as well demonstrating that each construct accounts for more variance in its indicators rather than the other constructs.

Table 4: Fornell-Larcker criterion

	AS	MF	PI	PPF	RP
Agenda-Setting (AS)	0.829				
Media Framing (MF)	0.329	0.876			
Political Ideology (PI)	0.236	0.331	0.920		
Public Perception of _Fluoridation (PPF)	0.224	0.358	0.515	0.858	
Risk Perception (RP)	0.344	0.351	0.232	0.195	0.908

Meanwhile, the scores for variance inflation factor (VIF) were examined to assess the possible concerns of multicollinearity among the constructs. The resulting VIF scores range from 1.499 to 2.955, which are below the recommended threshold value of 10 [38]. Thus, multicollinearity is not an issue in this study.

Next, the structural model is tested using the data collected for the validated measures. Overall fit indices for the proposed model were calculated using SmartPLS 4. The resulting values are within the commonly accepted range. RMSEA is 0.049, which is lower than the suggested value of 0.10. CMIN/DF is 2.770, which is also within the accepted range. Moreover, IFI is 0.854, TLI is 0.914, and CFI is 0.926; these values are all above the suggested estimates of 0.90. Thus, the results show a valid model fit.

In addition, given that all questions in the survey were answered by the same individual, the extent of common method bias was evaluated using Harman's one-factor test. The threat of common method bias in the test is considered high if a single factor accounts for more than 50% of the variance (Harman, 1976). The results show that none of the factors significantly dominate the explanation of the variance, in which the most influential factor accounts for 36.9% of the variance. Other evidence of common method bias includes exceptionally high correlations ($r > 0.90$) among variables. The inter-construct correlation matrix shows that the unusually high correlation in the sample is non-existent. Thus, common method bias is not a serious concern in this study, shown in the table 5.

Table 5: HTMT Ratios

	AS	MF	PI	PPF
Agenda-Setting _(AS)				
Media Framing _(MF)	0.404			
Political Ideology _(PI)	0.279	0.372		
Public Perception of _Fluoridation (PPF)	0.283	0.424	0.595	
Risk Perception_(RP)	0.416	0.405	0.255	0.229

5.1.2 Structure Model

The results show that the calculated path coefficients are significant. The results indicate that Media Framing (MF) has a strong positive impact on Political Ideology (PI) (H1:$\beta = 0.257$, $p < 0.000$). Similarly, Agenda-Setting (AS) has a significant positive association with Political Ideology (PI) (H2: $\beta = 0.117$, $p < 0.001$). Moreover,

Risk Perception (RP) also has a positive significant impact on Political Ideology (PI) (H3: β = 0.102, p < 0.004). Furthermore, Public Ideology (PI) plays a mediating rol. Political ideology significantly mediates the relationship between the other constructs (MF, AS, RP) and public perception, meaning the influence of media and risk perception on public attitudes is filtered through an individual's political ideology (H4: β = 0.633, p < 0.000). The findings further show that, CE has significant effect on EDP as evidenced by a strong Positive path coefficient (H4: β = 0.515, p < 0.000). For this reason, we accept the verification of the assumed model (Figure. 4).

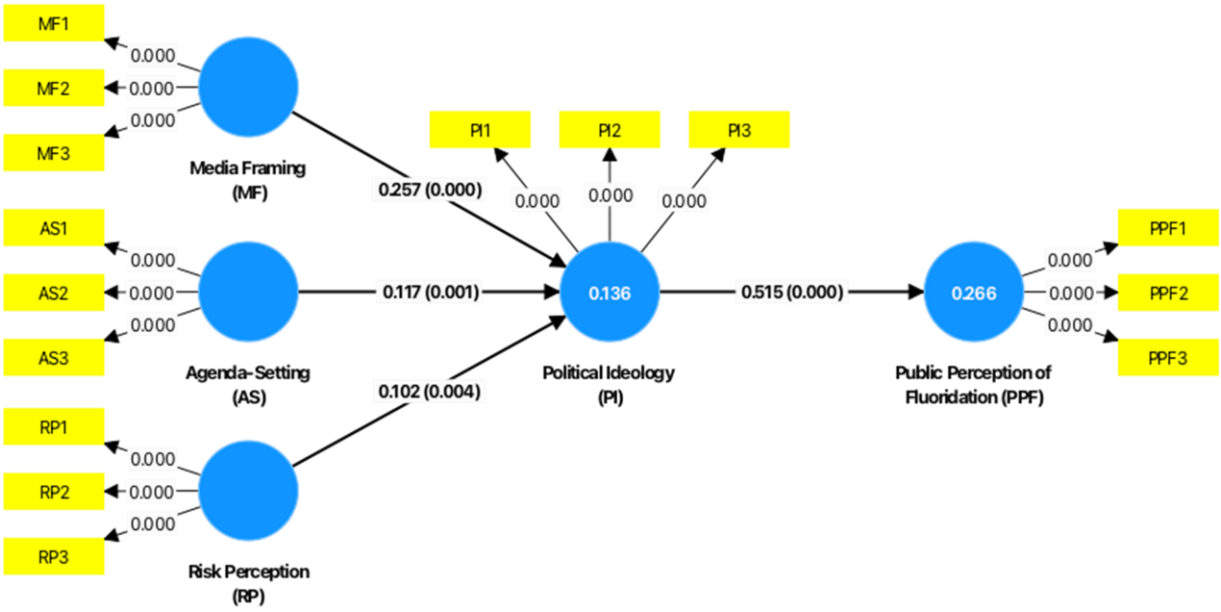

Figure 4: Measurement Model

6. Discussion and Conclusions

The study aims to investigate and to better understand the influence of media framing, agenda-setting, risk perception, and political ideology on how people perceive water fluoridation. The study results clearly established that both political and media factors are critical in shaping public views regarding fluoridation. The importance of political ideology as a mediation factor was also evident as it determined how respondents understood and evaluated media content regarding the risks of fluoridation. The findings also help to make sense of the underlying dynamics that contribute to public support or opposition to health policies arguing that both media framing and political ideology must be integrated in addressing public health communication.

The strong link between media framing and political orientation lends credence to the assumption that the media's treatment of the issue of fluoridation would have some bearing on the political attitude and therefore responses by the different political blocs towards the health policy would vary. The media could construct either a pro-health framing of fluoridation as saving public health or the anti-regulation framing of fluoridation portraying government's excessive intervention which will bias people differently. This corroborates the body of literature on media framing as explained by Iyengar (2020), whose position is that public atitude De Vreese [39] towards an issue the media frames is determined by the way in which the media constructs the particular issue.

Also, agenda-setting has been found to have effects on the policies under consideration. Increased media attention of fluoridation has been found to increase the salience of the issue such that people attempt to understand it in a political manner. This supports the agenda-setting theory of the media McCombs and Shaw [33], which states that media has the potential to rank some issues above oaths on the public agenda. On the other hand, fluoridation media coverage seems to elevate the issue thereby making it more controversial and bringing the issue of political reactions which are based on individual's ideology.

In addition, risk perception remains relevant in other areas such as politics; for example, it is more likely for the conservative side of a population to associate fluoridation with a perceived risk or an unwanted action of an overreaching state, whereas liberals are more favorable of it as a health intervention. This phenomenon corroborates the previous conclusions made by Slovic [28] where it was shown that risk perception is political-shaped, with the rightist people being more negative towards government health policies. Political ideology in relation to media framing and agenda setting and public perceptions of fluoridation, as stated, is critical for enhancing the efficacy of public health campaigns. The findings stress that the media and political discourse about fluoridation has a decisive influence on the public's perception and that health communication strategies regarding fluoridation should take into consideration the political context.

In conclusion, this study shows the effects that media framing, media agenda setting, risk perception, and political beliefs have in influencing public perspectives about the fluoridation process. The findings stress the significance of political ideology as a changeable variable that shapes people's responses to media content regarding fluoridation risks and benefits. The results are significant when it comes to anchoring one's theoretical understanding of social relations and mass communication directed at public health policy changes; they are also action-oriented when it comes to crafting effective messages in hostile political conditions. Understanding the impact of mass media and political ideology enables the healthcare stakeholders to communicate effectively with the policy activists that are more ideologically diverse, so that public opinion regarding health policies such as fluoridation, can be well informed and more effectively shaped.

6.1 Theoretical and Practical Implications

This study also contributes to the increasing body of literature on mass communication theory and two-step flow theory by providing data on the implementation of these theories within a controversial public health policy, water fluoridation. These findings append theories of mass communication by providing evidence on media effects in terms of media framing and agenda setting towards particular health issues, especially those intertwined with political figures. Additionally, the research contributes to the two-step flow theory of communication emphasizing the existence of political leaders who serve to mediate the effects of media concerning water fluoridation. This therefore corroborates the theory that there are no linear media exposure effects, but rather, opinion leaders who take in media content interpret and propagate it in accordance with their political ideology. In the case of fluoridation, political elites from both sides of the aisle may take completely opposite stances on the issue, which would create an altered stream of beliefs among the people. Using these discussions, this research shows how media, political views, and society's attitude impact each other in a highly interactive environment by exploring how media and political forces affect health communication.

This study elucidates the real-world strategies concerning the ways in which public health is communicated. It is necessary to know and respect the political watch when discussing the issue of water fluoridation. Those communicators involved in public health must demonstrate dexterity in the use of ideologies for fear of being rejected by some political sectors. For example, this determination could be leveraged against conservative constituents by appealing to the rationality of the people affected by the fluoridation and the science behind it, as well as

making a case of why the government does not need to be overly intrusive. Johnson also emphasises the necessity of such collaboration, noting that these leaders act as conduits, within society, who disseminate scientifically based information. Furthermore, the analysts have pointed to the 'recursive' effects of media coverage upon those holding media power. Media institutions should be held accountable to provide a report on how they will accurately communicate the issue of fluoridation in order to avoid the dissemination of warped information and political propaganda.

6.2 Limitations and Future Research Directions

Although this research is worthy of some accomplishments, it also has some shortcomings. First, this particular study took place in Shanxi province of China and thus local conditions may have affected the results. Thus, the conclusions may not hold true in other regions or countries, which are characterized by other political, cultural, or media landscapes. In any case, further studies should be done in other geographic contexts to check whether the model is applicable to diverse demographics. Second, self-reported data has inherent shortcomings because of social desirability and self-interpretative factors. Participants might have answered in a way that seemed socially acceptable or politically correct, especially because the participants were questioned on a sensitive issue such as fluoridation. More objectively assessable or experimental designs could be applied in future studies to back up the findings. And last, while at the media and political ideology level the present study focused on only political and traditional media as well as its ideology, there was no exploration of social media or these current times' digital platforms. Such platforms help shape the views of the public on issues and in this instance may also help to reinforce political ideals. Research soon could investigate what role social media, opinions leaders or influences and such have in shaping the public's view on health policy such as fluoridation.

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