Original Research Article

PERCEPTION REGARDING MEDIA COVERAGE OF PESTICIDES USE IN AGRICULTURE

Comment [D1]: Better to re-edit the title, I can suggest the following;
"Assessing the Public Perceptions of Media Coverage for Pesticides use in the Agriculture Sector of India"

ABSTRACT

~~The study was carried out in 2022-23.~~ Data ~~was~~ were collected from 350 respondents, using a self-administered questionnaire. This research paper explores the intricate relationship between media exposures and public perceptions of pesticides in the context of agriculture. Pesticides, while essential for crop protection and enhancing agricultural productivity, have also raised concerns regarding their potential health and environmental impacts. The study reveals that the respondents who perceive media coverage as balanced are more likely to express concerns about pesticide use.The analysis of media sources accuracy reveals a statistically significant association (Chi-square = 58.156, p < 0.0001). Respondents who perceived media sources as "Very accurately" reporting higher levels of concernabout pesticide use in agricultural practices, emphasizing the impact of perceived media accuracy on public concerns about pesticide use. The study found a strong link between media influence and the level of concern regarding pesticide use.

Comment [D2]: Should define the study geographical areas from which the questionnaire was filled.

Comment [D3]: This sentence should be put as third in the abstract, and this sentence needs improvement.

Comment [D4]: The overall data collection process should be clearly and concisely incorporated in the abstract.

Comment [D5]: Overall, the length of the abstract should be enlarged up to 200 words, with major findings.

Keywords: Public perception, media coverage, pesticides ~~use~~, agriculture.

INTRODUCTION

Pesticides include insecticides, herbicides, and fungicides, play a crucial role in safeguarding crops from pests and diseases(Aktar et al., 2009). The usage of pesticide has increased manifold since 1960s worldwide (Ghanghas B. S. et al., 2021). While pesticides have contributed to

enhanced economic potential by increasing food and fiber production, their drawbacks have led to severe health implications for humans and the environment(Logesh Mohankumar et al., 2023). Recognizing these detrimental impacts, there is a growing momentum to advocate for pesticide-free farming practices. Pesticide-free farming emphasizes sustainable and organic approaches, aiming to minimize the use of harmful chemicals and promote environmentally conscious agricultural practices (Jacquet, F., et al, 2022). Increasingly, individuals are demanding greater transparency and detailed information about the entire food supply chain, from production to distribution and consumption (Calliera, M., 2018). Media platforms play a crucial role in fulfilling this demand by disseminating information, conducting investigative reporting, and fostering public awareness about food production, distribution, and consumption.Media has the ability to shape public opinion, influence decision-making, and mold societal perceptions on a wide range of issues(McCombs M., et al., 2011). One such critical issue is the use of pesticides in agriculture, an area where science, environment, health, and economics intersect in complex ways. The perception of pesticides and their impact on agriculture is significantly shaped by the media, playing a pivotal role in framing public understanding and discourse surrounding their use(Tambo J. A., et al, 2023). Pesticides have been an integral part of modern agriculture, aiding in the protection of crops from pests, diseases, and other threats that can reduce yields and compromise food security (Damalas et al. 2016). While these chemical interventions have undoubtedly increased agricultural productivity, they have also sparked debates over their environmental and health consequences. The media, through its role as an intermediary between scientific research, policy decisions, and the general public, becomes a crucial factor in shaping how individuals perceive the benefits and risks associated with pesticide use in agriculture (Tambo J. A., et al, 2023).The complexities inherent in the communication of risks linked to

pesticide use in agriculture are multifaceted. Bridging the gap between scientific knowledge and how the public perceives information is a challenging task, especially with the media sharing information about pesticides.The framing of pesticide-related issues, the balance between benefits and risks, the portrayal of scientific consensus, and the implications of media-driven narratives all contribute to the intricate dynamics of risk communication.

This study ~~endeavors to~~ unravels the intricate fabric of media exposures and their impact on the public's understanding of the complex landscape of pesticide use in agriculture. By scrutinizing media portrayals, assessing their influence, and examining the challenges inherent in risk communication, this research aims to contribute to a more informed and nuanced discourse that transcends dichotomies and fosters a holistic understanding of pesticide-related risks in the agricultural domain.

OBJECTIVES OF THE STUDY

(1) To ascertainthe association of concern on pesticide use with perception of media influence/trust/accuracy level.

(2) To determine concern of respondents about pesticide use in agriculture practices in relation with balance factor/media report elements/denying pesticides practices.

Comment [D6]: This should be given at the end of the introduction, not separately in bullet forms.

MATERIAL AND METHOD

A survey was conducted using a self-administered questionnaire, which included questions associated with pesticides use in agriculture practices and role of media exposure syncing with the risk ~~&~~ and health issues. Questionnaire was prepared to get the responses on the basis of a five-point likert scale. A total of 350 respondents form various regions of Haryana, India, were selected.Collected data entry was made into SPSS software (IBM SPSS Statistics 21) for

Comment [D7]: How the questionnaire was administered?

Comment [D8]: Name the selected regions.

analysis. Variables with frequency and percentage were obtained through cross tab analysis. Chi-Square test was applied and results were analysed on the basis of p-value for statistically significance.

Comment [D9]: This parts needs some more clarity, and it should be little bit expanded.

RESULTS OF THE STUDY

The findings and results of the study are discussed in this section. It shows the demographic profile of respondents i.e. Gender, Age, Education, Occupation and Residential Areawith cross sectional analysis between Concern on pesticide use in agriculture practices*Perception influence/Trust on Media coverage/Media Accuracy level and Concern on pesticide use in agriculture practices*Balance factor/Media report elements/Denying pesticides practices. The results are discussed as below:

Table-1: Demographic profile of respondents

	Variable(s)	*Frequency*	*Percent (%)*
Gender	Male	238	68
	Female	112	32
	Total	**350**	**100**
Age	20-30 years	153	43.7
	31-40 years	103	29.4
	41-50 years	66	18.9
	More than 50 years	28	8
	Total	**350**	**100**
Education	Metric	18	5.1
	Intermediate	49	14
	Graduate	141	40.3
	Post Graduate	112	32
	PhD	30	8.6
	Total	**350**	**100**
Occupation	Business owner	96	27.4
	Public sector job	120	34.3
	Private sector job	68	19.4
	Student	66	18.9
	Total	**350**	**100**
Locality	Urban	236	67.4
	Rural	114	32.6
	Total	**350**	**100**

The above table (Table-1) provides a comprehensive overview of the demographic characteristics of 350 respondents, categorized by gender, age, education, and occupation. In terms of gender distribution, the majority of respondents are male, constituting 68% of the total, while females make up the remaining 32%. Regarding age groups, the largest proportion falls within the 20-30 years category, accounting for 43.7%, followed by the 31-40 years group at 29.4%. The distribution of educational attainment reveals that the highest percentage of respondents are graduates (40.3%), followed by post-graduates (32%). A smaller percentage holds PhD degrees (8.6%), and a few respondents have completed their education up to the metric level (5.1%) and intermediate (14%). In terms of occupation, the respondents are divided into business owners (27.4%), those in government sector jobs (34.3%), private sector employees (19.4%), and students (18.9%). The table outlines the residential distribution of 350 respondents based on the distinction between urban and rural areas. Among the surveyed population, the majority resides in urban areas, comprising 67.4% of the total. In contrast, 32.6% of the respondents live in rural areas. The table serves as a valuable tool for understanding the diverse demographic composition of the surveyed population, providing insights into gender balance, age distribution, educational backgrounds, occupational profiles and residential area.

Comment [D10]: Except the first sentence, it is better to put all the sentences in the Past tense.

Table-2: Differential media reliability for agricultural information

Media	**Frequency**	**Percentage (%)**
Social Media	203	58
Newspapers	202	57.71
Farm Magazines/Journals	122	34.86
News Portals	110	31.43

TV News	90	25.71
Radio	83	23.71
Other	22	6.29

Table-2 provides perceived reliability of various media sources for agricultural information. Social media emerges as the most frequently cited source, representing 58% of the respondents. This underscores the increasing influence and popularity of social media platforms in disseminating agricultural information. Followed by newspapers which accounts for 57.71%, signifying the enduring role of traditional print media in agricultural communication. Farm magazines/journals, news portals, and TV news maintain substantial percentages, with 34.86%, 31.43%, and 25.71%, respectively, highlighting the diversified sources through which individuals seek agricultural information. Radio and other unspecified sources account for 23.71% and 6.29%, respectively. The data suggest a multifaceted media landscape for agricultural information, with social media and traditional outlets playing significant roles in shaping perceptions and disseminating knowledge.

Table-3: Information sources reliability pattern for understanding the risks and benefits

Information Source	***Frequency***	***Percentage (%)***
Agriculture scientists	289	82.57
Government agencies/Departments	108	30.86
Farm Magazines	145	41.43
Media outlets	63	18
Any other	21	6

Table-3 presents the survey responses regarding the perceived reliability of information source. 82.57 % respondents consider agricultural scientists as a reliable source for understanding the

Comment [D11]: A sentence must not be started with numerical figures.

risks and benefits associated with the pesticides use in agriculture. 30.86% of respondents expressed confidence in information provided by government agencies and departments, indicating a significant reliance on govt. 41.43 % of the respondents have trust in farm magazines whereas, A significant portion of respondents (38%), representing nearly two-fifths. While a noteworthy proportion (18%) of respondents acknowledged media outlets as a source of information, it is the least endorsed perspective among the options provided.

Comment [D12]: Already commented

Table-4: Differential association of concern on pesticide use with perception of media influence/trust/accuracy level

	Scale	***Concern Level (%)***			***Chi-square***	***p-value***
		Very Concerned	**Concerned**	**Neutral**		
Perception influenced by media portrayals	A great deal	35.2	13	10		
	Quite a bit	23.5	47.3	30		
	Somewhat	17.9	23.7	27.5	41.029	.0001
	Very little	19.6	13.7	22.5		
	Not at all	3.9	2.3	10		
	Total	**100**	**100.0**	**100.0**		
Trust on media coverage	Complete trust	4.5	5.3	10		
	High trust	37.4	30.5	30		
	Neutral	33	51.9	27.5	25.994	.001
	Low trust	21.2	12.2	22.5		
	No trust at all	3.9	0	10		
	Total	**100.0**	**100.0**	**100.0**		
Media sources accuracy	Very accurate	25.7	7.6	0		
	Somewhat accurate	26.8	40.5	20		
	Neutral	25.1	16.8	52.5		
	Not very accurate	20.7	32.8	17.5	58.156	.0001
	Not accurate at all	1.7	2.3	10		
	Total	**100.0**	**100.0**	**100.0**		

Table-4 presents data on respondents' concerns about pesticide use in agricultural practices, along with their perception of media influence, trust in media coverage, and media accuracy levels. The table employs a scale to measure the degree of concern, trust, and accuracy, and

statistical significance is assessed through the chi-square test. In terms of the perception influenced by media portrayals on pesticide use, a significant association is observed (Chi-square = 41.029, $p < 0.0001$). Respondents who indicated being "Very Concerned" largely correlated with a high influence from media portrayals, while those who were "Not at all Concerned" had minimal media influence. This suggests a strong link between media influence and the level of concern regarding pesticide use.Similarly, the respondents' trust in media coverage on the topic is statistically significant (Chi-square = 25.994, $p = 0.001$). Those with "Complete trust" tended to express higher levels of concern compared to those with "No trust at all." This underscores the influence of trust in shaping concerns related to pesticide use in agriculture.The analysis of media sources' accuracy also reveals a statistically significant association (Chi-square = 58.156, $p < 0.0001$). Respondents who perceived media sources as "Very accurately" reporting on the issue demonstrated higher levels of concern, emphasizing the impact of perceived media accuracy on public concerns about pesticide use.These findings contribute valuable information for understanding public perceptions and attitudes shaped by media portrayals in the context of agricultural practices and pesticide use.

Table-5: Concern pattern on pesticide use in agriculture practices in relation with balance factor/media report elements/denying pesticides practices

	Scale	***Concern level (%)***			***Chi-square***	***p-value***
		Very Concerned	**Concerned**	**Neutral**		
Balanced factor of media coverage.	Always	17.3	3.1	0	61.116	.0001
	Most of the time	20.1	38.2	32.5		
	Neutral	31.8	17.6	40		
	No rarely	19.6	38.2	10		
	Never	11.2	3.1	17.5		
	Total	**100.0**	**100.0**	**100.0**		
Media reports should consist risk and	Always	65.4	58.8	37.5	21.981	.0001
	To some extent	25.7	31.3	62.5		
	No, it is not	8.9	9.9	0		

benefits of pesticides use	Necessary					
	Total	**100.0**	**100.0**	**100.0**		
Support for agriculture practices without pesticides.	Yes	88.3	91.6	65	66.070	.0001
	No	0	0	20		
	Not sure	11.7	8.4	15		
	Total	**100.0**	**100.0**	**100.0**		

Table-5 provides insights into respondents' concerns about pesticide use in agriculture by examining factors such as the balance of media coverage, the inclusion of risk and benefits in media reports, and support for agricultural practices without pesticides. The table employs a scale to measure concern levels, and statistical significance is assessed through the chi-square test. Concerns regarding the balance of media coverage on pesticide use show a statistically significant relationship (Chi-square = 61.116, $p < 0.0001$). Respondents who felt media coverage was balanced, especially those who indicated "Yes, always" or "Yes, most of the time," demonstrated higher levels of concern compared to those who perceived media coverage as biased or neutral. This suggests that respondents who perceive media coverage as balanced are more likely to express concerns about pesticide use. The inclusion of risk and benefits in media reports on pesticides is also statistically significant (Chi-square = 21.981, $p < 0.0001$). Respondents who believed that media reports should always include both the risks and benefits of pesticide use exhibited higher levels of concern. This emphasizes the importance of comprehensive media coverage in shaping public concerns about agricultural practices involving pesticides.

Furthermore, respondents' support for agricultural practices without pesticides is highly significant (Chi-square = 66.070, $p < 0.0001$). Those who expressed support for pesticide-free agriculture showed markedly higher levels of concern, underlining a strong association between support for pesticide-free practices and increased concern about the use of pesticides in

agriculture.The study findings contribute to understanding the nuanced perspectives and influences that shape public concerns regarding pesticide use in agriculture.

CONCLUSION

The study provides valuable insights into the multifaceted dynamics of public perceptions and concerns regarding pesticide use in agriculture in the form of significant associations which emphasize the responsibility of media outlets in shaping public awareness and concern on critical issues. The findings also portray the importance of balanced media coverage that includes both risks and benefits in influencing public opinion. Additionally, the strong link between support for pesticide-free agriculture and increased concern about pesticide use suggests a growing awareness and preference for sustainable and eco-friendly agricultural practices among the public. Media professionals should strive for accuracy, balance, and comprehensiveness in their coverage of agricultural practices to foster informed public discourse. Furthermore, stakeholders in agriculture should recognize the public preference for sustainable practices and work aligned with these expectations.

In summary, the study contributes to the understanding of the complex interplay between demographics, media influence, and public concerns about pesticide use, paving the way for informed decision-making and communication strategies in the realm of agricultural practices.

Comment [D13]: This should be reedited as Discussion and Conclusion as a heading. However, this should be expanded up to 1000 words maximally, comparing results with other findings revealed by previous literature.

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Comment [D14]: References are not sufficient in numbers, they should be doubled with some latest studies.