

# **The Effects of Message Source and Message Type on Intention to Engage in Preventive Health Behaviours: A Mixed-Methods Study**

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## **ABSTRAK**

Studi ini meneliti pengaruh Sumber Pesan (Pemerintah versus Selebriti) dan Jenis Pesan (Humor, Informasional, Ketakutan, dan Empati) sebagai variabel independen terhadap niat individu (variabel dependen) untuk terlibat dalam kesehatan preventif menggunakan ANOVA antar subjek  $2 \times 4$ . Hipotesisnya adalah pesan berbasis ketakutan dan informasional akan lebih persuasif ketika disampaikan oleh pemerintah, sedangkan pesan humor dan berbasis empati akan lebih efektif ketika disampaikan oleh selebriti, tidak ada perbedaan antara pesan empati versus humor, dan informasional versus ketakutan dalam setiap sumber. Analisis mengkonfirmasi hipotesis ini, meskipun perbedaan antara Sumber Pesan dan Jenis Pesan secara keseluruhan relatif kecil.

**Kata kunci:** *sumber pesan; jenis pesan; pesan kesehatan persuasif*

## **ABSTRACT**

This study examined the effects of Message Source (Government versus Celebrity) and Message Type (Humor, Informational, Fear, and Empathy) as the independent variables on individuals' intention (dependent variable) to engage in preventive health using a  $2 \times 4$  between-subjects ANOVA. It was hypothesized that fear-based and informational messages would be more persuasive when delivered by a government, whereas humorous and empathy-based messages would be more effective when delivered by a celebrity, there was no difference between empath versus humorous messages, and informational versus fear within each source. The analysis confirmed this hypothesis, although the discrepancies between the overall Message Source and Message Type were relatively small.

**Keywords:** *message source; message type; persuasive health messages*

## INTRODUCTION

This paper examines factors that enhance message persuasiveness, focusing on the interplay between the source delivering a health message and the type of message conveyed. The study examines the effects of Message Source (categorized as Government or Celebrity) and Message Type (comprising Humor, Informational, Fear, and Empathy) on individuals' intention to adopt preventive health measures. Prior research and practical observations suggest that the effectiveness of a message depends not only on its content but also on who delivers it and how it is framed. This study addresses the specific question of how different message sources interact with various message types to influence health-related intentions. It was hypothesized that certain message types would be more effective when paired with a particular source. Specifically, the research posited that fear-based and informational messages would be more persuasive when delivered by a government source, given its perceived authority and factual basis. Conversely, humorous and empathy-based messages were hypothesized to be more effective when delivered by a celebrity, leveraging their relatability and emotional connection with the audience.

The significance of the study is that it helps explain how to make preventive health messages more persuasive by showing that both the source of the message and the type of message matter, especially when they are combined. The findings can inform public health communication by suggesting that government sources are more effective for informational and fear-based messages, while celebrities are more effective for humorous and empathy-based messages. The study is unique because it uses a mixed-methods approach, not only testing the hypothesis with a 2 x 4 ANOVA but also explaining the results through thematic qualitative analysis. That makes it stronger than a purely quantitative study, because it shows both the pattern of effects and the reasons behind them, especially the roles of credibility, supporting evidence, and presentation.

The study contributes to theory by showing that message source and message type work together, rather than independently, in shaping preventive health intention. This supports an interaction-based view of persuasion, where the effectiveness of a message depends on who delivers it and how it is framed. The quantitative results show a significant interaction between source and type, and the planned contrasts confirm the predicted pairing of government with fear or informational messages and celebrity with humor or empathy messages. It also extends health communication research by linking these effects to qualitative themes of credibility, supporting evidence, and presentation. That adds a deeper explanation for why some source message combinations are persuasive, showing that persuasion is not only about content but also about perceived trustworthiness and delivery. In that sense, the study strengthens the idea that source credibility and message framing are connected, especially in preventive health contexts.

## **METHOD**

### *Research design*

The study employed a quantitative experimental design using a 2 x 4 between-subjects factorial arrangement to investigate the effects of Message Source; government versus celebrity, and Message Type; Humor, informational, fear, and empathy, on participants' intention to engage in preventive health behaviors. The qualitative part used inductive thematic analysis to explore why certain messages were seen as more persuasive, with themes such as Supporting Evidence of the Message Source and Presentation and Degree of Comprehension.

### *Participants*

Participants for this study were selected using a convenience sampling technique from a population evaluating preventive health messages. The study involved a total of 160 participants in a quantitative experimental design (2x4 ANOVA with 152 degrees of freedom for error), complemented by a qualitative approach. Participant characteristics included individuals who evaluated health messages from government and celebrity sources across various message types (humor, informational, fear-based, and empathy-based). Prior to participation, individuals provided informed consent in accordance with research ethics standards. Qualitative participant profiles were also explored through in-depth interviews to understand perceptions regarding source credibility and the clarity of message presentation. The use of a convenience sample was noted as a limitation regarding the generalizability of the study's findings.

### *Apparatus and procedure*

The research variables consist of independent variables: Message Source (government and celebrity) and Message Type (humor, informational, fear appeal, and empathy), and a dependent variable: Intention to engage in preventive health behaviors. Participant intentions were measured using a quantitative rating scale following exposure to experimental message combinations. Final scores were derived by calculating the mean and standard deviation for each treatment group within the factorial design. Regarding assumption testing, Levene's test of homogeneity of variances was conducted to assess the equality of variances across groups prior to the primary analysis.

### *Data analysis*

To test the hypotheses, Levene's test was first conducted to check the homogeneity of variances. The results yielded  $F(7, 152) = 1.02$ ,  $p = .422$ , indicating no significant differences in variance between groups; thus, the assumption of homogeneity of variance was satisfied. The primary inferential analysis employed a 2x4 between-subjects factorial ANOVA, followed by simple effects analysis and planned comparisons to examine interactions and significance across the various combinations of message sources and types. Additionally, the study incorporated an inductive thematic qualitative analysis, following Braun and Clarke's (2006) framework to reinforce the validity of the findings through data triangulation.

## **RESULTS**

A 2x4 between-subjects ANOVA was conducted to examine the effectiveness in engaging in preventative health measures. The independent variables were Message source (with 2 levels: Government or Celebrity), and Message types (with 4

levels: Humor, Informational, Fear, and Empathy). While Intention as the dependent variable (see Table 4.3.1).

**Table 1. Descriptive Statistics of Message Effects on Health Intention**

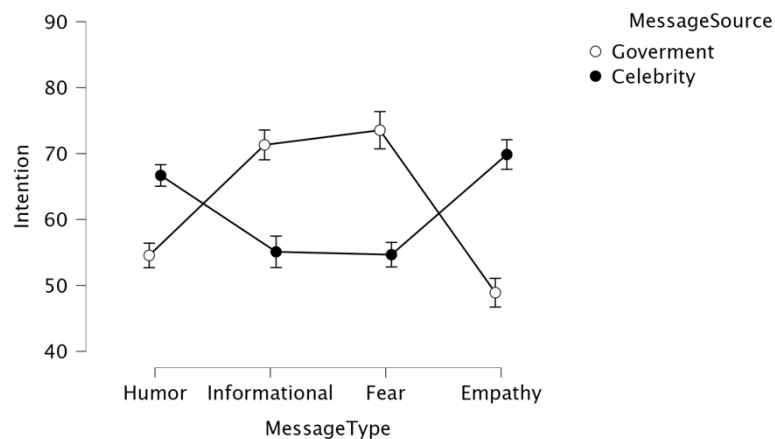
| Message Source | Message Type  | Mean   | SD     |
|----------------|---------------|--------|--------|
| Celebrity      | Empathy       | 69.857 | 10.302 |
|                | Fear          | 54.667 | 7.919  |
|                | Humor         | 66.684 | 7.118  |
|                | Informational | 55.095 | 10.940 |
| Government     | Empathy       | 48.900 | 9.744  |
|                | Fear          | 73.545 | 13.273 |
|                | Humor         | 54.550 | 8.319  |
|                | Informational | 71.316 | 9.832  |

*Note.* Values are presented as mean scores and standard deviations.

M = mean; SD = standard deviation.

In order to indicate the equality of the variance of the group, Lavene's test of homogeneity of variances was conducted, and it revealed no significant differences in the within-group variances,  $F(7, 152) = 1.02, p = .422$ . Therefore, there was no breach of the assumption of homogeneity of variance. Next, the omnibus two-way ANOVA was conducted and shows there are significant interactions 2-way interaction factor between Message Types and Message Source,  $F(3, 152) = 40.66, MSE = 99.032, p < .001, \eta^2 = .42$ . The interaction between Message Type and Message Source accounted for 42% of the variability in participants' intention to engage in preventive health measures, indicating that the effect of Message Type depended on the Message Source. By looking at the pattern of the means, a simple effect was conducted to see how the effect of Message Type differed within each level of Message Source and to clarify which specific combinations drove the interaction.

**Figure 1. Preventive health intention by message source**



*Note.* Error bars represent  $\pm 1$  standard error.

There was a significant simple effect of both Message Types for the Government Message Source,  $F(3, 152) = 30.69, p < .001$ , and Message Types for the Celebrity Message Source,  $F(3, 152) = 12.37, p < .001$ . As both simple effects were significant results, a follow-up planned comparison is needed to see which specific Message Types differ within each Message Source. It was hypothesized that, when delivered by a Government source, fear-based and informational messages would elicit higher intentions to engage in preventive health measures than humorous and empathy-based messages, and the results supported this hypothesis,  $t(152) = 9.35, p < .001$ . Similarly, on the second contrast, it was hypothesized that when messages were delivered by a Celebrity source, humorous and empathy-based messages would elicit higher intentions to engage in preventive health measures than fear-based and informational messages, and this hypothesis was also confirmed,  $t(152) = 5.97, p < .001$ .

## DISCUSSION

The findings of this analysis supported the proposed hypothesis. Fear-based and informational messages were found to be more persuasive compared to the other two methods when delivered by a government, whereas humorous and empathy-based messages were more effective when delivered by a celebrity. However, the follow-up planned contrast analysis was conducted, and it was indicated that the differences between the independent variables (Message Type and Message Source) had a significant main effect on intention. Humor-based messages from both government and celebrity sources demonstrated the lowest level of effectiveness. In contrast, empathy-based messages delivered by celebrities were the most effective overall. Governments with informational and fear-based approaches performed relatively well and showed stronger effectiveness compared to the humor message type. Similarly, informational messages from celebrities also showed positive results, although they were not consistently more effective than those delivered by the government. This study demonstrated a strong effect size, with a medium sample size, which is sufficient to present a clear effect and confirmed the hypothesis. A homogeneity test, such as Lave's test, was also utilised, which showed a non-significant result, indicating that the variance of the group is already equal. A follow-up test, such as planned comparison analysis, was also conducted and simple effect to verify that the hypothesized contrasts (government with fear/informational; celebrity with humor/empathy) are significant. Therefore, the author is convinced

that the analysis is valid and reliable. Nevertheless, several limitations need to be considered. Firstly, the sample was drawn from a convenience pool that might restrict the generalizability of findings to a broader population. Secondly, the design did not explicitly manipulate perceived credibility, so source effects may be confounded with participants' prior beliefs about expertise. Additionally, the modest differences in intention across conditions suggest that other variables, such as individual differences in message framing preferences, could further affect the outcome. Future studies should test these effects across demographic groups at multiple points across a period to enhance external validity.

Based on the qualitative analysis results, credibility and supporting evidence are the primary factors determining the effectiveness of a message, as most participants attribute a person based on the role of the message source and the relatedness to the message they deliver. Presentation, such as approach and communication style, gives more weight to persuasiveness, as it functions as a subjective influence that encourages people to be more receptive to the message. Thus, these qualitative findings confirmed the hypothesis, where celebrities are most effective when delivering humorous and empathy-based messages, whereas government sources are more persuasive with informational and fear-based messages, with slight discrepancies due to the influence of other subjective factors.

## **CONCLUSION**

The research concluded that the effectiveness of health messages is significantly influenced by the interaction between the message source and the message type. Quantitative analysis revealed that fear-based and informational messages were more persuasive when delivered by a government source, while humorous and empathy-based messages proved more effective when conveyed by a celebrity. Although the overall discrepancies between different message source and type combinations were relatively small, empathy-based messages from celebrities were found to be the most effective, while humor-based messages were generally the least impactful across both sources. This was further supported by a qualitative analysis, which highlighted that message persuasiveness was primarily driven by the perceived credibility and supporting evidence of the message source, as well as the presentation style and comprehensibility of the message itself. Participants tended to prioritize the "who" (e.g., a medical professional over an unknown figure) and "how" (e.g., a calm and careful delivery) of the message delivery, thereby solidifying the understanding that while the core hypothesis held, subjective factors related to source perception and message presentation also played a crucial role in influencing an individual's intention to engage in preventive health behaviors.

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## **DECLARATION OF POTENTIAL CONFLICTS OF INTEREST**

**"Sarah Affifah Rizky and Valina Khiarin Nisa declare that they do not work for, consult for, own shares in, or receive funding from any company or organization that could benefit from the publication of this article."**

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