Article

Cross-Cultural Perspectives on Fake News: A Comparative Study of Instagram Users in Greece and Portugal

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Abstract: As our society increasingly relies on digital platforms for information, the spread of fake news has become a pressing concern. This study investigates the ability of Greek and Portuguese Instagram users to identify fake news, highlighting the influence of cultural differences. The responses of 220 Instagram users were collected through questionnaires in Greece and Portugal. The data analysis investigates characteristics of Instagram posts, social endorsement, and platform usage duration. The results reveal distinct user behaviors: Greeks exhibit a unique inclination towards social connections, displaying an increased trust in friends' content and investing more time on Instagram, reflecting the importance of personal connections in their media consumption. They also give less importance to a certain post's characteristics, such as content opposing personal beliefs, emotional language, and poor grammar, spelling, or formatting when identifying fake news, compared to the Portuguese, suggesting a weaker emphasis on content quality in their evaluations. These findings show that cultural differences affect how people behave on Instagram. Hence, content creators, platforms, and policymakers need specific plans to make online spaces more informative. Strategies should focus on enhancing awareness of key indicators of fake news, such as linguistic quality and post structure, while addressing the role of personal and social networks in the spread of misinformation.

Keywords: culture; disinformation; fake news; Greece; Instagram; misinformation; Portugal; post characteristics; social media

1. Introduction

The spread of fake news on social media platforms presents a significant threat to the reliability of information in online environments [1]. Social media can quickly spread misinformation, disinformation, and fake news [2]. It is extremely important that people have the skills to recognize fake news on online platforms, especially as more people rely on social media to receive news [3,4]. Misinformation is commonly used to spread rumors that can cause chaos and harm in various situations [5,6]. Individuals who accept false information as accurate, may also disseminate this misinformation to others, thereby contributing to the propagation of fake news [7]. People may share fake news because they want not only to share what they think is a fact but to state their social position and their beliefs which may be polarized [8]. Fake news can cause significant dangers, including widespread doubt in reliable sources, encouraging risky decisions and actions, manipulation of elections and political outcomes, extremism, discrimination, and social division. Misinformation can threaten democratic processes by influencing public opinion and election outcomes, potentially leading to the election of incapable and corrupt leaders [9]. It can also threaten

public health by disseminating false medical information. For example, in times of public health crises, vaccination misinformation may lead to outbreaks of preventable diseases. This paper uses the definition of fake news formulated by Lazer et al. [9] as fabricated information that looks real and accurate but is not.

Most previous studies investigate the spread of fake news mainly on Facebook and Twitter [10–16]. In contrast to these previous studies, this study will investigate fake news on Instagram. Instagram is a social media platform distinct from others, like Facebook or Twitter, due to its emphasis on visual content, stories, and hashtags, which affect how users engage with and assess information. Visual content (e.g., images, videos) plays a significant role in shaping perceptions and increasing the virality of misinformation since it is more emotionally attractive and engaging than non-visual content [17]. This visually appealing content format can lead to a higher engagement rate with misleading content, thus promoting the users' susceptibility to fake news [18].

A substantial portion of Instagram users are millennials and Gen Z, who consume and share news differently from older audiences. Young people are often more susceptible to misinformation due to their reliance on social media for news, ignoring the rigorous fact-checking processes typical of the traditional media. In April 2023, there were 1.63 billion users (20.3% of the total world population) on Instagram, placing it fourth in the ranking of the world's most active social media platforms [19]. The age distribution of Instagram users was as follows: 8.1% of users aged between 13 and 17, 32% of users aged between 18 and 24, 29.6% of users aged between 25 and 34, 15.3% of users aged between 35 and 44, 8.2% of users aged between 45 and 54, and the remaining 6.8% of users aged 55 and over. An average user spent 15 h and 50 min per month on Instagram holding 347.8 Instagram sessions with 2 min and 44 s per session [20].

Although there is plenty of misinformation on Instagram [17], there are very few studies investigating fake news on Instagram [17,21]. Given the increasing popularity of Instagram, particularly among youth, and the increasing misinformation on it, it is important to address this research gap [21].

Culture is a major factor that affects the spread of fake news [2,22]. For example, a culture with mutual support could restrict the spread of fake news on the Internet [23]. In an experiment with fake news, American participants were more likely than Indian participants to believe fake news [22]. In addition, ref. [24] found significant differences in online disinformation on fact-checking sites between English-speaking and German-speaking countries. In low-trust countries (such as the US and UK) disinformation was mostly partisan news attacking political actors, while in Germany and Austria they were sensational stories attacking immigrants. Several previous studies emphasized the need for further research on fake news in different countries [2,23,25]. However, there is limited research that compares the behavior of social media users in different countries with respect to fake news [22,24,26]. Thus, refs. [2,24] point out that there is a need for further research to examine the effect of culture on the spread of fake news. Therefore, this study attempts to help in filling this gap by comparing the perceptions of Instagram users in two different countries, Greece and Portugal.

Following the typology of media systems developed by Hallin and Mancini [27], Greece and Portugal both belong to the polarized pluralist model, which is characterized by a high degree of polarization, a strong influence of political parties on the media (political parallelism), low media trust, and a less developed civil society compared to the liberal model. This model is associated with a higher susceptibility to misinformation due to the state intervention into media, which can lead to the dissemination of biased or misleading information [28]. Greece and Portugal both exhibit characteristics of the polarized pluralist model but they also exhibit differences, for example, with respect to trust. According to the

World Values Survey [29], 91.5% of Greeks (versus 65.3% of Portuguese) trust completely their family. Also, 25% of Greeks (versus 12.5% of Portuguese) trust completely people they know personally. On the contrary, 9.7% of Greeks (versus 35.2% of Portuguese) trust completely or somewhat people they meet for first time. In Greece, public trust in media has been historically low, which can lead to increased susceptibility to alternative narratives propagated through social media. Similarly, in Portugal, the media landscape has been influenced by political affiliations, which can skew public perception and trust in information sources [28]. Ref. [30] found that Greeks do not trust public television, while Portuguese consider the public service media as the most trusted news source. In addition, many more Portuguese (58%) than Greeks (30%) trust the press. Greeks do not trust traditional media sources since they believe that their news and editorials match the government announcements and instead find news on the Internet.

Both Greece and Portugal have faced notable challenges with misinformation. In Greece, the unreliability of traditional media outlets has been documented [31]. Portugal has also experienced a wave of fake news, particularly during the COVID-19 pandemic, with significant dissemination of false content on social media platforms [32].

In this study, cultural differences refer to variations in how Greek and Portuguese users of Instagram approach and evaluate fake news, shaped by factors such as media trust (how much users trust news from social media). Trust in media is often shaped by national history, political context, and past experiences with media institutions. In Greece and Portugal, trust in media is lower due to historical political struggles and economic instability, which can influence how users perceive the credibility of news shared on Instagram. This exploration is particularly interesting when comparing groups such as those from Greece and Portugal, as their people may differ in terms of media consumption habits, and levels of trust in online sources.

Regarding the use of Instagram, as of November 2024 [33,34], there were 4.7 million Instagram users in Greece (corresponding to 43.2% of Greeks) and 6.5 million Instagram users in Portugal (corresponding to 64.1% of Portuguese).

Additionally, this study investigates a variety of factors, such as a post's characteristics, users' trust in information sources, and time spent on and engagement in Instagram, that influence the credibility of fake news. These factors were chosen because they are critical components of how information is consumed and interpreted on social media platforms like Instagram. By analyzing a post's characteristics—like the visual appeal, source, and engagement metrics—across these groups, we can uncover how different formats of Instagram content influence the perceived reliability of information.

2. Literature Review

Currently, there are a lack of previous studies on the various factors that affect the credibility of fake news, especially considering diverse cultural contexts. Individuals who spend more time on social media platforms may be at a higher risk of encountering and potentially believing fake news due to limited attention spans and cognitive resources [22,35]. Also, friends and family influence a person's trust on news. People often perceive information shared by close acquaintances as reliable and trustworthy [35,36]. Furthermore, social media user's susceptibility to fake news depends on a post's characteristics, such as the number of likes [10,13], emotional and persuasive language ([36–38], alignment with user's political belief and ideology [14,22,37–41], the number of authors [42], and the reputation of the source [41]. Table 1 provides an overview of previous user studies regarding fake news.

Table 1. Key characteristics of previous studies on fake news.

Study Year	Findings	Country; Participants; Social Media Platform; Methodology
[43] 2017	Many young people lack the skills to distinguish reliable from misleading information.	United States; 7804 students; Authors administered 56 tasks to students, measuring three competencies of civic online reasoning (the ability to evaluate digital content and reach warranted conclusions about social and political issues): (1) identifying who's behind the information presented, (2) evaluating the evidence presented, and (3) investigating what other sources say.
[14] 2018	Users are more likely to believe news headlines they want to be true. Participants are more likely to believe headlines to be credible when they align with the user's political beliefs. Users do not spend less time when the headline is aligned with beliefs and the fake news flag did not reduce the credibility of headlines aligned with beliefs. Social media users are poor at separating fake news from real news.	United States; 83 participants; Facebook; Participants assessed the credibility of 50 fact-based news headlines covering 10 US political topics, with 40 headlines intentionally ambiguous and 10 control headlines designed to be more clearly true.
[4] 2019	Source reputation ratings influenced the believability of articles. Users are more likely to read, like, post supporting comments, and share articles that they agree with.	United States; 445 participants; Participants completed a 15-min survey with 12 politically diverse Facebook-style headlines. Efforts, such as using a gender-neutral poster name, aimed to minimize biases in headline-specific effects.
[12] 2019	Sharing links from fake news domains occurs much less frequently than sharing links in general. Individuals who frequently share content overall are less likely to share articles from domains known for spreading fake news with their friends.	United States; 1st wave: 3500 respondents, 2nd: 2635 respondents, 3rd: 2628 respondents; Facebook; Panel survey in three waves.
[36] 2020	Participants share news stories for diverse reasons, such as staying connected with friends, finding entertainment, or eliciting feelings of outrage. Stories with high emotional content are often shared due to perceived usefulness in informing, warning, helping, or protecting loved ones. Relevance to friends who would receive the news also influences sharing behaviors.	Singapore; 88 participants; Qualitative research about news sharing of 109 articles and then 12 one-hour focus groups of people, during 2016 and 2017.
[42] 2020	Number of authors of the news is a strong indicator of credibility. Articles with no authors are more likely to be fake news. In articles with multiple authors, the credibility of one author can indicate the reliability of the news and other co-authors. True news articles tend to use numbers more often, likely because they rely on factual information and data. True news articles tend to contain more typos compared to fake news.	Buzzfeed news and Politifact datasets with 406 articles examined. The datasets were processed using pandas and matplotlib was used for visualization.

Table 1. *Cont.*

Study Year	Findings	Country; Participants; Social Media Platform; Methodology
[37,38] 2021	Fake news employs attention-grabbing tactics, such as sensational titles and emotionally charged language Creators of fake news strategically choose topics, language, titles, and images to maximize virality. A false story is much more likely to go viral than a real one. Belief in fake news is strongly correlated with motivational factors, including party, political, and ideological affiliations.	Google Scholar search between the period 2016 and 2020.
[39] 2021	People tend to perceive information conveyed by others as reliable and accept it as true. Due to limited attention and cognitive resources, people often use simple rules like bandwagon and celebrity endorsements, topic relevance, or presentation format to judge credibility efficiently. Alignment with prior beliefs tends to boost credibility perceptions.	Systematic scoping review.
[44] 2021	Timely fact-checking is essential: Promptly labeling headlines as "true" or "false" reduces the misinterpretation of headlines. Persistent misinformation may result from individuals initially refusing to revise their beliefs. Even a single encounter with a fabricated headline can enhance its perceived credibility.	N = 2683; Participants evaluated the accuracy of 18 true headlines from mainstream news outlets and 18 false headlines, on a scale from 1 (not at all accurate) to 4 (very accurate).
[10] 2022	High Facebook "likes" with fake news increases perceived trustworthiness, potentially boosting sharing due to perceived reliability.	N = 239; Facebook; This study employed a 2 (news veracity: real vs. fake) × 2 (social endorsements: low Facebook "likes" vs. high Facebook "likes") between-subjects experimental design.
[13] 2022	Number of likes increased the perceived credibility of both real and fake headlines. Likes by friends did not increase perceived credibility.	736 participants; Facebook; Study 1: Participants randomly exposed to real and fake news headlines on Facebook in politics, health, or science; measuring outcomes. Study 2: Participants randomly exposed to true and fake headlines in politics, science, or health on Facebook, with variations in likes from friends or users; measuring outcomes.
[35] 2022	Regularly checking their Instagram accounts makes users more likely to fall for fake news, especially since there's no fact-checking. Sharing a friend's post increases the risk because they all seem to share the same opinions.	Philippines; 693 participants; Instagram; Research questionnaire.
[45] 2022	Adolescents were able to differentiate between fake health messages and health messages whether true or slightly changed with editing elements. Adolescents do not either notice or decide on message trustworthiness based on editing cues (except clickbait). Adolescents recognize clickbait. Adolescents perceived the messages as trustworthy even when there were various content and format manipulations (superlatives, appeal to authority, boldface, grammatical errors), regardless of their reasoning skills and media literacy.	Slovakia; 300 participants; aged 16–19 years old; Experiment with 1 factor (message) in 7 levels (fake message, true neutral message, true message with editing elements, superlatives, clickbait, grammar mistakes, authority appeal, bold typeface).

Table 1. *Cont.*

Study Year	Findings	Country; Participants; Social Media Platform; Methodology
[46] 2022	Young adults usually spent between 15 min and two hours per day reading news. Tehran's youth use social media for news but doubt its credibility, considering factors like Instagram page type. Despite skepticism, they use strategies, such as cross-referencing and self-education, to identify fake news, emphasizing the news source as the key factor.	Iran; 41 participants; Generic qualitative approach with semi-structured interviews.
[22] 2023	Conservatism, collectivism, age, Internet usage, and country were significantly associated with fake news believability.	United States and India; 526 participants; WhatsApp; Pilot survey to assess the readability and clarity of 17 fake news scenarios.

This study aims to obtain more detailed results than previous studies that have covered only a few post's characteristics, like clickbait, language simplicity, and alignment with prior beliefs. No single previous study has considered simultaneously many relevant factors, such as the 12 distinct characteristics of posts analyzed in this study. Also, previous studies have given much attention to platforms like Twitter [10,11,15,16,22,47], and WhatsApp [22]. So, it is important to recognize the diversity in social media and explore the unique dynamics of Instagram. Lastly, research on fake news in Portuguese and Greek settings on Instagram is limited, with most studies primarily focusing on the United States and third countries (Table 1). Actually, refs. [2,23–25,40,48] emphasized the need for future research to investigate fake news' consumption in different countries and cultures. Therefore, this study compares Greek and Portuguese Instagram users' perceptions and behavior regarding fake news. Also, this study focuses on the perspectives of young people because they represent a significant portion of the population engaged in Instagram use. Their insights are crucial for understanding their experience with fake news within this demographic.

The decision to focus on Greece and Portugal is particularly relevant because both countries have unique media environments, cultural dynamics, and histories of trust in institutions. Despite being part of the European Union, Greece and Portugal have different political landscapes, media consumption patterns, and social attitudes that could impact how users perceive and engage with fake news on Instagram. Greece has experienced political instability and repression, which has shaped public attitudes toward media and information [49]. By contrast, Portugal's higher levels of institutional trust and lower reported exposure to misinformation [50] suggest a different framework for evaluating such posts. These differences provide a unique way to investigate whether, and how, such national characteristics influence the way users engage with and perceive fake news on Instagram. Drawing on Hofstede's cultural dimensions [51], Greece scores higher in "Motivation toward Achievement and Success" (57 compared to Portugal's 31), indicating a stronger emphasis on performance and competitiveness, which could shape the way Greeks critically evaluate the credibility and characteristics of Instagram posts. Additionally, Greece scores moderately in "Indulgence" (50), while Portugal's score is significantly lower (33), suggesting that Greeks may balance emotional responses to information with pragmatic considerations, whereas Portuguese users may be more restrained in their engagement with social media content. Furthermore, Greece's slightly higher "Long-term Orientation" (51 compared to Portugal's 42) implies a greater focus on broader implications and future impacts, which could influence their perception of the consequences of fake news. Lastly, Greece and Portugal share high scores in "Uncertainty Avoidance" (Greece:

100, Portugal: 99), indicating a shared tendency toward seeking clarity in information, yet differences in other dimensions are likely to result in varied perceptions of Instagram posts' characteristics related to fake news.

Empirical data also highlights significant contrasts in how Greek and Portuguese users engage with and perceive fake news. According to the Flash Eurobarometer 522 report on democracy [50], the percentage of respondents believing that they have been 'very often' exposed to disinformation and fake news is the highest in Greece (30%). On the contrary, only 13% of Portuguese believe the same. However, fewer Greeks (46%) than Portuguese (79%) consider that the most likely media to see fake news are online social networks. Also, fewer Greeks (13%) than Portuguese (38%) believe that they most likely experience disinformation or fake news on video hosting websites. About one in three Greeks (33%) and Portuguese (34%) believe that users of online platforms should be trained to distinguish between false and true information. However, over double the number of Greek (14%) than Portuguese (6%) respondents believe that users of online platforms are sufficiently trained to recognize what is true from what is false. Considering all these differences between Greek and Portuguese social media users with regard to exposure on fake news and susceptibility to misinformation, this study aims to explore how distinct cultural, historical, and media-related factors shape users' experiences with fake news on Instagram. By analyzing these two contrasting contexts, this study aims to identify patterns and insights that can contribute to broader understandings of how cultural and national differences influence social media dynamics and misinformation susceptibility.

3. The Characteristics of a Post

Fake news on social media uses different practices to attract people's attention and make it seem more credible. These practices include the use of sensational titles and exploiting structural elements to make posts more attractive, engaging, and shareable [52]. For example, engaging headlines and clickbait techniques are important for a post's believability [53]. Elements, such as likes, comments, emotional language, format, and source credibility, further contribute to a post's attractiveness [10,39]. Other trust-building mechanisms include a post's professional language, references to reputable organizations, and the incorporation of trusted brands on websites [54]. Conversely, poorly edited content or messages with errors diminish their credibility [45]. Timing is also important [55] and exposure to even a single fake headline enhances its perceived truthfulness [44]. Furthermore, it is more likely for users to share fake news when the bias aligns with their pre-existing viewpoints [14,26,35,41,56]. So, it is important to understand how social media users recognize reliable from unreliable information. In light of this, this study explores the following specific characteristics of posts:

1. **attentHeadline**: Importance of captivating headlines.
2. **Clickbait**: Significance of clickbait-style captions.
3. **author**: The role of verified/authentic authors versus unverified/anonymous ones.
4. **provImVid**: Influence of provocative images or videos.
5. **fewLikeComm**: Significance of low number of likes or comments.
6. **againstBelief**: Importance of content contradicting personal beliefs.
7. **officLang**: The impact of official-sounding language.
8. **emotivLang**: The role of emotive language.
9. **noSource**: Significance of absence of sources or citations.
10. **viral**: Importance of a post going viral in the context of fake news.
11. **poorGSF**: The impact of poor grammar, spelling, or formatting.
12. **Timing**: Influence of post timing (e.g., during elections or crises).

The perception of fake news on Instagram may vary across countries due to differences in cultural and societal factors, such as trust in institutions and platform usage patterns. A study comparing "reported content on Instagram and Facebook" in France, the UK, and the US revealed significant regional differences in the type, topic, and manipulation techniques of misinformation. For instance, users in the US encountered more sophisticated methods of manipulation, revealing how perception and engagement with misinformation are influenced by the cultural context [57]. In another study, Greek respondents showed significant mistrust in the reliability of war-related information on social media. Younger social media users were more active in sharing and interacting with information, making them potentially more exposed to misinformation [58]. So, we will investigate research question RQ1:

RQ1. *Do Instagram users from different countries judge differently the Instagram post's characteristics in identifying fake news on Instagram?*

More specifically, we will test the following hypothesis H1:

H1. *Instagram users from Greece and Portugal have different perceptions regarding the characteristics of posts related to fake news.*

4. Trust in Information Sources

The influence of friends and family is also crucial in shaping news believability. Users often receive news recommendations from personal connections on social platforms [59]. Recommendations from familiar sources, including family and friends, reduce skepticism, potentially leading individuals to trust unfamiliar online information, even surpassing their instincts or firsthand knowledge [60,61]. Friends significantly influence an individual's tendency to share misleading information, further spreading fake news [62].

Cultural differences influence trust in information shared on social media. Research on cross-cultural differences in trust and disinformation highlights that users' trust in friends' posts varies by cultural norms. Country-specific studies (e.g., Kosovo during the COVID-19 pandemic) indicated trust discrepancies in information shared by friends due to varying levels of disinformation awareness [63]. More than half of the respondents said they had received information from their friends or family members that was later found to be false [63]. During the COVID-19 crisis, Belgians, Greeks, and French trusted science and medicine the most, while the Danes, Swedes, and Finns trusted friends and family more than other sources [64].

Cultural norms and information dissemination practices affect trust levels in family or friend-shared information versus other sources. In one study, the perceived credibility of a post on Instagram was increased when the post (even if it was fake news) was endorsed by a trustworthy person [17]. Another study found that users' political trust was seriously affected by news shared by friends and family, suggesting that users value personal connections over traditional media sources [65]. Spanish teens shared content that they found interesting or spectacular, regardless of its truthfulness, in order to inform their friends [18]. However, teens in Norway engaged critically with news from family members, often cross-verifying it with mainstream media [66]. So, people in different countries accept differently news shared by family, friends, or traditional media sources.

Studying how cultural and personal relations affect the spread of fake news on Instagram in Portugal and Greece may reveal differences in online information sharing, which is vital for fighting misinformation. So, we will investigate RQ2:

RQ2. *Do Instagram users from different countries trust and share differently the content shared by their personal connections?*

More specifically, we will test the following hypotheses:

H2a. *Instagram users from Greece and Portugal trust posts shared by their friends differently.*

H2b. *Instagram users from Greece and Portugal trust posts shared by family members/friends differently than posts shared by other sources.*

H2c. *Instagram users from Greece and Portugal have different frequencies for sharing posts with friends via direct message.*

H2d. *Instagram users from Greece and Portugal exhibit different likelihoods of encountering fake or misleading information from family members or friends on social media.*

5. Time Spent and Engagement on Instagram

Moreover, excessive time spent on social media platforms can increase exposure to false or unreliable content. This is especially true for politically active users [40]. It was also found [55] that there is a positive correlation between the duration of time spent on these platforms and the consumption of fake news. Ref. [67] further emphasized that extensive social media use can influence an individual's political beliefs, particularly when exposed to influencers expressing specific views. This study shows how platform habits affect how people see the truth, which promotes media literacy and digital resilience, and maintains the integrity of public discourse in the digital age.

It is possible that when people frequently visit social media, they are more likely to believe and share fake news [26]. Specifically, frequent visits to Instagram could increase students' belief in fake news [35]. On average, Greek students spend 12.65 h per week on Instagram [68]. There are also gender and age-related differences in the frequency of Instagram use. Increasing daily Internet usage increased the susceptibility of individuals to fake news [22]. Another study in Greece found that even highly visited news websites may provide inaccurate information [31]. So, many Greeks may see fake news coming even from mainstream media providers.

According to Eurostat [69], many more Greeks (29.74%) than Portuguese (18.16%) express opinions on civic or political issues on websites or on social media (18.90% EU-27 average). Similarly, many more Greeks (31.84%) than Portuguese (24.48%) use the Internet for civic or political participation (23.86% EU-27 average). However, fewer Greeks (9.69%) than Portuguese (13.96%) take part in online consultations or voting to define civic or political issues (e.g., urban planning, signing a petition) (12.56% EU-27 average). This might happen because Greek public authorities may not give many opportunities to Greeks to express their opinions.

This study investigates how Instagram users from Greece and Portugal behave on Instagram. So, we will investigate RQ3:

RQ3. *Do Instagram users from different countries differ in their behavior and experiences on Instagram?*

More specifically, we will test the following hypotheses:

H3a. *Instagram users from Greece and Portugal spend different amounts of time daily on social media.*

H3b. *Instagram users from Greece and Portugal have different frequencies of encountering news on social media.*

H3c. *Instagram users from Greece and Portugal have different likelihoods of unfollowing or muting accounts sharing fake news.*

H3d. *Instagram users from Greece and Portugal have different frequencies of engaging in discussions or debates about news topics on social media.*

H3e. *Instagram users from Greece and Portugal have different likelihoods of reading and engaging with news articles or information shared on social media.*

Although there are previous studies on fake news' spread and credibility on social media platforms, there is a notable absence of a comparative analysis, particularly between European countries like Greece and Portugal. Despite a similar history and culture, a knowledge gap exists in understanding these Instagram users' responses to misinformation, offering insights into broader European media literacy discourse.

6. Methodology and Research Design

Before conducting the research, we undertook a thorough review of the existing literature to inform the questionnaire design and identify key variables relevant to the study's objectives. We employed convenience sampling to select participants from both Greece and Portugal, ensuring a diverse representation of perspectives from these two countries. The online format allowed us to reach a larger audience quickly and efficiently, minimizing barriers to participation and enabling individuals from diverse backgrounds to engage with the research. The literature review helped us identify important variables and trends, guiding the design of the questionnaire to ensure we gathered relevant and meaningful data aligned with our study's objectives.

6.1. Research Design and Participants

Building upon previous studies, we designed and distributed a self-administered questionnaire (Appendix A) in English to individuals in Portugal and Greece, receiving a total of 220 responses between February and April 2023. The inclusion criteria included having an Instagram account and being born or raised in either Portugal or Greece. Out of the 220 responses, 211 were deemed valid, and 9 cases presented issues. These nine responses were excluded from the analysis due to various reasons, including incomplete responses, duplicate submissions, and inconsistent answers. For example, a person in the 25–34 age range is unlikely to be retired, as retirement typically occurs much later in life, usually 60+ years old in most cases. Notably, no data was missing as participants were required to respond to all questions, and the questionnaire assured complete anonymity and data confidentiality. The choice of methodology is appropriate for investigating factors influencing an individual's perceptions and behaviors related to Instagram news consumption in these specific cultural contexts. By utilizing a self-administered questionnaire, the researchers were able to collect a significant amount of data within a relatively short period, allowing for a comprehensive analysis of the research questions.

Greece and Portugal were chosen for this study because they share many similarities, making them ideal for comparison. Both countries are in Southern Europe and have rich histories, strong family connections, and community-focused cultures. They also face similar economic and social challenges, which can affect how people use and perceive information on social media platforms like Instagram. However, they may have different perceptions and experiences with regard to fake news [50]. By studying Greek and Por-

tuguese Instagram users, we can understand how their differences influence the ability to spot fake news, helping to create better strategies to fight misinformation.

The questionnaire included 3-point and 5-point Likert-scale items and multiple-choice questions. It included demographic questions and items related to responders' perceptions of a post's characteristics, trust in news sources, and time spent on Instagram.

The strengths of this methodology include its ability to obtain data from a large sample size across different cultural backgrounds. Additionally, the inclusion criteria ensured that participants had relevant experience with Instagram, enhancing the validity of the findings. The use of Likert-scale items and multiple-choice questions allowed for quantitative analysis, enabling a thorough examination of participants' perceptions and behaviors.

A key limitation of this study is the sampling method, which was based on convenience sampling. This means that the sample may not be fully representative of the broader population. Also, the reliance on self-reported data may introduce response bias or inaccuracies. It was assumed that participants' responses accurately reflect their perceptions and behaviors regarding Instagram news consumption. Future research should aim to include a more diverse and representative sample as well as alternative data collection methods to address these limitations.

6.2. Procedure

This study employed a quantitative methodology to investigate factors influencing Instagram users' perceptions and behaviors related to Instagram news consumption. An analysis of descriptive statistics was applied to show the demographic characteristics of the study participants. We followed a similar sequence of analysis as that followed by [2,70]. We present the quantitative variables as a median, mode, and interquartile range, and the categorical variables as frequencies and percentages. We used Cronbach's Alpha (CA) to assess the internal consistency reliability as suggested by [71]. Cronbach's Alpha has become a standard method for assessing internal consistency reliability in research. We used non-parametric tests, such as the the Kruskal–Wallis test and the Mann–Whitney U test, to investigate differences between the two countries of origin. The Kruskal–Wallis test and the Mann–Whitney U test are both non-parametric statistical tests used in situations where the assumptions of parametric tests like the *t*-test or ANOVA are not met; we used both tests following the approach outlined by [72]. Time Spent and Frequency of Fake News (RQ3) included a Shapiro–Wilk test, which is commonly used to assess whether a dataset follows a normal distribution, and Spearman's rank correlation, which is a non-parametric measure of the strength and direction of association between two ranked variables. Also, we used Mann–Whitney U tests to explore the relationship between time spent on Instagram, news engagement, and differences in time spent by country. In order to verify if there was a significant relationship between some of the observed variables, the chi-squared test was also used. We conducted all of these statistical analyses using the Statistical Package for the Social Sciences (IBM SPSS 29.0.1.0). In all statistical analyses, we considered significance values of $p < 0.05$. Figure 1 describes the steps of the research process.
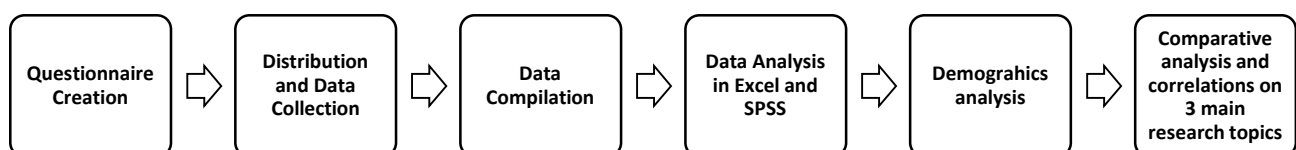

Figure 1. The research process.

Regarding the post's characteristics we try to investigate their role in assessing the likelihood of a post being fake or trustworthy (Figure 2). We asked the participants how much these characteristics affect whether they trust a post or not, using a 5-point Likert type scale, where "1″ indicates "It must be Real" as highly believable news and "5" indicates "It must be Fake" as not at all believable.
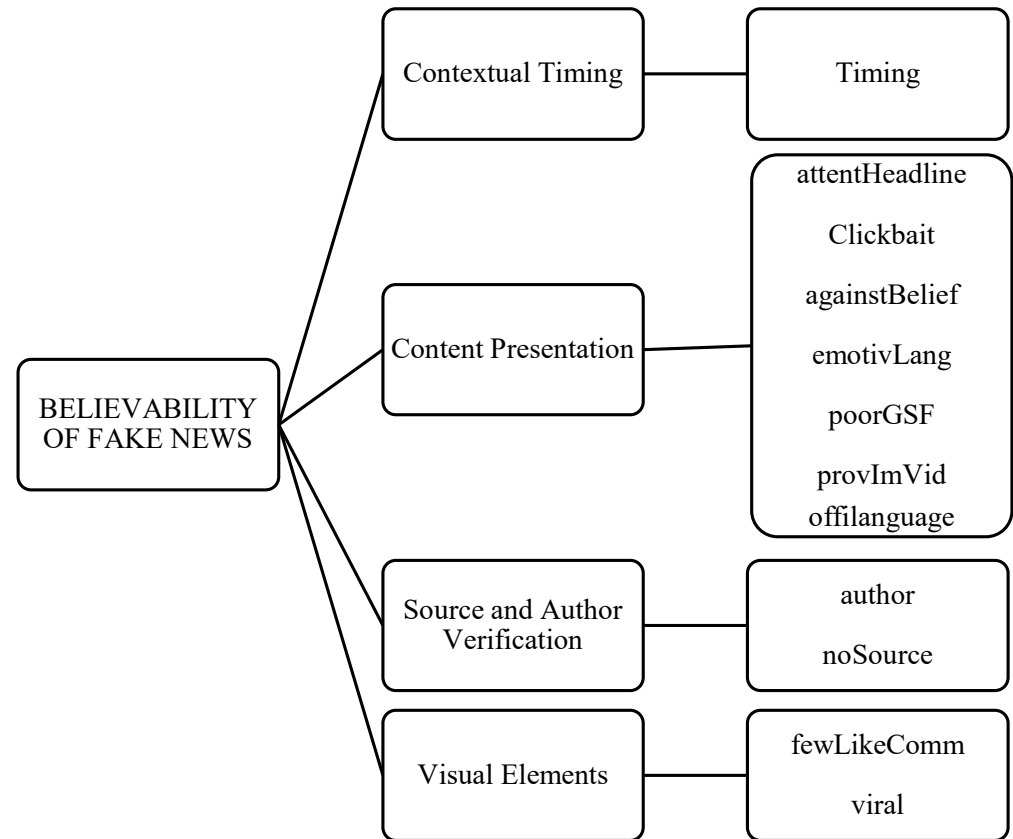

Figure 2. Categorization of the 12 characteristics of posts examined in this study.

These variables were chosen because of their direct relevance to Instagram and their documented significance in influencing the spread and perception of fake news on social media platforms. Previous research (e.g., [39,45,52,53,55]) has demonstrated the importance of captivating headlines, clickbait-style captions, author credibility, provocative imagery, engagement metrics such as likes and comments, content that contradicts personal beliefs, language tone and style, citation of sources, virality, grammar and formatting quality, and the timing of posts in shaping users' interactions with fake news content. Additionally, these variables are practical and feasible to measure, culturally and contextually relevant to the target audience of Greek and Portuguese Instagram users, and have the potential to impact users' trust in and engagement with misinformation. While other variables may also play a role, these were prioritized based on their perceived significance and applicability within the scope of this study.

7. Analysis and Results

7.1. Demographics

This study includes a sample of 211 individuals, with 107 being Portuguese and 104 being Greek. As shown in Table 2, most responders' age was within the 18–24 age range (77.73%). Regarding gender, 37.91% were females, 59.72% males, and 1.90% identified as non-binary. Specifically, for Greek respondents, 53.75% were female and 47.62% were male;

for Portugese respondents, 46.25% were female and 52.38% were male (Table 3). For both countries combined, a majority of the sample is composed of males.

Table 2. Descriptive demographic data on respondents.

Category	Group/Sub-Group	Full Sample	
		n	*%*
Country	Greece	104	49.29
	Portugal	107	50.71
Age	12–17 years old	5	2.37
	18–24 years old	164	77.73
	25–34 years old	37	17.54
	35–44 years old	5	2.37
Gender	Female	80	37.91
	Male	126	59.2
	Non-Binary	4	1.90
	Prefer not to say	1	0.47
Education	High School	97	45.97
	Trade School	1	0.47
	Bachelor's Degree	80	37.91
	Master's Degree	22	10.43
	Ph.D. or higher	2	0.95
	Prefer not to say	9	4.27
Political view	Apolitical	3	1.42
	Prefer not to say	46	21.80
	Very Liberal	33	15.64
	Slightly Liberal	40	18.96
	Moderate	60	28.44
	Slightly Conservative	20	9.48
	Very Conservative	9	4.27

Table 3. Distribution of Gender Frequencies by Country.

	Female		Male		Non Binary		Prefer Not to Say	
	%	n	%	n	%	n	%	n
Greece	41.35	43	57.69	60	0	0	0.96	1
Portugal	34.58	37	61.68	66	3.74	4	0	0

The analysis indicates that there are notable differences in the distribution of educational levels between Greeks and Portuguese (Figure 3). There is a higher percentage of Portuguese respondents with a Bachelor's Degree, while there is a higher percentage of Greek responders with a High School education. Analysis of the Mann–Whitney U test shows that there is indeed statistically significant difference between the responders' education by country.

Regarding political views, in both Portugal and Greece, the largest group of respondents identified as "Moderate", suggesting that a significant portion of the respondents in both countries may have centrist or moderate political beliefs (Figure 4).
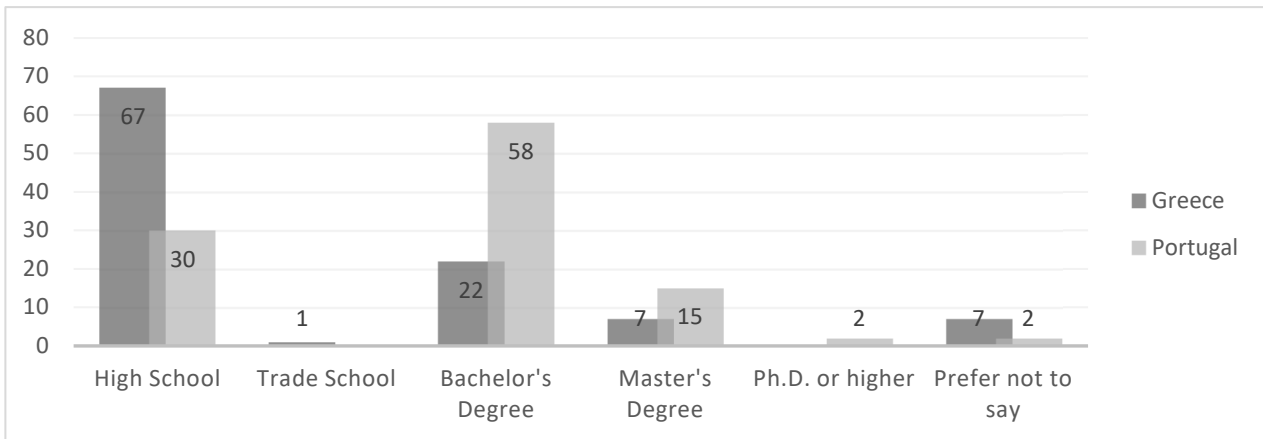
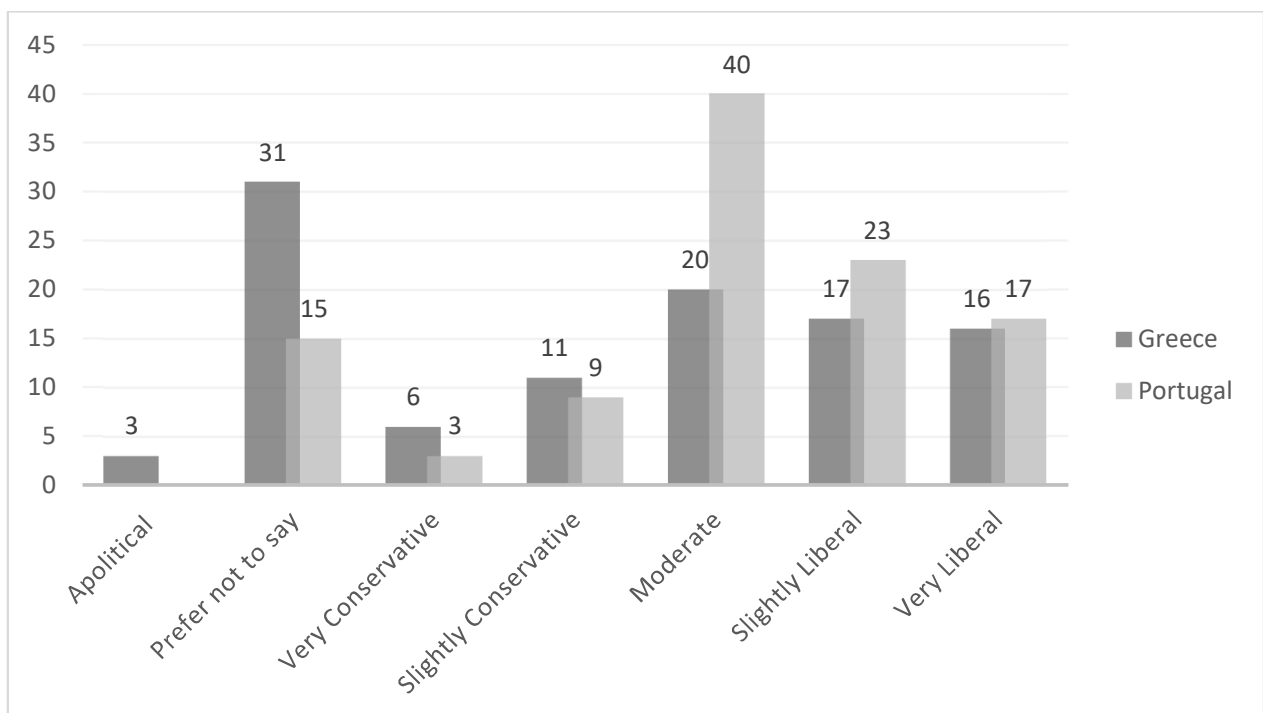**Figure 3.** Distribution of educational levels by country.

Figure 4. Political ideology distribution by country.

7.2. H1 Post's Characteristics

First of all, we check for consistency and reliability of the 12 characteristics of posts using the Cronbach alpha value. As shown in Table 4, a Cronbach's alpha of 0.815 is indicative of strong internal consistency. This suggests that the 12 items in the scale are strongly connected and consistently measure a common underlying idea, specifically, the post's characteristics that affect the credibility of news.

Table 4. Cronbach's Alpha Coefficients Assessing the Internal Consistency Reliability of the 12 Characteristics of Posts.

Reliability Statistics	
Cronbach's alpha	N of items
0.815	12

After testing for consistency of the post's characteristics, we present their descriptive statistics as a median (ME), mode (M), and interquartile range (IQR).

The post's characteristics vary in their perceived prevalence, with some having higher central tendencies (medians) and varying levels of spread in the middle 50% of responses (IQR). "Clickbait", "author", "provImVid", "noSource", and "poorGSF" (ME = 4.00) are perceived as relatively more prevalent, as indicated by their higher median values. Respondents tend to consider these features to a greater extent when evaluating the authenticity of information. The median scores reveal the middle values for each characteristic, with attentHeadline, fewLikeComm, or Timing having a median score of 3, indicating a moderate perception. The interquartile range provides insights into the spread of the data, indicating that the assessments for most characteristics have a relatively narrow range, emphasizing the consistency in perceptions. "noSource" and "poorGSF", where the IQR is 2.00, suggest relatively wider variability in the perceptions of these characteristics among the participants (Table 5).

Table 5. Median, Mode, and Interquartile Ranges of the 12 Characteristics of Posts.

Statistics						
	attentHeadline	**Clickbait**	**author**	**provImVid**	**fewLikeComm**	**againstBelief**
ME	3.00	4.00	4.00	4.00	3.00	3.00
Mode	3	4	4	4	3	3
IQR	1.00	1.00	1.00	1.00	1.00	0.00
	officLang	**emotivLang**	**noSource**	**viral**	**poorGSF**	**Timing**
ME	3.00	3.00	4.00	3.00	4.00	3.00
Mode	3	3	4	3	4	3
IQR	1.00	1.00	2.00	0.00	2.00	1.00

ME: Median; **IQR:** Interquartile Range; **attentHeadline:** Importance of captivating headlines; **Clickbait:** Significance of clickbait-style captions; **author:** The role of verified/authentic authors versus unverified/anonymous ones.; **provImVid:** Influence of provocative images or videos; **fewLikeComm:** Significance of low number of likes or comments; **againstBelief:** Importance of content contradicting personal beliefs; **officLang:** The impact of official-sounding language; **emotivLang:** The role of emotive language; **noSource:** Significance of absence of sources or citations; **viral:** Importance of a post going viral in the context of fake news; **poorGSF:** The impact of poor grammar, spelling, or formatting; **Timing:** Influence of post timing (e.g., during elections or crises).

In order to examine the differing perceptions of a post's characteristics between Portugal and Greece, we employed the Mann–Whitney U test (Table 6). The results of the tests between Greece and Portugal reveal interesting patterns. For the variables "againstBelief", "emotivLang", and "poorGSF", the *p*-values are below the significance level of 0.05 (0.034, 0.01, and <0.001, respectively), suggesting country differences in assessing credibility when faced with conflicting beliefs and varied reactions to emotive language. Additionally, the linguistic quality of content emerged as a significant factor, with participants from Greece and Portugal differing in their evaluation of posts with poor grammar, spelling, or formatting. Evidence shows that Portuguese's mean rank is higher in all three cases, indicating that the Portuguese attribute greater significance to the specified post's characteristics as indicators of fake news compared to individuals from Greece (for poorGSF Greece Rank = 92.48 and Portugal Rank = 119.14, for emotivLang Greece Rank = 92.92 and Portugal Rank = 118.71, and for againstBelief Greece Rank = 98.60 and Portugal Rank = 113.20).

Table 6. Analysis of the Mann–Whitney U test investigating how the 12 characteristics of posts influence the credibility of fake news in Greece and Portugal.

	Hypothesis Test Summary (Independent Samples Mann–Whitney U Test)		
	Null Hypothesis	**Sig.** [a,b]	**Decision**
1	The distribution of attentHeadline is the same across categories of Where are you from?	0.974	Retain the null hypothesis.
2	The distribution of Clickbait is the same across categories of Where are you from?	0.646	Retain the null hypothesis.
3	The distribution of author is the same across categories of Where are you from?	0.062	Retain the null hypothesis.
4	The distribution of provImVid is the same across categories of Where are you from?	0.615	Retain the null hypothesis.
5	The distribution of fewLikeComm is the same across categories of Where are you from?	0.165	Retain the null hypothesis.
6	The distribution of againstBelief is the same across categories of Where are you from?	0.034	Reject the null hypothesis.
7	The distribution of officLang is the same across categories of Where are you from?	0.104	Retain the null hypothesis.
8	The distribution of emotivLang is the same across categories of Where are you from?	0.001	Reject the null hypothesis.
9	The distribution of nosource is the same across categories of Where are you from?	0.142	Retain the null hypothesis.
10	The distribution of viral is the same across categories of Where are you from?	0.052	Retain the null hypothesis.
11	The distribution of poorGSF is the same across categories of Where are you from?	<0.001	Reject the null hypothesis.
12	The distribution of Timing is the same across categories of Where are you from?	0.448	Retain the null hypothesis.

[a] The significance level is 0.050. [b] Asymptotic significance is displayed.

7.3. H2 Trust in Information Sources

While many people tend to value personal connections moderately, a significant number prefer verified accounts (Table 7). Also, while nearly half of the respondents (48.3%) remained neutral, a notable proportion expressed trust in news shared by personal connections (22.7%). Conversely, a significant minority disagreed (20.4%), with only a small percentage strongly agreeing (6.2%) or strongly disagreeing (2.4%). Overall, these findings underscore the complexity of perceptions surrounding the credibility of news sources on Instagram, with uncertainty and skepticism being prevalent among respondents (Table 7).

Table 7. Distribution of Trust Levels in News from Personal Connections Compared to Verified Accounts on Instagram (I am more likely to trust news shared by personal connections rather than verified accounts on Instagram).

		TrustPersonal-Other			
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
	Strongly agree	5	2.4	2.4	2.4
	Agree	43	20.4	20.4	22.7
Valid	Neutral	102	48.3	48.3	71.1
	Disagree	48	22.7	22.7	93.8
	Strongly disagree	13	6.2	6.2	100.0
	Total	211	100.0	100.0	

7.4. Trust in News Shared by Friends Across Countries

The descriptive analysis suggests that there is a notable frequency of sharing misleading information with friends on social media (Figure 5a). Although individuals vary in how often they share news/posts with friends, many trust information from their friends on social media, with a substantial portion trusting friends more than other sources (Figure 5b). The chi-squared tests conducted reveal no significant association between the country of origin and trust in information shared by family members/friends compared to other sources on social media. Both the Pearson's chi-squared ($\chi^2 = 2.051$, df = 2, $p = 0.359$) and likelihood-ratio ($\chi^2 = 2.064$, df = 2, p-values greater than the conventional significance level of 0.05. Therefore, we fail to reject the null hypothesis, suggesting that there is no statistically significant difference in trust in information shared by family members/friends versus other sources across different countries of origin. Additionally, the analysis confirms that all expected cell counts are above the recommended threshold of 5, ensuring the reliability of the chi-squared tests (Table 8). The mean ranks further support this, with a higher mean rank for Greece (115.88) compared to Portugal (96.4), suggesting a higher level of trust in social media content from personal connections in the Greek sample. This suggests that cultural or contextual factors may play a role in shaping an individual's preferences for certain sources of information within these distinct national contexts.
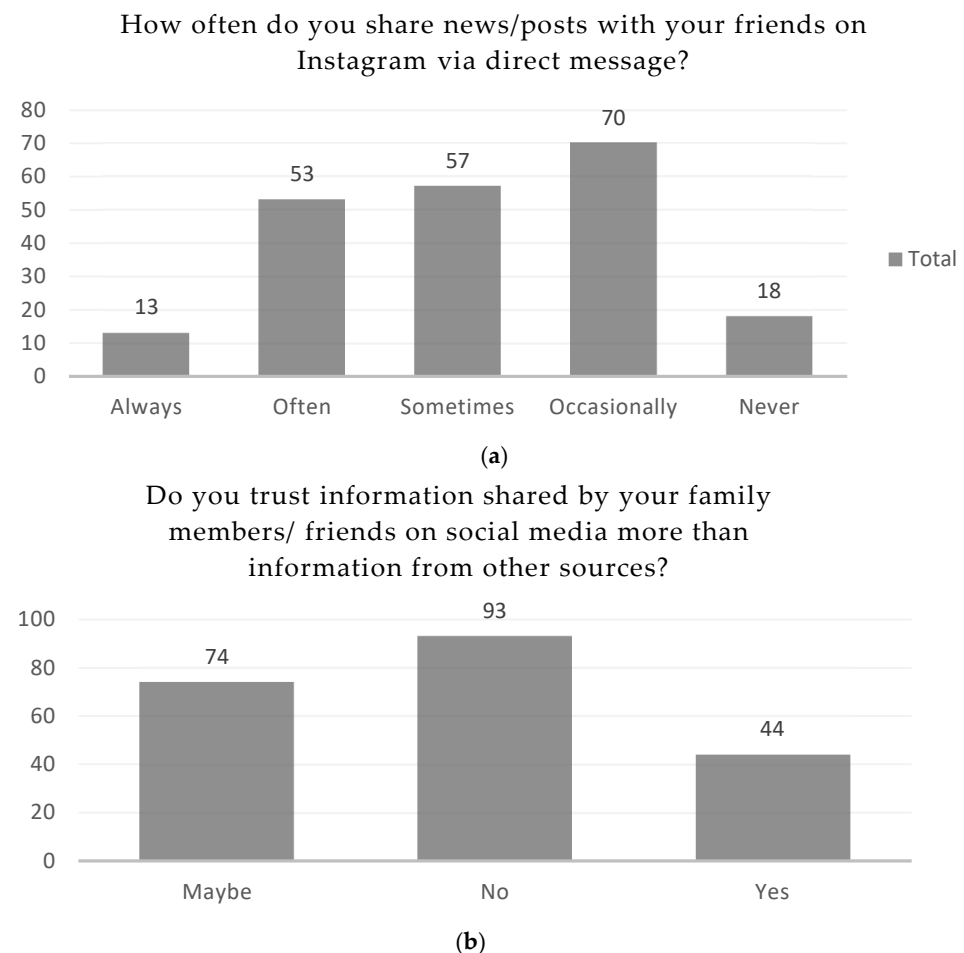

(**a**)

(**b**)

Figure 5. (**a**) Likert scale answers to the question: "How often do you share news/posts with your friends on Instagram via direct message?" in both countries. (**b**) Likert scale answers to the question "Do you trust information shared by your family members/friends on social media more than information from other sources?" in both countries.

Table 8. Chi-squared tests regarding trust in information shared by family members/friends compared to other sources on social media and the country of origin.

	Chi-Squared Tests		
	Value	**df**	**Asymptotic Significance (2-Sided)**
Pearson's Chi-Squared	2.051 [a]	2	0.359
Likelihood-Ratio	2.064	2	0.356
N of Valid Cases	211		

[a] 0 cells (0%) have expected count less than 5. The minimum expected count is 12.82.

Similarly, the observed difference in the frequency of sharing news through direct messages (FreqShare) suggests that individuals from Greece and Portugal engage differently in the private sharing of information with friends (Table 9, Mann–Whitney U test, *p*-value = 0.038).

Table 9. Mann–Whitney U Test Results for Cross-Cultural Analysis for Social Media Behavior.

	Hypothesis Test Summary (Independent Samples Mann–Whitney U Test)		
	Null Hypothesis	**Sig. [a,b]**	**Decision**
1	The distribution of TrustPersonal-other is the same across categories of Where are you from?	0.369	Retain the null hypothesis.
2	The distribution of trustFriend is the same across categories of Where are you from?	0.943	Retain the null hypothesis.
3	The distribution of trustFamily-other is the same across categories of Where are you from?	0.013	Reject the null hypothesis.
4	The distribution of FreqShare is the same across categories of Where are you from?	0.038	Reject the null hypothesis.
5	The distribution of FakebyFamily is the same across categories of Where are you from?	0.071	Retain the null hypothesis.
6	The distribution of TimeSpent is the same across categories of Where are you from?	0.005	Reject the null hypothesis.
7	The distribution of FreqNews is the same across categories of Where are you from?	0.750	Retain the null hypothesis.
8	The distribution of LikelyEngage is the same across categories of Where are you from?	0.093	Retain the null hypothesis.
9	The distribution of FreqEngage is the same across categories of Where are you from?	0.038	Reject the null hypothesis.
10	The distribution of LikelyUnfollow is the same across categories of Where are you from?	0.811	Retain the null hypothesis.

[a] The significance level is 0.050. [b] Asymptotic significance is displayed.

The mean ranks further support this, with a higher mean rank for Greece (114.5) compared to Portugal (97.73), suggesting a higher frequency of sharing news/posts via direct message in the Greek sample. Cultural, social, or technological factors specific to each country might influence the willingness or frequency with which individuals share news through direct messages, revealing distinct communication patterns. Lastly, individuals in both countries face a similar likelihood of encountering misleading content from their social circles, emphasizing a common vulnerability to misinformation within friend networks (Table 9, Mann–Whitney U test, *p*-value = 0.071).

7.5. H3 Time Spent and Behavior Regarding Fake News

Based on the results of the Shapiro–Wilk test (Table 10), we reject the null hypothesis affirming the absence of normality in the variables (*p*-value < 0.01). Given this, the Spearman's rank correlation test is deemed appropriate for assessing correlation. Table 11

shows that Country affects the time spent on the platform. There is a significant positive relationship between the time spent on Instagram and gender, suggesting that individuals of different genders may allocate different amounts of time to the platform (0.255). Individuals who spend more time on Instagram are more likely to frequently share news or posts with their friends via direct message. The strength of the positive association (0.241) indicates a moderate correlation. Also, individuals who spend more time on Instagram are more likely to share content without verifying its accuracy beforehand (0.162), are more likely to engage with news articles or information shared on the platform (0.262) as well as share content that goes against their personal beliefs (0.155). Lastly, one possible interpretation for the correlation coefficient of 0.247 could be that individuals who spend more time on Instagram may develop a greater interest in media literacy and fake news prevention as they encounter various forms of misinformation on the platform.

Table 10. Shapiro–Wilk Test of Normality for the variables that possibly affect time spent on Instagram.

Tests of Normality	Shapiro–Wilk	
	Statistic	**Sig.**
How likely are you to reshare content on Instagram that supports your ideological beliefs without fact-checking it?	0.886	0.000
How likely are you to share content on Instagram that contradicts (are against) your ideological beliefs?	0.831	0.000
How interested are you in attending workshops or educational programs on media literacy and fake news prevention for Instagram users?	0.908	0.000
Country	0.636	0.000
Gender	0.619	0.000
Age	0.602	0.000
TrustPersonal-other	0.886	0.000
trustFriend	0.858	0.000
trustFamily-other	0.778	0.000
FreqShare	0.903	0.000
TimeSpent	0.882	0.000
FreqNews	0.886	0.000
LikelyEngage	0.898	0.000
FreqEngage	0.876	0.000
LikelyUnfollow	0.573	0.000

Table 11. Spearman Correlation Test regarding "Time Spent" on Instagram and various demographic and behavioral factors.

Time Spent	Country	Gender	trustFriend	trustFamily-other	trustPersonal-other	likelyShareBelief
Correlation Coefficient	**0.190**	**0.255**	0.109	**0.144**	0.060	**0.162**
Sig. (2-tailed)	0.006	0.000	0.114	0.037	0.387	0.019

Time Spent	ShareAgainst	freqNews	likelyEngage	freqEngage	likelyUnfollow	interestWorkshop
Correlation Coefficient	**0.155**	−0.037	**0.262**	**0.241**	−0.086	**0.247**
Sig. (2-tailed)	0.024	0.595	0.000	0.000	0.214	0.000

Time Spent: Time spent on Instagram; **trustFriend:** Trust in friends' shared news on Instagram; **trustFamily-other**: Trust in family's news more than other sources; **trustPersonal-other**: Trust in personal connections over verified accounts; **likelyShareBelief**: Likely to share content supporting beliefs without verification; **ShareAgainst**: Likely to share news contrary to personal beliefs; **freqNews**: Frequency of encountering news on Instagram; **likelyEngage**: Likely to engage with news on Instagram; **freqEngage**: Frequency of engaging in news discussions; **likelyUnfollow**: Likely to unfollow fake news accounts; **interestWorkshop**: Interest in attending media literacy workshops.

7.6. Variables Regarding Time Spent on Instagram by Country

Conducting the Mann–Whitney U test (Table 9) implies that there is a statistically significant difference in the time spent on Instagram between Greece and Portugal (*p*-value = 0.005). The higher mean rank for Greeks (117.27) compared to the Portuguese (95.04) suggests that, on average, Greeks spend more time on Instagram than the Portuguese participants in this study.

The majority of respondents occasionally come across news articles on Instagram. The typical participant in this study spends between 30 min to 1 h on Instagram, with the most common response being 1–2 h. The interquartile range suggests that the middle 50% of respondents spend between 30 min to 2 h on the platform, highlighting a moderate level of engagement among the study population. They are likely to engage with news articles and more likely to mute content. They engage in discussions or debates about news topics on Instagram, with occasionally being both the median and the mode (Table 12).

Table 12. Median, Mode, Interquartile Range of the variables related to time spent on Instagram.

	FreqNews	TimeSpent	likelyEngage	likelyUnfollow	freqEngage
Median (ME)	4	2	3	5	2
Mode	3	3	4	5	2
Interquartile Range (IQR)	1	2	1	1	2

For the comparative analysis we conduct again the Mann–Whitney U test (Table 9). Examining the frequency of encountering news articles or information on Instagram remains consistent for individuals in both countries (*p*-value = 0.750). The likelihood of unfollowing or muting accounts that share fake news or misinformation on remains consistent for individuals in both countries (*p*-value = 0.811). Also both groups appear to share similar tendencies in their likelihood to engage with misinformation on Instagram (*p*-value = 0.093).

However, cultural or contextual factors related to country of origin may influence their engagement with news content on Instagram (*p*-value = 0.038) with Greeks tending to have higher ranks (114.5 compared to 97.74 for Portuguese) and, consequently, engage with news more often (Table 13).

Table 13. Ranks' comparison between Greece and Portugal.

Ranks	Greece	Portugal
poorGSF	92.48	119.14
emotivLang	92.92	118.71
againstBelief	98.60	113.20
Frequency of sharing news/posts via direct message	114.5	97.73
Trust in social media content from personal connections	115.88	96.4
Time spent on Instagram	117.27	95.04

8. Discussion and Implications

Examining Instagram as a platform for information dissemination, especially regarding fake news, gives valuable insights into different user perceptions and behaviors. With a particular focus on comparisons between Greek and Portuguese Instagram users, this study aimed to examine the factors that influence trust, engagement, and interaction within the Instagram community.

Our sample primarily consists of respondents aged 18–24, representing a younger demographic. While gender distribution shows a slight male majority in both Greece

and Portugal, the sample is not fully representative of the population, which may reflect gender imbalances in online survey participation. Educational backgrounds exhibit distinct differences between Greece and Portugal, with Portugal showing a higher proportion of individuals holding a Bachelor's Degree, while Greece has a larger representation of respondents with a High School education. These different education levels of responders may influence their information evaluation and critical thinking skills regarding news consumption. Political ideology distribution indicates a dominance of moderate political views among respondents in both Portugal and Greece. This suggests a tendency towards centrist or moderate political beliefs within the surveyed population, reflecting potential implications for their attitudes towards news consumption and media trust.

The analysis of Instagram users' perceptions of a post's characteristics reveals varying perceptions among the respondents. Certain features, such as "noSource" "poorGSF", and "Clickbait", are perceived as relatively more important, suggesting that users mainly consider these when evaluating information authenticity. Cultural differences in the perception of the characteristics of posts emerged as another significant finding. Although both countries share these media characteristics, the cultural context—shaped by education, political ideology, and trust in social networks—creates notable differences in how Greek and Portuguese users perceive and engage with misinformation. The Mann–Whitney U test revealed cultural differences between Greece and Portugal, especially in how information is evaluated based on personal beliefs and emotional language. Portuguese participants give higher significance to a specific post's characteristics, showing they are better at noticing the signs of fake news compared to Greek participants. They showed a stronger focus on features, such as poor grammar, emotional language, and content that contradicted their personal beliefs. This greater focus may be connected to higher media literacy or a stronger sociopolitical awareness in Portugal, where people might be more observant of the elements that suggest content is unreliable. Regarding future implications, the strong internal consistency (a Cronbach's alpha of 0.815) of the 12 characteristics of posts underscores the reliability of the measurement scale, providing a foundation for future studies in this domain. The identification of characteristics like "noSource", "poorGSF", and "Clickbait" as relatively more important suggests topics for users' training. Strategies to enhance media literacy should emphasize these specific characteristics, recognizing the diverse perceptions and concerns among respondents. Policymakers and educators should consider these differences when they design interventions, guidelines, and training. Furthermore, the emphasis placed by Portuguese respondents on linguistic quality suggests a focus on language skills in media literacy education.

Furthermore, while both Greek and Portuguese users share a general preference for information shared by personal connections, differences in the trust placed in verified accounts emerge. In Greece, there is a stronger reliance on friends and social networks for news validation, reflecting the importance of personal relationships in Greek society. By contrast, Portuguese participants are more inclined to trust external verification mechanisms, such as formal news outlets. This contrast may suggest that social and cultural factors, such as the role of family and community in Greece versus a potentially stronger institutional trust in Portugal, play a crucial role in shaping trust in online information. These findings have important implications for strategies to combat fake news, as they highlight the need for tailored interventions that consider national cultural differences in trust dynamics. Aligning with the additional theory that social connections significantly influence the spread of fake news, the analysis also supports the idea that friends play an essential role in shaping an individual's trust in news on Instagram. This is particularly clear in Greece and Portugal, where social networks have a significant impact on daily life.

The analysis reveals insights into the relationship between time spent on Instagram and various behavioral patterns. Those who spend more time on the platform are more likely to engage with or share unverified content, interact with news articles, and share posts that conflict with their personal beliefs. The positive correlation between time spent on Instagram and these behaviors may indicate that frequent users become more accustomed to the patterns of misinformation and may either develop strategies for identifying fake news or become more susceptible to its spread. Interestingly, Greek users, on average, spend more time on Instagram than their Portuguese counterparts, suggesting that cultural or contextual differences influence social media usage patterns. This finding has implications for digital literacy training and platform design. Specifically, interventions aimed at encouraging critical thinking and responsible information-sharing practices should consider the amount of time users spend on social media and provide guidance on how to manage exposure to misinformation.

In conclusion, this research investigates Greek and Portuguese Instagram users' perceptions and behaviors with regard to fake news. The findings underscore the importance of considering cultural differences and individual perceptions in understanding a user's behavior and trust in online information. Furthermore, the significance placed on social connections in shaping trust highlights the need for strategies that successfully fight misinformation on social networks. People who use Instagram more frequently are also more likely to interact with fake news, highlighting the influence of exposure on the development of proper information-seeking behaviors. Finally, this study suggests tailored educational initiatives and policy interventions that can empower users to navigate the digital landscape responsibly and to critically evaluate the information they encounter on social media platforms like Instagram.

9. Conclusions, Limitations, and Future Research

This study explores how Instagram users in Greece and Portugal perceive and engage with fake news. It builds upon the existing literature by incorporating a comprehensive analysis of a post's characteristics, a user's trust in information sources, and time spent on the platform. By revealing differences in user behavior, trust factors, and motivations between users in Greece and Portugal, this study provides valuable insights for academics, policymakers, and social media platforms.

Specifically, as mentioned by [37,38], the analysis supports the idea that a post's characteristics significantly influence the identification of fake news on Instagram, aligning with the importance of the structure of news. In line with [53], this study emphasizes the significance of captivating headlines and clickbait techniques in fake news. This study is also consistent with [45], which emphasizes the lack of reliability in poorly edited content and messages containing errors, raising doubts about their credibility. On the other hand, ref. [59] suggest that individuals may weigh the credibility of information sources differently based on personal connections, contrasting with our findings where individuals were more skeptical. Regarding the frequency of sharing misleading information with friends on social media, our findings align with the theory proposed by [62], which suggests that friends play a considerable role in an individual's tendency to share misleading information, thus spreading fake news further. However, this study observed differences in the frequency of sharing news through direct messages between Greece and Portugal. While individuals from both countries trust information from their friends on social media, the higher mean rank for Greeks compared to Portuguese suggests a higher level of trust in social media content from personal connections in the Greek sample, potentially influenced by cultural or contextual factors unique to each country.

Both our research and the literature, particularly [40,55], highlight a positive correlation between the duration of time spent on social media platforms, including Instagram, and the consumption of fake news. The combined impact of spending a lot of time and actively participating on social media platforms highlights the importance of considering users' time investment as a crucial factor in understanding their vulnerability to misinformation [40,55].

To exploit our results, we recommend using these insights to design customized media literacy programs, with a particular focus on educational settings. This creates an opportunity for collaborative efforts among social media platforms, policymakers, and educators to develop interventions finely tuned to the cultural and demographic factors influencing fake news consumption in these environments.

Regarding future research, we could further investigate the observed gender differences in the impact of emotional processing on vulnerability to fake news. In addition, we could investigate how gender-specific interventions or educational programs might address these disparities. We could also explore the dynamic nature of political ideology and its relationship with information processing. Finally, conducting in-depth qualitative analyses is needed to explore cultural barriers in more detail.

However, it is crucial to acknowledge certain limitations within our study. The sample size of 211 individuals, comprising 107 Portuguese and 104 Greek participants, may not comprehensively represent the diverse demographics within each country. Overrepresentation of the youth demographic, specifically those aged 18–24, may introduce bias and restrict the generalizability of the findings. The gender distribution, with 37.91% females and 59.72% males, could potentially introduce gender-related biases into the analysis. Also, the reliance on self-reported data introduces potential biases, and the sample size, while substantial, may not fully capture the diversity within the populations studied. Also, participants might not give true or correct responses or even express the complexity of their thoughts and experiences. In addition, different respondents may interpret the same questions differently, leading to inconsistent or unreliable data. Finally, surveys offer an instantaneous view of beliefs and behaviors, which could not accurately represent changes over time. Exploring alternative data collection methods (e.g., electroencephalogram, eye tracking), conducting long-term studies, and employing rigorous statistical techniques can help mitigate these challenges, enhancing the rigor of future studies in this field.

Furthermore, the statistical analysis, while providing valuable insights into the perceived prevalence of a post's characteristics, does not examine the qualitative aspects of participants' evaluations. Understanding the motivations and reasoning behind their evaluations could enhance the interpretive depth of the findings. A more in-depth investigation into the psychological and behavioral dimensions could enrich our understanding of how people navigate misinformation. In essence, the predominance of quantitative data might overlook differentiated qualitative perspectives that could enrich our understanding of user behaviors and attitudes.

Lastly, the reliance on an online questionnaire and subsequent data processing in SPSS and Excel, while common in research, introduces the possibility of errors or biases, potentially impacting result accuracy.

Despite these limitations, our study provides a substantial contribution to the evolving discussion on fake news consumption, offering a foundation for further research and practical interventions and training.

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Appendix A

Table A1. Abbreviations of the variables and the corresponding questions of the questionnaire.

Questionnaire		
Questions	Name of Variables	Variables
Where are you from?	Country	Portugal Greece
What is your age?	Age	Under 12 years old. 12–17 years old. 18–24 years old. 25–34 years old. 35–44 years old. 45–54 years old. 55–64 years old. 65–74 years old.
What is your gender?	Gender	Female Male Prefer not to answer Non binary
What is the highest degree or level of education you have completed?	Education	High School Bachelor's Degree Master's Degree Ph.D. or higher Trade School Prefer not to say
How would you describe your political view?	Political view	Very Liberal Slightly Liberal Moderate Slightly Conservative Very Conservative Communist Anarchist Prefer not to say
How much do you trust news articles or information shared by your friends on Instagram?	trustFriend	Complete trust Some trust Neutral/Undecided Limited trust No trust
Do you trust information shared by your family members/friends on social media more than information from other sources?	trustFamily-other	Yes No Maybe

Table A1. *Cont.*

Questionnaire		
Questions	**Name of Variables**	**Variables**
I am more likely to trust news shared by personal connections (people I know/follow) rather than verified accounts on Instagram.	TrustPersonal-other	Strongly agree Agree Neutral Disagree Strongly Disagree
How often do you share news/posts with your friends on Instagram via direct message?	FreqShare	Never Occasionally Sometimes Often Always
Have you ever received or shared information from your family members or friends on social media that you later found out to be fake or misleading?	FakebyFamily	Yes No Maybe
How likely are you to reshare content on Instagram that supports your ideological beliefs without fact-checking it?	LikelyShareBelief	1—Very likely 5—Not likely at all
How likely are you to share content on Instagram that contradicts (are against) your ideological beliefs?	ShareAgainst	1—Very likely 5—Not likely at all
On average, how much time you spend on Instagram every day to get informed?	TimeSpent	Less than 30 min 30 min to 1 h 1–2 h 2–4 h More than 4 h
When you are on Instagram, how often do you come across news articles or information?	FreqNews	Very frequently Somewhat frequently Occasionally Rarely Never
How likely are you to read and engage with news articles or information shared on Instagram?	LikelyEngage	Very likely Somewhat likely Neutral/Undecided Somewhat unlikely Very unlikely
How frequently do you engage in discussions or debates about news topics on Instagram?	FreqEngage	Very frequently Frequently Occasionally Rarely Never
How likely are you to unfollow or mute accounts on Instagram that frequently share fake news or misinformation?	LikelyUnfollow	Very likely Somewhat likely Neutral/Undecided Somewhat unlikely Very unlikely
How interested are you in attending workshops or educational programs on media literacy and fake news prevention for Instagram users?	InterestWorkshop	1—Very interested 5—Not interested at all

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