



THE INFLUENCE OF MEDIA EXPOSURE ON CULTURAL ATTITUDES, PARTICULARLY BEHAVIOR IN SAUDI ARABIA

Lowai G. Abedⁱ

College of Social Sciences and Media,
Department of Communication and Media Technology,
University of Jeddah, Jeddah, 21493,
Saudi Arabia

Abstract:

The study sought to establish whether media exposure influences people's cultural attitudes and behavior in Saudi Arabia. Few related studies exist, and this study is set to fill a gap. Media in the context of this study entailed both social media and traditional media. The study employed a quantitative study to analyze data collected using a structured questionnaire. The study used 156 respondents of varying variables in terms of gender, age, and social media usage. Descriptive and inferential statistics were employed to analyze the data. The findings indicate that media exposure does not influence cultural attitudes and behavior. This was different from some of the studies reviewed in this study. The findings suggest that people's personalities and upbringing have more influence on them than what they encounter momentarily in media.

Keywords: social media, traditional media, cultural attitudes, behavior, Saudi Arabia

1. Introduction

Media continues to develop so that it has more channels than it used to five decades ago. Different media sources such as TV, radio, print, and today's social media have disseminated information alongside education and entertainment. As such, media is regarded as a socialization agent because of its ability to shift people's views, attitudes and behavior (Liao, 2023). This study sought to determine whether mass media, both social and traditional, exposes the public to cultural attitudes. This study assumes this is the case, although this can be done positively or negatively depending on the media channel and those using it. If we were to assume that all media houses perform their roles through the guiding principles of fairness, accuracy, diversity and balanced representation, then people would not be concerned with possible negative influences of the media (Liao, 2023). However, the mass media of any nation is as good as the political

ⁱ Correspondence: email lgabed@uj.edu.sa

and legal atmospheres of that nation. Democratic societies permit the media to function as it should. At the same time, political interference and lack of legal accountability make the media a channel for a few people to set the agenda. Anyone can set the agenda on social media due to a lack of stringent monitoring and censure (Potter, 2022).

2. Aim and Objectives

The aim was to determine how media exposure influences the cultural attitudes of Saudi Arabians. This was to be established through the following objectives:

- 1) Literature review of prior studies on the topic.
- 2) Collection of first-hand data through a survey using a structured questionnaire.
- 3) Analysis of the data through statistical means.

2.1 Research Questions

- 1) What is mass media? Moreover, what is its role?
- 2) Can mass media influence negative and positive cultural attitudes?
- 3) Is there a difference between the different types of mass media exposure and their ability to influence cultural attitudes?

2.2 Hypothesis

The specific hypothesis tested can be framed as follows:

H₀: Social media exposure does not influence people's cultural attitudes and behavior.

H_A: Social media exposure influences people's cultural attitudes and behavior.

2.3 Significance

This study highlights the power of media in influencing people's behavior and attitudes. While it is assumed that different media channels play different roles based on regulation (social media may have little regulation compared to traditional media), they can influence positive cultural attitudes. This study will help relevant media houses and consumers of the content to be aware of this possibility and take necessary measures to guard against vices that can be showcased through media.

3. Literature Review

This section discusses media, which is broad in description due to the aspects associated with it. The description is also given to guide the study on what media is referred to when used in the research. Therefore, the literature review begins by providing an overview of media and how it can influence cultures. While the review has tried to include studies related to the topic in Saudi Arabia, most of the studies have been done in other countries due to a shortage of studies in the country. Ultimately, the review previews what to

expect in the result section and helps explain the results in the discussion if similarities are found.

3.1 Description of Media

Guinibert (2021) describes media as communication outlets or tools to store and convey information or data. He adds that media refers to mass media communication's constituents, including print, news media, photography, broadcasting and advertising (Guinibert, 2021). According to Lee (2014), the media is best defined by its role in society, such as educating, informing, and entertaining through news, feature stories, and analysis through the press. The new media, which has been active for decades, helps to distribute documentaries, dramas, current affairs programmes, public life announcements, and other programmes through TV and radio (Lee, 2014). Liao (2023) notes that the media is a channel through which voices, viewpoints and lives are brought into the public sphere. Liao (2023) also notes that apart from the traditional media, the new media, dubbed online media, plays the same role as traditional media. Tatarnikova *et al.* (2022) found that media facilitates social change and shapes public views and attitudes. Therefore, through reporting, the media can bring to attention critical developments that influence people's lives positively or negatively, as well as spotlight critical issues and provide a platform for marginalized voices (Tatarnikova *et al.*, 2022). The media sets the agenda, influencing discussion, thoughtfulness and societal priorities (Lee, 2014).

Herzig and Asmann (2014) found that media tends to reinforce stereotypes, particularly on issues of gender, religion and culture; for instance, females are depicted in secondary roles to males. This is usually the case unless those producing the media change the norm to ensure gender equality. Liao (2023) also notes that the media serves as a watchdog in modern democracies by assessing and reviewing government performance and conduct to ensure they comply with the promises and expectations of those they serve. Unfortunately, this function is a source of conflict between the media, government and other institutions (Liao, 2023). Potter (2022) mentions that the media works based on the guiding media principles of fairness, accuracy, diversity and balanced representation. However, the capability and effectiveness with which media conducts these roles rely largely on the political and legal atmosphere of the country (Potter, 2022). For instance, where the legal basis is conducive, there tends to be an increase in media firms and products and a multiplicity of voices and access to information (Herzig & Assmann, 2014). However, in environments where the legal structure is not respected, there is more diversity, bias and political meddling (Herzig & Assmann, 2014). Political intrusion can polarize and strongly confuse how the media functions and performs (Herzig & Assmann, 2014).

3.2 How does Media Influence Culture?

Arias (2019), whose study sought to establish whether media influences social norms, found that media influences people's beliefs, attitudes and behaviours. This happens

through two mechanisms: whereby media provides new information that persuades people to accept it (individual channel) and whereby media informs viewers and listeners about what others learn, therefore facilitating coordination (social channel) (Arias, 2019). Gavin and Kruijs's (2021) findings support social channels since they established that media could be used to propagate a behaviour to the public, for instance, through media violence. The researchers found that media can propagate social norms that influence and encourage gender violence, and this is done through two effects, namely individual and direct effect (private) or the social and indirect effect (public) (Gavin & Kruijs, 2021). In the private effect, media information about new norms can encourage people to accept them. In contrast, the information creates common knowledge of a norm in the public effect. It enhances social coordination as people more readily accept the information if they deem others have accepted it (Gavin & Kruijs, 2021). However, the same media can use public effect (a social mechanism), for instance, a backlash, to influence individual mechanisms in changing violent attitudes, such as gender violence (Xanthidis & Alali, 2014).

Tatarnikova *et al.* (2022), whose study focused on the influence of media on future professionals' training, found that media culture formation positively impacts the future of professionals' training. This is because media culture is a basis for the professional competence of the 21st-century expert or specialist (Tatarnikova *et al.*, 2022). There is also the enhancement of students' training through new information and internet technologies (Tatarnikova *et al.*, 2022). Aljehani's (2019) study sought to explore the impact of social/online media on the value system of citizenship, respect, family communication, beliefs, and values in Saudi Arabia. The results indicate a positive impact of social media on citizenship and communication values, a moderately negative influence on time respect, and a poor impact on other people's privacy and family communication (Aljehani, 2019). However, the impact on belief and value systems was the same because of specialization, economic status, time spent on social media and the favoured social media platform (Aljehani, 2019). This study shows that new media, such as online media, take a trend of its own and change behaviour, such as time management and respect for privacy. While people would have respected others' privacy in the past, using social media can make people not care as much.

Hammad and Awed's (2022) study also focused on the impact of social media on university students in Saudi Arabia as far as promoting national identity. The study results reveal that about 95% of students use social media daily, while about 5% use social media poorly (Hammad & Awed, 2022). The results also indicated a significant impact on the use of social media in strengthening the national identity of students (Hammad & Awed, 2022). Radwan (2022) found that the media was partly responsible for students developing thinking skills and self-learning, providing meaningful content that helps preserve societal values, supporting community participation through awareness and volunteer activities, and increasing cooperation and coordination between parties. Here, the media is viewed positively. Liao (2023) found that perceptions and attitudes were positively linked with altruistic behaviour and attitude. This finding was important,

especially for developing and adopting practices that promote trust among the audience by encouraging altruistic behaviour through news coverage of different issues.

4. Material and Methods

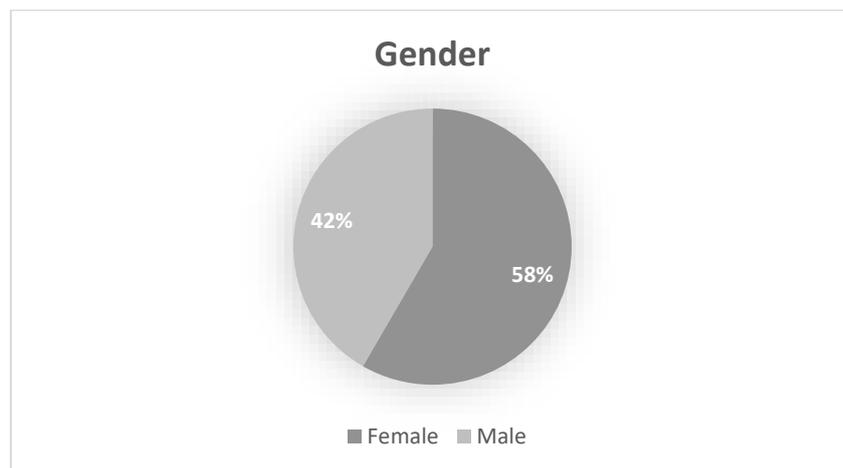
The study employed quantitative data analysis, namely descriptive and inferential analyses. People from around the country, in total 156, participated.

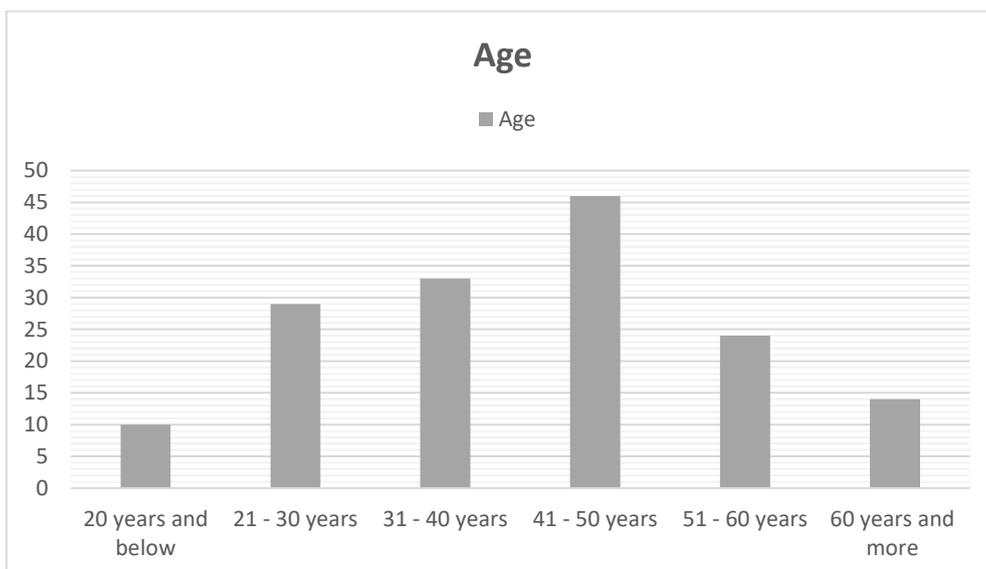
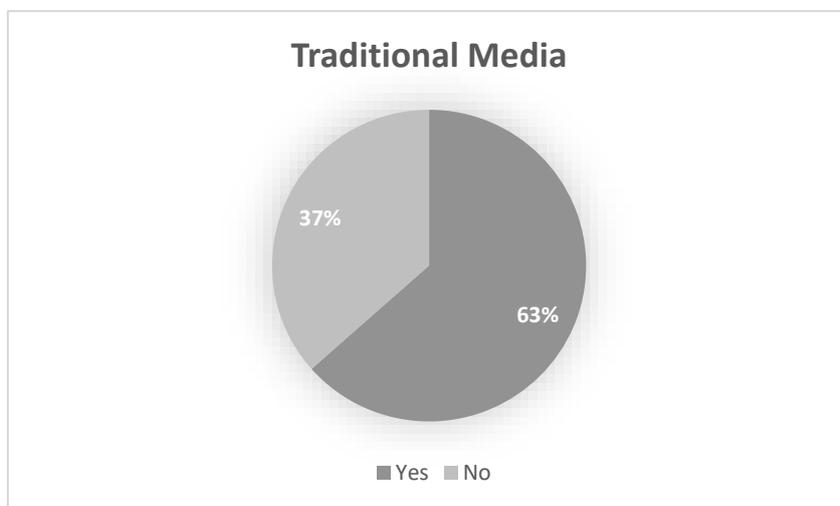
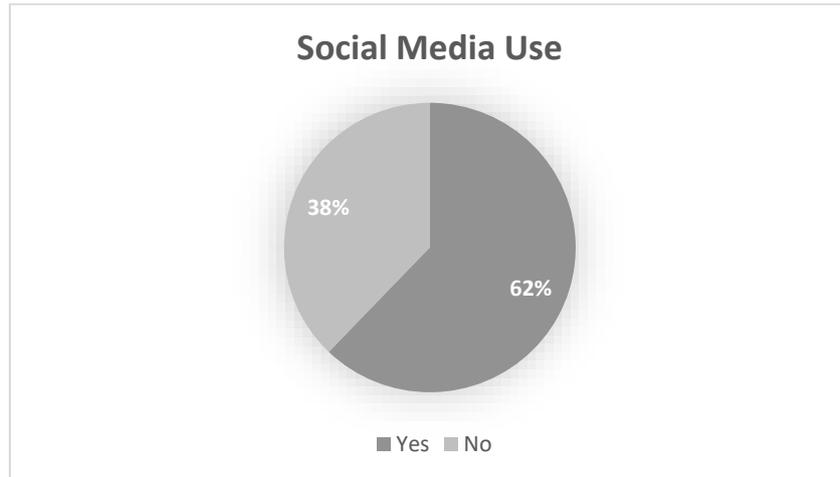
4.1 Type of Research and Reasoning

Descriptive analyses were conducted to summarize the data and identify patterns, while inferential analyses were employed to make predictions and test the hypothesis. These two approaches facilitate measuring participants' self-reports on social media and traditional media usage, as well as other variables such as gender and age. The results indicate that the two approaches complement each other in enhancing the understanding and identification of patterns within the population.

4.2 Participants

As noted in this subsection, the participants had different demographic attributes – represented in charts and a bar graph. The percentage of the different demographic variables would help explain this research's findings when measured against the questionnaire. For example, it would be possible to know whether gender or age is affected by violence on social media and traditional media such as TV. In total, 156 respondents participated.





The table below provides a detailed summary of the demographic attributes of the participants – their numbers. It shows that there are more females than males, and social

media and traditional media use is also high. Also, the middle age groups 31 – 40 and 41 – 50 years are more than the other age groups.

Table 1: Detailed summary of the variables

Variable	Attribute	Total
Gender	Female	91
	Male	65
	N	156
Social Media Use	Yes	97
	No	59
	N	156
Traditional Media Use	Yes	99
	No	57
	N	156
Age	20 years and below	10
	21 – 30 years	29
	31 – 40 years	33
	41 – 50 years	46
	50 – 60 years	24
	60 years and more	14
	N	156

4.3 Data Collection

A survey was done online to target multiple individuals – the initial target was 180 respondents, but 156 participated successfully. A questionnaire titled “The Content-Based Media Exposure Scale (C-ME)” was used because it contained the type of questions and sentences needed to gauge respondents in this study see Appendix. For example, the questionnaire engaged the participants to assess themselves based on questions about how much time they spend on social media and traditional media and later to provide a self-report (agreeing or disagreeing) on the effects of the usage. For instance, do they become more violent, or have they learnt something useful for society from such media? Prospective participants were identified through email, social media, and phone contacts. The participants were informed about the study's goal, their confidentiality was ascertained, and they were encouraged to be honest (this bit was highlighted in the questionnaire). The survey took place between 11 December 2023 and 12 December 2023 between 9 a.m. and 10 p.m. due to availability.

4.4 Data Analysis

The data was analyzed using statistical software for the descriptive and inferential analyses. The mean, mode, median, standard deviation, and variances were analyzed for the descriptive. Regarding inferential statistics, a t-test for independent variables (unequal variances) was used. This provided the t-test and p-values of the data, which will be shown in the next section. While testing the two-tailed hypothesis, the Cronbach alpha was set at 0.05.

5. Results and Discussion

5.1 Descriptive Study

The descriptive analyses provided a pattern of how the numbers were distributed for each question and sentence in Table 2. Based on the findings, Q1 and Q2 had the highest score for agreement, while the others had a medium score to indicate that the participants neither agreed nor disagreed with the statements.

Table 2: Descriptive summary of survey items

"How often do you watch, on the internet/TV/games/mobile phone/DVD, people who..." (preceding antisocial items)						
Code	Question	Mean	Mode	Median	Standard deviation	Variance
Q1	Do people shoot another person?	4.62	5	5	0.80	0.64
Q2	Do people fight?	4.00	4	4	0.73	0.53
Q3	Do people destroy others' belongings?	3.63	3	3	1.11	1.23
Q4	Do people steal?	3.53	4	4	1.19	1.42
Q5	Do people drink?	3.70	3	4	1.05	1.11
Q6	Do people use drugs?	3.76	4	4	0.97	0.95
Please rate how much you agree or disagree with the following sentence:						
Code	Statement	Mean	mode	Median	Standard deviation	Variance
Q7	I tend to become violent after watching violent movies.	3.55	3	3	1.13	1.28
Q8	I am affected by violent media.	3.65	4	4	1.06	1.13
Q9	I have seen people change by the content they watch.	3.63	5	4	1.13	1.29
Q10	I never used to fight, but now I fight.	3.55	5	4	1.19	1.43
Q11	I have learned something useful for society from the media.	3.60	3	4	1.16	1.34

5.2 Inferential Statistics

The inferential analysis focused on one question and two sentences referencing the study. Two variables were to be measured as linked to the questions and statements. Violence was measured using Q1, and the effect was measured using Q7 and Q11, where they assessed a negative and a positive, respectively, as shown in Table 3.

Table 3: Selected statements of the item to be measured in inferential analysis

Measure	Item	Statement
Violence	Q1	Do people shoot another person?
Effect (Negative)	Q7	I tend to become violent after watching violent movies.
Effect (Positive)	Q11	I have learnt something useful for society from the media.

It is worth noting that the variables measured were divided into two so that the t-test could be applied to the independent variables. For instance, gender was divided into males vs. females, social media use was divided into yes vs. no, and the same for traditional media, and age groups were divided into those below 40 (young) and those above 41 (old). Below are the results of the analyses for the variables:

1) Violence – People shoot another person

	Degree of Freedom	t-Value	p-Value
Gender (Males vs. Females) N = 156	154	0.923	.3574
Social media use (Yes vs. No) N = 156	154	-2.351	.0199
Traditional media use (Yes vs. No) N = 156	154	1.147	.2528
Age Young (40 years and below) vs. Old (41 years and above) N = 156	154	0.842	.4000

A significant mean difference was identified for social media use but not for gender, traditional media, and age.

2) Effect (Negative) - I tend to become violent after watching violent movies

	Degree of Freedom	t-Value	p-Value
Gender (Males vs. Females) N = 156	154	0.685	.4937
Social media use (Yes vs. No) N = 156	154	0.398	.6904
Traditional media use (Yes vs. No) N = 156	154	0.666	.5062
Age Young (40 years and below) vs. Old (41 years and above) N = 156	154	0.893	.3727

No significant mean differences were identified for gender, social media use, traditional media use and age.

3) Effect (Positive) - I have learnt something useful for society from media

	Degree of Freedom	t-Value	p-Value
Gender (Males vs. Females) N = 156	154	0.616	.5386
Social media use (Yes vs. No) N = 156	154	-0.151	.8796
Traditional media use (Yes vs. No) N = 156	154	0.183	.8543
Age Young (40 years and below) vs. Old (41 years and above) N = 156	154	0.434	.6642

No significant mean differences were identified for gender, social media use, traditional media use and age.

6. Discussion

Generally, the results for all three variables fail to reject the null hypothesis that states "social media exposure does not influence cultural attitudes and behavior of people". Only one measure on the violence variable rejected the null in favour of the alternative hypothesis that "social media exposure influences cultural attitudes and behaviour of people," and that was social media use. An in-depth discussion of the findings is provided for all three variables.

6.1 Violence

On this variable, a significant mean difference was identified for social media use but not for gender, traditional media, and age. This means the alternative hypothesis is accepted for social media rather than the others. The result was interesting because this variable measured social and traditional media simultaneously to see to what extent people see others shoot on those media (they are the only visual media). The descriptive result shows a high score of 4.62, meaning many witness violence. Therefore, it can be agreed that both social media and traditional media, such as TV, play a role, and this was noted earlier in the literature review as noted in one study (Tatarnikova *et al.* 2022). The low mean difference in traditional media is because it includes TV, radio, and print. Therefore, it is assumed that while TV can have the same effect as social media due to its highly visual nature and degree of entertainment, the same does not apply to radio and print media, which were considered part of traditional media in this study. If traditional media had focused solely on TV, the results for this measure would have been similar to those of social media use. Another possible explanation for traditional media not having a high mean difference is that social media users have more autonomy when using online

platforms. However, those watching TV are passive when viewing content, with their only choice being to continue watching or stop to change to something else (Hödl & Myrach, 2023). However, what is apparent is that violence does exist on social media and traditional media, but to different degrees. There was no influence on gender and age because of the lack of significant mean difference. This means that for both variables, they view violence on social and traditional media.

6.2 Result (Negative)

The measure here was the reaction to Q1, a self-report of reactions after watching violence on social and traditional media. No significant mean difference was identified for gender, social media use, traditional media use and age. Thus, the null hypothesis is upheld, meaning that social media or traditional media do not influence the participants after watching violence. This study had not assumed that this is the case as it drew from research that postulated that media can propagate violence in two ways, namely, individual and direct effect (private) or the social and indirect effect (public) (Gavin & Kruis, 2021). The study suggests that the private effect where new trends, including those of violent depiction, can become common on social media or TV, they are normalized. This is enforced when it enhances social coordination as individuals more readily accept the information if they perceive to have accepted it (Gavin & Kruis, 2021). Nevertheless, the same is true on the reverse if there is a backlash from users about unacceptable behaviour online so that the same media platforms stop propagating them and voice concern about intolerable behaviour (Xanthidis & Alali, 2014).

Thus, this study shows that people's behaviour is not influenced by the violence they see in the media. The study by Aljehani (2019) about the effect of social media on the value systems of citizenship, respect, family communication, and values among Saudi Arabians found that while there was positive impact on citizenship and communication values, there was negative influence on people's privacy and family communication. This study's findings show that the influence can be on certain aspects of individual values but not others. This also shows that people's personalities and upbringing can influence the extent to which they are influenced by media, especially in their behaviour (Leijse *et al.*, 2023).

5.3 Result (Positive)

The measure here was whether the participants had learnt something useful for society from the media to highlight any positivity about media. The result showed no significant mean differences for gender, social media use, traditional media use and age. Thus, not only does social media not influence violent behavior, but it also does not influence any positivity, based on this study. This finding contradicts the findings of other studies mentioned in the literature review. Some of the studies that found a positive correlation between users and social media did so in the areas of future professionals and training through new information and internet technologies (Tatarnikova *et al.*, 2022), promotion and strengthening of national identity in the case of Saudi Arabians (Hammad & Awed,

2022), and the development of thinking skills and self-learning that assists students that helps to preserve societal values that support community participation through awareness and volunteer services (Radwan, 2022). Perhaps the responses would have yielded different results if the sentence pinpointed a specific area of usefulness – what was asked was general.

7. Conclusion

The study has shown that media exposure does not influence cultural attitudes and behavior among Saudi Arabians. Different results might have been obtained if the focus had been placed on specific cohorts, such as young or old individuals, or males and females; however, this was not the case in the present study. The varied demographics of the participants suggest that they are not influenced, either positively or negatively, by social media or traditional media. This has significant ramifications in terms of people's perceptions about the use of social media and its influence. It also reinforces the idea that people's personalities, foundational beliefs and values, and upbringing influence them strongly. Moreover, Saudi Arabian society is highly religious, adhering to Islam that discourages violence (Esposito, 2015). Thus, growing up in strict religious families and society can restrain people or prevent them from being affected by what they are exposed to in media (McKay & Whitehouse, 2015).

As with any other study, this study had its limitations; foremost, the number of respondents was less compared to other studies used, and also, there was a discrepancy in number as some demographic variables were higher compared to others in the case of social media and traditional media usage. Secondly, the study relied on self-reports. Hence, the chances of subjective bias were high if the respondents did not want to think of themselves as violent or highly susceptible to violent behaviour or if they thought others would think of them as such. Lastly, the tool used to collect the data could have been more specific on certain items, which, in retrospect, would have been done differently. For instance, one statement was for the respondents to select if they learned something useful for society. This shortcoming on the questionnaire scale could have made the respondents wonder what "something" is. A good framing would have been specific, for instance, specifying whether education, sensitization of a public issue to do with governance or plights of people with disabilities. This would have provided the respondents with something specific to respond to confidently.

Acknowledgements

The author expresses his sincere gratitude to the 156 individuals who participated in this study on the influence of media exposure on cultural attitudes and behavior in Saudi Arabia. Their willingness to share their time, experiences, and insights has been invaluable to this research.

Conflict of Interest Statement

The author declares no conflicts of interest.

About the Author(s)

Lowai G. Abed is an Associate Professor in the Department of Communication and Media Technology at the College of Social Sciences and Media, University of Jeddah. His research focuses on communication media, with a particular emphasis on the cultural and social impacts of media in Saudi Arabia.

References

- Aljehani, H. A. (2019). Impact of Social Media on Social Value Systems among University Students in Saudi Arabia. *International Journal of Education and Practice*, 7(3), 216–229. <https://doi.org/10.18488/journal.61.2019.73.216.229>
- Arias, E. (2019). How Does Media Influence Social Norms? Experimental Evidence on the Role of Common Knowledge. *Political Science Research and Methods*, 7(3), 561–578. <https://doi.org/10.1017/psrm.2018.1>
- Esposito, J. (2015). Islam and Political Violence. *Religions*, 6(3), 1067–1081. <https://doi.org/10.3390/rel6031067>
- Gavin, S. M., & Kruis, N. E. (2021). The Influence of Media Violence on Intimate Partner Violence Perpetration: An Examination of Inmates' Domestic Violence Convictions and Self-Reported Perpetration. *Gender Issues*, 39(2). <https://doi.org/10.1007/s12147-021-09284-5>
- Guinibert, M. (2021). Defining digital media as a professional practice in New Zealand. *Kōtuitui: New Zealand Journal of Social Sciences Online*, 17(2), 1–21. <https://doi.org/10.1080/1177083x.2021.1960571>
- Hammad, M., & Awed, H. (2022). Social Media and Its Impact on Promoting the National Identity of University Students in Saudi Arabia. *Journal of Higher Education Theory and Practice*, 22(16), 116–125.
- Herzig, B., & Asmann, S. (2014). How to Define Media in a Mediatized Society? A Media Pedagogical Proposal Inspired by Theoretical Ideas of Castells, Luhmann and Peirce. *MedienPädagogik: Zeitschrift Für Theorie Und Praxis Der Medienbildung*, 24(Educational Media Ecologies), 18–29. <https://doi.org/10.21240/mpaed/24/2014.07.18.x>
- Hödl, T., & Myrach, T. (2023). *Content Creators Between Platform Control and User Autonomy*. <https://doi.org/10.1007/s12599-023-00808-9>
- Lee, P. (2014). Mass Media and Quality of Life. *Encyclopedia of Quality of Life and Well-Being Research*, 3846–3855. https://doi.org/10.1007/978-94-007-0753-5_1738
- Leijse, M. M. L., Koning, I. M., & van den Eijnden, R. J. J. M. (2023). The influence of parents and peers on adolescents' problematic social media use revealed. *Computers in Human Behavior*, 107705. <https://doi.org/10.1016/j.chb.2023.107705>

- Liao, C.-H. (2023). Exploring the Influence of Public Perception of Mass Media Usage and Attitudes towards Mass Media News on Altruistic Behavior. *Behavioral Sciences*, 13(8), 621–621. <https://doi.org/10.3390/bs13080621>
- McKay, R., & Whitehouse, H. (2015). Religion and Morality. *Psychological Bulletin*, 141(2), 447–473. <https://doi.org/10.1037/a0038455>
- Potter, J. (2022). Analysis of definitions of media literacy. *Journal of Media Literacy Education*, 14(2), 27–43. <https://doi.org/10.23860/jmle-2022-14-2-3>
- Radwan, M. (2022). Effect of social media usage on the cultural identity of rural people: a case study of Bamha village, Egypt. *Humanities and Social Sciences Communications*, 9(1). <https://doi.org/10.1057/s41599-022-01268-4>
- Tatarnikova, A., Oleshko, A., Voronovska, L., Shvets, N., Sushkova, O., & Sbitnaia, D. (2022). The Impact of Media Culture on Future Professionals' Training. *Journal of Curriculum and Teaching*, 11(1), 117. <https://doi.org/10.5430/jct.v11n1p117>
- Xanthidis, D., & Alali, A. (2014). Investigating the attitude of the average Saudi towards the Social Media. *Applied Computational Science*, 86–94.

Creative Commons licensing terms

Author(s) will retain the copyright of their published articles agreeing that a Creative Commons Attribution 4.0 International License (CC BY 4.0) terms will be applied to their work. Under the terms of this license, no permission is required from the author(s) or publisher for members of the community to copy, distribute, transmit or adapt the article content, providing a proper, prominent and unambiguous attribution to the authors in a manner that makes clear that the materials are being reused under permission of a Creative Commons License. Views, opinions and conclusions expressed in this research article are views, opinions and conclusions of the author(s). Open Access Publishing Group and European Journal of Social Sciences Studies shall not be responsible or answerable for any loss, damage or liability caused in relation to/arising out of conflicts of interest, copyright violations and inappropriate or inaccurate use of any kind content related or integrated into the research work. All the published works are meeting the Open Access Publishing requirements and can be freely accessed, shared, modified, distributed and used in educational, commercial and non-commercial purposes under a [Creative Commons Attribution 4.0 International License \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)