The Impact of COVID-19 Pandemic Linguistic Landscapes on Lifestyle, Health Awareness and Behavior

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Received: December 14, 2023 Accepted: March 5, 2024 Online Published: March 22, 2024

doi:10.5430/wjel.v14n3p359 URL: https://doi.org/10.5430/wjel.v14n3p359

Abstract

The recent COVID-19 pandemic created a plethora of new challenges for the world and affected all aspects of human life. This research aimed to look further into the sociolinguistic aspects of the COVID-19 Linguistic Landscape (LL) and assess the extent to which public signs affected people's behaviors and lifestyles during the COVID-19 outbreak in the Saudi context. A semi-structured questionnaire was developed to collect data related to the study. A total of 215 participants from different regions of Saudi Arabia participated in the survey. The study results provide evidence of language as a critical element in reflecting the social realities of the Saudis. The data confirmed that the COVID-19 Linguistic Landscape (CLL) served several functions at both individual and institutional levels in Saudi Arabia. Key findings emerged about the role of the linguistic landscapes set up in public spaces in changing people's thoughts and behavior as well as how they reacted to urgent and exceptional conditions such as COVID-19. In sum, the pandemic-associated signs led to remarkable positive changes in the daily routine of people.

Keywords: COVID-19, linguistic landscape, impact, pandemic, health awareness, people lifestyle

1. Introduction

The concept of linguistic landscape (LL) has been studied by many different disciplines. Described as the visual language of all items presented in the public space (Cenoz & Gorter, 2008; Lou, 2016), LL has become the interest of scholars from many different research fields such as sociolinguistics and applied linguistics (Gorter, 2006). The study of LL has been described by researchers like Backhaus (2007) and Gorter (2006) as a new but promising approach to studying public signs, especially in multilingual contexts. Recently, research on LL has attracted scholars from the public health sector, making it one of the most significant issues at present, especially after the outbreak of COVID-19. Research during the COVID-19 period dealt with the topic from multiple perspectives such as linguistic limitations and challenges during the pandemic, multilingualism, multimodality, language ideologies as well as issues related to social relationships and the marginalization of certain social groups (Phyak & Sharma, 2022; Piller, 2020; Piller, Zhang & Li, 2020).

However, despite the ubiquity of COVID-19 research, especially on crisis communication, very limited attention was given to examining the dimensions of the reader's experience and the effect of the LL on readers in sociolinguistics, especially in the LL research field (Lacsina & Yeh, 2022; Rozin, Eka & Setiawan, 2022). Piller et al. (2020) claim that only a few studies have dealt with the crisis from a sociolinguistic perspective. However, recently, there has been remarkable interest in the LL of COVID-19 as shown in specially published sociolinguistics journal articles on the topic such as Lou, Malinowski, and Peck's "The Linguistic Landscape of COVID-19" (2022) where the authors assert the need to discuss several aspects of LL related to COVID-19 as an ongoing event that affected the world including the linguistic and social inequality found in COVID-19 Linguistic Landscapes (CLLs) and the influence of pandemic signage on public health communication.

Hence, this research aimed to look further into the sociolinguistic aspect of the signs and how the language used in the signs affected people's behaviors and contributed to encouraging them to follow COVID-19 safety measures. This study was mainly conducted to explore the impact of CLLs on people's lifestyles, health awareness and behaviors.

Specifically, this research aimed to:

1. Investigate people's awareness about the spread and significance of COVID-19 signs during the pandemic in Saudi Arabia.
2. Assess the impact of LL on the individual's daily routine and lifestyle during the COVID-19 pandemic in Saudi Arabia.
3. Explore the functions that COVID-19 signs serve on both individual and institutional levels in Saudi Arabia.
4. Raise awareness about the role that LL plays in people's lifestyles and different social and professional behaviors.

To achieve the research objectives, this study aimed to answer the following research questions:

1. To what extent were people in Saudi Arabia aware of the spread and the significance of COVID-19 signs during the pandemic?

2. Did the COVID-19 Linguistic Landscapes (CLLs) affect the individual's daily routine and lifestyle during the COVID-19 pandemic in Saudi Arabia and how?
3. What were the functions that COVID-19 signs served on both individual and institutional levels in Saudi Arabia?

2. Literature Review

2.1 Terminology and Dichotomy of the Linguistic Landscape

As the concept of the Linguistic Landscape (LL) has been a topic of different interests in a variety of fields, various definitions have been proposed by researchers in literature. However, only definitions that are related to the concern of this study will be introduced in this paper. Landry and Bourhis (1997, p. 25), describe LL as "The language of public road signs, advertising billboards, street names, place names, commercial shop signs, and public signs on government buildings combines to form the linguistic landscape of a given territory, region, or urban agglomeration." Similarly, LL has been defined as all forms of visual language present in the public space of a specific area (Lou, 2016). However, the most meaningful definition related to this research is from Cenoz and Gorter, (2008, p. 1) who define LL as that which "refers to all the language items that are visible in a specified part of the public space".

Scholars in the sociolinguistics field have used different approaches to categorize LL signs. Ben-Rafael, Shohamy, Hasan Amara, and Trumper-Hecht (2006) and later Shohamy, Rafael, and Barni (2010) differentiate between "top-down" and "bottom-up" LLs. Top-down LLs include signs created by governments and related official agencies like road and traffic signs, billboards, and signboards, for example. Meanwhile, bottom-up LLs refer to the signs created and placed by non-governmental entities including different groups and individuals such as private signs on buildings, cafés, clubs, and restaurants. Similarly, Backhaus (2007) makes a distinction between official and non-official signs. While official LLs are made by government authorities, non-official signs are created by private parties. Further, a similar dichotomy of authorship of signage was made by other scholars such as "public and private" signs by Landry and Bourhis (1997) and "government and private" signs by Edelman (2010) and Zhao (2020). This categorization is critical for linguistically investigating public signs to understand the differences in language, the language preferences, and to reflect the ideologies and attitudes of different parties and their motivations and functions that LL serves in a given context (Lacsina & Yeh, 2022; Zhao, 2020).

2.2 Studies of Linguistic Landscape

In literature, the main focus of studying Linguistic Landscape (LL) was the multilingualism aspects in various urban contexts. One of the main topics that has been widely discussed by linguists is the spread of English throughout different linguistic environments. Cenoz and Gorter (2006) studied the LLs of two streets in two multilingual areas of Europe: Friesland in the Netherlands and the Basque Country of Spain. Their research compared the use of the minority languages (Frisian or Basque), the state languages (Dutch or Spanish) and English as an international language on signs with texts. They found significant differences between the two settings regarding language policy. The data also indicated the widespread use of English on the signs. Backhaus (2007) also studied public signs in modern Tokyo. In his study, he discussed the variety of linguistic scripts and messages in the public sphere of Tokyo. According to him, such diversity reflects language use and practices as well as the dimensions of multilingualism in Tokyo society. However, Otsuji and Pennycook (2010) referred to "metrolingual landscapes" as a descriptive category for data analysis that helps in understanding contemporary multilingualism not only in urban but also in rural and precolonial linguistic contexts.

Studies on LL also confirmed the use of a wide variety of LLs to serve different social, cultural, and pedagogical functions. However, the focus in linguistic literature was often on the role that linguistic landscapes play in educational contexts, specifically in language and literacy teaching environments. The aim was to examine the way linguistic landscaping was used to enhance learner engagement and involvement in classroom interaction. In their study of the role of linguistic landscape in second language acquisition (SLA), Cenoz and Gorter (2008) asserted the multimodal and multilingual nature of LL and its various symbolic and informative functions. They indicated the importance of LL in providing a good source of authentic input for pragmatic development and linguistic diversity as well as enhancing language awareness.

The early study of LL was mainly based on a quantitative analysis approach (Blommaert & Maly, 2014). The focus of such research was the distribution of publicly visible languages over different areas. Although this approach is useful in representing markers of spatial multilingualism, it fails to explain the social dimensions of using such visual materials. Thus, Blommaert and Maly (2014), assert the importance of employing a semiotic approach to studying different signs on both individual multimodal and integral levels of analysis. According to Phyak and Sharma (2022, p. 220), "Sociolinguists have expanded the scope of linguistic landscape studies by integrating non-linguistic signs and materials in the analysis of the semiotic construction of space". Therefore, several researchers (e.g., Scollon & Scollon, 2003, and Jaworski & Thurlow, 2010 cited in Phyak & Sharma, 2022) provide a holistic framework for analyzing LL as a semiotic system. They examined it by making sense of places and people in the public exhibition of language. Blommaert and Maly (2014), used what they called the "Ethnographic Linguistic Landscape Analysis" in their study of the urban working-class neighborhood Rabot in the city of Ghent, Belgium, to examine the dynamic and complex characteristics of the social fabric of a super-diverse neighborhood. They examined the complex array of different infrastructures in Rabot which reflected various patterns of interaction and social mobility in the neighborhood such as native-owned facilities and shops, a relatively stable presence, businesses with a shorter history, and religious buildings as well as shops and restaurants that target users from both inside and outside the district. The study confirmed the complexity of the texture of the vernacularization found in Rabot and asserted the necessity for studying language in its locality and examining it through the accents of all its speakers.

2.3 Examining the Linguistic Landscape During the COVID-19 Pandemic

As mentioned earlier, recent research on the Linguistic Landscape (LL) of the COVID-19 pandemic has covered a wide range of topics including multilingualism, multimodality, and language ideologies as well as linguistic limitations and challenges during the pandemic (Phyak & Sharma, 2022; Piller, 2020; Piller et al., 2020). Furthermore, during the pandemic, LL studies also became the interest of scholars in the public health sector, specifically during the global outbreak of COVID-19 (Lou et al., 2022). Indeed, the pandemic reflected abundant new challenges to the world. The novel virus affected nearly all aspects of human life (Haleem, Javaid, & Vaishya, 2020; Hussain, Mirza & Hassan, 2020; Sinha, Pande & Sinha, 2020; Verma, & Prakash, 2020) causing constraints that changed the world. Accordingly, their behaviors and lifestyles were considerably affected as several studies have shown (e.g., Haleem et al., 2020; Hussain et al., 2020; Kumari et al., 2020; Lehtisalo et al., 2021).

The impact of this global health crisis on people's health and different lifestyles has been discussed extensively in literature from a wide range of disciplines. COVID-19 changed people's daily behaviors in a variety of ways including their physical activities, eating habits, and sleep patterns (Kumari et al., 2020; Lehtisalo et al., 2021; Lesser & Nienhuis, 2020; Sinha et al., 2020). It also changed their awareness, physical and mental health, economic conditions, educational styles (Hussain et al., 2020; Verma, & Prakash, 2020). Furthermore, it changed their social and ideological practices (Bavel et al., 2020; Phyak & Sharma, 2022), communication, and mobility patterns (Garfin, Silver & Holman, 2020; Kalocsányiová, Essex & Poulter, 2021; Melki et al., 2022).

Additionally, the growing body of work on the COVID-19 crisis includes works on language, its functions, its different linguistics, and its ideological, educational communicative and social aspects during the pandemic. New concepts with a particular reference to COVID-19 termed "crisis sociolinguistics" (Piller, 2020, p. 1) and "multilingual crisis communication" (Ahmad, & Hillman, 2021, p. 303; Piller et al., 2020, p. 503) have emerged to direct the attention towards multilingualism and the role of intercultural interactions and multilingual communication in crises. They call for linguistic diversity including a greater diversity of research perspectives, local and indigenous knowledge, and grassroots practices for the field. Chesnut, Curran, and Kim (2023, p. 1) discuss the idea of "multilingual commanding urgency" that is related to the directive signs found in public during COVID-19 in Seoul, South Korea. They found complicated and urgency-oriented use of public signage as multilingualism appeared in directive signage during the crisis while other signage remained monolingual. Hence, they assert the necessity of exploring the functions of public signs in different contexts rather than only studying their distributions.

Exploring Linguistic Landscapes (LLs) during the pandemic period is a linguistic issue that has recently come under study in sociolinguistics and applied linguistics research. Language in any context could be a practical indicator and valuable resource for social change. According to Blommaert and Maly (2014, p. 1):

> "Whenever the composition of a neighborhood changes, the place sounds and looks differently. We realize that it has changed because we hear and read different languages than the ones we expected or were used to. Language, in that sense, is the most immediate and direct identifier of people and the most immediately sensitive indicator of social change. And disciplined attention to language can help identify the nature and direction of such processes of change."

As with other aspects of human life, COVID-19 universally changed the public linguistic landscape around the world. Several studies have investigated the development and adaptation of LL during COVID-19 such as Zhao (2020), Marshall (2021), Kalocsányiová et al. (2021), Nakamura (2022), Phyak and Sharma (2022), and Lacsina and Yeh (2022), among others.

Marshall (2021) investigated the change in LL on the North Shore of Vancouver, Canada, during the first wave of the COVID-19 pandemic. The data collection of his research follows the methodological principles of walking and visual ethnography that were used by several researchers (e.g., Borer, 2013 & Lee & Ingold, 2006, cited in Marshall, 2020). His research includes studying both official photographs of top-down signs and unofficial grassroots literacy artifacts. Through a descriptive analysis of the photos' place, text images, and colors, Marshall found that they are all strategically organized and placed in places people could find and read easily like entrances, footpaths and alongside, above, or below existing signs. The study also finds English as the dominant language used to represent COVID-19 information through public signs.

Phyak and Sharma (2022) examined the way people used LLs and placed material objects during COVID-19 to create borders of place. They also observed how ideology affected people's practices, emotions, and identities during the pandemic. They found that citizens combine multiple linguistic and non-linguistic semiotic resources to create spatial boundaries. Such studies indicate that LLs used during the pandemic were multi-semiotic, multimodal, and multilingual and reinforced insider-outsider identities among people.

Comer (2022), on the other hand, discusses Melbourne's multimodal indexes of feelings of love, hope, resilience, joy, and solidarity during and since lockdown. He chronologically examined the way the affective-discursive practices operated in the landscape during the isolation periods of COVID-19. He asserts the complex interrelated relationship between signs and the chronoscape during and after COVID-19 which were reflected in the LL through hope, strength, renewal, and rebirth messages rising from signs of loss, threat and disappointment that link the past with the present and towards the future.

However, in recent Linguistic Landscape (LL) research, it has also been found that LL during COVID-19 was of high importance in spreading awareness, providing support for official agencies, and tackling the spread of the disease and equally as crucial as other traditional forms of media. Several researchers, for example, Kalocsányiová et al. (2021), and Rozin, et al. (2022), indicate that LLs

relating to COVID-19 played major roles in raising awareness and knowledge about the disease and contributed greatly in providing information to people about appropriate protective health behaviors.

This study contributes to detecting the visual representation of signs related to the COVID-19 pandemic. The impact of both "top-down" and "bottom-up" COVID-19 Linguistic Landscapes (CLLs) on people's lifestyles, health awareness and behaviors have been investigated. It also investigates the functions that COVID-19 signs serve at both individual and societal levels in Saudi Arabia. This study, furthermore, contributes to research on LL, especially in raising awareness about the role that it plays in people's perceptions, attitudes and different practices and the relationship between LL and people's beliefs and behaviors during the COVID-19 period.

3. The Study Context

Saudi Arabia is a part of the world that was affected by the COVID-19 global pandemic. However, the effects of the COVID-19 pandemic varied substantially across the Eastern Mediterranean Region in the number of COVID-19 cases, hospitalizations, and deaths. These differences were highly affected by the response and preparedness of the different countries in the region such as the readiness of the public health sector, early preventive measures, as well as restrictions on gatherings and international arrivals (Khan et al., 2021).

During the broad spread of COVID-19, Saudi Arabia implemented a set of policies as precautionary measures unlike any other nation in the Middle East (Yezli & Khan, 2020) thanks to two main phases in Saudi Arabia's response to the pandemic. First, there was the early work of many sectors to analyze the situation and combat the COVID-19 pandemic. Second was the application of urgent precautions to contain the spread of COVID-19 until active vaccines were distributed globally (Khan et al., 2021). Accordingly, several penalties were also issued by the Ministry of Interior in Saudi Arabia for violations of COVID-19 preventive measures in private institutions (MOH, 2020).

Consequently, with the confirmation of cases of COVID-19 in the country, Saudi Arabia set up regulations and facilities that ranged from very strict measures of total lockdown starting in early 2020 to a vaccination period in 2021, followed by lifting the restrictions gradually came with careful monitoring in 2022 (MOH, 2020, 2022; SPA, 2022a). The Centers for Disease Control and Prevention (2020) also urged the use of social distancing policies during the pandemic periods including bilingual (English and Arabic) signage such as floor markings and posters (Lacsina & Yeh, 2022). As a result, this study explored the impact of COVID-19 linguistic landscapes (CLLs) on people's lifestyles, health awareness and behaviors in the Saudi context.

4. Methodology

To achieve the study's aims, a survey was developed to assess the functions that COVID-19 signs served on both individual and institutional levels in Saudi Arabia. A cross-sectional survey was designed to examine the impact of LL related to COVID-19 on an individual's response to the pandemic's instructional health signs and the degree of their engagement in different social and professional happenings. The survey includes both close-ended and open-ended questions was employed for this study. A 5-point Likert scale was also used for the response options, while open-ended questions were used to allow free space and more flexible authentic feedback.

A Google form was designed and online data was collected for two weeks in October 2021 via the WhatsApp application. The questionnaire was written in Arabic since it is the official and most widely used language in Saudi Arabia which helped the survey reach more people from different educational and cultural backgrounds.

Convenience sampling was used in this research. The participants were recruited to fulfill maximum diversity. The study targeted a variant sample including different gender, education levels, and employment sectors as well as varied marital and health statuses. These variables were needed to measure the effect of different variables on people's awareness and comprehension of CLL. Considering such diversity allowed for investigating any impact on the level of comprehension of the respondents of the CLL due to these independent variables between them.

For ethical considerations, the survey included a consent section that presented a short description of the study. The participants were clearly informed about the purpose, procedures, and benefits of the study in both English and Arabic (the native language of Saudis). Participation in the research was voluntary and the participants were informed about the possibility of withdrawing at any time. As previously mentioned, the survey was distributed online, and participants were informed about the process which involved high confidentiality and anonymity with no risks whatsoever. To ensure this, participants did not need to reveal their names. In addition, personal information such as gender, education levels, and employment sectors were used with high consideration of privacy as no individual cases were mentioned or discussed in the study. The research targeted diverse populations to allow equitable opportunities of participation of varied communities in Saudi Arabia. Researcher's contact details were also provided to allow inquiries about the study. As the study was under the administration of Najran University, ethical approval was obtained from the concerned research ethics committee.

The questionnaire included five main sections comprising 32 items, as follows:

1. The sociodemographic characteristics of the study participants include questions about gender, marital status, educational level, occupational status and sectors as well as health conditions.
2. The degree of an individual's recognition of the spread of COVID-19 Linguistic Landscape (CLL).
3. The usage of signs related to the COVID-19 pandemic in their surroundings.
4. The effect of COVID-19 signs on people's daily routines and lifestyles during the COVID-19 pandemic in Saudi Arabia.

5. The individual's response to the pandemic instructional health signs.

For the purpose of this research, a semi-structured questionnaire was developed to collect data related to the study. Commonly, LL research uses either a quantitative or a qualitative approach. However, more recent studies have adopted a combination of both (e.g., Blackwood et al., 2017; Nakamura, 2022). Thus, a mixed research method was used to analyze both quantitative and qualitative data gained from the survey. The data was first analyzed using IBM SPSS 25 (2017) Statistics software. This software was utilized to analyze quantitative data. NVivo version 12 (released in March 2020) was used to organize the study's literature and analyze the survey's qualitative data. The NVivo matrix coding feature helped analyze open-ended responses and highlighted the differences across and within individual and group responses (Feng & Behar-Horenstein, 2019). Main themes and concepts related to people's perceptions and behaviors regarding CLL were identified and coded in this software for analysis.

5. Results and Discussion

This section includes both descriptive and inferential statistics of survey results. It first introduces the demographic background of the participants. Afterward, the analysis and answering the research questions as well as the discussion of the study data will follow.

5.1 Socio-demographic Background

A total of 215 participants from different regions of Saudi Arabia participated in the survey that was designed specifically to study the effect of CLL on an individual's daily routine and lifestyle during the pandemic.

Table 1. Demographic Data of the Participants

Variable	Category	Frequency	Percent	Variable	Category	Frequency	Percent
Gender	Female	114	53.0	**Employment**	Student	17	7.9
	Male	101	47.0		Education Sector	111	51.6
	Total	215	100.0		Health Sector	4	1.9
Marital Status	Married	181	84.2		Military Sector	7	3.3
	Single	30	14.0		Retired	18	8.4
	Divorced	4	1.9		Unemployed	42	19.5
	Total	215	100.0		Other	16	7.4
Education	Pre-Uni	13	6.0		Total	215	100.0
	Diploma	9	4.2	**Health Status**	Good	184	85.6
	Bachelors	132	61.4		Chronic Disease	31	14.4
	Masters	38	17.7		Serious Disease	3	1.4
	PhD	23	10.7		Other	3	1.4
	Total	215	100.0		Total	215	100.0

As shown in Table 1, the sample includes a similar distribution of males (N=101) and females (N=114). The majority (84.2%) reported "married" as their marital status. The others described themselves as "single" (14%) or "divorced" (1.9%). Additionally, varied educational qualifications were reported by the study participants. Around 90% reported possessing either graduate or post-graduate degrees. Few participants (6%) reported pre-university qualifications while others mentioned a diploma (4.2%).

Their occupations were highly diverse. About half of the participants (51.6%) were from the educational sector, while 19.5% of the participants reported that they do not work. Finally, 8.4% were retired. Other sectors, namely military and health employees represent the least quantity at 3.3% and 1.9%, respectively. However, students and others (not mentioned) had a similar percentage of responses which was around 7.5% for each.

For their health status, the majority (85.6%) reported good health indicating no serious or chronic diseases being recorded in their personal health history. Participants with chronic diseases were about 14.4%. Those with a serious or other (unidentified) disease recorded 1.4% each.

5.2 The Statistical Analysis of the Data

To answer the research questions, three main aspects were investigated including people's awareness of the spread and significance of COVID-19 signs, the purpose of using COVID-19 signs, and the impact of LL on an individual's daily routine and lifestyle during the COVID-19 pandemic. This analysis allowed an understanding of the role that linguistic landscape plays in people's perceptions and sheds light on the functions that COVID-19 signs served on both individual and institutional levels in Saudi Arabia.

5.2.1 People's Awareness of the Spread and Significance of COVID-19 Signs

The Numerical Rating Scale was applied to interpret the descriptive statistics of the data related to people's recognition and perceptions of COVID-19 signs. The mean value was interpreted according to a 4-point scale. The quality was rated as: Low (1.00 - 1.75), Moderate (>1.75- 2.50), High (> 2.50- 3.25) and Very High (>3.25- 4.00).

To assess the level of awareness that people have about the spread of COVID-19 signs, participants were asked six questions about their use of the signs (see Table 2). The questions include their use of nearby signs as well as views regarding the personal and individual usage of

COVID-19 signage in their context.

Table 2. The degree of individual awareness of the significance of CLL and its usage in the surroundings

Code	Question	Mean	SD	Degree
Q2.1	There is a wide use of C signs nearby.	3.56	.823	Very High
Q2.2	I use C signs in my surroundings.	3.18	1.118	High
Q2.3	C signs are a confidential source of information and instructions.	3.61	.680	Very High
Q2.4	It is necessary to support places that continue using C signs.	3.33	1.059	Very High
Q2.5	C signs change people's behavior for the better.	3.53	.728	Very High
Q2.6	It is better to continue using C signs.	3.04	1.187	High
Q2	**Total**	**3.3760**	**.544**	**Very High**

As can be seen in Table 2, the average of the total value of participants' responses concerning their awareness about the spread and the significance of COVID-19 signs was very high (M = 3.38, SD= 0.544).

In response to the question about the existence of nearby COVID-19 signs (Q2-1), the data showed a very high level of awareness about the spread of COVID-19 signs and posters found at different sites. The majority (N=151, 70%) confirmed their recognition of the spread of the signs around them. Likewise, the data also indicated a high rate of interest in COVID-19 signs among participants in this study (Q2-2). They reported a high personal attentiveness and use of the signs in their neighborhood (M=3.56, SD=0.823).

Moreover, the results provide evidence that the participants had a lot of confidence in the information and instructions presented in the CLL (M =3.61, SD=1.118) (Q2-3). The participants' high devotion to the use of COVID-19 signs can also be seen in their attitudes regarding places committed to using the signs. Indeed, they expressed their endless support of and loyalty to such places. A very high score (M =3.33, SD=1.059) was recorded for their responses regarding visiting and supporting localities that adhere to the use of signs related to the pandemic (Q2-4).

Participants also reported their positive perception of the role that CLL plays in changing people's behavior for the better. Considerable responses (M=3.53, SD=.728) believed COVID-19 signs positively affected people's behavior (Q2-5).

Consequently, in the response to the final questions in this section (Q2-6), consistent results were found in the data. The majority reported their positive perspective towards the continued use of COVID-19 signs even after the pandemic receded (M= 3.04, SD=1.187). This reflects a high consideration for the use of signs and excessive adherence to instructional and cautionary posters found in public places. They have been recognized as a widespread and common procedure to fight and curb a serious disease that threatened people's lives.

This finding was further analyzed by interpreting reasons given by the participants to justify their opinions. It includes four main themes regarding the continuous use of CLL as follows:

1. Raise awareness about various health issues.
2. Remind people to keep committed to healthy habits.
3. Protect and keep people safe from diseases.
4. Encourage healthy behavior.

5.2.2 The Purpose of Using COVID-19 Signs

In like manner and for extensive understanding behind the motivation for using COVID-19 signs and exploring the functions they served during the pandemic period, participants were asked directly about the purpose of using these signs. The question includes four options. The participants could choose more than one choice to reflect their ideas as well as an optional open blank space available for them to elaborate on their answer.

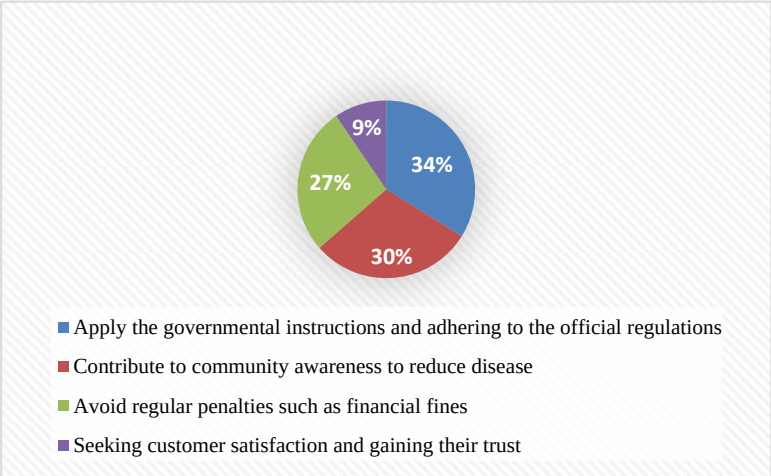

Figure 1. The purpose of using CLL in public and workplaces

As can be seen in Figure 1, four main reasons were rated by the participants. Applying the governmental instructions and adhering to official regulations were reported as the most effectual reason of using COVID-19 signs (N=181, 34%). Nearly one-third of the participants (30%) reported contribution to community awareness to reduce the disease's effect as another key reason of widespread use of the signs. However, around a quarter of participants (27%) believed that avoiding financial and other penalties is the real reason behind spreading CLL. Only 9% assumed seeking customer satisfaction and gaining their trust was the reason for using the signs in different places.

The results shown in the findings above *(5.2.1.& 5.2.2.)* revealed considerable levels of awareness that people had regarding the widespread use of COVID-19 signs in their general locality and their critical role in overcoming the pandemic. This finding was not surprising because of the massive effect this virus had on every aspect of people's lives. According to several researchers such as Hussain, et al. (2020) and Verma and Prakash (2020), COVID-19 led to significant changes in overall human life and influenced not only the political, social, religious, educational, and economic parts of life but also on people's psychological and mental health. COVID-19 affected nearly every country in the world and the millions of people that live in it through sickness and death caused by the contagion. Most people were confined to home, which affected their social and personal lives as well (Haleem, et al., 2020; Sinha, et al., 2020; Verma & Prakash, 2020).

The media, with its many and varied traditional channels and new electronic platforms, also influenced people's awareness during the worldwide COVID-19 outbreak. To deal with the crisis, public health officials thought of a wide range of strategies for communication including new forms of media to enhance global health communication, protect public health, reduce the negative consequences of the pandemic, and maximize the people's capacity to act cooperatively in managing crises and fighting the disease (Garfin, et al., 2020; Ratzan, Sommarivac & Rauh, 2020).

The immediate effect of CLL on people's reactions during the pandemic provides support for several studies that examined the impact of media exposure on people's perceptions and behaviors (e.g., Kalocsányiová, et al., 2021; Melki, et al., 2022; Nazione, Perrault, & Pace, 2021). As found in these studies, with the spread of COVID-19, both official and informal media coverage works exceptionally well for informing the public about the disease, its symptoms, risks and prevention measures. Consequently, the media, in its different forms, played a major role in affecting people's perceptions, knowledge, and behaviors. Thus, the high level of awareness about the role of CLL found in this study is evidence of the huge effect of the disease, especially on the media.

Alongside that finding, this study showed people's high level of interest and devotion to the landscape related to the disease found in their areas. Although a high rate of stress and anxiety was expected from COVID-19 signs, people declared excessive trustworthiness and allegiance to information and instructions included in COVID-19 signage. Furthermore, people showed great loyalty and endless support to institutions using them. This no doubt reflects the positive attitudes towards CLL.

This result jibes well with previous studies where people used and engaged in the COVID-19 landscape. Different signs and symbols including both "top-down" and "bottom-up" posters were used by citizens during the pandemic (Phyak & Sharma, 2022). The purposes of the CLLs varied according to agency or individual motivation and ideologies. It ranges from indicating multilingualism to creating physical borders and social hierarchies of people. As found in this study, besides different communicative tools, government and health agencies worldwide noticeably used outdoor signs and symbols to support both national and international efforts to limit the global outburst of the virus.

Hence, the linguistic landscape (LL) relating to COVID-19 is one of the main channels that contributed to raising people's awareness and knowledge about the disease. According to Kalocsányiová, et al., (2021, p 2): "Public signs have been extensively used for COVID-19 related messaging, in all probability, because of the pandemic's profound impact on our perception and use of public space."

However, the period of COVID-19 also inspired rumors and an infodemic regarding both the virus and the appropriate precautions to reduce the risk of its transmission. Such immediate and constant reporting of the crisis had an effect on people's mental health as their levels of anxiety and stress increased during the pandemic (Garfin, et al., 2020). Moreover, excessive digital media exposure during lockdown had a significant influence on people's lifestyle which in turn significantly affected their personal and social life, as well as their mental health

(Garfin, et al., 2020; Sinha, et al., 2020).

Thus, governments of different countries along with the World Health Organization (WHO) and various health agencies expressed the need for effective and reliable strategies for communication, and they called for global responsibility and transparency in providing information that helped control the infection during the pandemic (Kalocsányiová, et al., 2021; Ratzan, et al., 2020; Verma & Prakash, 2020).

5.2.3 The Influence of COVID-19 Signs on the Individuals' Daily Routine and Lifestyle

The study also examined the role of the linguistic landscape in changing the individual's daily routine and lifestyle during the COVID-19 pandemic in Saudi Arabia. The Numerical Rating Scale was applied to interpret the data related to this section. The mean value was interpreted according to a 5-point scale. The quality was rated as follows: Very Low (1.00 – 1.80), Low (>1.80-2.60), Moderate (> 2.60-3.40), High (>3.40 - 4.20) and Very High (>4.20 - 5).

Three main domains were investigated for this purpose including:

1. Social distancing.
2. Health behaviors.
3. Adherence to COVID-19 precautionary measures.

In each domain, participants were asked several questions to measure the extent to which CLL affected their behaviors including social, personal and health practices. As can be seen in Tables 3, 4 and 5, the effects of the signs are highly considerable. Overall, participants reported COVID-19 signs greatly influenced their social activities and personal behaviors regarding the three domains mentioned above.

With regard to their social contact, participants mentioned the high effects of CLL on their participation in different social events (M =3.72, SD=0.623). Six practices were examined to reflect their involvement in different social occasions during the pandemic period (see Table 3).

Table 3. The effect of CLL on particpants' social distancing

Code	Question	Mean	SD	Degree
A1	Avoid family visits	3.48	.875	High
A2	Avoid social events	3.87	.853	High
A3	Avoid going to markets and restaurants	3.50	.956	High
A4	Avoid using public transportation	3.69	.922	High
A5	Avoid traveling and commuting	3.70	.873	High
A6	Avoid shaking hands	4.04	.847	High
4A	**The effect of CLL on social distancing**	**3.72**	**.623**	**High**

As Table 3 shows, the result highlighted that CLL highly influenced human contact and interaction in various social domains including family, relatives, and people in public places as well as traveling (A1-5). Parallel to this finding, participants also indicated a change in their social behavior regarding social etiquette such as handshakes (A6). They avoided being close to one another, touching one another and having direct contact with people during the COVID-19 pandemic and they affirmed their awareness about social distancing related to COVID-19 signs.

Table 4. The effects of CLL on particpants' health behaviors

Code	Question	Mean	SD	Degree
B_1	Pay attention to diet	3.64	.971	High
B_2	Ensure adequate and regular sleep	3.30	.936	High
B_3	Pay attention to general hygiene	4.24	.811	Very High
B_4	Practice sports	3.56	.919	High
4B	**The effect of CLL on health behaviors**	**3.69**	**.706**	**High**

Similarly, as can be seen in Table 4, the effect of COVID-19 signs on health behaviors was significant (M=3.69, SD=0.706). The influence of CLL was measured by examining four practices related to daily health activities (see Table 4). The results revealed COVID-19 signs had an immense effect on people's diet plans, sleeping habits, hygiene maintenance, and sports performance (B1- 4). Still, it is interesting to note that maintaining personal hygiene was found to be the behavior most affected by CLL (M=4.24, SD=0.811).

Table 5. The effect of CLL on participants' adherence to COVID-19 precautionary measures

Code	Question	Mean	SD	Degree
C1	Always wash and sanitize hands	4.24	.693	Very High
C2	Avoid touching eyes, nose, and mouth with hands	4.18	.708	High
C3	Avoid direct contact with the infected	4.48	.633	Very High
C4	Avoid sharing tools and personal items with others	4.38	.672	Very High
C5	Wear masks in gathering and crowded places	4.48	.625	Very High
C6	Use a tissue or arm when coughing or sneezing	4.36	.709	Very High
C7	Be sure to get tested when you feel symptoms of the disease	4.33	.708	Very High
C8	Encourage vaccination	4.24	.811	Very High
4C	**The effect of CLL on Adherence to COVID-19 precautionary measures**	**4.34**	**.538**	**Very High**

In the same line, as Table 5 shows, the data indicated that adherence to COVID-19 precautionary measures was also significantly affected by CLL. According to participants' responses, CLL had a very high influence (M=4.34, SD=.538) on their commitment to instructions and precautions related to COVID-19 (see Table 5). People expressed a direct relationship between instructions appearing in the CLL and their behaviors concerning the following of lockdown and quarantine protocols suggested by health agencies to control the spread of infection. They revealed that the signs changed their habits in terms of personal hygiene and other self-protection procedures including mask-wearing, tools sharing and distancing from infected people (C 1-6). Moreover, participants confirmed the significant effect of such signs on testing and vaccination related to the pandemic (C7 & 8).

The study results in this section also indicated a significant impact of CLL on people's daily behaviors. This finding was rational and in accordance with the previous responses by participants in which they expressed their full recognition and cooperation for posters related to COVID-19. The responses varied in a certain segment of the participants, but the average replies indicated similar behaviors.

Overall, the abovementioned findings presented several functions that CLL served at both individual and institutional levels in Saudi Arabia. In addition to the results indicating the effective role of CLL in raising awareness about the disease, they also reflected the positive effect that CLL had on people's daily routines in terms of adherence to various COVID-19 precautionary measures including social distancing and preventive health and safety measures relating to personal hygiene, physical contact with others, and testing and vaccination procedures. Moreover, it also helped government and health agencies encourage individuals and communities to adopt appropriate protective health behaviors.

The most intriguing part of this study is that CLLs seemed to have a similar influence as the disease itself in terms of how it affected the daily routines and lifestyles of people. While different studies confirmed the impact of COVID-19 on human lives at various levels, this study also asserts that CLLs have a salient role in changing people's practices. That is, CLLs greatly contributed to change and even possibly managed people's behaviors during the pandemic according to the study results.

Perhaps one of the most important observations to emerge from the data, however, was a bidirectional relationship between CLL and people's perceptions and behaviors during and after the COVID-19 pandemic. As found in various studies (e.g., Kuße, 2021; Phyak & Sharma, 2022; Rozin, et al., 2022), CLLs reflect people's thoughts, beliefs and ideologies, these signages have an explicit influence on people's perceptions, practices, and attitudes as found in this study. This finding is also consistent with previous studies such as Kalocsányiová, et al., 2021, Marshall, 2021, Phyak, and Sharma, 2022, Hopkyns and van den Hoven, 2022 and Lacsina and Yeh, 2022, that found that outdoor media (LL) can be a powerful tool that serves several functions including being informative, communicative, social, and political. The abovementioned results that assert people's full adherence and support of CLL confirm the role that LL plays in changing the cognitive and social behaviors of people. In the same way, language in any given context could be a practical indicator of social change (Blommaert & Maly, 2014; Marshall, 2021; Phyak & Sharma, 2022).

5.3 The Inferential Statistics Data

Data were further analyzed by employing inferential statistics. The analysis includes data related to people's awareness about the spread and significance of COVID-19 signs as well as the impact of the signs on the individual's daily routine and lifestyle during the COVID-19 pandemic.

5.3.1 Awareness Scores Across Groups

The data showed that there is no significant difference in the awareness of the spread and the significance of signs relating to COVID-19 between males and females as can be seen in Table 6.

Table 6. Awareness scores across gender

	Gender	**N**	**Mean**	**SD**	**SEM**
Q2_1	Female	114	3.52	.801	.075
	Male	101	3.60	.849	.085
Q2_2	Female	114	3.15	1.138	.107
	Male	101	3.21	1.098	.109
Q2_3	Female	114	3.63	.628	.059
	Male	101	3.59	.737	.073
Q2_4	Female	114	3.29	1.070	.100
	Male	101	3.39	1.049	.104
Q2_5	Female	114	3.61	.699	.065
	Male	101	3.46	.755	.075
Q2_6	Female	114	3.10	1.144	.107
	Male	101	2.97	1.237	.123
Q2_Total	**Female**	**114**	**3.3816**	**.51893**	**.04860**
	Male	**101**	**3.3696**	**.57426**	**.05714**

Independent Samples Test Awareness Scale Vs Gender						
Item	**t**	**df**	**p-vale**	**Mean Difference**	**95% CI Lower**	**Upper**
Q2_1	-0.767	213	0.444	-0.086	-0.308	0.136
Q2_2	-0.384	213	0.701	-0.059	-0.36	0.243

Q2_3	0.403	213	0.687	0.038	-0.146	0.221
Q2_4	-0.667	213	0.505	-0.097	-0.382	0.189
Q2_5	1.51	213	0.133	0.15	-0.046	0.345
Q2_6	0.777	213	0.438	0.126	-0.194	0.446
Q2_Total	**0.16**	**213**	**0.873**	**0.0119**	**-0.135**	**0.1589**

Table 6 provides evidence that there is no significant difference in the awareness of the spread and the significance of signs relating to COVID-19 between males (M = 3.37, SD=0.57, N= 101) and females (M=3.38, SD= 0.52, N=114) (p>0.05).

Table 7. Awareness scores across health status

	Health	N	Mean	SD	SEM
Q2_1	Healthy	184	3.53	.868	.064
	With CHP	31	3.71	.461	.083
Q2_2	Healthy	184	3.17	1.146	.085
	With CHP	31	3.19	.946	.170
Q2_3	Healthy	184	3.59	.688	.051
	With CHP	31	3.77	.617	.111
Q2_4	Healthy	184	3.28	1.075	.079
	With CHP	31	3.65	.915	.164
Q2_5	Healthy	184	3.56	.706	.052
	With CHP	31	3.39	.844	.152
Q2_6	Healthy	184	3.04	1.171	.086
	With CHP	31	3.03	1.303	.234
Q2_Total	**Healthy**	**184**	**3.3623**	**.54994**	**.04054**
	With CHP	**31**	**3.4570**	**.51093**	**.09177**

Independent Samples Test							
Item	**t**	**df**	**P-Value**	**Mean Difference**	**SE**	**95% CI Lower**	**Upper**
Q2_1	-1.691	72.204	0.095	-0.177	0.105	-0.386	0.032
Q2_2	-0.090	213	0.928	-0.020	0.217	-0.448	0.409
Q2_3	-1.536	43.572	0.132	-0.187	0.122	-0.433	0.058
Q2_4	-1.988	45.174	0.053	-0.363	0.182	-0.730	0.005
Q2_5	1.223	213	0.223	0.173	0.141	-0.106	0.451
Q2_6	0.025	213	0.980	0.006	0.231	-0.450	0.461
Q2_Total	**-0.895**	**213**	**0.372**	**-0.095**	**0.106**	**-0.303**	**0.114**

Similarly, as can be seen in Table 7, the results indicated no significant difference in the awareness about the spread and the significance of COVID-19 signs between healthy respondents (M = 3.36, SD=0.55, N= 184) and respondents with chronic health problems (M=3.46, SD= 0.51, N=31) (p=0.37).

As the data showed no variation in individual items of the scale, the statistics of the total score for the awareness scale were analyzed. A One-way ANOVA was used to investigate the variation among different groups.

Table 8. Awareness scores across marital status

Q2_Total						
	N	**Mean**	**SD**	**SEM**	**95% CI Lower Bound**	**Upper Bound**
Married	181	3.3950	0.538	0.040	3.316	3.474
Single	30	3.2944	0.532	0.097	3.096	3.493
Divorced	4	3.1250	0.927	0.463	1.650	4.600
Total	**215**	**3.3760**	**0.544**	**0.037**	**3.3028**	**3.449**

ANOVA **Q2_Total**					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	0.517	2	0.259	0.871	0.420
Within Groups	62.898	212	0.297		
Total	**63.415**	**214**			

However, as can be seen in Table 8, the One-way ANOVA also showed no significant difference in the awareness of the existence and the importance of CLL between respondents according to their marital status (F=0.871, df=2, p=0.42).

Table 9. Awareness scores across educational level

Q2 Total						
	N	Mean	SD	SEM	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
PreUni	13	3.2179	0.6433	0.17842	2.8292	3.6067
Diploma	9	3.5741	0.4938	0.1646	3.1945	3.9536
Bachelor	132	3.3965	0.5248	0.04568	3.3061	3.4868
Master	38	3.2982	0.6226	0.101	3.0936	3.5029
PhD	23	3.3986	0.4813	0.10036	3.1904	3.6067
Total	**215**	**3.376**	**0.5444**	**0.03713**	**3.3028**	**3.4491**

ANOVA

Q2 Total

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.975	4	.244	.819	.514
Within Groups	62.440	210	.297		
Total	**63.415**	**214**			

Likewise, as Table 9 shows, the One-way ANOVA illustrated no significant difference in respondents' awareness about the signs relating to COVID-19 according to their educational level (F=0.819, df=4, p=0.514).

Contrasted with the findings above, the One-way ANOVA showed a significant difference in the awareness score about the spread and the significance of the CLL between respondents according to their employment sector (F=2.63, df=6, p=0.018) (see Table 10).

Table 10. Awareness scores across the employment sector

ANOVA

Q2 Total

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.466	6	.744	2.626	. 018
Within Groups	58.949	208	.283		
Total	**63.415**	**214**			

In Table 10, the One-way ANOVA showed a significant difference in the awareness score about the spread and the significance of the CLL between respondents according to their employment sector. The posthoc analysis students showed a significantly lower awareness score (M =3.08, SD= 0.67) compared to workers in education sectors (M=3.47, SD= 0.53) (P = 0.008).

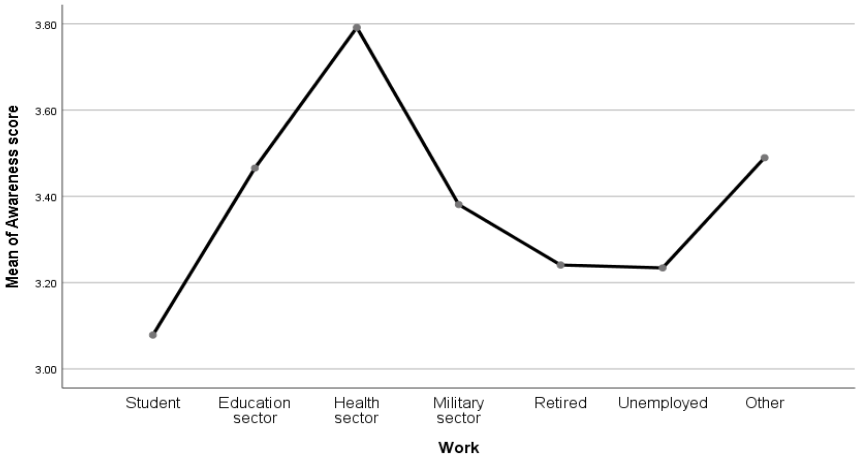

Figure 2. Awareness scores across the employment sector

Figure 2 also presents the awareness scores across the employment sector that showed a significant difference in the awareness score about the spread and the significance of the CLL between students and workers in education sectors.

Hence, the inferential analysis of the data generally showed no significant differences between the responses of various groups to different questions regarding CLL. The only difference in the awareness score regarding the spread and the significance of CLL in reducing the disease's effects found between respondents according to their employment sector was where students showed a significantly lower awareness score compared to workers in the education sectors.

This finding seems acceptable and in accordance with the procedures implemented during different stages of dealing with COVID-19 in

Saudi Arabia. The study data were collected in the last months of 2021, in which a cautious return to schools and universities strategy was recommended and gradually started in Saudi Arabia (SPA, 2022b). Thus, teachers and workers in education were under stress and under great responsibility to deal with the disease while also performing their educational duties and saving students' lives, unlike the students who were not conscious of such precautionary strategies.

5.3.2 Impact Scores of the Signs on Individual'S Daily Routine and Lifestyle During the Pandemic Across Groups

To examine the impact of the signs on an individual's daily routine and lifestyle during the COVID-19 pandemic, inferential statistics were also used.

Table 11. Impact scores of the COVID-19 signs on an individual's daily routine and lifestyle across gender

	Gender	N	Mean	SD	SEM
Social Distancing	Female	114	3.6974	.55369	.05186
	Male	101	3.7343	.69489	.06914
Health Behavior	Female	114	3.6798	.73961	.06927
	Male	101	3.6906	.66909	.06658
Adherence	Female	114	4.3103	.55211	.05171
	Male	101	4.3651	.52222	.05196

Independent Samples Test

Domain	T	df	p-value	Mean Diff.	SE	95% CI Lower	95% CI Upper
Social Distancing	-0.433	213.00	0.665	-0.037	0.0853	-0.205	0.131
Health Behavior	-0.111	213.00	0.911	-0.011	0.0967	-0.201	0.180
Adherence	-0.745	213.00	0.457	-0.055	0.0736	-0.200	0.090

Table 11 shows the impact scores of the COVID-19 signs on individual's daily routine and lifestyle across gender. The data indicated insignificant differences in the impact of signs on social distancing, health behavior, or adherence according to their gender ($p > 0.05$).

Table 12. Impact scores of the COVID-19 signs on individual's daily routine and lifestyle across health status

	Health	N	Mean	Std. Deviation	Std. Error Mean
Social Distancing	Healthy	184	3.7409	.61299	.04519
	With CHP	31	3.5591	.66743	.11987
Health Behavior	Healthy	184	3.7065	.70962	.05231
	With CHP	31	3.5565	.67918	.12198
Adherence	Healthy	184	4.3499	.54428	.04012
	With CHP	31	4.2540	.49737	.08933

Independent Samples Test
t-test for Equality of Means

Domain	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper
Social Distancing	1.508	213	0.133	0.182	0.121	-0.056	0.419
Health Behavior	1.096	213	0.274	0.150	0.137	-0.120	0.420
Adherence	0.918	213	0.360	0.096	0.104	-0.110	0.302

Also, as shown in table 12, there was no significant difference ($p > 0.05$) in the impact of signs on social distancing, health behavior, or adherence scores between healthy respondents and respondents with chronic health problems.

Table 13. Impact scores of the COVID-19 signs on individual's daily routine and lifestyle across marital status

Descriptive	Marital Status	N	Mean	SD	SE	95% CI Lower Bound	95% CI Upper Bound
Social	Married	181	3.715	0.660	0.049	3.618	3.811
Distancing	Single	30	3.700	0.378	0.069	3.559	3.841
	Divorced	4	3.833	0.333	0.167	3.303	4.364
	Total	215	3.715	0.623	0.042	3.631	3.798
Health	Married	181	3.692	0.727	0.054	3.585	3.799
Behavior	Single	30	3.608	0.552	0.101	3.402	3.814
	Divorced	4	3.938	0.826	0.413	2.623	5.252
	Total	215	3.685	0.706	0.048	3.590	3.780
Adherence	Married	181	4.340	0.553	0.041	4.259	4.421
	Single	30	4.392	0.403	0.074	4.241	4.542
	Divorced	4	3.750	0.500	0.250	2.954	4.546
	Total	215	4.336	0.538	0.037	4.264	4.408

ANOVA

		Sum Of Squares	Df	Mean Square	F	Sig.
Social	Between Groups	0.063	2	0.031	0.080	0.923

Distancing	Within Groups	82.941	212	0.391		
	Total	83.003	214			
Health	Between Groups	0.440	2	0.220	0.440	0.645
Behavior	Within Groups	106.148	212	0.501		
	Total	106.588	214			
Adherence	Between Groups	1.469	2	0.735	2.578	0.078
	Within Groups	60.408	212	0.285		
	Total	61.877	214			

According to Table 13, similar findings were reached, there was no great significance in adherence scores, social distancing, or health behavior between respondents according to their marital status.

Though, the One-way ANOVA showed that there was a significant difference in the health behavior score between respondents according to their educational level (see Table 14).

Table 14. Impact scores of the COVID-19 signs on individual's daily routine and lifestyle across educational level

Descriptives							
Educational Level		**N**	**Mean**	**Std. Deviation**	**Std. Error**	**95% Confidence Interval for Mean** **Lower Bound**	**Upper Bound**
Social Distancing	PreUni	13	3.731	0.633	0.176	3.348	4.113
	Diploma	9	3.704	0.841	0.280	3.057	4.350
	Bachelor	132	3.734	0.606	0.053	3.629	3.838
	Master	38	3.566	0.721	0.117	3.329	3.803
	PhD	23	3.848	0.420	0.088	3.666	4.030
	Total	215	3.715	0.623	0.042	3.631	3.798
Health Behavior	PreUni	13	3.673	0.850	0.236	3.159	4.187
	Diploma	9	3.722	0.723	0.241	3.167	4.278
	Bachelor	132	3.824	0.643	0.056	3.713	3.935
	Master	38	3.257	0.770	0.125	3.003	3.510
	PhD	23	3.587	0.601	0.125	3.327	3.847
	Total	215	3.685	0.706	0.048	3.590	3.780
Adherence	PreUni	13	4.308	0.635	0.176	3.924	4.691
	Diploma	9	4.403	0.374	0.125	4.115	4.690
	Bachelor	132	4.382	0.511	0.045	4.294	4.470
	Master	38	4.115	0.646	0.105	3.903	4.328
	PhD	23	4.429	0.418	0.087	4.249	4.610
	Total	215	4.336	0.538	0.037	4.264	4.408

ANOVA						
		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Social Distancing	Between Groups	1.302	4	.325	.836	.503
	Within Groups	81.702	210	.389		
	Total	83.003	214			
Health Behavior	Between Groups	9.755	4	2.439	5.289	.000
	Within Groups	96.833	210	.461		
	Total	106.588	214			
Adherence	Between Groups	2.380	4	.595	2.100	.082
	Within Groups	59.497	210	.283		
	Total	61.877	214			

Table 14 illustrates that the One-way ANOVA showed a significant difference in the health behavior score between respondents according to their educational level ($F=5.29$, $df=4$, $p<0.001$). On the post-hoc analysis bachelor's degree holders were significantly more impacted by signs concerning their health behaviors ($M = 3.82$, $SD= 0.64$) compared to master's degree holders ($M = 3.26$, $SD= 0.77$) ($P < 0.001$). However, there is no significant difference between the educational groups in their social distancing or adherence scores.

Still, this finding was unexpected as the data in this study showed that youths had less awareness regarding the role of CLL, and this may indicate that they were not aware of the dangers of the pandemic. Additionally, youths are usually expected to have less commitment to regulations and rules. However, the spread of infodemics and rumors in the media platforms created anxiety and tension amongst people of all ages. This may explain the reports about the extraordinary effect of COVID-19 on youths. Adolescents were reported to be the most affected by the pandemic, especially concerning their mental health, daily physical behaviors, and education (Hussain, et al., 2020; Melki, et al., 2022; Verma & Prakash, 2020). This is in line with the study's finding as youths who have less experience and more challenges may suffer stress and anxiety more than any other age group. However, these groups of different educational levels presented similar responses in other domains of the study.

Nevertheless, interesting findings from the data set were also noted regarding the impact scores of the COVID-19 signs on an individual's

daily routine and lifestyle. The data showed variations across the employment sector (Table 15).

Table 15. Impact scores of the COVID-19 signs on an individual's daily routines and lifestyles across employment sectors

Descriptives		N	Mean	Std. Deviation	Std. Error	95% CI Lower Bound	95% CI Upper Bound
Social Distancing	Student	17	3.618	0.463	0.112	3.380	3.856
	Education sector	111	3.784	0.591	0.056	3.673	3.895
	Health sector	4	3.708	0.516	0.258	2.887	4.529
	Military sector	7	4.143	0.476	0.180	3.703	4.583
	Retired	18	3.546	0.816	0.192	3.140	3.952
	Unemployed	42	3.671	0.533	0.082	3.505	3.837
	Other	16	3.458	0.910	0.227	2.974	3.943
	Total	215	3.715	0.623	0.042	3.631	3.798
Health Behavior	Student	17	3.485	0.710	0.172	3.120	3.850
	Education sector	111	3.673	0.735	0.070	3.535	3.812
	Health sector	4	4.000	0.707	0.354	2.875	5.125
	Military sector	7	3.929	0.624	0.236	3.351	4.506
	Retired	18	3.764	0.585	0.138	3.473	4.055
	Unemployed	42	3.720	0.725	0.112	3.494	3.946
	Other	16	3.609	0.645	0.161	3.266	3.953
	Total	215	3.685	0.706	0.048	3.590	3.780
Adherence	Student	17	4.404	0.489	0.119	4.153	4.656
	Education sector	111	4.343	0.528	0.050	4.244	4.443
	Health sector	4	4.375	0.479	0.239	3.613	5.137
	Military sector	7	4.500	0.484	0.183	4.052	4.948
	Retired	18	4.389	0.671	0.158	4.055	4.723
	Unemployed	42	4.301	0.533	0.082	4.134	4.467
	Other	16	4.164	0.582	0.146	3.854	4.474
	Total	215	4.336	0.538	0.037	4.264	4.408

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Social Distancing	Between Groups	3.617	6	.603	1.579	.155
	Within Groups	79.386	208	.382		
	Total	83.003	214			
Health Behavior	Between Groups	1.761	6	.293	.582	.744
	Within Groups	104.828	208	.504		
	Total	106.588	214			
Adherence	Between Groups	.856	6	.143	.486	.818
	Within Groups	61.021	208	.293		
	Total	61.877	214			

As Table 15 shows, employees of the military sector showed noticeably higher scores in two areas: social distancing (M = 4.143, SD= 0.476) and adherence to COVID-19 precautionary measures (M = 4.500, SD= 0.484). On the other hand, health sector employers achieved higher scores in health behaviors (M = 4.000, SD= 0.707) compared to workers in other sectors. However, these variations do not reflect any statistically significant differences.

6. Conclusion

The study data provides evidence of language as a critical element in reflecting the social realities of people in Saudi society. From the interesting results above, key findings emerged about the Linguistic Landscape (LL) that is set up in public spaces and its role in changing people's thoughts and behaviors as well as reacting to urgent and exceptional conditions such as the COVID-19 pandemic.

The data confirmed that the COVID-19 Language Landscape (CLL) served several functions on both individual and institutional levels in Saudi Arabia. It revealed an effective and essential role of CLL in raising awareness about the disease and the preventive measures and policies related to it.

Another significant finding that the results confirmed about the COVID-19 pandemic was that associated signs led to serious and remarkable changes in the daily routines of people. The data reflected a significant positive effect of CLL on personal practices and physical contact with people. CLL helped respondents improve their lifestyle and health behaviors. Moreover, it made them more responsible and cooperative within their communities in terms of adherence to various COVID-19 precautionary measures including social distancing and commitment to safety measures related to personal hygiene, testing, and vaccination procedures. Furthermore, the study casts a new light on the extent to which LL contributes to supporting government and health agencies in urging and convincing individuals and communities to adopt appropriate protective health behavior.

This result also revealed that little is known about the effect of LL on readers' perceptions and behaviors. LL works as an outdoor media which could be a powerful tool to enhance communication, raise awareness and promote the efforts of government and health authorities in critical periods such as the COVID-19 crisis. Hence, the study suggests LL as a worthwhile tool to be considered and implemented in

public health communicative systems to tackle the resulting crisis caused by such a pandemic. These findings may help individuals, businesses, and governments prepare better and work more efficiently in any similar future events.

From a sociolinguistic perspective, the study proved the role the linguistic message plays in delivering meaning, reflecting social structure, organizing relationships, and managing people's behaviors. Further research may expand the scope by studying the factors and contents affecting people's responses to CLL.

Acknowledgments

Not applicable.

Authors contributions

Not applicable.

Funding

Not applicable.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained

Ethics approval

Ethical Approval Committee, Najran University

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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