VISUALIZING THE INFORMATION: A DESIGN EVALUATION AND ASSESSMENT OF HEALTH RELATED COVID-19 INFOGRAPHICS IN PAKISTAN

Maria Zia

In-Charge Bca, Hamdard University Islamabad Campus

maria.zia@hamdard.edu.pk

Corresponding Author: *
Maria Zia

ABSTRACT

In past few decades, the technological advancements have led to the use of new techniques for conveying and communicating ideas. In the today's highly visual society, the significance of graphics and images have introduced alternative means for presenting data and information to the larger audience. In recent times, infographics have proved to be an efficient and functional way of visualizing extensive concepts. The use of infographics has enabled the designers to compress larger body texts into concise and comprehensible illustrative information designs. Likewise, for disseminating and simplifying health information, the infographics has turned out to be an engaging and innovative tool. The graphic and visual elements of it play a vital role in increasing the understandability and readability of the medical statics and data. Nonetheless, for creating awareness in health emergencies, like Covid-19 crisis, the graphic representation is a much-needed format in alerting, informing and discerning the masses. In the field of infographic research, some scholars have explored the usefulness of infographics by carrying out surveys. Rarely have researchers assessed the performance of infographic by using frameworks such as rubrics, especially in the field of health, in reference to Corona virus pandemic. Thus, to fill the void in the research, present study is conducted to evaluate the efficiency of Pakistan's health related Covid'19 infographics. Various dimensions, such as colors, fonts, layout, organization etc., of sample infographics are analyzed on an evaluative framework i.e., an information design scoring rubric. The findings reveal that majority of infographics evaluated scored high on the rubric (utilized in this research) and were found to be of high quality. It is recommended that better designs can be achieved by adhering to the techniques of graphic designing.

INTRODUCTION

Nature of Information Visualization

Information visualization is a blanket term that incorporates and gives an account of all types of visual representations, including infographics. In simpler terms, it is an interactive demonstration of information in graphical form, using visual elements that make it easy for the readers to comprehend and interpret the data presented. This suggests that it is a specialized field that is principally concerned with converting non-spatial data into meaningful graphical patterns and designs, giving a new sense to it through visualization. Otherwise stated, the prime purpose of putting information visualization to practice is to convey complex data and ideas in a way that is uncomplicated, simpler and easy to understand (Baker & Bushell, 1995).

Friendly (2009), while stating the definition of information visualization, asserts that this term refers to visual portrayal of wide-ranging and extensive cluster of non-numerical data and information. He furthers the discussion by explaining that it is a broad term that includes data organization, visually displaying the information in

illustrative form. Additionally, according to Card et al. (1999), external aids, in the form of visuals, are important to understand and retain the information delivered through any means of communication. This enhances one's cognitive abilities, increases memory and helps attain expanded intelligence. The researchers pinpoint two distinct purposes of graphical inventions as external aids. The first is to communicate ideas and information, and the second is to utilize visual and graphic techniques to first find and then form the idea itself.

Nonetheless, in this image dominated age of astounding graphics, spectacular photographs and deft designs, much attention of audience is captured by visualization. The process of information visualization involves information compression, careful omission and graphic illustration, coupled with meaningful and comprehensive text (Keim, 2013). Correspondingly, Veszelszki (2014) clarifies the relationship between visual and verbal information. In other words, the researcher focuses on the integration of images with texts, during the process of information visualization. Merging visual and linguistics, using scheme of colors, results in informational blend that looks aesthetically appealing. Adding too much information can intimidate the readers who are looking for fast explanations. Thus, exhorting the perfect balance between the visual aids will encourage the readers in investing their time in viewing the visualized information design.

In this digital age, the computer based visualized information plays a vital role in removing complexities from complicated details. Therefore, along with the illustrative function, the other purpose of information visualizations, like infographics, is to inform, explain and impart knowledge using graphics and visual supports.

Significance of Infographics

Infographics are defined as designed and schematic portrayal of information, where a diagram is drawn to present and illustrate correlation between various pieces of aset or a framework. Moreover, it is an amalgamation of texts and pictures that contain symbols and icons, additionally joined by words or phrases. It is in the form of a diagram that is the key element of the entire infographic. Furthermore, on the off chance, if the infographics are distributed in electronic or computerized form,

they can likewise contain sound components as well. (Cairo, 2008; Sancho, 2001). Similarly, Sullivan (1987) points out that infographics act as visual illustrative aids to assist and lead the information seekers towards complete comprehension of the written text. Over and above that, any reader is better able to understand an article when the text is accompanied by the infographics.

The two terms i.e., "infographics" and "information visualization", are considered as synonyms, and are viewed as identical terms, suggesting that they can be used interchangeably. As a broader term, information visualization comprises of techniques and patterns, that sets the base for the design. Infographics, on the other hand, employ the tactics and trends of visualization for mapping out the design. In brief, infographics are more specific and well defined that tend to contextualize the visualization, transforming them into an explicit narrative (Yau, 2013; Finke & Manger, 2012). According to Hart (2013), infographic is undeniably a well-known approach of presenting data in the form of visuals. As a part of bigger umbrella term, information visualization, infographics clearly outline and present ideas accurately in order to communicate the message to the audience through attractive designs. The elements such as scheme, layout, construction and the overall structure effect the appeal of an infographic, playing a deciding role in determining the attitude of viewers and audience towards it.

Infographics provide a likelihood to incorporate components such as innovation and peculiarity in the information, making it appear more exceptional and distinguished in the minds of audience. This happens due to the fact that the human mind works effectively, and as a result dismisses any details that is unessential. In any case, information that is unique and dissimilar from what the mind usually receives, gets more attention and is therefore retained longer in the memory (Smiklas, 2012). Furthermore, the extensive and large-scale data and massive information can be daunting for the readers to process. Clearly, people better understand information that is sorted, is knocked into a shape and is distinctly organized. Thus, it is important that the data and information should be structured and configured in such away that it should be comprehensive enough for thorough understanding of the message, illustrated in the form of infographics (Quispel, 2016).

Weber (2017), shedding light on the significance of an infographic, describes that its purpose is to show and depict details in visual form, that are otherwise difficult to describe when it is put into words. Another function of infographics, underscored by Weber (2017) in his article, is "to inform". The information function of infographics can be of three types i.e., narrative, descriptive and explicative. The narrative form is used for the purpose of storytelling, has beginning and an end, and follows a timelinejust as a story. This form suggests difference and adjustment in the state. However, the latter two imply description and explanation to further enhance the knowledge of the viewers, as opposed to the narrative form. These two types involve enhancing the knowledge of onlookers by describing the central idea. Explaining ad describing include taking five Ws and one H into consideration, and answering the related questions. Various graphic elements can be used for the purpose of visual explanation.

Hence, the above discussion suggests that infographicsareundoubtedly a vital tool in visual communication. Nevertheless, the design process can get complicated at times which can lead to the designers in overloading viewers with excessive information. So, before designing an infographic, a clear outline can be helpful that answers all necessary questions, including relevant details only.

Effective Health Infographics

Lankow et al. (2012) lists three main components infographics that are essential for creating a good and effective visual information design. In order to create harmony within an infographic, utility, harmony and soundness are the necessary components. Utility refers to functionality and informativeness in a design. It indicates the efficiency of an infographic is achieved through visual optimization and via design rationale. It also corresponds to how well an infographic can utilized in gaining information and knowledge through the visual data. Soundness, in context of an infographic, refers to sufficiency and meaningfulness of the information design. It stands for the credibility and robustness of the design, reflects on the quality of information presented, and signifies the nature of the audience perception. Lastly, attractiveness points towards the aesthetic appeal and the beauty of the visualization. An appealing infographic attracts more viewers, has positive impact on readers in gaining the knowledge, and leads to the overall gratification of audience regarding the information they gathered (Moere& purchase, 2011).

There is a contrasting view of researchers on what makes an infographic effective and efficient. One side is of the view that visual embellishments and decorative features of infographics result in greater comprehension. Whereas, the other side argues that the visual aids can distract the readers, therefore, the infographics shall be plain in design and should be predominantly informative (Bateman et al., 2010; Tufte, 1983).

In the field of healthcare, the infographics are more informative in nature. Although the design and embellishments are also considered as integral part of the visualized information in health communication. In current age, where people have busier lifestyles, infographics are fundamental and pertinent in graphic visual representation of information that is, else ways, confusing for the general lay audience (Taylor, 2014). Various health organizations have dedicated sections for infographics on their online platforms. A well-made health infographic helps the readers capture the central and the main idea in a few minutes. Likewise, with an aim to convert complex concepts into easy-to-understand stories, health infographics should include: a clear start, adapted language, precise storyline, highlighted scientific data, relevant images, simple font style and color scheme, appropriate icons and symbols and should avoid the use of medical jargons. The content must be illustrated in a way that it does not compromise the accuracy and credibility of information. Therefore,the designers should collaborate with the healthcare providers to coney error free information to the public (Hernandez-Sanchez et al., 2021; Murray et al., 2017).

Literature review

Smiklas M (2012) in his book, the "power of infographics", defines infographics as a concoction of pattern, design and data that is used in briefly and concisely communicating the ideas to the audience. It is basically the visualization of information that transmits convoluted messages to readers in a way that makes the content of message more graspable. Through a Venn diagram, the author demonstrates how union of information and graphics can lead to resulting compound of visual learning. This process aids in converting

intricate concepts into apprehensible and intelligible information designs, enabling the readers to quickly make sense of the perplexing concepts. Indisputably, lengthy and prolonged descriptive text are time consuming and are tough for the readers to take in and absorb. This being the case, providing audience with information chunks in the form of illustrative diagram, together with a clear and precise outline of the entire idea, not only improves the comprehension of information, but also enhance the viewers' critical thinking skills, improving their overall ability to retain and recall the data presented. The author also explains that the infographics, in various forms, constitute visual aids, such as images, shapes and graphics together with the text. When pictures and words are integrated in a balanced and harmonious fashion, they complement one another, turning out to be more compelling to the eyes of the readers in contrast to words and visuals when presented alone. Thus, the blend of all the fundamental features of visualization makes an infographic, which can pass on data to viewers in fast and simple way.

Research investigating the effectiveness of infographics, discusses the importance of visualization of data in distributing the information rapidly, precisely and adequately. In the present digital age, the tools for developing and designing infographics have become more user-friendly and easier to put in practice. Nowadays, the term infographics has become broadened in its scope to encompass new concepts of visual communication like illustrative storytelling or visual narrative. Accordingly, the research highlights the three stages of infographic design process. The first stage is when the idea for information visualization is conceived. Then comes the design stage where illustrations, images and texts are designed, and the relevant colors and fonts are selected. In the final stage, which is the phase of storytelling, all the previously described components and elements are merged and united on one canvas, resulting in an elaborate diagram, clarifying the complex concepts. This stage expresses the message through visual aids and summarizes the information providing easy explanation to the readers. Alternatively, the study also suggests that other than just organizing data, making it visually attractive and appealing, and being creative with storytelling, the designers shall also focus on presenting correct information

without compromising its validity and veracity. Thus, the study concludes that infographics mainly enhance the conceptual understanding through verbal and visual components, conveying the complete message (Eladi & Cifci, 2021).

An article by Murray et al. (2017) highlights how infographics aided, with visuals, have higher probability of getting viewed and rightly interpreted by the audience. The study further recommends vital steps of designing engaging infographics. The first and foremost step is taking the initiative of targeting the audience. This will enable the designers in creating infographics with visuals that are specific to the intended readers, eliminating unnecessary details. Moreover, guiding readers through symbols, icons, figures and arrows can give a clear view of the information to the readers. Hence, by establishing a narrative by presenting everything in the form of a story can communicate the message more creatively, without missing the key points. Next, the right balance of image and texts cannot be overlooked. Limiting the text to annotations comprising of few words and bullet points with the appropriate image use can lead to an overall even and a well balanced infographic. Along with that, restricting the color and font number to three can minimize the chance of creating an overelaborate and disproportionate information design. That said, a well thought out design can serve the purpose better than a rushed one.

A study by Occa and Suggs (2015) discusses the challenges faced by health organizations in actually determining ways to effectively inform and create awareness amongst the audience. Besides, it is also difficult task in the field of health education to persuade the masses to accept and acquire healthy practices endorsed by the health practitioners. Shedding light on the earliest infographics, the article argues that initially the health-related infographics were used in an attempt to raise awareness of vaccination amongst the general masses. Later on, the infographics helped in improving the knowledge of people regarding variety of health issues, influencing them to modify their health behaviors and actions. Over and above that, infographics are advantageous in communicating the health risks. Visually displaying the risks not only informs people, but also lead them towards taking preventive steps. The combination of numerical data and the visual elements enhances the health literacy, facilitates

increasing health knowledge and compels viewers to take practical steps in improving their health. Nevertheless, the research under discussion, also aims at comparing the outcomes attained through using two different communication formats i.e., video and infographics, to see which of the two is more effective in disseminating health information. It concludes that both the methods, when used for communicating relevant data, are significant in public health improvement, suggesting that increased exposure is the key factor that impacts the interpretation of the message.

An analysis of the role of infographics in accelerating health communication, elucidates that human brain understands and retains information pattern and their corresponding relationships more when presented in the form of a layout. The theories of communication also confirm that infographics facilitates the readers in making clear sense of the main concepts and helps in digesting influx of informative ideas. The research also state that the previous case studies support that the infographics help in more accurate and to the point interpretation of messages, in turn enabling the readers to better retain and transfer information to others. It is one of the most efficient ways of sharing information because generally humans are visual oriented beings and when a story is narrated through designed layouts, it has the power to remove the complexities from the most elaborate concepts. Likewise, the health information is also puzzling and consists of medical jargons that are not much engaging for the audience. However, by employing techniques, designers can convert text-based instruction into inviting, eye-catching and directing pieces of visual information, demonstrating health related messages through compelling conjunction of words, symbols, images and shapes, giving it a structure. The mentioned elements of an infographic are enough to provide an overview of the labyrinthine health concepts, without overloading audience with detailed and irrelevant information, and can save them plenty of time (Siricharoen & Siricharoen, 2017).

A cross-sectional examination of health information, by Jahan et al. (2020), used a rubric to carefully evaluate the usefulness and aesthetics of the sample infographics. The evaluation criteria for the research under study was a scoring rubric that emphasized mainly on ten standard points, grouped under four headings, to find the usefulness and legitimacy alongside assessing its graphical appeal. The study describes that health infographic are significant means of communication between public and the health care officials. Infographics are designed in a way to target all sorts and kinds of audience members, even those who have low health literacy. Hence, it is imperative for those assigned with the designing task formulatingahealth infographic, to consider those who have no or little medical knowledge. A well-designed infographic, especially in the field of healthcare is supposed to be flamboyant, comprehensive and synoptic. This results in speedy comprehension of health information, and leads to retention of the knowledge gained. Broachers, flyers, posters etc., be it in digital or in print form, are used in health education. Various visual communication aids, such as infographics, are utilized to inform the public on prevention of a disease and rate of its spread, with a sole purpose of health promotion. Ultimately, the article reveals that infographics were more effective when simple text was combined with the suitable images, assuring the credibility of information illustrated.

Previous research on Covid-19 related health infographics explore how the information designs and visualization were used during the pandemic, emphasizing on the tactics used in the process. The research also centers upon analyzing the impact of graphic representation of information, exploring how the infographics inform the public in times of a health crisis. With a special focus on journalism, the article suggests that designing stories using pictorial and multicolored patters can encourage the audience to take precautionary measures necessary to prevent diseases like Covid-19. The study also gives an explanation of the three important broad elements of infographics. First is the visual element, that comprises of symbols, images, tints, signs etc. The second and third elements, content and knowledge include the main data and information, facts and figures and statistics. In addition, the infographics are described as important and vital tools for creating awareness amongst the masses regarding health issues. Different types of information are illustrated based on the location and the target audience. This vibrant-colored pictorial representation of data not only captures the attention of the viewers, but also informs them about health issues, excluding the medical terminologies, making it effortless for them to

grasp the knowledge conveyed. Consequently, the analysis deduces that Covid-19 infographics, examined through qualitative analysis, incorporated details of the symptoms, preventive measures and the guidelines/SOPs of the government. Furthermore, the graphics complimented the newspaper articles, saving the audience time of going through the entire story, removing the complexities. The simple infographics make the way clear for the readers from the barriors like perplexing terminologies and jargons, that are otherwise incomprehensible (Suri, 2020).

Nevertheless, in a comparative content analysis on visual communication, by Pandya (2021), contrasted and examined the differences between covid-19 infographics produced by two international organizations. The researcher argue that infographics are the most significant tool of communication that were utilized during the health catastrophe of Covid-19. The reason for this is that during such calamitic times, infographics disseminated adequate data to the public, and did so in an engaging and efficient way. The author set forth the benefits of infographic, including expanding the eagerness of the crowd to peruse the information, enhancing perception rates, and defeating the language hinderances and barriers. They also infer that infographics turn information more accessible, which is the most vital feature of specialized communication. While highlighting the composition of infographics, the study sums up that the typographs, symbols and pictures, in conjunction with the thematic colors, form the structure of an infographic which leaves a persuasive impact on the viewers. These visual elements in multiple combination impact the way information is interpreted. Moreover, the study focused its attention primarily on analyzing three main elements: the types, the organization and the strategies employed in designing the infographics. The findings of the research indicate that one of the organizations i.e., WHO, complied to an abstract design, while the other one i.e., CDC was more structured. However, both adhered to the infographic's dos and don'ts checklist. The key difference was observed while studying the strategies.

A recent study, evaluating the impact of infographics on public keenness and willingness to wear face masks, emphasizes fundamentally on assessing visual representation of appropriate use of masks during covid-19. Visual aids, such as infographics, have the ability to turn the hesitation of public to take preventive and precautionary steps, into willingness by imparting them with suitable knowledge, this is fundamental to the continuous effort of diminishing the transmission of covid-19. Theresults showed that the robust information provided through infographics encouraged the masses to wear face masks. The respondents of the study were able to recall the basic idea endorsed in the infographic. By the end, most participants that took part in the research showed willingness to wear mask, after viewing the selected infographics. On that account, the research arrived at the logical conclusion that the visual stimuli reduce the apprehension amongst the audience to adopt something new. People become less anxious after being exposed to a visual stimulus. Subsequently, consciously reading infographics from trustworthy results in creating positive attitude of audience towards the idea endorsed.

Objective

To assess the efficiency of the selected health related Covid-19 infographics' designs on an evaluation framework; constructed by employing a predeveloped information design rubric.

Problem Statement

In the contemporary information-rich society, the information visualization has transformed the way in which large and complex data is presented and perceived. In the process of visualizing information, details of particular messages are mapped out using computer graphic techniques, blending images, icons and text in an effort to make huge volumes of data conceivable (Greshon et al., 1998). Moreover, Infographics, as part of the wide-ranging concept of visualization, mainly aim at providing readers with perspicuous, compact and accurate information in illustrative form, employing artistic visualization tactics. Additionally, infographics are designed to exhibit information in a manner that not only provides quick, influential and insightful knowledge to the viewers, but at the same time also engages and mesmerizes the onlookers with appealing visuals (Suri, 2020).

Most importantly, infographics in the present era are used as means of raising awareness and enhancing the public knowledge. Studies reveal

that infographics are helpful in making the people informed about certain issues (Hill et al., 2016; Zikmund-Fisher et al., 2008). Furthermore, infographics can be propitious in the field of health communication as they brief the individuals about medical illnesses, educate them regarding preventive health measures, providing them with facts, figures and statistics, and in the due course, simplifying the complex information aesthetically (Arcia et al., 2016). In the midst of global pandemic like Covid-19, infographics were seen as important tools for communicating with the audience in an easy-to-understand manner. In the similar context, during the pandemic, infographics served the purpose of motivating, educating, preparing, informing and increasing awareness of general public, through meaningful and demonstrative graphic information designs (Albufalasa& Gomaa, 2022).

Previous studies in the field of information visualization mainly focused how infographics aid in understanding information that is hard to comprehend, through surveys. Past researchers also solely concentrated their attention on finding out whether the infographics successfully grab the attention of the audience or not, through examining the readers' perception. Only a few researches been conducted to analyze and assess the efficiency of infographics in the field of health communication, specifically Covid-19. Thus, to fill the gap in the literature, the current research paper exclusively focuses upon the efficiency assessment of Covid-19 infographics through predefined evaluation frameworks. Hence, this study fills the vaccum by analyzing various elements and components of selected infographics, carrying out analysis based a scoring rubric.

Methods:
This is an evaluative study to assess the effectiveness of the health related Covid-19 infographics in Pakistan. For this purpose, well designed Covid-19 infographics, in reference to Pakistan, are selected from national as well as international organizations, posted on their official websites. The main goal of the present research is to use an evaluative framework to analyze the selected sample of infographics on the basis of criteria constructed by using a predeveloped rubric. Fragou &Papadopoulou (2020) explain that Information design rubrics are evaluative tools to assess any infographic on the basis of a specific criteria. Rubrics are developed in a way to analyze both the content and design of the infographics under study, focusing explicitly on information and aesthetics. Rubrics serve as yardsticks to score and judge the performance of an information design. It is a framework consisting of various elements and categories to explore and gauge the efficiency of an infographic.

Data Collection
In the present study, each infographic is considered as the unit of analysis. For this article, it is important to select infographics that contain graphic visual representation of Covid-19 health related information. Any infographic that contains information, stats, data relevant to covid-19, in reference to Pakistan, was considered as suitable for the sample of this paper.

Therefore, for the purpose of this research, a total sample of 10 infographics are found to be eligible and selected, in Pakistani context, from national and transnational organizations. These organizations include: ASER, WHO, IFC, ADB, Muslim Aid, Islamic Relief, Humanitarian Response and Ministry of National health, Pakistan. One infographic from each, and three from the last one are selected for this evaluative research. The sample infographics are retrieved from the archives of the official websites (or from the authorized reports) of these global and local agencies. Thus, the data gathered is coded and tabulated manually in this paper and is assessed under the categories if a rubric designed by Nugolu Kibar& Akkoyunlu (2014).

Evaluative Framework
The current study, through a previously established rubric, employs a relevant framework, consisting of diverse elements and categories, to fit the requirements of the present research. Categories and components of an analytic and a specific rubric, constructed by Nugolu Kibar& Akkoyunlu (2014), are considered as criteria to evaluate the visuals and content of infographics chosen for this study. This method is adopted to utilize the scoring information design rubric for assessing various aspects of health related Covid-19 infographics.

In order to conduct a precise analysis, following categories, from the formerly established rubric (Nugolu Kibar& Akkoyunlu, 2014), are applied to the ongoing research:

Sr.No.	Criteria	Explanation
1.	Title	It is the topic of an infographic or a name assigned to identify or specify it.
2.	Elements	Essential components of an infographics creating visual unity. These include objects like graphic icons, signs and symbols.
3.	Font	Refers to the style and size of the written characters in an infographic
4.	Color	Different saturations, hues and color choices and contrast used in the information design.
5.	Visualization	Patterns used in the infographics to make information more graspable. This includes charts, maps, pictograms etc.
6.	Layout	The design and the visual arrangement of the content in an infographic. It is basically the template or the format of the design.
7.	Information Organization	Structuring information in an orderly manner. This can include organizing of data according to category, hierarchy, timelines etc.

| Sr. No.	Criteria	Score 0- Absent/ Unacceptable	Score 1- Needs Work	Score 2- Competent	Score 3- Exemplary
1.	Title	No or irrelevant title	Unclear title	Title can be more comprehensive and specific.	Title is specific and is in line with the content.
2.	Elements	No or irrelevant elements	Varied pattern of elements is used in complicated way.	Varied pattern of elements is used that reflects the content.	Elements are repeated to make the content more understandable.
3.	Font	No font	Complicated font is used that makes content difficult to understand.	More than two fonts are used 0r the fonts usedare not in line with content.	Appropriate font is used, complimenting the content and making it readable.
4.	Color	No or irrelevant color scheme	Use of visually unsatisfying colors.	Too many colors are used, but the color choice is fine.	Shades and saturation of colors are chosen wisely. Color selection increases the visibility.
5.	Visualization	No or irrelevant visuals	The visualization (charts, maps, graphs, pictograms) used does not reflect the content.	The visualization reflects content, but it complicates it.	The visualization makes the data presented more comprehendible.
6.	Layout	No proper and irrelevant layout	The layout lacks most of the components.	The layout contains all of the components (main idea, secondary idea, and other details) but is not organized in inverted pyramid.	The layout contains all components and presents the content from general to specific according to inverted pyramid.
7.	Organization	No organization method is employed	Has organization but lacks cohesiveness	At least one method (hierarchy, timeline, category, place) is employed but complicates the content.	At least one method of organization is employed in compliance with the content.

Data Analysis

1. Ministry of National Health
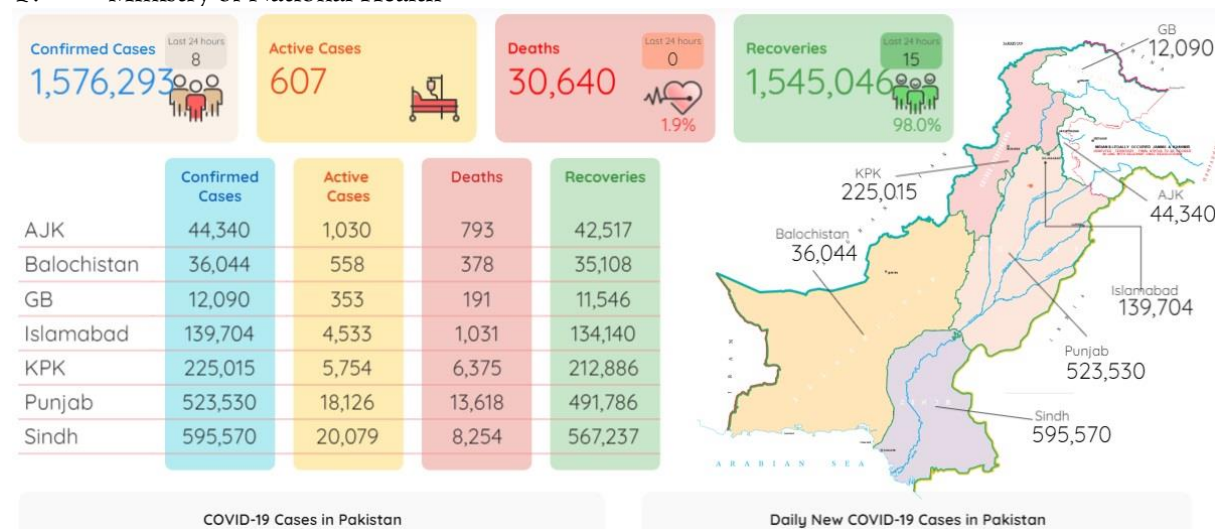
Infographic no.01, retrieved from: Covid.gov.pk/stats/pakistan

Ministry of National health Infographic. 01						
Dimensions	Title	Elements	Font	Color	Visualization	Layout	Info Organization
Score	3	2	3	3	3 (map)	3	3 (acc. To place/ location)
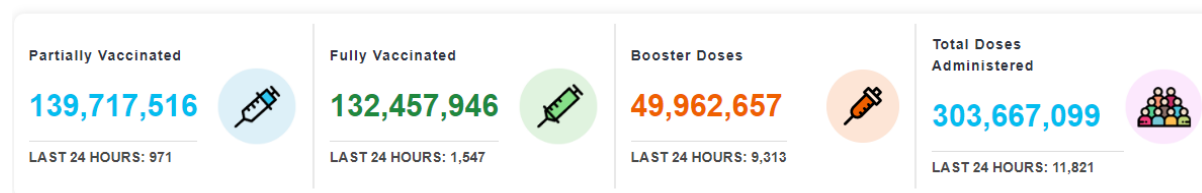
Infographic no.02, retrieved from: Covid.gov.pk/vaccine-details

Ministry of National health Infographic 02						
Dimensions	Title	Elements	Font	Color	Visualization	Layout	Info Organization
Score	3	3	3	3	0	3	3 (acc. To category)

Important Precautions

Follow these simple precautions to reduce your chances of contracting the new coronavirus, which causes the disease known as COVID-19.

Wash Your Hands For 20sec
Wash hands often with soap and water for at least 20 seconds.

Wear a Mask if Available
You should continue to use the surgical mask in all public places until you are advised.

Cover Nose When Sneezing
Cover your mouth and nose with a tissue or your sleeve (not your hands) when coughing or sneezing.

Seek Medical Care Regularly
Regular health checks can identify any early signs of health issues.

Avoid Crowded Places
As an individual, you can lower your risk of infection by reducing your rate of contact with other people.

Do Not Share Eating
Stop having food around those who ask you for it.

Don't Touch Your Face or Nose
Avoid animals (alive or dead), animal markets, and products that come from animals (such as uncooked meat).
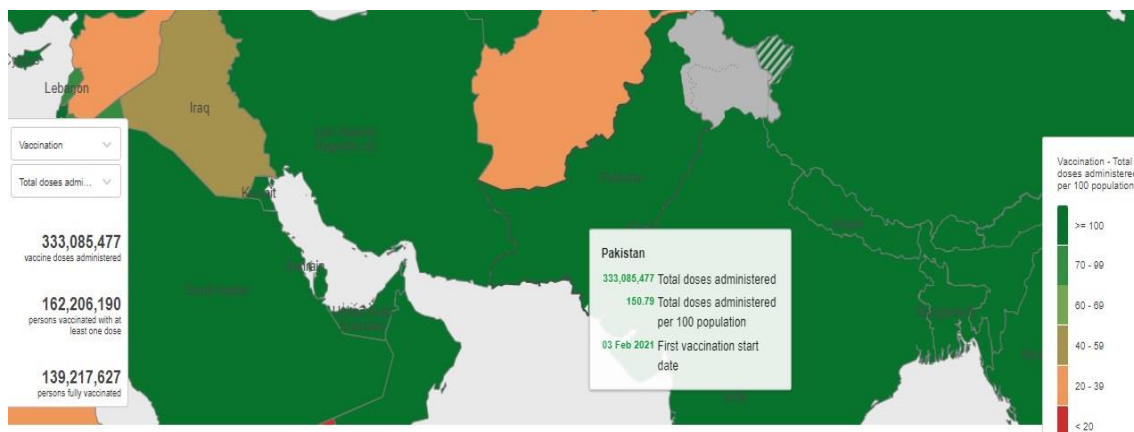
Avoid Contact with Sick People
Avoid close contact with anyone showing symptoms of respiratory illness.

Infographic no.03, retrieved from: covid.gov.pk/prevention

Ministry of National health Infographic 03							
Dimensions	Title	Elements	Font	Color	Visualization	Layout	Info Organization
Score	2	3	3	2	1 (map)	2	3 (acc. To category)

2. WHO (World Health Organization)

Infographic no.04 retrieved from: covid19.who.int/region/emro/country/pk

WHO							
Dimensions	Title	Elements	Font	Color	Visualization	Layout	Info Organization
Score	2	0	3	3	3 (map)	2	3 (acc. To place/ location)

3. **ASER (Annual Status of Education Report)**

Infographic no. 05, retrieved from: http://aserpakistan.org/Thematic-Cards-Infographics
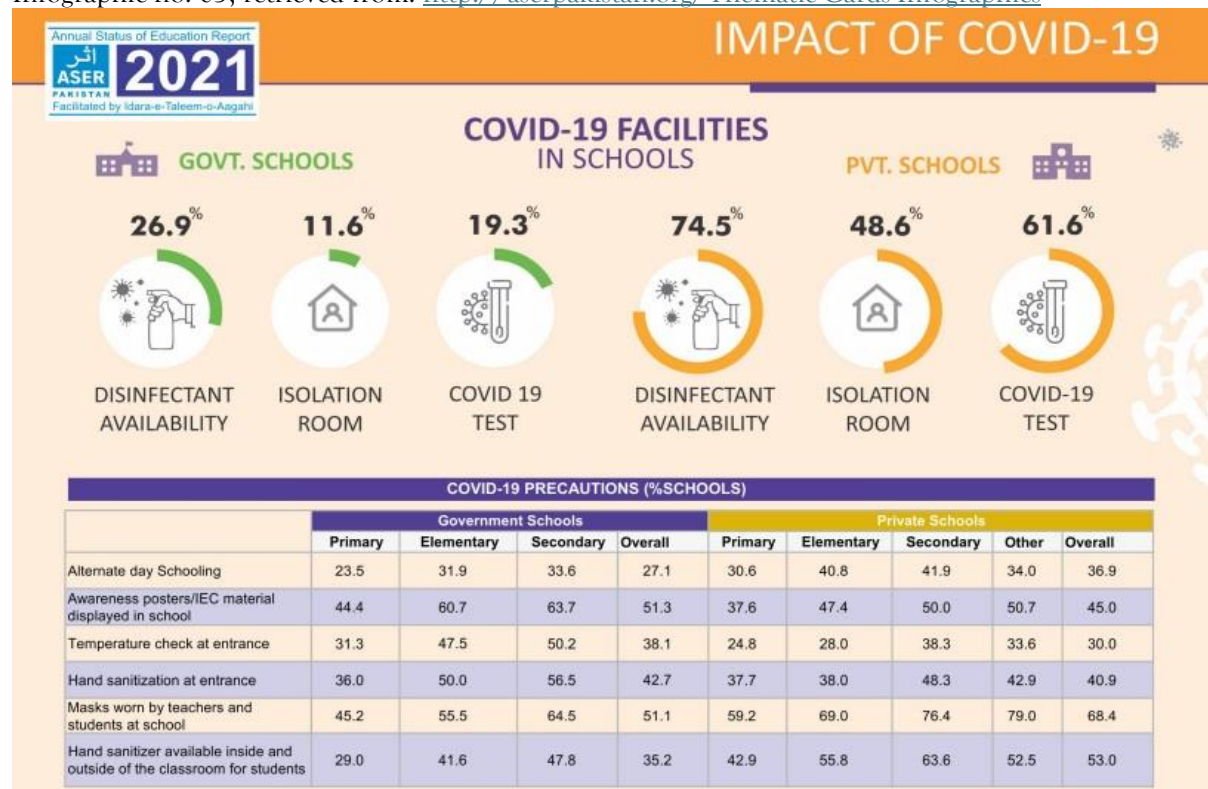
ASER							
Dimensions	Title	Elements	Font	Color	Visualization	Layout	Info Organization
Score	3	3	2	2	3 (chart)	3	2 (acc. To category)

4. **Islamic Relief**
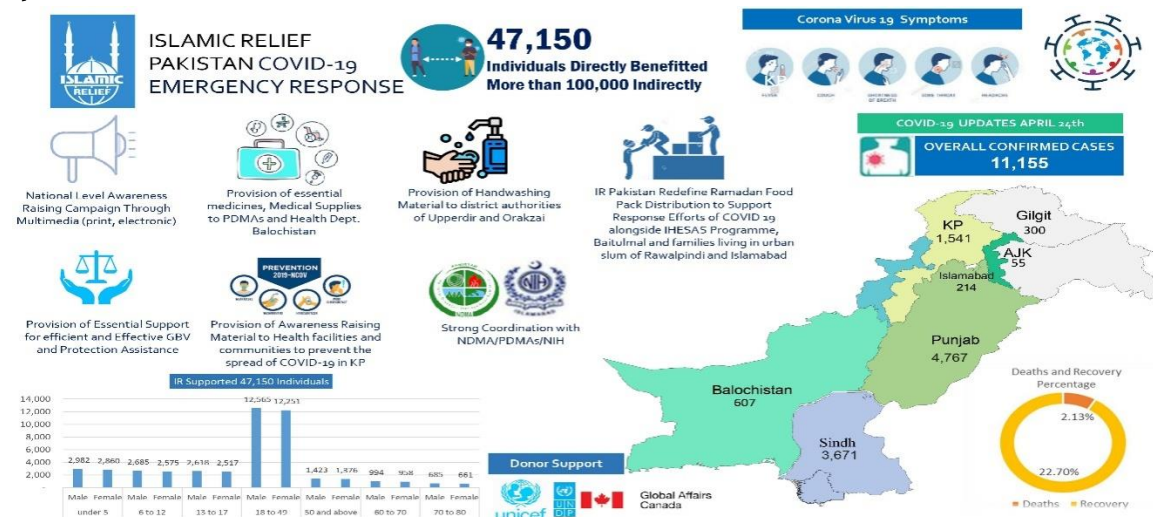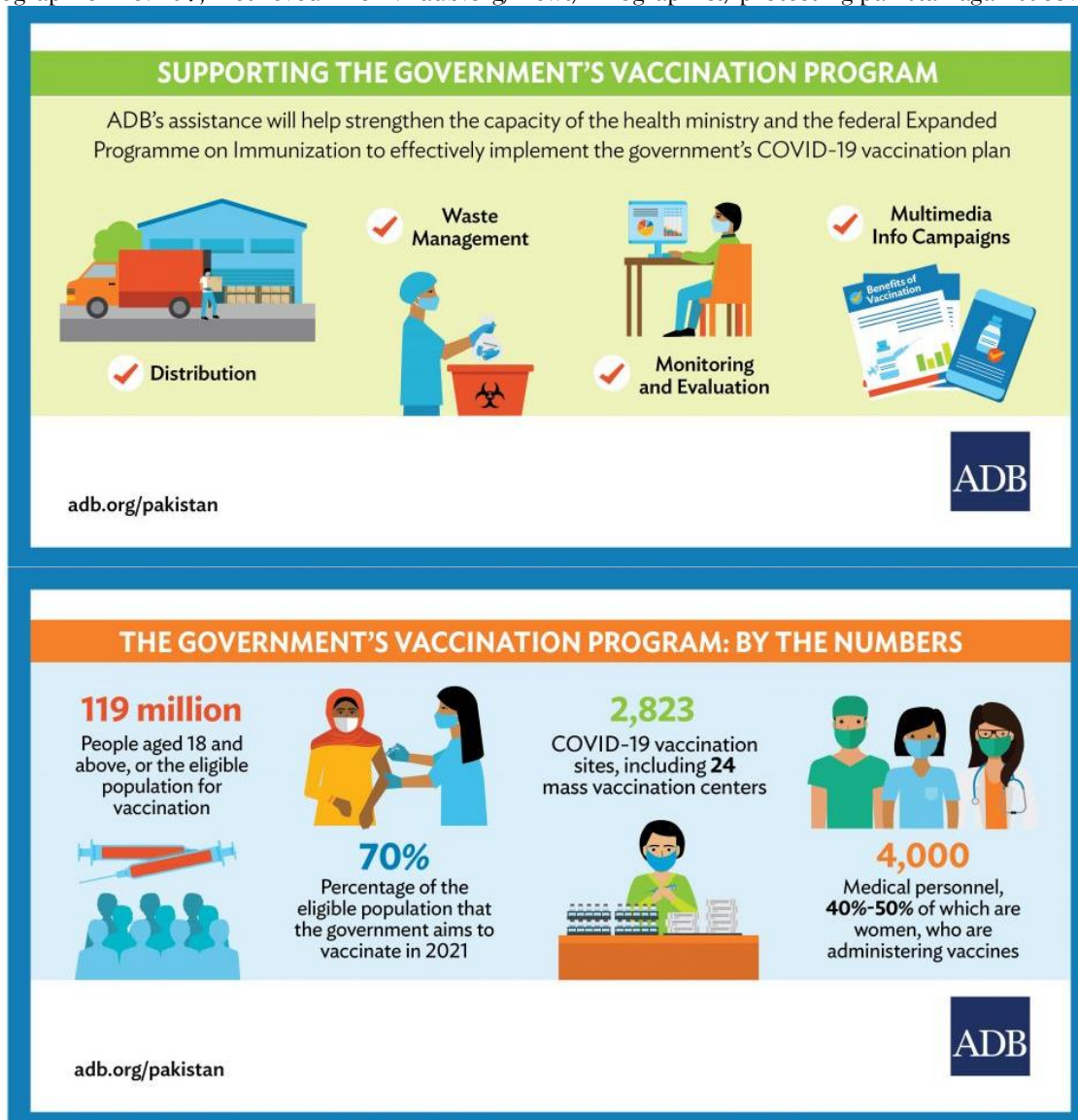
Infographic no.06, retrieved from:reliefweb.int/report/pakistan/pakistan-covid-19-emergency-response

Islamic Relief							
Dimensions	Title	Elements	Font	Color	Visualization	Layout	Info Organization
Score	3	2	3	3	1 (chart + Graph)	1	1

5. ADB (Asian Development Bank)

Infographic no. 07, retrieved from: adb.org/news/infographics/protecting-pakistan-against-covid-19
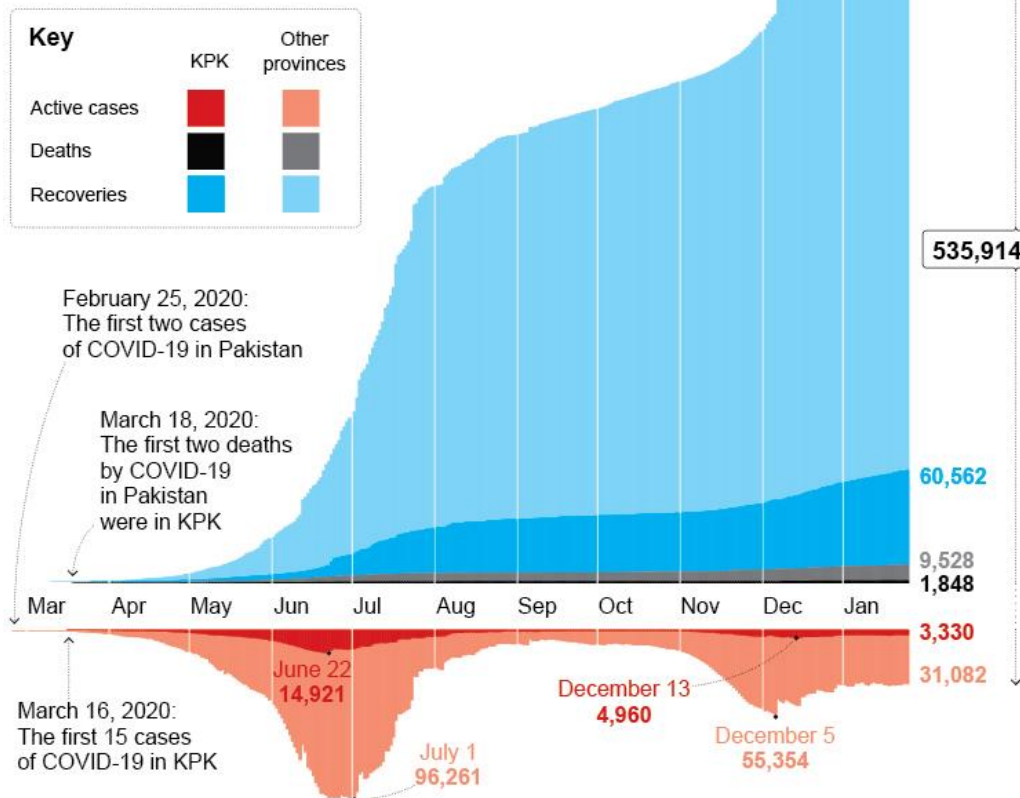

ADB							
Dimensions	Title	Elements	Font	Color	Visualization	Layout	Info Organization
Score	3	3	3	2	0	2	2 (Acc. To category)

6.   IFC (International Finance Cooperation)

535,914 CONFIRMED COVID CASES IN PAKISTAN

Updated on January 26, 2020

One in six COVID-19 deaths in Pakistan is from Khyber Pakhtunkhwa province (KPK), and KPK represents one of every ten active cases in Pakistan.

Key

	KPK	Other provinces
Active cases		
Deaths		
Recoveries		

429,564

535,914

February 25, 2020:
The first two cases of COVID-19 in Pakistan

March 18, 2020:
The first two deaths by COVID-19 in Pakistan were in KPK

60,562

9,528
1,848

Mar   Apr   May   Jun   Jul   Aug   Sep   Oct   Nov   Dec   Jan

3,330
31,082

June 22
14,921

December 13
4,960

July 1
96,261

December 5
55,354

March 16, 2020:
The first 15 cases of COVID-19 in KPK

Source: Ministry of National Health Services, Regulation and Coordination   © 2021 IFC

Infographic no. 08, retrieved from:
ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/insights/nwgh-pakistan

IFC						
Dimensions	Title	Elements	Font	Color	Visualization	Layout	Info Organization
Score	2	0	3	3	3 (Graph)	1	2 (Acc. to timeline)

COVID19 RESPONSE ACTIVITY UPDATES

Muslim Aid Campaign for Pakistan
#REACH Reconnect, Empower and Adapt against COVID19 Hazard

1 HEALTH SECTOR

20 Bed Hospital handed over to District Government of Abbottabad to take up as quarantine centre

02 Ambulances have been provided to NDMA and PPHI for deployment in Balochistan and Sindh

Distribution of medical supplies including surgical aprons, and disinfectant at 55 health facilities

350 Personnel Protective Equipment (PPE) kits distributed among health workers and more would be provided in 95 facilities to benefit 840,000 persons

1,900 Lady Health Workers would be trained to orient 114,000 females in their respective communities

950 healthcare providers and sanitary workers will be trained on Infection Prevention Control

34 Psycho-Social Counsellors would be deployed to support 59,840 persons with psychological issues

2 BEHAVIOURAL CHANGE COMMUNICATION

+1 million people received health and hygiene advisory including COVID19 prevention and control information through media campaigns

In next three months, a minimum 648,000 persons will be reached through TV, Radio and print

3 WASH SECTOR

10 hand-washing stations installed at health facilities and public places benefiting on average 100 individuals daily

170 more would be installed with soaps benefitting to 714,000 individuals in six months

5,500 health & hygiene sessions to be conducted benefitting to 1,140,000 individuals

1,000 Hygiene kits including soaps, gloves and masks provided to households & health facilities

18,050 hygiene kits to be provided in communities and health facilities benefitting 108,300 individuals

EMERGENCY RESPONSE TEAM ON GROUND

4 FOOD SECURITY & LIVELIHOODS SECTOR

140 food packs distributed among daily wage workers; 15,620 food packs would be distributed; fulfilling nutritional needs of 93,720 persons

For more information please contact:
Qasim Ali Khawaja
Manager Communication & Influencing
qasim.ali@muslimaid.org.pk
+92 334 058 058 4 +92 333 888 5455

www.muslimaid.org.pk /MuslimAid_PK
/MuslimAidPakistan /MuslimAidPakistan

Muslim Aid

Infographic no. 09, retrieved from: reliefweb.int/report/pakistan /muslim-aid-s-planned-covid-19-response-pakistan

Muslim Aid							
Dimensions	Title	Elements	Font	Color	Visualization	Layout	Info Organization
Score	3	2	3	3	2 (map)	3	3 (Acc. to category and location)

7.   OCHA (UN Office for the Coordination of Humanitarian Affairs)

Infographic no.8, retrieved from:
www.humanitarianresponse.info/en/operations/pakistan/infographics/table
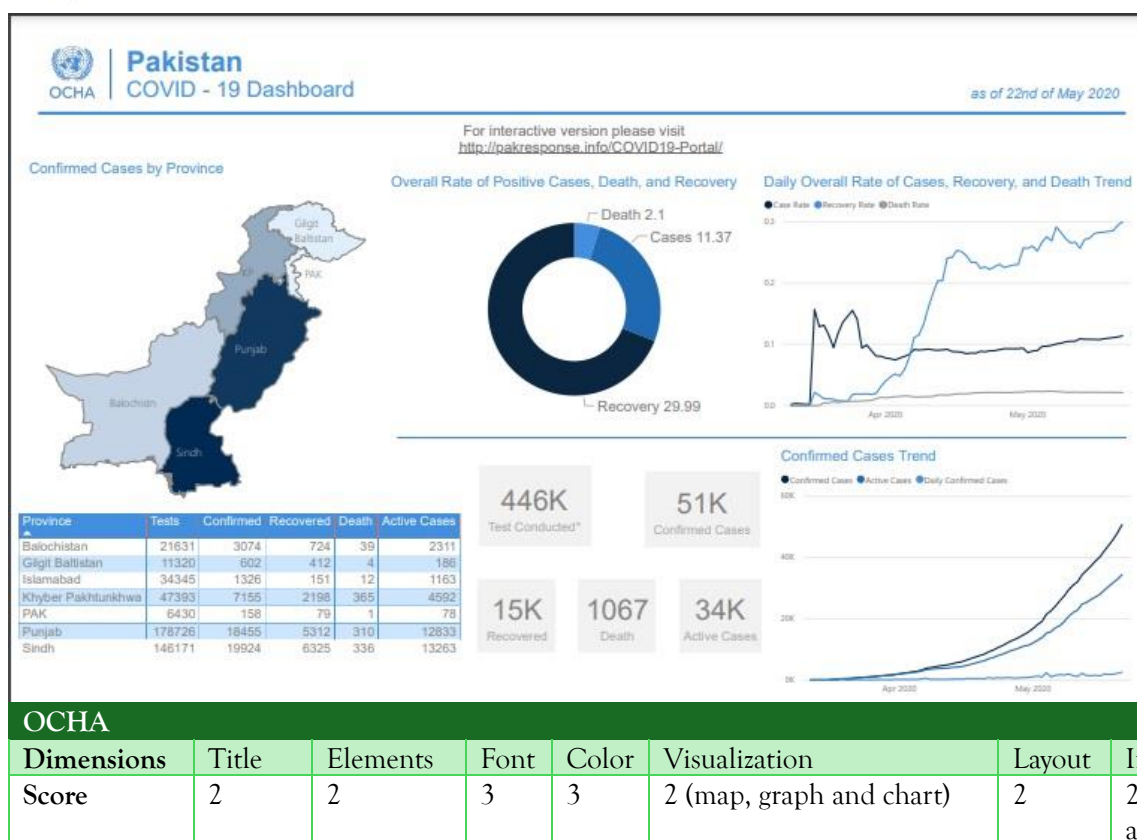
OCHA							
Dimensions	Title	Elements	Font	Color	Visualization	Layout	Info Organization
Score	2	2	3	3	2 (map, graph and chart)	2	2 (acc. to location and category)

Findings

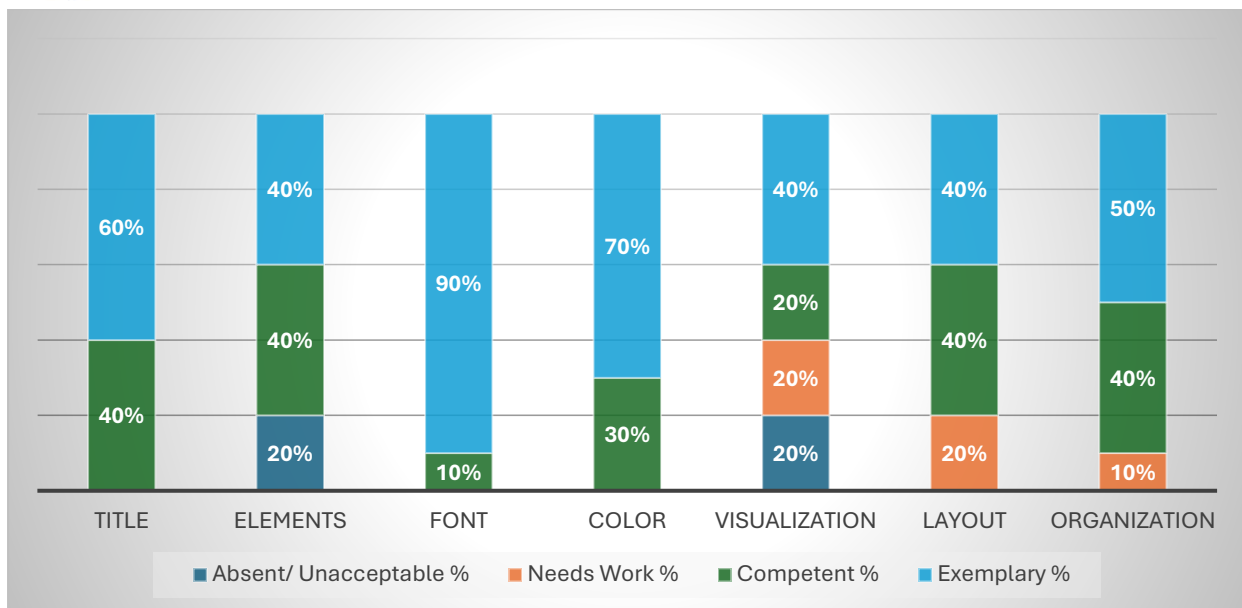| Sr. No.	Criteria	Absent/ Unacceptable %	Needs Work %	Competent %	Exemplary %
1.	Title	0%	0%	40%	60%
2.	Elements	20%	0%	40%	40%
3.	Font	0%	0%	10%	90%
4.	Color	0%	0%	30%	70%
5.	Visualization	20%	20%	20%	40%
6.	Layout	0%	20%	40%	40%
7.	Organization	0%	10%	40%	50%

Table 1: depicts the overall sample percentage of each category

Figure 1: demonstrates the overall sample percentage of each category.

As discussed in the method section, an information design rubric is used for the analysis of ten selected infographics related to Covid-19. The analysis involved seven dimensions that served as the criteria of assessment.Moreover, four main assessment scores are used to evaluate the designs. The data analysis of individual sample infographics is presented in the form of scoring sheets and the overall percentage is also tabulated and illustrated as a graph. The goal of the present research is to assess the usability, performance and efficiency of the infographic, focusing mainly on the design components.

The main findings and results are discussed under the seven following dimensions, as defined by the scoring rubric:

Title

The data analysis suggests that the majority of the infographics, 60 percent of the total, had titles that exceeded the expectations. These titles were clear, concise and to the point. These also made obvious the topic of the infographics. Thus, these were in consonance with the overall idea and content of the designs. However, 4 out of the 10 infographics i.e., 40 percent, were competent. Although being in line with the overall concept, these ones could have been more comprehensive and specific. Overall, the titles scored quite high on the defined scale.

Elements

As far as the elements are concerned, 20 percent of the infographics from the sample did not contain any elements. 40 percent of the design contained varied elements, such as icons, symbols and signs, but made the content easy to comprehend. The remaining 40 percent include those infographics in which the elements were repeated and were harmonious with the content. The repetition of elements leads to coherence and unity of the whole infographic and consequently reinforce the message through replication.

Fonts

Majority of the infographics, 90%, had exemplary fonts. The choice font style, size and spacing was appropriate and complimented the content of the infographics. One out of 10 sample infographics i.e., 10%, used more than two fonts. These fell under the competent category, where the font was understandable, but needed more work. In general, the designers did a good job in selecting and implementing the fonts.

Colors

In colors, 70 percent used visually satisfying and suitable color schemes. The shades, hues and the saturation enhanced the readability and visibility of the graphics. The color choice highlighted the important points, making it simple for readers to grasp the knowledge. The other 30 percent used many colors of different shades colors. Nonetheless, the color selection was good, but

could do much better in making it comply with the theme of the infographic. None of the selected infographic had low score in this dimension

Visualization

The visualization here refers to how the data is presented in the infographics via different visual aids like charts, graphs, maps etc. In the visualization dimension, diversity is seen. Here, the 40 percent had exemplary visualization where it simplifies the content. 20 percent contained visualizations that reflect the content while complicating it. 20 percent of the designs contained visualization that did not reflect the content. Lastly, 20% of the infographics did not include any kind of data visualization. Maps and charts are the most repeated visual aids used in the current sample of Covid-19 infographics.

Layout

80 percent of the sample consist of layout that contains all three of its necessary elements. 40 percent of these comprise of layouts that further make the content complex. Furthermore, the rest 40 percent are those that are well design, aesthetic and make the content comprehendible. These infographics present information in inverted pyramid style i.e., from general to specific. 20 percent of the layouts lack cohesiveness and also do not contain all the required components i.e., Main points, secondary data and other details.

Information organization

In case of information organization, about half of the selected infographics, 50 percent, have information organized in systematic and orderly manner to make it clearer. 40 percent of the infographics have at least employed one method to organize the information. Nonetheless, 10 percent of the infographics need work with the organization tactics to make the content understandable. The method of organization applied mostly in the case of sample is the organization through categorization and location.

Conclusion

In this study, a unique approach of information design rubric is utilized to find the desired results of analyzing the appearance of design and overall quality of the infographics. The information design rubric primarily focuses on the visual design elements and components of any information

visualization. This criteria-based framework involves various dimension and categories that are considered as standards for scoring the information designs. The rubric by Nugolu Kibar& Akkoyunlu (2014) is selected to analyze the visual design and features of the infographics. The main aim of this research is to apply techniques and tactics of the rubric to gauge the aesthetics, presentation and subsequently the performance of infographics on a scoring scale. The present research article, in order to evaluate the efficiency of an information design, centers upon the visual components of an infographic through an already developed rubric. The rubric is designed to only assess the final product, by examining the visual features, dimensions and layout of an infographic. Design components such as color, text, topic, organization and data visualization are taken into consideration for the current evaluative study. However, the mail aim of this research is to underscore the effectiveness and proficiency of health related Covid-19 infographics, in context of Pakistan. To find out what makes a good infographic, this article employs assessment scale which explores whether the design dimension is exemplary, competent or irrelevant.

Taking into account the different dimensions of an infographic, the findings suggest that most of the Covid-19 infographics analyzed are of prime quality, adhering to the basic principles of design. The font style, the color schemes scored the highest as being exemplary. These two dimensions were found to be appropriate and relevant to the overall message of the infographics, complying to the content. The title and topics of the sample infographic also stood high on the scoring criteria. The titles are mostly precise, clear and suitable for the content, representing the information displayed. The assessment of the layout and the organization dimensions show that the information, to a great extent, is displayed, organized and presented aesthetically, giving an inverted pyramid structure to the design. The information in the sample infographics was mainly categorized and classified and also demonstrated in the according location and timeline. A slightly low score is observed in two dimensions, that are: visualization and elements. This is due to the fact that some of the Conid-19 infographics lacked in these two categories, as these were absent in some cases. The absence of these two dimensions in

some instances effects the unity and comprehensibility of an infographic.

The results indicate that the Covid-19 health related infographics of Pakistan are well designed and are efficient, according to the scoring rubric, in conveying the important information related to the corona virus pandemic. It further shows that the infographics were designed with a clear purpose of disseminating data, statistics and other details related to Covid-19 to the general public. The aesthetic value, the appeal, the visualizations, the elements, fonts and colors and the layout design were well though about and resulted in design that, on the whole are, are unified, coherent, comprehensive and are competently assembled. From these conclusions, it is inferred that the principal attributes of an infographic, such as visual appeal, the design and other components, are of prime importance in communicating an information to the masses. These not only attracts the readers to choose an infographic for viewing by enhancing the visibility, but also makes the content easy to grasp and understand for the audience members. This implies the visuals in today's world play a vital role in information dissemination, idea communication and creating general health awareness in the audience.

Lastly, this study did not explore and assess the accuracy and the credibility of the information provided through the infographics. Future researches are recommended to evaluate the correctness of the content of the Covid-19 infographics. This study can be extended for a more detailed analyses by integrating more dimensions from other rubrics.

REFERENCES:

Arcia, A., Suero-Tejeda, N., Bales, M. E., Merrill, J. A., Yoon, S., Woollen, J., & Bakken, S. (2016). Sometimes more is more: iterative participatory design of infographics for engagement of community members with varying levels of health literacy. Journal of the American Medical Informatics Association, 23(1), 174-183.

Albufalasa, M. I., & Gomaa, Y. A. (2022). Genre Analysis of Daily COVID-19 Infographic Reports in the Arabian Gulf: The Case of the Kingdom of Bahrain. Journal of English Language Teaching and Linguistics, 7(1), 197-216.

Baker, M. P., & Bushell, C. (1995). After the storm: Considerations for information visualization. IEEE Computer Graphics and Applications, 15(3), 12-15.

Bateman, S., Mandryk, R. L., Gutwin, C., Genest, A., McDine, D., & Brooks, C. (2010, April). Useful junk? The effects of visual embellishment on comprehension and memorability of charts. In Proceedings of the SIGCHI conference on human factors in computing systems (pp. 2573-2582).

Card, S. K., Mackinlay, J. D., & Shneiderman, B. (1999).Readings in Information Visualization: Using Vision to Think.

Cairo, A. (2008). INFOGRAFÍA 2.1. Recuperado de: http://www. serlib. com/pdflibros/9788498890105. pdf.

Elaldi, S., & Çifçi, T. (2021). The Effectiveness of Using Infographics on Academic Achievement: A Meta-Analysis and a Meta-Thematic Analysis. Journal of Pedagogical Research, 5(4), 92-118.

Egan, M., Acharya, A., Sounderajah, V., Xu, Y., Mottershaw, A., Phillips, R., ... & Darzi, A. (2021). Evaluating the effect of infographics on public recall, sentiment and willingness to use face masks during the COVID-19 pandemic: a randomised internet- based questionnaire study. BMC public health, 21, 1-10.

Fragou, O., & Papadopoulou, M. (2020). Exploring infographic design in higher education context: towards a modular evaluation framework. Journal of Visual Literacy, 39(1), 1-22.

Friendly, M., & Denis, D. J. (2001). Milestones in the history of thematic cartography, statistical graphics, and data visualization. URL http://www. datavis. ca/milestones, 32, 13.

Finke, T., Manger, S., & Fichtel, S. (Eds.). (2012). Informotion: animated infographics. Gestalten.

Gershon, N., Eick, S. G., & Card, S. (1998). Information visualization. interactions, 5(2), 9-15.

Hernandez-Sanchez, S., Moreno-Perez, V., Garcia-Campos, J., Marco-Lledó, J., Navarrete-Muñoz, E. M., & Lozano-Quijada, C. (2021). Twelve tips to make successful medical infographics. Medical Teacher, 43(12), 1353-1359.

Hart, G. (2013). Effective Infographics: Telling Stories in the Technical Communication Context.Retrieved 2023, from https://techwhirl.com/effective-infographics-telling-stories-in-the-technical-communication-context/.

Hill, B., Perri-Moore, S., Kuang, J., Bray, B. E., Ngo, L., Doig, A., & Zeng-Treitler, Q. (2016). Automated pictographic illustration of discharge instructions with Glyph: impact on patient recall and satisfaction. Journal of the American Medical Informatics Association, 23(6), 1136-1142.

Jahan, S., Al-Saigul, A. M., & Alharbi, A. M. (2021). Assessment of health education infographics in Saudi Arabia. Health Education Journal, 80(1), 3-15.

Keim, B. (2013). The Best Scientific Visualizations of 2013 , Wired, 25 December 2013 Online: http://www wired com/wiredscience/2013/12/best-scientific-figures-2013

Lankow, J., Ritchie, J., & Crooks, R. (2012). Infographics: The power of visual storytelling. John Wiley & Sons.

Murray, I. R., Murray, A. D., Wordie, S. J., Oliver, C. W., Murray, A. W., & Simpson, A. H. R. W. (2017). Maximising the impact of your work using infographics. Bone & joint research, 6(11), 619-620.

Murray, I. R., Murray, A. D., Wordie, S. J., Oliver, C. W., Simpson, A. H. R. W., & Haddad, F. S. (2017). What surgeons need to know about infographics. The bone & joint journal, 99(12), 1557-1558.

Moere, A. V., & Purchase, H. (2011). On the role of design in information visualization. Information Visualization, 10(4), 356-371.

Nuhoğlu Kibar, P., & Akkoyunlu, B. (2014). A new approach to equip students with visual literacy skills: Use of infographics in education. In Information Literacy. Lifelong Learning and Digital Citizenship in the 21st Century: Second European Conference, ECIL 2014, Dubrovnik, Croatia, October 20-23, 2014. Proceedings 2 (pp. 456-465). Springer International Publishing.

Occa, A., & Suggs, L. S. (2016). Communicating breast cancer screening with young women: An experimental test of didactic and narrative messages using video and infographics. Journal of health communication, 21(1), 1-11.

Pandya, M. (2021). A comparative visual content analysis of the CDC and WHO COVID-19 infographics. Missouri University of Science and Technology.

Quispel, A., Maes, A., & Schilperoord, J. (2016). Graph and chart aesthetics for experts and laymen in design: The role of familiarity and perceived ease of use. Information Visualization, 15(3), 238-252.

Smiciklas, M. (2012). The power of infographics: Using pictures to communicate and connect with your audiences. Que Publishing.

Siricharoen, W. V., & Siricharoen, N. (2018). Infographic utility in accelerating better health communication. Mobile Networks and Applications, 23, 57-67.

Sancho, J. L. V. (2001). La infografía: técnicas, análisis y usos periodísticos (Vol. 9). Universitat de València.

Sullivan, P. (1987). Newspaper graphics. Darmstadt, Germany: IFRA.

Suri, C. S. (2020). ANALYSIS OF 'INFOGRAPHICS-ABOUT COVID-19'PUBLISHED IN FOUR NATIONAL DAILIES OF INDIA. PalArch's Journal of Archaeology of Egypt/Egyptology, 17(6), 1985-2002.

Tufte, E. R. (1985). The visual display of quantitative information. The Journal for Healthcare Quality (JHQ), 7(3), 15.

Taylor, K. (2014). Want to Reach Millennials? This Is How They Spend Their Time.(Infographic). Entrepreneu.

Veszelszki, A. (2014). Information visualization: Infographics from a linguistic point of view. The Power of the Image, 99-109.

Weber, W. (2017). Interactive information graphics. In Information Design (pp. 259-272). Routledge.

Yau, N. (2013). Data points: visualization that means something. John Wiley & Sons.

Zikmund-Fisher, B. J., Fagerlin, A., & Ubel, P. A. (2008). Improving understanding of adjuvant therapy options by using simpler risk graphics. Cancer, 113(12), 3382