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The Use of Visual Arts in Health Communication During the COVID-19 Pandemic and HIV/AIDS Epidemic

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University of North Carolina at Charlotte
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Abstract

Background: Health communication is a multidisciplinary and multifaceted discipline that aims to reach diverse audiences to share pertinent health information; the purpose of doing so is to influence, engage, and support individuals, communities, and health professionals to adopt, introduce, and/or maintain behaviors, practices, or policies that ultimately enhance health outcomes. Health communication is a vital component of public health and has been enhanced through the use of the arts.

Purpose: This scoping review aims to identify the ways in which the visual arts have been used or could be used in health communication as well as the effects of doing so during the HIV/AIDS epidemic and COVID-19 pandemic. The findings of this review may be used to inform future arts-based health communications nationally and globally.

Methods: Using PubMed, Web of Science, and Academic Search Complete as search engines, a review of the existing literature was conducted. A total of 1,226 papers were uploaded to Covidence. After removing duplicates and screening for relevance, 12 papers were deemed appropriate for this review. Papers that discussed the role of visual art in health communication during the COVID-19 pandemic and/or during the HIV/AIDS epidemic were included (if available in English), while papers that did not discuss a form of visual art and their role in health communication during the COVID-19 pandemic and/or during the HIV/AIDS epidemic were excluded.

Results: Literature in the form of research papers and peer-reviewed journal articles were included in this review. Of the 12 papers included, 9 centered around COVID-19 while 3 focused on HIV/AIDS. Across the papers, several forms of visual art were discussed: namely, photography/pictures, graphic visuals, illustrations, murals, cartography, and drawings. The HIV/AIDS articles sought primarily to increase knowledge and enhance communication. Evaluation (addressed in one HIV/AIDS paper) involved mixed methods, though the qualitative and quantitative findings contradicted one another. The majority of COVID-19 papers aimed to validate the potential benefit of incorporating visual arts in health communication. Only 2 of the papers included a control group—which elevated the study's rigor—and none included one that strictly examined the impact of supplementing health communication with visual arts. While the results indicate that several forms of visual art are being used to communicate pertinent health information related to HIV/AIDS or COVID-19, the findings are largely qualitative.

Conclusions: Despite the many forms of visual art being utilized in health communication during the COVID-19 pandemic and the HIV/AIDS epidemic, challenges exist that should be addressed in future research. First, there is a need to further develop the field of arts-based health communication as it is a relatively young discipline that is still evolving. This can be done by conducting more rigorous studies that incorporate quantitative analyses to determine the impact of the arts in health communication, investigate the mechanism of change, and identify the most effective mode of delivery. Second, there is a need to set clear parameters on the definition of visual arts (in the context of research). This review found that this term is vague especially as a search term; it yielded papers related to visuals that were not creative by nature or did not fit the definition of visual arts as defined by the National Art Education Association as traditional fine arts such as drawing, painting, printmaking, photography, and sculpture. Clarifying the definition of visual art in the context of health communication will enhance related research and support further development of this field.

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Literature Review

Defining Health Communication

Health Communication is a multidisciplinary and multifaceted discipline that aims to reach diverse audiences to share pertinent health information; the purpose of doing so is to influence, engage, and support individuals, communities, and health professionals to adopt, introduce, and/or maintain behaviors, practices, or policies that ultimately enhance health outcomes (Schiavo, 2013). Simply put, health communication is the "study and use of methods to inform and influence individual and community decisions that enhance health" (Freimuth & Quinn, 2011). Health communication is a valuable tool that has gained global recognition and was included as an objective in Healthy People 2010, Healthy People 2020, and Healthy People 2030 (Freimuth & Quinn, 2011; McCullock et al., 2021). More specifically, the U.S. Department of Health and Human Services established a goal in their Healthy People prevention agenda to strategically utilize health communication to enhance population health (Pan American Health Organization, n.d.)

Health communication is not only growing in prominence, but it is also developing as a field; meaning the definition of health communication evolves over time (Schiavo, 2013). Although varying definitions of health communication have been created by different authors and organizations (in part because of the multidisciplinary nature of health communication), there are some key characteristics of health communication; it is research-based, audience-centered, strategic, multidisciplinary, creative, and aimed at behavioral or social change (Schiavo, 2013). Additionally, most definitions of health communication share the goal of influencing and supporting individuals and communities to adopt and sustain a behavioral

practice that aims to improve health outcomes. According to Healthy People 2010, the term "influence" is described as an "art", implying that health communication—like art—may require creativity and is able to convey complex information. In addition to presenting information to inform and influence individuals, health communication also seeks to create an environment that is supportive and welcoming and facilitates the sharing and comprehension of health information (Schiavo, 2013). Achieving this requires a coordinated effort (on the part of the health communication implementers) to ensure that a community's actual and perceived needs, attitudes, social norms, and taboos are all well understood. This suggests that individuals from the community being served or familiar with the target population should be involved in the planning and implementation process of health communication efforts.

Health communication is a multidisciplinary field. In fact, it has been noted that health communication draws on multiple disciplines such as health education, social marketing, mass and speech communication, and psychology to carry out health communication activities (e.g., interpersonal communication, community mobilization, and professional communication)—further demonstrating the multidisciplinary nature of health communication. A form of health communication that prioritizes several of the aforementioned components (e.g., is evidence-based, involves interpersonal communication, etc.) is social behavior change communication (SBCC).

SBCC is an evidence-based, strategic process that relies on communication strategies—such as interpersonal communication, community mobilization, and mass media campaigns—to promote behavior change as well as change in knowledge, beliefs, norms, and social conditions (Manoff Group, n.d.; McKnee et al., 2014; "What is Social", 2020). Existing data informs the development of SBCC; meaning, messages (and activities) are systematically designed to

analyze problems, identify barriers and facilitators, and create a comprehensive collection of interventions that promote the desired health behavior(s) ("What is Social", 2020). These messages (and activities) aim to reach various levels of society (e.g., the individual and community level) via communication channels.

Communication channels simply refer to the path used to reach an intended audience and provide health communication information and materials (Schiavo, 2013). Health communication can use one or more of several approaches: mass media campaigns, entertainment-education, media advocacy, interpersonal communication, and interactive health communication (Freimuth & Quinn, 2011). Mass media campaigns aim to motivate behavior change at the individual level; entertainment-education is a media approach suitable for those who consume a great deal of media (television, for example); media advocacy involves the use of mass media in combination with community organizing to improve public health policies; interpersonal communication involves the provider-client interaction as well as the role of social support and the role of relationships on health behaviors; lastly, interactive health communication refers to computer-based media which allows individuals to access information and related services that they have an interest in (Freimuth & Quinn, 2011). Through these many medias, the versatile field of health communication has great potential for enhancing public health.

Strengths and Weaknesses of Health Communication

Health communication has a multitude of strengths. As stated by the National Cancer Institute, health communication can enhance awareness and understanding of a given health issue and/or solution; refute myths; influence beliefs and attitudes so that social norms change; encourage action; demonstrate healthy behaviors and detail their benefit(s); and increase demand

for health services (Freimuth & Quinn, 2011). Despite the countless potential benefits of health communication, this tool is not without limitations, and it is important to acknowledge challenges associated with it. First, health communication alone cannot serve as a substitute for inadequate health services or lack of critical health resources (National Cancer Institute, 2004.). Also, health communication is not sustainable without the support of larger interventions (such as policy change). Another challenge associated with health communication is that discrepancies between the health-related messages being disseminated and those being received may occur due to varying exposure to the intervention as well as differences in interpretations of the message (Rimal & Lapinski, 2009). While health communication certainly has a wide range of potential benefits, there are also existing challenges to be cognizant of as health communication efforts are designed and implemented.

Conceptual Framework

Health communication should be grounded in theory as theories allow planners to understand why a problem exists, understand what should be known about a target population before taking action, effectively plan and organize an intervention, identify a clear behavioral outcome, and provide a basis for evaluation (National Cancer Institute, 2004.; Schiavo, 2013). Yet, in health communication, there is no singular theoretical framework to guide health communication interventions (McCullock et al., 2021). Instead, theories or conceptual frameworks are often combined to create the greatest impact (National Cancer Institute, 2004). A combination of fitting frameworks is used for the development of health communication—as opposed to a single framework—because health issues, populations, and contexts vary greatly and thus, allow planners and implementers to employ strategies that are most likely to lead to healthy, desired changes.

Ultimately, the optimal use of health communication to improve public health outcomes will require creativity, collaboration (both with professionals across disciplines and with communities being served), and theoretical grounding in order to develop meaningful and impactful health communication interventions (Freimuth & Quinn, 2011). Another method for enhancing health communication—and in turn, its potential benefits—specifically by incorporating creativity is to use the arts as a route for translating and/or disseminating health information.

The Power of the Arts

Sonke & Pesata (2015) argue that the arts can effectively be used to enhance health communication. This may be due to the notable influence that the arts have on individuals; the arts may be harnessed to engage the community, educate, and spark behavior change (Sonke & Pesata, 2015). The use of art forms (e.g., film, drawing, painting, creative writing, etc.) to optimize population health has led to the coining of the term "Arts in Health" and is a quickly growing, multidisciplinary field (National Organization for Arts in Health, 2017). The purpose of this ever-growing field is to use the "power of the arts to enhance health and wellbeing" in diverse contexts (National Organization for Arts in Health, 2017).

The "power" that the National Organization for Arts in Health refers to can be described as the way in which the arts connect with people. The use of the arts in health—and health communication—is a humanizing approach that can present concepts in a cultural context allowing health information disseminated to be more personally relevant, meaningful, and actionable (Sonke et al., 2018). The arts also evoke emotion, inspires conversation, and cultivates solidarity and thus, encourages community members to feel a connectedness to both the health topic at hand and to one another (Sonke et al., 2018). Visual arts in particular—the focus of the

following scoping review—can even convey certain experiences and messages that would be otherwise difficult to verbalize (Stuckey & Nobel, 2010). The arts may also simplify and clarify a message by dissecting complex concepts to make the information more comprehensible and may even demonstrate these concepts and/or health behaviors (also known as modeling), allowing a wide range of community members to mimic and adopt health behaviors—this directly addresses and reduces the barrier of health literacy (Sonke et al., 2018). Health literacy refers to one's ability to obtain and comprehend health-related information and make appropriate health decisions (Ishikawa & Kiuchi, 2010). In other words, utilizing the arts to relay health information and serve as a form of health communication enables health information to be accessible across cultures and languages (Sonke & Lee, 2015). In combination, these factors—all associated with the arts—facilitate awareness and behavior change (Sonke et al., 2018).

The Intersection of Art and Public Health: A Brief History

Integrating the arts and health is not a new phenomenon (Rollins et al., 2009). In fact, through the history of human development, the arts have been used in teaching, learning, and communication indicating that art and communication have long intersected (WHO, 2022). For example, during the Spanish Flu pandemic of 1918, public health professionals relied on health-related art to inform the public about this serious communicable disease and various precautionary measures such as social distancing and handwashing (Lacey, 2020). The long history of arts in health demonstrates that art has the ability to break down ideas into their most basic elements which allows information to be more impactful and lasting for the consumer (Lacey, 2020). Decades later, art is still used to bridge the gap in health communication to translate pertinent health information that is meaningful and effective to many regardless of culture and political views (Lacey, 2020; WHO, 2022).

The formal discipline of arts in health emerged in the United States in the 1970s (College of the Arts & University of Florida, 2023). Additionally, the discipline entitled "arts in public health" developed and focused on enhancing population health through wellness and disease prevention as well as addressing social determinants of health and health inequities (College of the Arts & University of Florida, 2023). Incorporating the arts in health communication and understanding the way in which doing so benefits the community is imperative as technological advances and modern communication channels do not equate to conveying health information in a clear and accessible manner (Lacey, 2020). Although technological advances and modern communication channels enhance accessibility to information, it does not guarantee that health information will be presented clearly and effectively. In short, art can serve as a way to express complex human emotions, elevate ideas, and represent concepts in a form that is accessible to all and in turn, supplement health communication (Galea, 2021).

Problem Statement

Harnessing the arts in health communication can lead to a plethora of benefits and doing so should follow an evidence-based, standardized method. Unfortunately, there is a gap in existing literature; while there is a great deal of literature related to the field of arts in health (as detailed above), there is limited literature that specifically discusses art-based health communication. As a result, there is limited literature that details best practices for developing art-based health communication interventions and there is a limited body of research involving rigorous studies that describe the mechanisms whereby art-based health communication may lead to the desired behavior change.

Purpose & Significance Statement

This scoping review sought to identify how published literature has described the ways in which the visual arts have been used or could be used in health communication during the HIV/AIDS epidemic and COVID-19 pandemic and with what effects. The findings of this scoping review may serve to inform future arts-based health communication efforts and related research. This scoping review contributes to the arts in health subfield and to the body of literature on art-based health communication. It also provides insight into the purpose of existing art-based health communication interventions, the forms of art being utilized, and the mechanisms to explain impact(s), all in the context of two notable health crises—namely, the HIV/AIDS epidemic and the COVID-19 pandemic.

Methods

The goal of this scoping review is to describe how the visual arts have been used or could be used in health communication during the HIV/AIDS epidemic and COVID-19 pandemic and also to review the documented effects of such use as described in published literature. To achieve this goal, a scoping review of the literature was conducted. This review considered literature found in three predetermined databases: PubMed, Web of Science, and Academic Search Complete. These databases were intentionally selected to ensure that the literature discovered and utilized in this review represents multiple fields of studies—the health sciences, multidisciplinary, and humanities, respectively. The search terms used for the purpose of this review were formatted in such a way that all potential words to describe COVID-19 and/or HIV/AIDS would populate in the results. Additionally, the search terms were generated in a way that reflects a traditional definition (i.e., consistent across various definitions) of visual arts; works that are primarily visual in nature such as drawings, paintings, sculptures, crafts, and

photography (Unbound Visual Arts, 2023). The search terms used in this review were devised in collaboration with an Emory Public Health Informationist/librarian to ensure proper syntax for each aforementioned database. Several search terms, and search term variations were formulated for this scoping review and are illustrated in Figures 1-3 below. All of the search terms were formulated so that the most relevant articles would populate in each of the three databases and would, in turn, permit description of how the visual arts have been used in health communication during the COVID-19 pandemic and the HIV/AIDS epidemic. The key words that these search terms reflect are health communication, visual arts, HIV/AIDS epidemic, and COVID-19 pandemic.

Figure 1: Search Terms Used in PubMed

PubMed Search Terms	(art[tiab] OR arts[tiab] OR artistry[tiab] OR artistic[tiab]) AND (health communicat*[tiab]) AND (COVID-19[tiab] OR COVID[tiab] OR Coronavirus[tiab])
	(art[tiab] OR arts[tiab] OR artistry[tiab] OR artistic[tiab]) AND (health communicat*[tiab]) AND (HIV/AIDS[tiab] OR human immunodeficiency virus[tiab] OR acquired immunodeficiency syndrome[tiab] OR HIV[tiab] OR AIDS[tiab])
	(visual art[tiab] OR visual arts[tiab] OR paint*[tiab] OR draw*[tiab] OR sculpture*[tiab] OR photo*[tiab] OR crafts[tiab] OR pict*[tiab] AND (health communicat*[tiab]) AND (COVID-19[tiab] OR COVID[tiab] OR Coronavirus[tiab])
	(visual art[tiab] OR visual arts[tiab] OR paint*[tiab] OR draw*[tiab] OR sculpture*[tiab] OR photo*[tiab] OR crafts[tiab] OR pict*[tiab] AND (health communicat*[tiab]) AND (HIV/AIDS[tiab] OR human immunodeficiency virus[tiab] OR acquired immunodeficiency syndrome[tiab] OR HIV[tiab] OR AIDS[tiab])
	(visual art[tiab] OR visual arts[tiab] OR paint*[tiab] OR draw*[tiab] OR sculpture*[tiab] OR photo*[tiab] OR crafts[tiab] OR pict*[tiab] AND (health communicat*[tiab]) AND pandemic[tiab]

Figure 2: Search Terms Used in Web of Science

Web of Science Search Terms	AB=((art OR arts OR artistry OR artistic) AND (health communicat*) AND (COVID-19 OR COVID OR Coronavirus))
	AB=((art OR arts OR artistry OR artistic) AND (health communicat*) AND (HIV/AIDS OR human immunodeficiency virus OR acquired immunodeficiency syndrome OR HIV OR AIDS))
	AB=((("visual art" OR "visual arts" OR paint* OR draw* OR sculpture* OR photo* OR crafts OR pict*) AND (health communicat*)) AND (COVID-19 OR COVID OR Coronavirus))
	AB=((("visual art" OR "visual arts" OR paint* OR draw* OR sculpture* OR photo* OR crafts OR pict*) AND (health communicat*)) AND (HIV/AIDS OR human immunodeficiency virus OR acquired immunodeficiency syndrome OR HIV OR AIDS))
	AB=((("visual art" OR "visual arts" OR paint* OR draw* OR sculpture* OR photo* OR crafts OR pict*) AND (health communicat*)) AND pandemic)

Figure 3: Search Terms Used in Academic Search Complete

Academic Search Complete Search Terms	AB (art OR arts OR artistry OR artistic) AND (health communicat*) AND (COVID-19 OR COVID OR Coronavirus)
	AB ((art OR arts OR artistry OR artistic) AND (health communicat*) AND (HIV/AIDS OR human immunodeficiency virus OR acquired immunodeficiency syndrome OR HIV OR AIDS))
	AB ((("visual art" OR "visual arts" OR paint* OR draw* OR sculpture* OR photo* OR crafts OR pict*) AND (health communicat*)) AND (COVID-19 OR COVID OR Coronavirus))
	AB ((("visual art" OR "visual arts" OR paint* OR draw* OR sculpture* OR photo* OR crafts OR pict*) AND (health communicat*)) AND (HIV/AIDS OR human immunodeficiency virus OR acquired immunodeficiency syndrome OR HIV OR AIDS))
	AB ((("visual art" OR "visual arts" OR paint* OR draw* OR sculpture* OR photo* OR crafts OR pict*) AND (health communicat*)) AND pandemic)

Inclusion & Exclusion Criteria

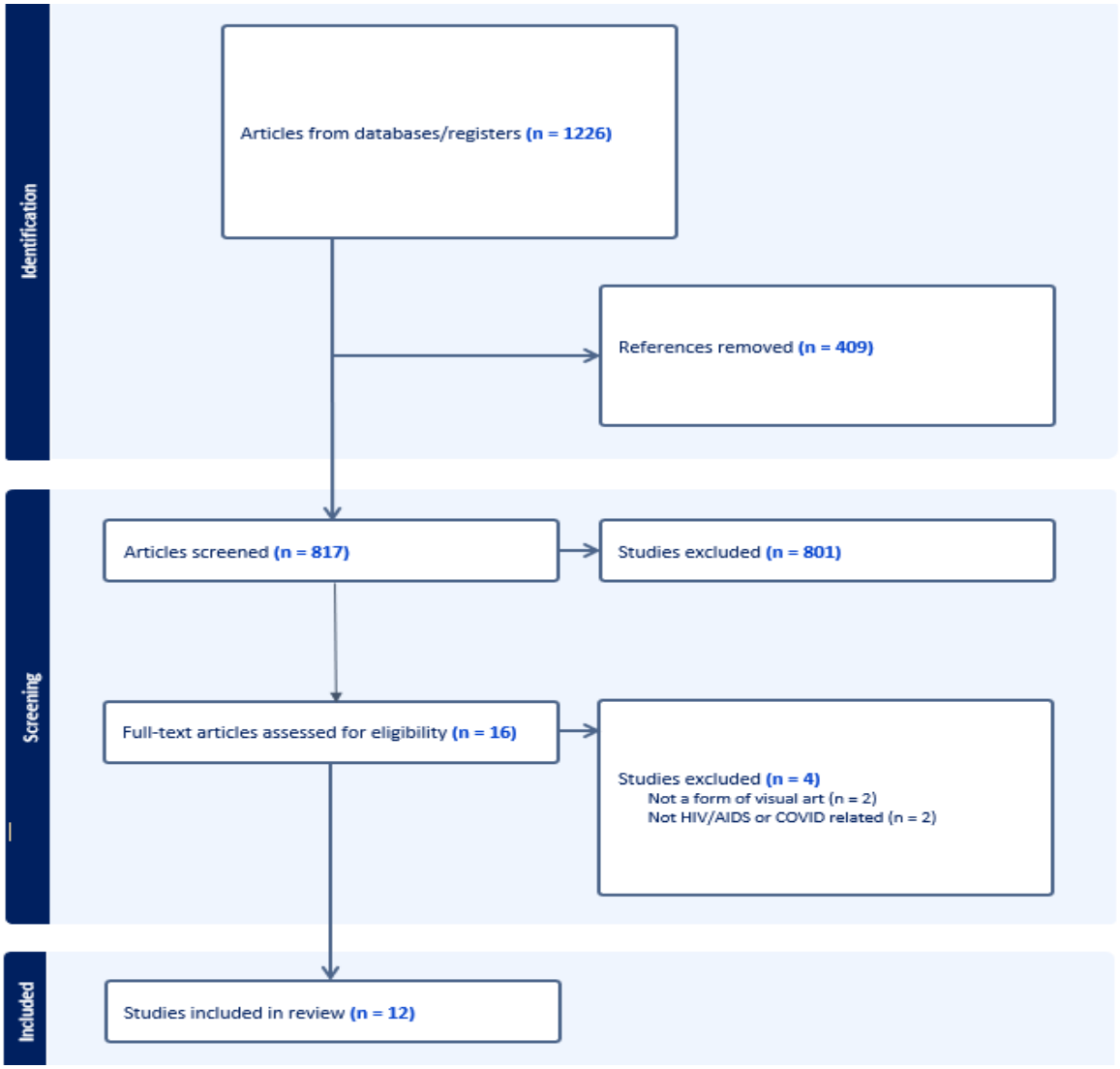
Accuracy of findings—and the ability to accurately discuss results and recommendations—was dependent on clear, thorough, and predetermined inclusion and

exclusion criteria. In order for a study to be included in this review, each component of the inclusion criteria had to be satisfied. The inclusion criteria are as follows: 1) published prior to January 1, 2023, 2) written and/or available in English, 3) available through the Emory Library, Emory's interlibrary loan program, or an alternative system that has open access, 4) evaluates and/or discusses the role of the visual arts (including but not limited to paintings, drawings, and photography) as a way to communicate health information during the COVID-19 pandemic and/or HIV/AIDS epidemic. Articles were excluded from this scoping review if one or more of the exclusion criteria components were met. The exclusion criteria are as follows: 1) published after January 1, 2023, 2) written and/or is only available in a language besides English, 3) unavailable through the Emory Library, including Emory's interlibrary loan system, or through an open access database or repository, 4) does not evaluate and/or discuss a form of visual art that is used to communicate health information, 5) paper does not discuss either the HIV/AIDS epidemic or COVID-19 pandemic.

Studies Identified & Included

A total of 1,226 articles were identified during the search process and were all uploaded to Covidence (a scoping review management tool). After the duplicates were recognized and removed from the pool of studies, a total of 817 studies remained. Next, the articles underwent a title and abstract screening, after which 16 articles remained. Following the full text review screening, 12 eligible papers were included in the final pool of papers. Figure 4 below depicts the flow from the initial number of articles discovered to the final number of articles included in this scoping review.

Figure 4: PRISMA Flowchart of Screening Process



Data Analysis

To analyze the data, the 12 articles deemed appropriate for this review were exported from Covidence as pdf files. Each paper was then thoroughly reviewed. Annotations were systematically made throughout each article to note the type of paper, location of study or intervention (if applicable), art form employed, the health condition discussed, study design used (if applicable), and findings. Doing so allowed major themes to be identified which were used to inform the results chapter of this review.

Results

Overview

Following the screening processes, a total of 12 articles were considered for this scoping review. Of these, 9 focus on COVID-19 and the remaining 3 on HIV/AIDS. Collectively, the papers address several countries as the primary setting of the intervention or research study, including the United States, Ghana, Nigeria, Spain, Italy, Germany, Portugal, Canada, Brazil, China, Turkey, Israel, and Mozambique. Seven are peer-reviewed (from journals such as *Health Promotion International*, *Ghana Medical Journal*, and *Frontiers in Communication*), and 6 are research papers (one of which was also peer-reviewed). Ten of the articles involve the use of photography/pictures, illustrations, or visual aids that accompanied text (e.g., infographics). One paper highlights the role of murals, and the last paper uniquely discusses the role of cartography.

Figure 5: Traits of Included Papers

Title	Author & Year of Publication	Type of Paper	Art Form	Main Objective	Intervention or Research Setting (if applicable)
Scoping procedures to promote U.S. HIV medication adherence via Photovoice	Teti et al. (2018b)	Research paper	Photos	Improve HIV adherence knowledge, attitudes, and communication with providers through Photovoice	United States
"Poems in the Entrance Area": Using Photo-Stories to Promote HIV Medication Adherence	Teti et al. (2018a)	Peer-reviewed journal article	Photos	Analyze the effect of adherence education posters developed via Photovoice	United States
Regarding realities: Using photo-based	Holman et al. (2016)	Research paper	Photos	Argue for the methodological merit of photo-based projective	Mozambique

projective techniques to elicit normative and alternative discourses on gender, relationships, and sexuality in Mozambique				techniques (PT) in formative HIV communication research	
"Colonial Virus": COVID-19, creative arts and public health communication in Ghana	Aikins & Akoi-Jackson (2020)	Peer-reviewed journal article	Murals	Outline concrete approaches to incorporate creative arts into COVID-19 public health intervention	Ghana
Picture of a pandemic: visual aids in the COVID-19 crisis	Hamaguchi et al. (2020)	Peer-reviewed journal article	Infographic	Examine the role of infographics (visuals in combination with text) during the COVID-19 pandemic	N/A
Characterizing Storytelling in COVID-19 Cartographic Journalism	Prestby (2021)	Research paper	Cartography	Examine aspects of maps and story maps that may engage, persuade, and change behavior of readers	N/A
The Impact of Visual Communication in COVID-19's Prevention and Risk Mitigation	Saraiva & Ferreira (2021)	Peer-reviewed journal article	Infographics, photos, illustrations, charts, icons	Analyze the visual and graphical elements used during the COVID-19 pandemic and understand the impact and efficacy of such materials on risk mitigation and prevention	America, Asia, and Europe
COVID ISSUE: Visual Narratives About COVID-19 Improve Message Accessibility, Self-Efficacy, and Health Precautions	Jarreau et al. (2021)	Research paper	Illustrations	Test the impact of two different "flashcard" courses on people's self-reported self-efficacy, perceived threat, and behavioral intentions toward COVID-19	United States
Visual Representations of Science in a Pandemic:	Delicado and Rowland (2021)	Research paper	Infographics illustrations, charts,	Describe how the COVID-19 pandemic is being visually	Spain and Portugal

COVID-19 in Images			photos, drawings	represented in Spain and Portugal	
Advancing Visual Health Communication Research to Improve Infodemic Response	King & Lazard (2020)	Peer-reviewed journal article	Graphic and illustrative visuals	Provide an overview of research on visual communication	N/A
Expanding the boundaries of vaccine discourse: impact of visual illustrations communication intervention on intention towards COVID-19 vaccination among victims of insecurity in Nigeria	Ugwuoke et al. (2021)	Research paper	Illustrations	Discuss the impact of artistic visual illustration on behavioral intention toward getting the COVID-19 vaccine among victims of insurgency	Nigeria
The Impact of Communication Information on the Perceived Threat of Coronavirus and Stockpiling Intention	Giroux et al. (2021)	Research paper	Photos	Investigate how various pictural representations related to COVID-19 impact perceived threat	United States

Main Objectives

Each of the three HIV/AIDS papers included in this review examine the power of photos, yet their overarching objectives vary. Photovoice (traditionally, a research tool by which people express themselves and inspire change through photos) is described in two of the HIV/AIDS papers as a potential health promotion tool; Teti et al., 2018b focuses on outlining the steps of developing such an intervention that seeks to improve HIV medication adherence, attitudes, and communication with providers among people living with HIV while Teti et al. 2018a seeks to

analyze the effects of this intervention (Teti et al, 2018a; Teti et al., 2018b; Wang & Burris, 1994). Holman et al. (2016) relies on photos—specifically, photo-based projective techniques—in focus groups to elicit conversation surrounding HIV risk behaviors to inform health communication efforts.

The main objectives across the COVID-19 papers also vary as these papers are comprised of research papers and journal articles. Jarreau et al. (2021) aims to analyze the impact of digital illustrations (delivered through an online flashcard course) on participants' self-reported self-efficacy, their perceived threat, and behavioral intentions toward COVID-19. The paper written by Saraiva & Ferreira (2021) is also an evaluative study; the authors seek to evaluate both the impact of visual and graphical elements (such as photos, illustrations, charts, etc.). Aikins & Akoi-Jackson (2020)—much like Teti et al. (2018a)—proposes an approach to developing interventions; Aikins & Akoi-Jackson (2020) outlines the steps to incorporating creative arts in COVID-19 public health interventions. Both Prestby (2021) and Hamaguchi et al. (2020) examine and comment on the role of visual arts in the context of COVID-19. Prestby (2021) examines the role and potential benefit of cartography in behavior change. Hamaguchi et al. (2020) examines the role of infographics (or pictorial presentations of data) as a way to summarize public health messaging and medical evidence. Delicado and Rowland (2021) also discuss the role of infographics; their objective is to describe the way in which COVID-19 is being visually represented in Portugal and Spain. Ugwuoke et al. (2021) discusses how visual illustrations can influence the behavioral intentions of a specific population, namely victims of insurgency. Giroux et al. (2021) investigate the impact of different pictural information related to COVID-19 on perceived threat.

These papers are described in greater detail below.

HIV/AIDS

Two of the three articles that center around HIV/AIDS refer to the same intervention entitled, *Snapshots of Adherence* (or *Snapshots*) (Teti et al., 2018b). Teti et al. (2018b) describes *Snapshots* (i.e., its purpose, justification, and methods) while Teti et al. (2018a) provides an analysis of the intervention. The purpose of *Snapshots* was to improve HIV medication adherence (a health behavior that is necessary for individual health and public health) by increasing knowledge and attitudes among people living with HIV (at a large urban hospital in the Midwest U.S.) as well as facilitating conversations between patients and health providers (Teti et al., 2018b). To accomplish these goals, the researchers and program planners adapted Photovoice to be a suitable and meaningful health promotion program (Teti et al., 2018b; Wang & Burris, 1994). Teti et al. (2018b) sought to adapt this tool, establish an effective health promotion program, and clearly outline the methodology so that it would be replicable. Traditionally, Photovoice has been used for participatory research, but the authors assert that not only is Photovoice a vehicle for data collection, but that its products (i.e., photos) may also be integrated into health promotion programs (Teti et al., 2018b). After stating that existing adherence promotion programs fall short of prioritizing patient-centeredness, understandability, encouraging communication between patients and health providers, and addressing the context of HIV in patients' lives, the authors go on to describe the components of *Snapshots* which aimed to address these shortcomings (Teti et al., 2018b).

Stage 1 of this intervention involved identifying the scope of the project (i.e., defining the problem, identifying goals, establishing a target audience, and defining a participatory framework). Stage 2 involved creating a project team and the third stage involved designing the materials. *Snapshots* utilized a core aspect of Photovoice by having the participants (i.e., community members living with HIV) drive the process. A total of 16 participants who were

willing to share their experience with HIV medication adherence—who would serve as the Photovoice photographers—underwent training (described as *Snapshots* meetings and ethics discussions) to understand the intervention and their role. These individuals were responsible for photographing their experience with adherence including a range of topics such as HIV, health, and disclosure (Teti et al., 2018b). The project resulted in nearly 100 photos which were integrated into health promotion posters and displayed in the hallways and exam rooms of the hospital (3 at a time for a period of 3 months) (Teti et al., 2018b). Stage 4 of this intervention revolved around reviewing and revising the material, while the 5th stage was to disseminate material, and the 6th and final stage was to evaluate the intervention. This is where Teti et al. (2018a) picks up (Teti et al., 2018b).

One of the *Snapshots* papers presents a formalized process for implementing health promotion programs utilizing the Photovoice tool, while the subsequent Teti et al. (2018a) paper evaluates the effectiveness of the intervention (i.e., the 10 photos generated by people living with HIV transformed into health promotion posters viewed by nearly 200 individuals). Teti et al. (2018a) evaluates the intervention's effect on viewers' knowledge, self-efficacy, and communication changes. The authors analyzed the data quantitatively and qualitatively. More specifically, a mixed-methods pretest-posttest study design was used to capture the effects of *Snapshots*. Quantitative data was collected through poster evaluation questionnaires prior to the posters being displayed (i.e., pretest) and, 3 months after the posters were displayed, a random sample of patients at the clinic where the posters were displayed completed a posttest; 57 patients completed pretests and 54 posttests (Teti et al., 2018a). The qualitative data collection occurred at the same time as the quantitative posttests; every 3rd person completing a posttest questionnaire was asked to participate in a semi-structured interview to more thoroughly discuss

the impact of the posters/*Snapshots* intervention. A total of 15 viewers completed an interview and were asked questions such as "what was the most important thing you learned" and "what was missing in the posters". The sample size of the pre/post questionnaires was deemed appropriate by the authors (Kvale, 1996; Teti et al., 2018a).

The quantitative analysis of the clinical-level data found no significant changes in disease and medication knowledge, adherence-related beliefs, self-efficacy, and communication with providers. However, the qualitative analysis suggested that the intervention did have positive effects. The interview participants expressed that the posters were informative, relatable, visually appealing, and perceived that they did enhance adherence knowledge as they provided "simple' and 'direct information'"(Teti et al., 2018a). Participants implied that photography has the power to influence behavior and communicate health messages by noting that "pictures and colors stick in viewers' minds" and that the posters were creative, eye-catching, and were a gentle yet meaningful approach. Interview participants also mentioned that the posters increased their confidence in HIV medication because the posters reminded them of the importance of adherence. Lastly, the participants noted that their communication with providers was enhanced thanks to the posters because they served as a symbol of the clinic's willingness to showcase what people are going through and to have difficult conversations; participants stated that "'when you see the posters, feel the posters, [you experience] a little bit of change' […] the posters could help calm patient's fears" (Teti et al., 2018a). While the quantitative analysis yielded no significant changes in knowledge, self-efficacy, and communication, the qualitative analysis shows that patients perceived *Snapshots* to be a valuable intervention that provided information, boosted confidence and motivation, and enhanced communication by sparking conversation among patients and providers (Teti et al., 2018a). Essentially, the findings highlight

the strengths and weaknesses of the evaluation design. While the quantitative data provided raw numbers and straightforward conclusions about the impact of a program, the qualitative data uncovered the stories and perspectives of those most impacted. The findings of this paper also highlight the importance of utilizing mixed methods as it can provide deeper insight during the evaluation phase. By adopting a mixed methods evaluation approach, the authors could conclude that "participant-led and Photovoice-derived print materials have the potential to support adherence behavior" and may be a promising health promotion tool (Teti et al., 2018a).

The remaining HIV/AIDS paper included in this review was based out of the sub-Saharan African country, Mozambique. The authors of this paper sought to use photo-based projective techniques to elicit conversation surrounding normative and alternative discourse on gender, relationships, and sexuality as part of formative HIV communication research (Holman et al., 2016). The paper states that photo-based projective techniques were originally created for clinical psychological assessment during which individuals would view a series of pictures and be asked to explain what they see (e.g., the ink blot test) (Holman et al., 2016). Projective techniques can include drawings and photographs as well as word associations, etc. Over time, researchers in various fields such as marketing, consumer research, cultural studies, and anthropology re-appropriated visual projection as a method for study elicitation; it has now been deemed an "under-tapped resource for social-behavioral research" (Holman et al., 2016). Photo-based projective techniques offer a way to access people's feelings and/or thoughts that are cognitively distant and which may be difficult to uncover through the use of direct questions.

To better understand the values, motivations, attitudes, and norms that either supported or challenged the behavior of having multiple sexual partners across all age groups (i.e., HIV risk behavior), the authors conducted discussion groups using photo-based projective techniques

(Holman et al., 2016). The photos used were intentionally ambiguous and depicted couples and family relationships; these pictures were derived from magazines published in Mozambique. The focus group discussions consisted of 4 parts; photos were introduced during the second part and were not accompanied by any script/text until part 3 (Holman et al., 2016). In total over 250 adults participated in the research study and remained interested in the photos throughout the lengthy discussions. Collectively, the participants provided valuable data on sexual norms and attitudes (more so than direct questioning likely would have generated, according to the authors) (Holman et al., 2016). The use of photo-based projective techniques helped facilitators to avoid complex health language and encouraged participants to discuss topics in local vernacular. Also because of the relaxed and 3rd person perspective (i.e., discussing others depicted in photos rather than themselves), people were more comfortable and willing to offer their perspective which reduced bias (Holman et al., 2016). Following this research study, two successful HIV prevention communication interventions were implemented to reduce the behavior of having multiple sexual partners and to increase other HIV preventative health behaviors (Holman et al., 2016).

Interestingly, this paper sought to gain insight from community members surrounding HIV risk behaviors—specifically, having multiple sexual partners—yet the use of photo-based projective techniques during these focus groups sparked conversation that allowed participants to discuss their opinions surrounding HIV risk behavior, have their stance supported or challenged by others. These focus groups in themselves exemplified how visual arts (photos, in this case) can be used to inform health communication.

COVID-19

Nine (or 75%) of the papers considered for this scoping review related to COVID-19 and are, therefore, recently published papers that provide insight into the arts and health communication efforts that have occurred since early 2020. Aikins & Akoi-Jackson (2020) describe a study that examined art forms produced near the start of the COVID-19 pandemic (i.e., March-July of 2020) and then outline steps to incorporate creative arts into public health interventions. The authors mention that in Ghana the arts are integral to health and also socio-cultural life and detail the impact of murals—as well as other art forms that are not visual by nature—during the start of the COVID-19 pandemic. The murals—created by the Ghana Graffiti Collective in collaboration with other organizations—depicted COVID-19 prevention strategies such as handwashing and face mask wearing (Aikins & Akoi-Jackson, 2020). The purpose of these murals was to catch the eyes of people passing, linger in their subconscious, educate the public, and transform the health environment. Although these vivid, creative works strived to promote health by teaching the public about COVID-19 prevention, it is evident the murals were unable to address determinants of health which may hinder one's ability to engage in the depicted health behaviors as noted by Aikins & Akoi-Jackson (2020) when they state, "the vast majority of rural Ghanaians do not have pipe born or safe portable water". In other words, a mural that beautifully portrays water gushing from a faucet with someone washing their hands with soap may connect with viewers and even inspire them, but without the necessary resources, a person is unable to practice this health behavior. In short, the arts can connect with people emotionally and offer alternatives to traditional public health responses to COVID-19, but it is important to note that limitations exist (Aikins & Akoi-Jackson, 2020).

The paper written by Hamaguchi et al. (2020) examines the role of infographics during the COVID-19 pandemic and therefore examines the role of visuals in combination with text. The authors describe infographics as a way to connect the field of public health and visual arts. The authors argue that simple, validated pictorial presentations of data—or infographics—can be an effective tool during the COVID-19 pandemic because there is a need for simple illustrated resources that summarize public health messaging and medical evidence in concise visual aids that can be easily disseminated via social media (Hamaguchi et al., 2020). Although just an individual, single page infographic was developed, it was translated into about 20 different languages (including Spanish and Haitian-Creole) and reached over 100,000 people through social media (Hamaguchi et al., 2020). The authors found there to be a global appetite for simple infographics and recommended continued use of online visual resources particularly in the time of public health crises (Hamaguchi et al., 2020). This paper implies that health information can be supplemented with visuals or pictorial presentations.

Prestby (2021) explores a unique form of visual art, cartography. The author states that because narratives make health communication even more effective, the use of maps may be a fitting approach because they have been rooted in narratives and storytelling. This work aims to enhance awareness of how cartography may be used in health communication by describing key characteristics of maps as they may be able to engage, persuade, change the behavior of viewers and in turn, may be used to guide future map-based health communication.

Story maps refer to stories that are driven by the map and other visuals (Prestby, 2021). The author also emphasizes that general cartographic design principles alone may not have a persuasive quality and that, to be persuasive, maps should draw readers in, keep their interest, stimulate imagination, and appeal to emotion and that to accomplish this level of persuasiveness,

maps must be vivid. Prestby (2021) conducted a qualitative content analysis to evaluate which aspects of COVID-19 are being covered by story maps, what traits of vividness are employed, as well as the story telling techniques involved. The sample included 182 COVID-19 story maps that were published during 2020 between January and December and were identified via keyword search in social media sources and Google searches to broadly represent the works available in mainstream social media outlets and newsrooms in the United States (Prestby, 2021). The analysis and findings of the work described in this paper will be provided in a separate paper. Although this information is not yet available, Prestby (2021) presents how a unique form of art (i.e., cartography) that is already informative by nature, may also be used as a form of health communication as people are drawn not only to how maps appear visually, but also to how they convey a story. He argues that merging health information and mapmaking is truly innovative and allows maps—a generally well understood and accepted tool among those who are formally educated—to become a multipurpose tool.

The COVID-19 paper written by Saraiva & Ferreira (2021) seeks to analyze the visual and graphical elements used during the COVID-19 pandemic and to understand the impact of such materials on risk mitigation and prevention. Saraiva & Ferreira (2021) assert that simple images (accompanied by some text) incorporated into health communication can maximize the public's understanding of the information, especially for those who have low literacy.

The authors analyzed a total of 264 pieces and ran a content analysis which included material from several countries, particularly those with the highest number of infected people (at the time of data collection) in America, Asia, and Europe (this included Spain, Italy, Germany, Portugal, United States, Brazil, China, Turkey, and Israel). The material consisted of social media posts, infographics, posters, guides, and pamphlets and these materials oftentimes

incorporated simple visuals with charts, maps, icons, illustrations, and photos (Saraiva & Ferreira, 2021). The authors ultimately found that despite varying cultures and countries, many of these countries presented the same visual elements highlighting that visual language is universal (Saraiva & Ferreira, 2021). Furthermore, data visualization (in multiple forms) has the ability to help people comprehend information at a deeper level by promoting accessibility and equity. These findings are consistent with the findings of Hamaguchi et al. (2020) who claim that simple illustrated resources are able to effectively summarize public health messaging. It is becoming evident that visual communication tools spread critical messages during the early days of the pandemic while simultaneously simplifying health information so that the public can be more empowered and able to engage in health behaviors.

Another unique visual art form used to communicate pertinent health information during the COVID-19 pandemic was online flashcards (Jarreau et al., 2021). These flashcards illustrated narratives surrounding COVID-19 and displayed sequential art related to protecting oneself from COVID-19, how the virus works in the body, and risk factors for severe disease (Jarreau et al., 2021). The authors note that early on in the pandemic, few resources were actionable and accessible in the United States, and the authors planned to bridge this gap in existing resources by having professional artists (in collaboration with technical experts and writers) develop illustrated "flashcards" which were published on the science-art platform, Lifeology.io, in March 2020 (Jarreau et al., 2021). Jarreau et al. (2021) aimed to evaluate the impact of this educational material on self-efficacy, perceived threat, and behavioral intentions toward COVID-19. Additionally, the authors wanted to understand if the online flashcards improved health literacy by enhancing people's ability to understand and use health information (Jarreau et al., 2021).

Unlike most of the other research papers included in this scoping review (all but one), Jarreau et al. (2021) include a control group as well as a treatment group; the 1,775 study participants were either exposed to the online flashcard course related to COVID-19 (n=1,138) or to an online flashcard course related to sleep science (n=637). After completing their assigned flashcard course, the participants would answer questions about their understanding of the course, what they learned, and their perceptions and behavioral intentions related to COVID-19 (Jarreau et al., 2021). Participants in the treatment group expressed moderate to high self-efficacy and high behavioral intentions to engage in COVID-19 related health behaviors, along with moderate perceived threat when compared to the control group (Jarreau et al., 2021). For example, more than half of the participants in the treatment group stated that they were likely to wash their hands frequently, to practice social distancing, and to abide by government recommendations such as stay-at-home orders (Jarreau et al., 2021). The authors also found that the flashcard course made information regarding COVID-19 easy to digest regardless of one's education level and easier to act on than communication material that was not supplemented by visual arts. Additionally, this research study presents evidence supporting the use of science visual education material that combines visuals and complementary text—which supports the findings of other studies in this review. In other words, much like Hamaguchi et al. (2020) and Saraiva & Ferreira (2021) have found, Jarreau (2021) raised the point that messages or material containing both illustrations and plain language is highly suitable for broad audiences including individuals with low health literacy.

The paper written by Delicado and Rowland (2021) seeks to describe how the COVID-19 pandemic is being visually represented in Spain and Portugal. To do this, the authors gathered a sample of 600 images retrieved from government health departments, government science

bodies, and newspapers. The common types of images identified include infographic illustrations, charts, drawings (particularly those depicting acute respiratory syndrome, the virus, etc.), and photos of people, lab equipment, etc. Delicado and Rowland (2021) express that drawings make it possible to combine images of the virus with other images to add another layer of meaning. The authors found that the photos and drawings of the lab equipment signify science and therefore, are easy to recognize. The authors also found that there was no ethnic diversity present in the sample of 600 images which mirrors the underrepresentation of diverse populations in the science community. Ultimately, the Delicado and Rowland (2021) study highlights that even upon first glance, oftentimes certain types of images/photos are associated with health and thereby may communicate health information.

King & Lazard (2020) provide an overview of research on visual communication. The authors ascertain that because the public information environment is oversaturated with questionable information, the strategic use of visuals can be valuable for improving the quality of health communication especially during public health crises. Visual content can be categorized as either graphical (e.g., data visualization) or illustrative (e.g., photos and illustrations) (King & Lazard, 2020). Although there are many artists creating visual content related to COVID-19, the influence of visual content is understudied (King & Lazard, 2020). The conclusions made by King & Lazard (2020) imply that due to the potential benefit of utilizing visuals in health communication, there is a need for more research related to the power of visual content which may be used to inform future health communication.

Ugwuoke et al. (2021) discuss the impact of artistic visual illustration on behavioral intention toward getting the COVID-19 vaccine. The authors aimed to test the effectiveness of artwork designed to communicate health information to victims of insurgency in Nigeria and

encourage these individuals to be accepting of the COVID-19 vaccine. This study is one of two papers in this review that include both a treatment (n=235) and control group (n=235). Given that victims of conflict and displaced persons are especially vulnerable to misinformation and disease, there is a distinct need for interventions that inform and encourage these individuals. Using a quasi-experimental design, the authors found that the participants who were exposed to the visual arts related to COVID-19 vaccines reported positive outcome expectancy and higher readiness to receive the vaccine (Ugwuoke et, 2021). Ultimately, Ugwuoke et al. (2021) found that by utilizing artistic illustrations (alongside counseling), effective vaccine promotion efforts could be made (2021). These findings provide quantitative evidence to support the arguments advanced by several of the other papers included in this scoping review that illustrations can be a valuable addition in health communication.

Giroux et al. (2021) examine the role that different pictorial information about COVID-19 has on perceived threat judgment. More specifically, the authors investigate whether or not COVID-19 pictorial information that is commonly disseminated in media—regardless of the accuracy of the image—influences the level of perceived threat. To understand this and test the hypothesis that images more commonly disseminated in the media generate a higher perceived threat compared to those less commonly disseminated, a study was conducted. Giroux et al.'s (2021) study—involving 213 US men and women—utilized a between-subjects design. Participants were randomly assigned to one of three conditions; picture I (actual photo of COVID-19 virus), picture II (realistic, graphic illustration that was commonly used in both news reports and public health notices globally as a pictorial representation of COVID-19), or picture III (less detailed illustration of COVID-19 virus). Aside from the image shown to the

participants, the groups are the same; all three condition groups are shown the same accompanying text (information pertaining to COVID-19 from the World Health Organization).

The participants were then asked to rate their perceived threat on a scale of 1-7 (with 1 being not serious and/or life-threatening, and 7 being very serious and/or life-threatening. Giroux et al. (2021) found that there was a significant effect of the different images on perceived threat; the participants assigned to the picture II condition reported significantly greater perceived threat than those in condition I. No difference, however, was found between the picture I and picture III conditions. The findings highlight that pictorial information about COVID-19 that is commonly disseminated in media yields a higher perceived threat than images that are used and shown less frequently. This is the case even when the common, more popular picture is not accurate (i.e., not an actual photo of the virus).

Art Forms Employed

Each of the HIV/AIDS papers rely on photos as their selected art form to communicate health information. The *Snapshots* intervention—described in two of the three HIV/AIDS papers—utilizes Photovoice to address HIV medication adherence. Maximizing HIV medication adherence is critical because it enhances the life of those living with HIV, lengthens the lifespan, and by suppressing one's viral load, medication adherence limits transmission of HIV as well as the emergence of untreatable drug-resistant strains of HIV (Attia et al., 2009). Not only is the purpose of the Snapshots intervention made clear, the purpose of employing this specific art form (photos extracted from Photovoice) is also described thoroughly. According to Teti et al. (2018b) the *Snapshots* intervention is patient-driven and participatory and seeks to prioritize both the culture and the knowledge of patients/participants. This approach goes beyond the traditional focus of researchers (i.e., addressing what they deem as important) and centers the voice and

perspective of those most impacted, which is crucial for complex health issues such as HIV. The artistic process involved having people living with HIV to snap photos that represent their experience with HIV medication adherence. The participants attended an introductory session, two picture-sharing sessions and a session to help create the posters. Actual graphic designers were also involved in the creative process and helped to develop the posters. Holman et al. (2016) utilizes photos in a completely different manner.

Holman et al. (2016) rely on photo-based projective techniques to spark conversation (during focus groups) about an HIV risk behavior in Mozambique and the findings of these conversations were used to develop relevant and meaningful health communication related to HIV. To collect qualitative data related to HIV risk behavior (and to inform subsequent health communication), the authors retrieved several ambiguous photos that depicted couples and family relationship scenes from the Photoshare archive and photonovela-style magazines published in Mozambique; these photos were embedded in a multipart facilitator guide that aimed to spark candid discussion surrounding the participants' thoughts and experiences about HIV risk behaviors (Holman et al., 2016).

Collectively, the art forms used to communicate health information in the COVID-19 papers include murals, infographics (or visuals in combination with text), cartography, visual and graphical elements (such as charts), photos, and drawings. Despite the various art forms present in the COVID-19 papers included in this review, several of these papers focus on educating viewers on COVID-19 and encouraging protective health behaviors. For example, Jarreau et al. (2021) educates viewers on how the coronavirus works in the body etc. by creating online flashcards that display simple text (6^{th} grade reading level) and cartoon-like pictorial visuals created by a science artist. Another example of relying on visual arts to educate and encourage

healthy behavior among viewers/participants is the art, artistic process, and purpose described in Aikins & Akoi-Jackson's (2020) paper; this work stresses the need to engage in health behaviors (such as handwashing) in order to prevent COVID-19 through murals which were created by Ghana Graffiti Collective in collaboration with the International Organization for Migration (IOM), Accra Metropolitan Assembly, and the Delegation of the European Union in Ghana. In short, it is evident that several art forms can be employed to disseminate health information, demonstrate and/or clarify health information, and to encourage health behaviors related to COVID-19 and HIV/AIDS.

While the majority of COVID-19 papers aim to educate and motivate health behaviors, some seek to understand the role that visuals and visual arts have had during the COVID-19 pandemic. Saraiva & Ferreira (2021) analyzed 264 pieces to understand both the visual and graphical elements used during the COVID-19 pandemic and the impact and efficacy of these pieces on risk mitigation and prevention. The authors ultimately found that despite varying cultures and countries, many of these countries presented the same visual elements highlighting that visual language is universal (Saraiva & Ferreira, 2021). Delicado and Rowland (2021) found something similar. The authors concluded (after analyzing 600 images retrieved from government health department websites, newspapers, and the websites of government science bodies) that certain types of images/photos are associated with health and health topics such as COVID-19. Ultimately, these papers underline how visuals hold meaning and may communicate health-related information even without text or context.

Mechanisms

The mechanism, or the process that explains why and how an intervention should lead to the desired change, is important to establish when attempting to implement a successful

intervention. The mechanism is provided in some of the papers included in this review, but not all of them. Ugwuoke et al. (2020) asserts that when conflict breaks out (which may lead to displacement), the delivery of public health services in the affected area slows. In turn, victims of conflict are especially vulnerable to both disease and misinformation related to health topics such as the COVID-19 pandemic. The development of the intervention described in Ugwuoke et al.'s (2020) paper was guided by the aforementioned evidence as well as the Social Cognitive Theory (described below) which prioritizes demonstration or modeling (among other factors) to implement their arts-based health communication intervention.

Teti et al. (2018b) frame their intervention around the strategies of community-based participatory research which prioritizes participant-researcher collaboration during all stages of an intervention allowing a community's perceived needs and actual needs to be centered. Holman et al. (2016) state the purpose of showing photos to participants and allowing individuals to freely discuss the HIV risk behaviors displayed in the photos is to elicit more detailed insight and perspectives on a certain behavior such as having multiple sexual partners that may not be as easily revealed if the participants were to be asked directly about their own HIV risk behaviors. Prestby (2021) argues that because maps are narrative, familiar, and present spatial information, they may be valuable communication tools. However, they must be combined with appealing and vivid aspects to draw viewers in, sustain their interest, and make an impact. While only a few articles thoroughly discussed the mechanism whereby a program would be impactful, several of the papers discussed the use of a framework.

Frameworks

As established in the literature review, frameworks are critical when developing a health communication intervention, and many of the articles included in this review were directed by a

theoretical framework. Teti et al. (2018a) rely on the Social Cognitive Theory (SCT) and empowerment education theory to form their intervention. The Social Cognitive Theory prioritizes the relationship between a person, their behavior, and their environment while considering knowledge, self-efficacy, and facilitators/barriers—all important factors when striving to implement an effective behavior change program. The HIV-related Photovoice health promotion program—*Snapshots*—aims to support knowledge and self-efficacy by uplifting and sharing the stories and experiences of peer role models through the posters produced. Aikins & Akoi-Jackson (2020) mention using the arts and health framework which included the following key functions: health promotion, disease prevention, and improving aesthetics of the healthcare environment—murals, the art from discussed in the paper, aim to address the latter. Prestby (2021) mentions the use of Roth's visual storytelling and Fish's vividness framework. Vividness refers to content that appeals to viewers' emotion to make content seem more alive and relatable so that viewers become immersed in the narrative. Fish uses the lens of vividness in visual communication (Prestby, 2021). Jarreau et al. (2021) mentions incorporating elements of the heuristic-scoping model that declares information is processed either systematically (i.e., the information seeker is highly motivated and capable of digesting data) or heuristically (the individual lacks motivation or lacks the ability to comprehend information and therefore, relies on contextual factors). The mention and use of frameworks and/or theories in research and programming demonstrate the effort to adhere to best practices to enhance findings and/or health outcomes.

Discussion

Summary of Results

Among the 12 papers (that consisted of research papers and peer-reviewed journal articles) included in this scoping review, 9 focus on the COVID-19 pandemic and the remaining 3 focus on the HIV/AIDS epidemic. Ten of the papers discuss the role of photos, illustrations, or visuals that accompanied text as a supplement to health communication, one paper explores the role of murals, and one paper discusses cartography. The majority of HIV/AIDS papers sought to increase knowledge and enhance communication. Of the HIV papers, one conducted a mixed methods (i.e., qualitative and quantitative) analysis; while the qualitative analysis found that the arts-based intervention had positive effects, the quantitative found no significant change in knowledge and communication due to the intervention. The majority of COVID-19 papers aimed to demonstrate the potential benefit of incorporating visual arts in health communication by claiming that the barrier of health literacy is addressed by including visual arts in health communication and making health information more understandable and actionable. Of all the papers included in this scoping review, in only two papers was a control group present to determine the impact of an intervention. Although the use of a control group elevates a study's rigor, neither control group in this review sheds light onto the impact of solely the art component of the intervention and the way in which including visual art does or does not contribute to the intervention's goal. Although the results illustrate that several forms of visual art are being used to communicate pertinent health information related to HIV/AIDS or COVID-19, the findings (which are largely qualitative) are in need of validation through more rigorous study designs.

Strengths

The findings of this review add to the existing literature surrounding visual arts and health communication. The qualitative findings from this review suggest that visual arts do indeed aid in communicating health information demonstrated by the participants in Teti et al.'s (2018a) study declaring that the intervention enhanced communication between themselves and providers, reminded them to take their HIV medication, and informed them of the importance of adhering to HIV medication. These findings are consistent with the work of Sonke et al. (2021) which declares that the arts can spark dialogue, challenge assumptions, and drive collective action; the use of the arts in health can support health literacy and provide direct health benefits to people at the individual and community level. The results of this review also complement those of Fancourt & Finn (2019) which state that health communication projects involving visual arts have led to improved knowledge, attitudes, and behaviors. This claim is supported especially by Jarreau et al.'s (2021) work which found that online flashcards containing illustrations enhanced knowledge pertaining to COVID-19 and ultimately empowered the participants to engage in crucial health behaviors. The paper written by Ugwuoke et al. (2021) contributes to the aforementioned claim; in addition, their work found that displaced persons and victims of conflict exposed to visual arts experienced positive outcome expectancy and higher readiness to receive the COVID-19 vaccine than those who were not exposed to the visual arts.

A strength of this scoping review is that it uniquely provides insight into the use of visual arts during two notable and recent health crises—the HIV/AIDS epidemic and the COVID-19 pandemic—that have significantly impacted individuals across the globe. Therefore, including papers that describe relevant research and public health programs from several countries allows for the consideration of diverse and innovative solutions to be adapted and implemented in other

fitting populations. Another strength of this scoping review is that it involves a breadth of perspectives by including different types of papers such as research reports and peer-reviewed journal articles.

A final strength of this review is that nearly all of the papers included in this review are grounded in theory which support program planners in the development of effective strategies (National Cancer Institute, 2004). Collectively, the papers included in this review rely on frameworks such as the Social Cognitive Theory, Fish's vividness framework, and heuristic-scoping model, while some papers even discuss the use of two theories to guide their intervention. The inclusion of guiding conceptual frameworks is a strength because—as stressed in the literature review—combining theories to develop interventions allows planners to incorporate program elements that are most likely to lead to the desired change as discussed by Prestby (2021).

Limitations

There are limitations associated with this scoping review that are important to recognize. The first limitation is that only 12 papers were eligible for inclusion in this review. This can partially be attributed to the fact that the COVID-19 pandemic only recently began (in 2020) and is currently ongoing. As a consequence, research and public health programs that may be fitting to include and discuss have simply not yet been published. Another potential explanation for this is related to the search terms; although the search terms include the word "art", a great deal of the results were related to antiretroviral therapy ("ART") rather than the arts and therefore, could not be included in this review.

Another limitation of this review is that the term "visual arts" does not have clear and distinct parameters. The search process yielded papers related to visuals that were not creative by

nature or did not fit the definition of visual arts as defined by the National Art Education Association as traditional fine arts such as drawing, painting, printmaking, photography, and sculpture. Lacking a clear definition of visual arts in health communication is problematic because it may lead to inconsistent and inaccurate findings. Hence, the broad and vague definition of visual arts that was used for the purpose of this review is a limitation.

Lastly, the papers included in this review were largely qualitative, indicating a shortage of highly rigorous analyses incorporating quantitative components. While qualitative analyses can provide insightful perspectives surrounding the impact of an intervention, quantitative analyses can increase the validity, reliability, and rigor of a study. Thus, the lack of quantitative studies included in this review is a limitation.

Conclusion

This scoping review provides insights into how visual arts are being used or could be used in health communication and the effects of such use during the recent COVID-19 pandemic and HIV/AIDS epidemic in the United States and in several countries across the globe. This review indicates that the visual arts may be valuable communication supplements. Therefore, the use of art in health communication should continue. As this practise continues, there is a need to conduct further, more rigorous research related to the role of visual arts in health communication, the mechanisms of change and the most effective mode of delivery. There is also a need to clarify what forms of visuals are to be considered visual art in health communication. Despite these ongoing gaps, this review elevates the importance of identifying and utilizing conceptual frameworks in intervention development, incorporating multidisciplinary teams, and utilizing various, unique forms of visual art in health communication. The goal is to develop and

implement innovative and meaningful health communication interventions that will promote healthy behaviors, clarify health information, and enhance public health.

Public Health Recommendations

Considering the qualitative findings, this scoping review highlights the value—and potential value—that the arts bring to health communication. One paper included in this review also reveals that the use of visual arts in health communication can only do so much without additional resources and components (e.g., financial assistance to address social determinants of health) because a multitude of factors influence health and health behaviors—as stressed by the National Cancer Institute (2004). Therefore, program planners need to establish a plan to recognize when visual art-based interventions should be accompanied by other program components and/or policy change to boost people's self-efficacy and ability to perform the desired health behaviors.

This review also sheds light on the importance of community engagement and in turn, creating multidisciplinary teams. Doing this can bolster the voice of the community and lead to more effective, meaningful, and sustainable programs. Engaging the community by involving community members in the program planning phase will help ensure that programs appeal to the target population which is crucial so that these programs prove to be effective at promoting health. This is important because uplifting the voice and concerns of the community being served will ensure that needs, attitudes, social norms etc. are well understood by the planners and can be considered when developing an intervention (Schiavo, 2013).

As previously established in the literature review chapter, the field of arts-based health communication is growing. Therefore, there is a distinct need for additional, rigorous, and diverse research to contribute to the body of knowledge related to this field. There is a need for

qualitative and quantitative research that illuminates the impact of visual arts—and solely visual arts rather than clumping several art forms together—on health communication. In addition, future studies should make some distinction between art and ART (antiretroviral therapy). This may be done by incorporating exclusive search terms that will avoid identifying nonrelated papers (i.e., those related to antiretroviral therapy). This is crucial to allow researchers to more easily find relevant papers so they may apply their findings in future programs, policy, or research studies, thereby contributing to the existing knowledge in the arts and health communication field. There is also a need for research to elucidate which mode of delivery (e.g., online or in person) yields the greatest impact; in other words, are in-person, real-time interventions more or less effective than those delivered online. The papers in this review address a mix of both methods, and it would be useful to understand the intended and unintended impact of each delivery option so that program planners can make an informed decision about which to employ. Another recommendation for future research related to arts-based health communication is to investigate the mechanisms of interventions that explain why a given intervention may lead to a desired change. Few of the papers included in this review so identify mechanisms of effect, and such an understanding would be valuable to ensure that the interventions being developed and implemented will be impactful and accomplish what they set out to do.

The final recommendation of this scoping review is the continued use of conceptual frameworks and multidisciplinary teams. As established by the literature review, there is no single framework to guide health communication interventions and given the evolving and flexible nature of arts-based health communication, there is a need to develop (and evaluate) interventions that are grounded in theory. Additionally, the use of multidisciplinary teams (i.e.,

individuals from the community and from differing professions, sectors, and disciplines) should continue as this allows for the development of creative, relevant, sustainable, and meaningful programs.

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