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Media Campaign Strategies in Communicating HIV/AIDS in Zambia: Comparing Risk and Crisis Communication Strategies in Mitigating Behavior Change Among Sex Workers

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This study examined the effects of emotions on risk concerns and behavior change among sex workers in Zambia. The aim was to investigate which health communication ad campaigns elicit emotions that lead to behavior change. Two types of HIV/AIDS ads were used for the analysis: Those focusing on eradicating the scourge by evoking negative emotions versus those aimed at fighting stigma with positive messages. Findings suggest that participants exposed to negatively framed ad campaigns were more likely to quit their sex working profession at follow-up than those exposed to ads designed to fight social stigma. In other words, negatively framed ad campaigns that invoked fear about HIV/AIDS were more likely to encourage behavior change among female sex workers in Zambia. The study speaks to the issue of risk versus crisis communication as they relate to how the Global North and South respond to stigma.

Keywords: crisis communication, risk communication, negative emotions, HIV/AIDS, behavior change, Zambia

The growing need among most African governments to combat HIV/AIDS is complicated by how one should structure health promotion messages that are culturally acceptable and directed toward behavior change (Kharsany & Karim, 2016). Since the West sponsors most public health communication campaigns, several African governments are conflicted between pushing for an African agenda in health communication strategies or following the dictates of Western-oriented messages that sometimes conflict with the local cultural values (Adae, 2019; Campbell, Foulis, Maimane, & Sibiya, 2005). In other words, there is a schism in public health communication between what the local people consider as an ideal and decent health communication message versus what the donors prescribe and consider effective for the local populations

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(Sastry & Dutta, 2017). Due to funding from Western organizations, most African governments feel compelled to employ messages that push for foreign ideologies rather than locally relevant strategies and in tune with local cultures (Campbell et al., 2005).

For example, in the African nation of Zambia, the government continues to grapple with how to frame HIV/AIDS media campaign messages. As a "Christian nation" with strong affiliation to the Judeo-Christian ethics and traditional African values, Zambia has in many instances expressed some dissatisfaction over the sort of appeals employed in public health communication media messages ("Anger at Zambia," 2001). For example, some clergymen have publicly weighed in to challenge the government over the health campaign messages they deemed as attacking and weakening an increasingly threadbare of the Zambian moral fabric. Accordingly, critics argued that the newly adopted ad strategies were promoting promiscuity. Specifically, they censured the government ads on condom usage as explicit yet inept in effecting behavior change among the youth ("Anger at Zambia," 2001). Some clergymen and women argued that ads aimed at comforting the runaway HIV/AIDS seroprevalence in Zambia encouraged sexual activities outside the context of marriage. The social marketing of condoms also normalizes and promotes promiscuity, the spread of HIV/AIDS, and other sexually transmitted diseases.

An outspoken clergyman, Fr. Mwebe, argued that "what would be helpful are advertisements giving factual information about the dangers of the pandemic" (Hachonda, 2001, p. 133). In more ways than one, this not-so-holy war of words reflects the raging debates between "risk communication" and "crisis communication." Central to the matter is the careful determination of the genre of health communication strategy deemed suitable or ideal for a given sociocultural milieu (Choi, Shin, & Park, 2018; Kharsany & Karim, 2016). In this case, we question whether messages advanced by Western donors should take precedence over the sociocultural and local requirements of the target population.

We argue that designing an effective health promotion ad campaign requires a strong understanding of the cultural context. Essentially, the campaign needs to reflect deep insights into the environment and the prevailing sociocultural perceptions regarding illicit sexual activities. This argument aptly echoes Gondwe and Muchangwe's (2020) call for a cultural approach in setting the agenda for health communication campaigns in the sub-Saharan African region, as it ought to be everywhere else. A message designed with such perspectives would most likely find higher acceptability and effectiveness rates among the target audience, even when the campaign strategy instills negative emotions such as fear, disgust, and worry among the primary focal population.

Against this backdrop, the study examines the role of the two forms of communication—risk communication and crisis communication—in influencing behavior change. Essentially, we explore how negative emotions aroused by risk and/or crisis communication in HIV/AIDS ad campaigns in Zambia are associated with key cognitive and behavioral responses. We investigate how and whether negative emotions emerging from the two forms of communication translate into given behaviors or definable actions among commercial sex workers in Solwezi, Kalumbila, and Lumwana communities located in the North-Western province of Zambia. Pinned to this are the differences in culture. The three locales were selected as case study sites because of their long-standing reputation of large-scale mining operations that have made them social magnets for the sex trade and, consequently, noted as flashpoints of rising HIV/AIDS infections in the

past decade (Negi, 2014). As a side note, in no way does this study attempt to glorify stigmatization nor undermine the noble efforts put in place to fight stigma. Instead, the study compares the two strategies to contribute to the theory, literature, and practical methods for fighting the HIV/AIDS pandemic.

Literature Review

Health Communication in Africa

In Africa, health communication strategies have often been criticized for taking a moderate and sympathetic approach in their fight against HIV/AIDS (Sastry & Dutta, 2017). In the dawn of antiretroviral drugs (ARVs) and the rise in Ebola cases, many governments and nongovernmental organizations have shifted their attention by giving precedence to the fight against Ebola over the continued rising HIV/AIDS caseloads (Hoos, El-Sadr, & Dehne, 2017; Parpia, Ndeffo-Mbah, Wenzel, & Galvani, 2016; Sastry & Dutta, 2017). For many, the argument that ARVs can extend the life span of HIV/AIDS carriers and improve their quality of life is sufficient reason to shift attention and focus on something else (Kharsany & Karim, 2016). Naturally, the sense of euphoria that has accompanied the advent of ARVs is proving evanescent in the fight against HIV/AIDS.

When the HIV/AIDS pandemic exploded in most sub-Saharan African countries in the early 1990s, efforts to curb the scourge were a priority on the government's agenda (Kharsany & Karim, 2016). Public service advertising and other forms of health communication strategies were designed with elements of what Reynolds and Seeger (2005) referred to as "risk communication." This form of communication has been conceptualized as being associated with the identification of risks to public health and characterized by efforts to persuade the public to adopt healthier and less risky behaviors (Freimuth, Linnan, & Potter, 2000). Spacey (2017) defines risk communication as the process of communicating potential losses and how they might be prevented. Risk communication includes warning, disclosures, and two-way communication aimed at managing risk (Spacey, 2017).

A particular feature of risk communication entails a focus on disasters, harms, catastrophes, or calamities that are communicated through stringent messaging strategies. For instance, communicating the fact that the audience must vacate a given area or risk perishing in a tsunami or some other dire phenomenon. Other examples include health messages mandating the display of a warning label, such as those communicating the injurious effects of tobacco use, carried on cigarette packages. Characteristically, risk communication messages tend to be direct and often threatening to the user (Spacey, 2017). Figures 1a–c are examples of what would be considered as risk communication strategies. These messages were circulated and are common in most sub-Saharan Africa.

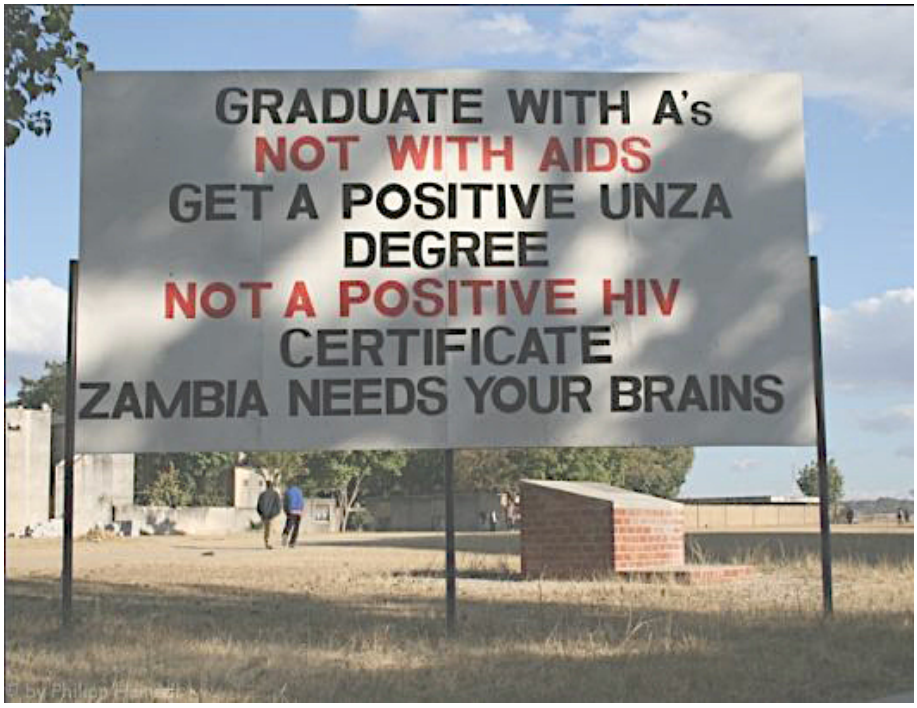

Figure 1a. A famous HIV/AIDS billboard at the University of Zambia (Source: UNZA Networks, 2012).

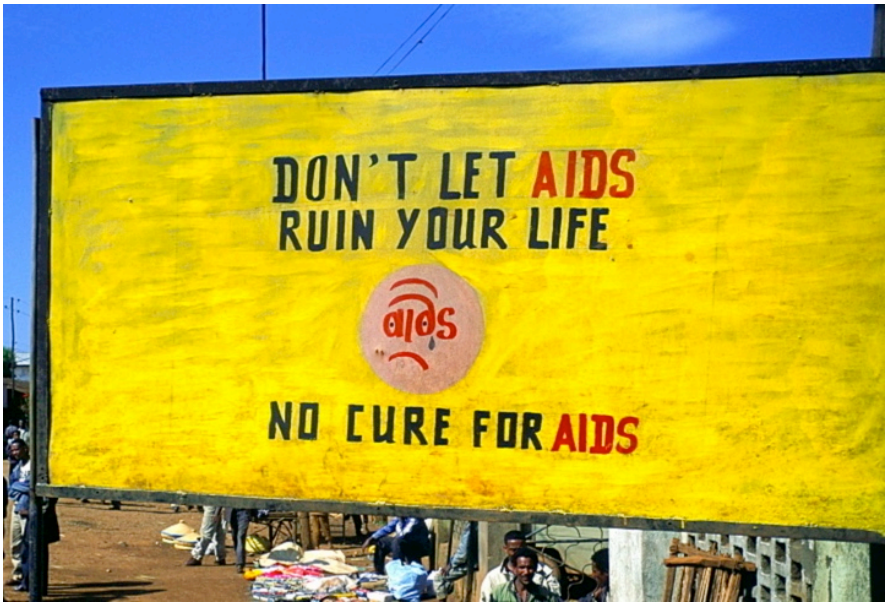

Figure 1b. An ad campaign depicting the harsh truths of HIV/AIDS in sub-Saharan Africa (Source: Barbier, 2016).

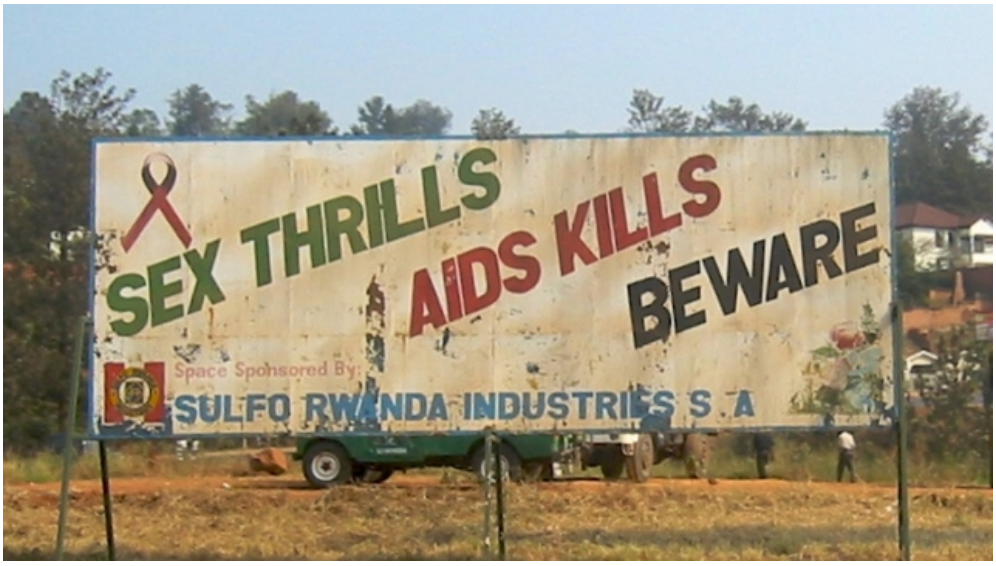

Figure 1c. An HIV/AIDS ad in sub-Saharan Africa framed with messages that evoke fear (Source: Lubanga, 2017).

At the outset of the HIV/AIDS pandemic in the early 1990s, issues of fighting stigma among victims were less considered, as most health communication messages focused on highlighting the dangers and the grotesque facets of the ailment. This was done with the idea of discouraging individuals from engaging in illicit and unprotected sexual activities (Brown, Macintyre, & Trujillo, 2003). Owing to cultural and religious factors, people who contracted HIV/AIDS were generally stigmatized and perceived as promiscuous (Campbell et al., 2005). Even as early as the year 2001, when ARVs were being introduced, many international organizations emerged to challenge the stigma (Campbell et al., 2005). Since then, governments in sub-Saharan Africa embraced what Reynolds and Seeger (2005) branded as crisis communication. This is conceptualized as a form of communication designed "to prevent or lessen the negative outcomes of a crisis, thereby, protecting an organization, stakeholders, and/or industry from damage" (Coombs, 1999, p. 41). Thus, crisis communication is a "dialectic between what an ostensibly offending organization does and says, and the reaction various stakeholders have to that action (inaction) and statement or lack of statement" (Coombs, 1999, p. 5). Heath and O'Hair (2020) assert that

> crisis communication, as a niche discipline is multidisciplinary such that its approach is a sort of mix and match rules of logic, i.e., the messages for a tsunami are not as blatant as those in "Risk" communication . . . if a major storm is known to hit populous areas along the Gulf Coast or savage storm are likely to hit the upper regions of the United States, we prepare both infrastructures as well as emergence. (p. 5)

In Zambia, and many other sub-Saharan countries, crisis communication is mainly attributed to Western designs, in the sense that most messages seem not to align with the cultural and embedded religious values. Overtly, most messages have been criticized as encouraging sexual misconduct through

the promise of the protection of a condom and that one can still live a healthy life with AIDS. Figures 2a–c are examples of what could be considered as crisis communication strategies.

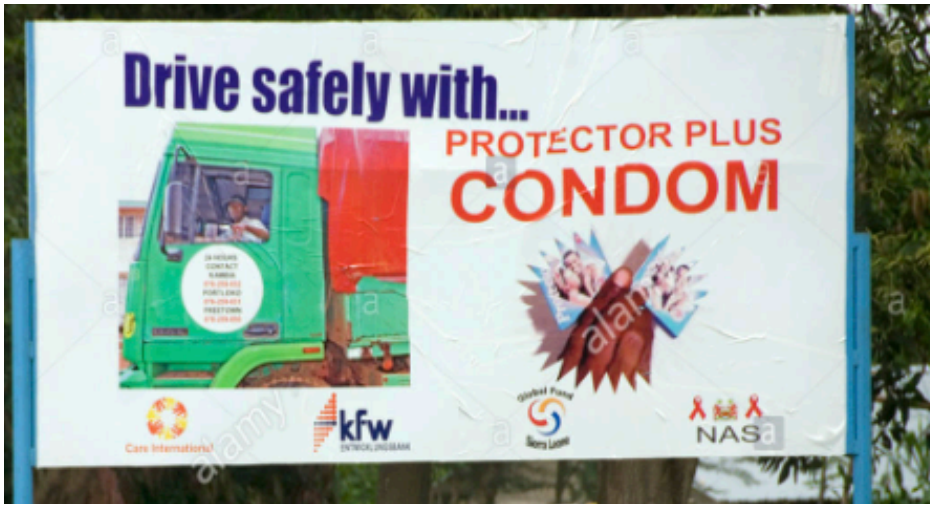

Figure 2a. Many Zambians believe that the message above promotes promiscuity (Source: Community Media Trust—UCT Digital Collections, 2002).

Figure 2b. Campaigns against stigma (Source: Community Media Trust—UCT Digital Collections, 2002).

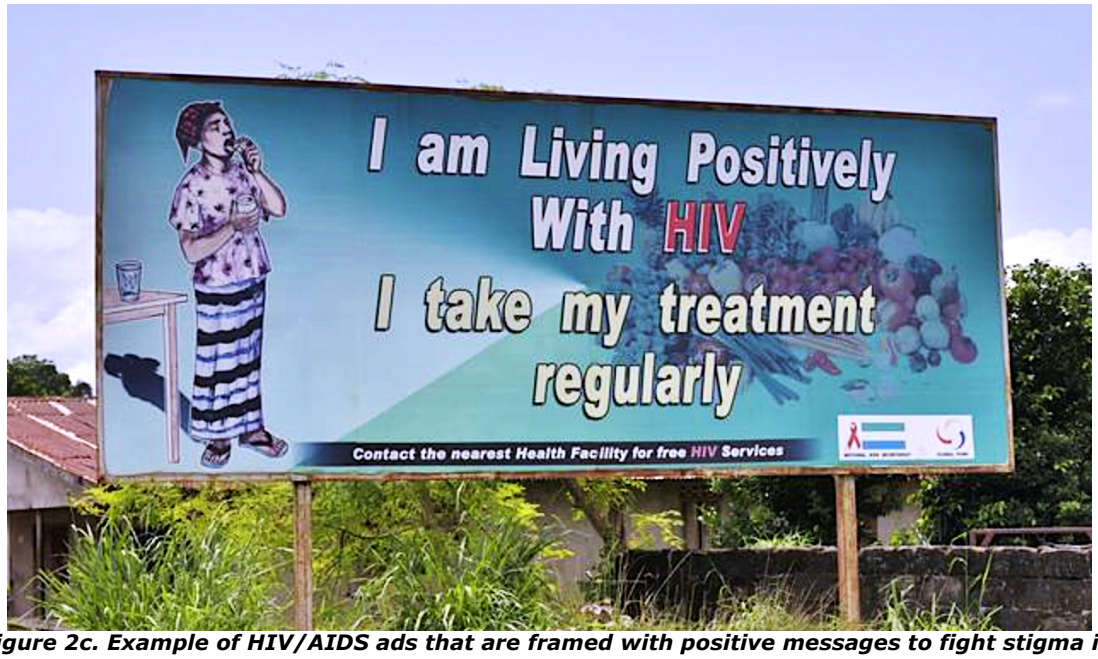

Figure 2c. Example of HIV/AIDS ads that are framed with positive messages to fight stigma in sub-Saharan Africa (Source: Fröhlich & Gitta, 2020).

It is noteworthy that there is an idea of preparing for infrastructure and emergencies in crisis communication in case people are affected. This is at variance with the primary focus in risk communication where the government provides a mandatory message or prescription for people to behave in certain ways, such as evacuating from a location or enforcing a mask mandate. Within the context of HIV/AIDS ads, risk communication messages would be equated with those messages that focus on highlighting the ramifications or nemesis of engaging in sexual activities per se, while crisis communication would be focused on offering prescriptions for "safer sex," such as giving guidance for proper condom use. Thus, the main thrust of crisis communication is the minimization of harm, rather than a focus on eradicating the pandemic.

What is problematic in these two approaches is that cultural contexts are given less precedence in comparison with individual theories and models that inform HIV/AIDS prevention messages (Choi et al., 2018; Gondwe & Muchangwe, 2020). Some scholars argue that there is a need to make culture pivotal in every aspect of HIV/AIDS ad campaigning; from thought to finish (Airhihenbuwa, Makinwa, & Obregon, 2000). According to this perspective, culture should not be perceived as a barrier or toxic component of campaigns, but rather a tonic complement that energizes the effective contextualization of the messages in ways that inform and ensure positive social change since "media are a part of our culture in the sense that it indeed locates culture within its definitions" (Airhihenbuwa et al., 2000, p. 13). By doing so, a process that Dutta (2015) referred to as *communicative inversion*, would be avoided. According to Dutta, communicative inversion refers to the "deployment of communication to circulate interpretation that are reversal of the material manifestations" (p. 13). This is not to imply that crisis communication is less important, but rather that its presence in Zambia conflicts more with the cultural values when compared

with risk communication. In other words, it is the degree and not the important of the approach that we emphasize in this study.

Theoretical Arguments Surrounding Risk and Crisis Communication

Reynolds and Seeger's (2005) conceptualization of "risk and crisis" communication ideas are influential in contemporary health communication studies. These scholars note that these two forms of health communication strategies are at poles and are differentiated by diverse messaging goals. While crisis communication seeks to inform, risk communication seeks to persuade. While risk communication strategies are grounded in current scientific and technical understanding of a particular risk, they also seek to address strategic cultural and social factors (Reynolds & Seeger, 2005). On the other hand, risk communication has the goal of informing the target audience and is considered "more sender/event-oriented in the sense that it seeks to respond to immediate public needs for information in a much more spontaneous, and less controlled manner" (Reynolds & Seeger, 2005, p. 49).

Normally in ad campaigns against HIV/AIDS, an admixture of both risk and crisis communication strategies are employed to promote positive behavioral change (Sellnow & Seeger, 2021). The power of such an approach derives from leveraging on psychological theories that instigate negative emotions toward a behavior believed to contribute to the rise in HIV/AIDS infection rates (Newman-Norlund et al., 2014; Yong et al., 2014). Among others, such emotions include fear, disgust, and worry (Byrne, Byrne, Katz, Mathios, & Niederdeppe, 2015; Newman-Norlund et al., 2014). Generally, fear is seen as an emotion that is evoked when perceiving a serious and personally relevant threat; disgust as an emotion that functions as a mechanism to avoid diseases and could be triggered by the sight of bodily excretions such as blood and wounds; and worrying as a cognitively oriented emotion that can stimulate constructive problem solving (Cho et al., 2018).

These three psychological states have been described as eliciting specific negative emotions that Peters (2012) deems necessary for promoting desired responses to health warnings. However, the influence of these emotions on behavior change is contingent upon the strength of competing affective responses, implying that the effect of negative emotions on "behavior change may be inhibited were the behavior to change also elicits competing positive affective responses" (Cho et al., 2018, p. 228). When applied to the case of female commercial sex workers in Zambia, risk communication is measured in terms of ads that focus on presenting targeted behavioral messages with negative emotional appeals, as exemplified by traditional ads that were typically used before stigmatization became an issue in health communication campaigns.

How Culture Drives the Effectiveness of Risk and Crisis Communication in Africa

The metaphor "spare the rod and spoil the child" continues to dominate in most African cultures. The belief is that sometimes one has to be explicit in their message, especially when some consequences usually follow one's rational choice (Gondwe, 2018). For example, data suggest HIV/AIDS is usually spread through promiscuity—thus, recent campaigns encourage an individual to stick to one sex partner. Therefore, the disregard for such is perceived as a rational choice, and the consequences are treated as warranted. In

such instances, most African cultures tend to perceive risk communication as an effective way of combating the pandemic.

The strategy has been used for different pandemics, including Ebola and the ongoing COVID-19 pandemic. In most parts of the Global South, for example, the governments used physical force (i.e., whipping people) to discourage group gatherings and put individuals into quarantine during the COVID-19 pandemic. Adebisi, Rabe, and Lucero-Prisno (2021) observe that the use of such a strategy, combined with community engagement, yielded positive results. In studying the response behavior of 13 African countries (Ethiopia, Ghana, Kenya, Algeria, Angola, Cote d'Ivoire, the Democratic Republic of the Congo, Mauritius, Nigeria, South Africa, Tanzania, Uganda, and Zambia), the author reported that most countries prioritized risk communication strategies in their quest to contain the transmission and spread of the pandemic. The backlash reported in the findings is not linked to the strategy itself but to other variables that presented the strategy as Western initiated, thus raising questions of mistrust among the communities toward their governments.

Risk and Crisis Communication in Zambian Media Campaigns

In explaining the use of risk communication, Choi and colleagues (2018) describe a typical ad campaign of the 1990s that focused on depicting shocking images where an HIV/AIDS patient was shown as extremely skinny, frail, emaciated, and on the verge of death. These ads were geared toward communicating the dark side of HIV/AIDS for those who contracted HIV, the virus that causes AIDS. This type of ad presented HIV/AIDS as a "death sentence" and not to be tolerated in any form within a society. Thus, terminally ill patients were typically shown in such ads, speaking of their promiscuous lifestyles that had predisposed them to HIV/AIDS.

On the other hand, crisis communication entails messages that present the positive side of being a victim of HIV/AIDS. These ads would include messages that focus on adaptations, coping mechanisms, and pathways of healthy living for the HIV/AIDS victim, such as condom use and the taking of ARVs (Cho et al., 2018). Crisis communication strategies may highlight the possibility of living a normal life, even when infected with HIV. Such messaging strategies thus focus on offering hope to infected persons while ignoring the impact that such messages might have on those that are not affected (Choi et al., 2018). Given the two approaches, this longitudinal study aimed at examining how female sex workers in Solwezi, Kalumbila, and Lumwana mining areas in Zambia respond to public health media strategies over time, and whether the messages promote behavioral change. We hypothesize the following:

H1a: Female sex workers exposed to risk communication ads would be more likely to quit their jobs as commercial sex workers during the study period.

H1b: Female sex workers exposed to crisis communication ads would be less likely to quit their jobs as commercial sex workers during the period of study.

The rationale behind the above hypotheses is that a sex worker exposed to risk communication will report stronger negative emotions of fear, worry, and disgust. Such negative emotions will subsequently

lead them into changing behavior. Compared with the control group, the two hypotheses were tested separately and on two types of ads. Participants were divided into two groups and exposed to two separate ad stimuli. We further hypothesize the following:

H2a: There will be a weaker relationship between negative emotion and quit attempts for sex workers that have been commercial sex workers for a relatively long time.

H2b: Sex workers reporting stronger negative emotional responses will be more likely to pay attention to the media messages and their perceived health risks.

For hypotheses H2a and H2b, we assume that commercial sex workers who have been plying their trade for a relatively long time would be more resistant to behavioral change, compared with their less experienced counterparts. Such relatively experienced commercial sex workers are more likely to engage in defensive behaviors, such as avoidance, by not attending to the messages, denying their relevance, or undermining message credibility (Witte, 1994).

Method

The experimental study was approved by the National Health Research Authority of Zambia, a Research Ethics Committee that derives its mandate from the Health Research Act of Zambia (HRAZ) under the "Act of Parliament" (No. 2 of 2013). Although our study was longitudinal, the data collected was treated as cross-sectional. We consider the study longitudinal because the experiment observed our respondents' behavior change across a one-year time period. But the data was cross-sectional because they were collected at two different times.

Sampling

Several participants operating in areas considered as "areas to find prostitutes" in Zambia were directly approached and asked if they wanted to participate in a study with a promise of an incentive. We purposively selected subjects from a population of women that were perceived by the communities as sex workers and who self-identified as commercial sex workers who ply their trade in the Solwezi, Kalumbila, and Lumwana mining areas in Zambia's North-Western province. Several were approached and requested to participate in a study by the authors and the research assistants with the promise of an incentive. The inclusion criteria included evidence that participants were at least 18 years of age who self-identified as commercial sex workers. We required a national registration card of some sort to verify a participant's age eligibility. Those who agreed to participate were invited to visit an office location in Solwezi, Kalumbila, and Lumwana townships.

All participants were scheduled to participate in the experiment, following receipt of their signed consent forms. We also followed a snowball sampling procedure, where those who self-identified as commercial sex workers in the community named or recommended other participants whom they believed qualified for inclusion in the study. We did not collect any personally identifiable data on the participants.

A total of 166 of the 371 approached showed up at the three experiment centers for the study. This number was arrived at after aggregating the data from the three centers. The 166 who agreed to participate were divided into three groups. The two experimental groups comprised 50 participants each, with the control group having 66 members. The first 50 participants were exposed to a risk communication type of message and the other 50 to a crisis communication type of message. The control group was not exposed to any message type, but only allowed to fill out questionnaires with everyone else. The ads used for our experiments were delivered in a single exposure for each of our experimental groups. Experimental groups were blinded in the sense that participants were not informed about why they were assigned to a group, and they were randomly assigned.

Procedures

Experiments for all participants were conducted over two months, between March and April 2018 and March and April 2019. While the entire process averaged 45 minutes per participant, the actual exposure period ranged between 10 and 20 minutes for video ads. Print (hard) copy versions of the ads were gifted to participants. Each participant that showed up for the study received an incentive, ranging from a packet of rice to cash in Zambian currency that was equivalent to $2. Some 44 participants dropped out for various reasons. While some had second thoughts, others could just not commit fully to the experimental process. This left a net sample size of 122 participants, of which 48 were exposed to risk communication messages, 51 to crisis communication messages, and the control group had 23 subjects.

The participants were randomly assigned to each of the groups. Research instruments were administered by research assistants at different centers located within the focal areas of the Solwezi, Lumwana, and Kalumbila mining areas. The questionnaire was designed to gain a greater understanding of the sociodemographic characteristics of the participants as well as of their sex working behaviors, behavioral responses to HIV/AIDS media campaigns, and their perspectives on the dangers of the sex trade. The questionnaires were designed in two languages: KiiKaonde, the prevalent language of the North-Western province of Zambia, and in English, the official language of Zambia. The researchers also were willing to help those who could not read.

Dependent Variable

Our dependent variable was characterized by the desire for our participants to change their behavior. This was measured by the "quit attempts" that the participants made during the period of our study. The "quit attempt" measure was standardized by the number of attempts that the respondents showed in trying to quit the sex trade. Not working for a temporary period did not qualify as a quit attempt. A Likert scale was used for the measure of the question, "On a scale of 1 to 7, where 1 is unlikely and 7 very likely, would you consider quitting being a commercial sex worker if other financial opportunities were provided?" In the process, an adjustment was made to a Likert scale question to standardize it to how many times participants wanted or tried to quit throughout the study process. This question was asked with the assumption that some sex workers found pleasure in that kind of job besides only the financial or economic incentives. Some research conducted in Zambia suggests that even after some sex workers were provided

with alternative financial opportunities, most still went back to sex working (Cheelo, 2008; Musonda, 2013; Negi, 2014).

Independent Variables

Independent variables were determined by the levels of negative emotions measured on a scale ranging from 1 (*nothing*) to 7 (*extreme*). Particularly, fear, disgust, and worry characterized the measure. The responses recorded high reliability, with Cronbach's alpha ranging from 0.84 to 0.95, and were averaged to derive an overall negative emotions scale. We measured cognitive responses as our mediating variables. We asked participants about how often they paid attention to the HIV/AIDS campaigns in the media. We also inquired about the extent to which those messages made participants consider the risks of their profession. These cognitive responses were also measured on a scale of 1 to 7, where 1 referred to *no attention* and 7 referred to *extreme attention*. Similarly, we asked participants to indicate how often they had avoided ads that evoked negative emotions.

Data Analysis

Our data analysis process sought to test the four hypotheses through a path model analysis generated by Mplus while employing maximum likelihood estimations to account for missing data. We performed inferential statistical analyses across the three groups of our experiment using χ^2 and *F* tests, followed by a Tukey's post hoc test for comparisons of negative emotions scale. We evaluated model fitness through χ^2 tests and other supplemental goodness of fit indices such as the comparative fit index (CFI), the standardized root-mean square residual (SRMR) index, and the root mean square error approximation (RMSEA). Indirect effects were assessed using 5,000 bias-corrected bootstrapped resamples of the data as participants kept dropping. Hypotheses H1a and H1b were tested through logistic generalized estimating equation regression models. The two hypotheses sought to examine whether sex workers exposed to the "risk" communication strategy were more likely to quit their jobs as sex workers than sex workers exposed to "crisis" communication strategies. Hypotheses H2a and H2b were tested by examining the interaction between negative emotion scales, how long one has been a sex worker, and the dependence on sex working for survival.

Similar to Cho and colleagues' (2018) approach, we fitted four models to regress subsequent quit attempts on the negative emotion scale and moderating variables of dependence for survival. Further, and particularly for hypothesis H2b, we tested the relationship between negative emotions and mediator variables by cross-sectionally regressing attention to ad campaign messages, risk concerns of their lifestyles, and avoiding messages that were presented with a negative touch ("risk" communication), on negative emotions. We further measured multicollinearity effects of whether other confounding variables would skew the independent variables from impacting the dependent variable. Our coefficient approach test yielded the variance inflation factor values less than 2.5 for all potential mediating variables to indicate anecdotal multicollinear effects. Finally, we separately analyzed the emotional indicators (fear, disgust, worry) to examine whether discrete negative emotions had varied effects on "risk" communication ad campaigns. This was regressed by re-estimating all our models using the mean for each emotion indicator. These patterns on analysis were pretested after every six months for consistency.

Results

Data Description

The aggregate mean for all our sample (166) was estimated at 5.31, with a standard deviation (*SD*) of 1.87. The estimated model demonstrated strong data-model fit statistics, $\chi^2 = 1.872$, $df = 2$, $p > .768$; CFI = 1.000; RMSEA = 0.000, 90% CI [0.000, 0.099]; SRMR = 0.002. The attempt by our participants to quit their jobs as sex workers were recorded high (73%) among those exposed to "risk" communication; 25% for those exposed to "crisis" communication ad campaigns, and 2% for our treatment group that was not exposed to any campaign strategy, but participated in the survey.

On average, 60% of the sex workers indicated that they had been operating for more than five years. Only 2% indicated that they started less than a year ago. However, very few indicated that they have been active workers in the commercial sex industry for at least 15 years, except for those who started at very young ages. At most, many tended to get infected and either die or are not strong/attractive enough to keep up with the standard appearances. The average age was 24, with the youngest being 18 and the oldest being 38 years old. Table 1 presents the summary of the findings.

Table 1. Demographic Characteristics of Respondents.

	Risk Experimental group			Crisis Experimental Group			Control Group		
	Sol	Kal	Lum	Solw	Kal	Lum	Sol	Kal	Lum
Average age	25	21	23	27	22	24	26	22	26
Average year of operation	7	3	2	5	3	4	5	2	4
Average quit attempts	47	38	43	19	13	12	3	0	1

Note. "Sol" is for Solwezi, "Kal" for Kalumbila, and "Lum" for Lumwana towns of the North-Western province of Zambia.

Hypotheses H1a and H1b strongly supported the argument that female sex workers exposed to "risk" communication would report stronger negative emotions and thus attempt to change their behavior. In particular, we observed significant relationships between participants who reported stronger negative emotions after viewing the ad campaigns ($b = 0.371$, $p < .001$; $\beta = 0.213$) and the desire to change their behavior ($b = 0.289$, $p < .001$; $\beta = 0.221$), relative to the experimental group exposed to a crisis communication ad campaign. The adjusted odds ratio (AOR) = 1.03 to 1.14; $p < .001$.

Hypothesis H2a, which argued that there was a weaker relationship between negative emotions and sex workers with long-term experience, was not supported ($b = -0.033$, $p > .417$; $\beta = -0.094$). This implied that even people with long-term experience as sex workers were still affected by emotions and thus had the proclivity to change. On the other hand, H2b reported strong statistically significant results to indicate that sex workers who reported stronger negative emotions were more likely to pay attention to the media messages and their perceived risks. Table 2 presents the findings.

Table 2. Associations of Negative Emotions with Subsequent Behavior Change.

Exp. Group	Attend to Warnings	Concerned About Risks	Avoid Warning	Behavior Change Attempts
	b (95% CI)	*b* (95% CI)	AOR (95% CI)	AOR (95% CI)
Risk c. group	0.09 (0.11,0.14)*	0.31 (0.22,.29)*	1.44 (1.01,1.23)*	1.11 (1.02,09)*
Crisis c. group	0.17 (0.14,0.18)*	0.47 (0.19,0.33)*	1.19 (1.16,1.25)*	1.15 (1.11,1.21)*
No group	0.24 (0.16,0.21)*	0.21 (0.13,.18)*	1.39 (1.17,1.20)*	1.07 (1.03,1.11)*

*$p < .05$.

Direct and Indirect Effects on Negative Emotions

We further tested the cognitive confounding effects and short-term behavioral responses to ads that advance a message of warning. We observed significant indirect effects for concerns about the dangers of their profession among all the groups. The parameter estimates for the total indirect effects range from 0.05 in the risk communication group (*b* 95% CI [0.043, 0.069]) to 0.19 in the treatment group (*b* 95% CI [0.053, 0.0728]). Table 3 presents the findings.

Table 3. Effect of Negative Emotions on Attempt to Change Behavior.

	Risk Group	Crisis Group	No Group
Total Indirect effects	0.07**	0.09**	0.11***
Attend to warnings	0.13***	0.03*	0.04*
Risk concerns	0.07**	0.09**	0.07**
Avoiding ads	0.00	0.05*	0.01
Direct effects	0.17***	0.14***	0.04*
Total effect	0.24***	0.25***	0.15***

Note. Indirect effects refer to the effects of negative emotions on behavior change mediated by a confounding variable, while direct effects are those effects that are unmediated. The total effect is calculated by finding the sum of the direct effect and the indirect effects.
*$p < .05$. **$p < .01$. ***$p < .001$.

Discussion

The primary purpose of this study was to examine whether negative emotions aroused by media campaigns in the fight against HIV/AIDS had the power to instigate behavior change among female commercial sex workers who ply their trade in the North-Western province of Zambia. We tested Reynolds and Seeger's (2001) risk versus crisis communication frameworks and argued that risk communication had a higher probability of arousing negative emotions. Based on this argument, we were able to demonstrate that participants who exhibited stronger negative emotions during our experiments had a higher likelihood of quitting their jobs as commercial sex workers and embracing a new lifestyle toward behavior change. In other words, we provide some strong evidence that individuals exposed to risk communication strategies exhibited higher levels of negative emotions that could easily be translated into a heightened likelihood to embrace positive behavior change.

This finding is consistent with Cho and colleagues (2018), Yong and colleagues (2014), and Hammond, Fong, McDonald, Brown, and Cameron (2004), who all reported that media messages that advance a narrative that brings out negative emotions have a higher probability of changing behavior. Although the aforementioned scholars made their findings about the perception of smokers on grotesque cigarette warnings, their findings are quite instructive in efforts to curb HIV/AIDS in Zambia.

A consistent feature relates to the arousal of specific stimuli of fear, disgust, and/or worry among the participants in this study. However, the push for negative emotions in the fight against HIV/AIDS in the media is mostly interpreted as the stigmatization of HIV/AIDS sufferers. Earlier HIV/AIDS media campaigns in Zambia were criticized for promoting stigma. This is because such messages focused on addressing the dangers of the virus through persuasive strategies accompanied by a push in the change of lifestyle—if you do not change your behavior, you will perish like them.

As Witte (1994) asserts, such ads feature a well-established problem–solution messaging structure and a basic form of persuasion, yet did not resonate with what donors perceived as ubiquitous. Evidence suggests that negative emotions have a higher likelihood to elicit strong emotions and desires for behavioral change.

Still, a question yet to be adequately answered relates to whether the fight against HIV/AIDS should employ (i) risk communication that usually entails scary messages that might inflict stigmatization, yet potent in producing behavioral change, or (ii) a focus on crisis communication that takes a sympathetic style that focuses on fighting stigma, minimizing harm, but producing relatively limited behavioral change. Put differently, at the heart of the matter is whether fighting stigma is relatively more important than completely eradicating the problem.

The suggestion we make, that culture be considered, seems to be the likely alternative in that how change occurs is also contextual. What could be considered grotesque in one culture might not be viewed in the same terms in another. Thus, communication strategies to stem the spread of HIV/AIDS need to be locally relevant. Local culture in this context includes the full gamut of nuances of the traditional African culture, including the customs, traditions, mores, usages, philosophies, social controls, religious and spiritual beliefs, as well as many other elements of the daily lives of the people.

As Reynolds and Seeger (2005) argue, crisis communication is mostly designed to reduce and contain harm, and not necessarily eradicate a health problem. Our findings are sympathetic to this view, as is seen in the experimental group of sex workers that was exposed to crisis communication strategies reporting fewer negative emotions, and fewer intentions to change behavior. Because of the mildness of the messages and the "hope" or prospect to live a longer life with ARVs, many sex workers exposed to crisis communication strategies displayed having to deal with fewer negative emotions and a weaker desire to change behavior. We found that many participants justified their continued involvement in the commercial sex trade with the lack of financial support, while giving themselves hope that being an HIV/AIDS victim was not a death sentence, but only a different style of life and living reality.

Limitations of the Study

This study features several limitations that ranged from the recruitment process of the participants to the areas of study. These limitations were a result of the lack of funding. The researchers only managed to provide token incentives that proved unattractive to most commercial sex workers within the catchment areas of the study. Therefore, a well-funded project is needed to recruit a sample size that would make the findings more generalizable. Nonetheless, our findings make important contributions to the literature on risk and crisis communication. We did not create "before" and "after" scenarios of exposure to the ads, designed to measure participants' likelihood to quit/attempt to quit if other financial opportunities were provided. Neither did we perform a follow-up survey to ascertain how exposures to ads may have changed participants' likelihood of quitting or attempting to quit. These lines of inquiry could be necessary because financial opportunities are likely to confound with other independent variables.

Despite this limitation, we were able to partially control for financial opportunities with the argument provided by other scholars that some sex workers were driven by something else beyond financial considerations. Here, studies show that some commercial sex workers were unlikely to quit, despite the financial and other alternatives incentives (Negi, 2014). The possible argument would be that the financial opportunities provided did not match what they were likely to make when they engaged in the sex working business (Cheelo, 2008; Musonda, 2013).

Conclusion

The quest to design media messages that could help eradicate HIV/AIDS in Zambia, while not stigmatizing infected individuals, remains elusive. However, this is not a uniquely Zambian problem, as the quest for the containment of the rising HIV/AIDS prevalence rates has eluded most governments in Africa. The schism that exists between what would be considered as a media campaign message of change and that which only minimizes the problem still looms large. While appreciating the value of crisis communication and its goal of protecting disease victims from stigmatization, it could be argued that risk communication strategies are also necessary to completely deal with the HIV/AIDS scourge.

This is where a blend of the two ad appeals as suggested by Reynolds and Seeger (2005) becomes relevant. This study holds some practical value for health communication and messaging strategies. While there is still so much more to learn about this phenomenon in Zambia, given our findings in this study, we recommend that risk communication is the most viable strategy for behavior change. By saying so, we are not minimizing the importance of crisis communication, but noting that the strategies involved should be tailored toward individuals who are already infected. Recent data suggest that 11.3% of the population has either HIV or AIDS. This is to suggest that 8.7% are not infected. Therefore, communication strategists must deliver a message that will minimize the infection rate through behavior change. Overtly, the crisis and emergency risk communication model are ideal in the sense that "it offers a comprehensive approach within which risk and warning messages and crisis communication activities can be connected into a more encompassing communication form" (Reynolds & Seeger, 2005, p. 51). That is why Obregon's (2000) call for a new strategy that locates culture within a theoretical framework in communicating HIV/AIDS prevention and care messages resounds even more strongly.

However, when adopting this blended strategic route, there is the need to have a strong sense of which of these approaches should play a leading role. Within the Zambian context, as suggested by our findings, it is imperative to first understand the sociocultural underpinnings and how the social structure interpenetrates with and drives changes in health behavior. Based on our findings, it could be strongly justified that according to risk communication precedence when merging the two is likely to provide better results than a focus on crisis communication strategies.

Overall, based on finding that participants exposed to a risk communication messaging strategy were more likely to translate the negative emotions into action than those exposed to crisis communication ads, more empirical research is needed to determine what would constitute an effective HIV/AIDS media campaign message that can present negative emotions/warnings, without inciting stigma. Our study was limited in the sense that the findings are based on the responses given by the participants within a controlled experimental setting. Future research could employ qualitative methods such as focus groups, long interviews, and ethnographic methods to investigate the lived experiences of commercial sex workers more fully and to gain an interpretive understanding of real changes in health behavior.

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