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**Atomic No. 17: Downplaying the Insidious Effects of
Chlorine-Bleach-Containing Products in the Cleaning Industry**

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Abstract

The health effects experienced by women in the cleaning industry while using chlorine-bleach-containing products (CBP) vary from skin irritations, irreversible eye damage, chronic upper respiratory problems and death. Air ventilation, other compounds in the environment, and protective gear are determining safety factors, but the marketing strategies used give little to no indication that potential health problems can arise. The purpose of this project is to identify the misrepresentation by corporations on the proper use of CBPs. My research has identified a lack of transparency with the marketing strategies of these harmful products leading to deceptiveness and abuse of trust. While more research is still needed, it is recommended that the marketing strategies include an accurate representation of how these toxic products should be safely used.

Introduction

As the advertising landscape has continued to shift away from traditional platforms and methods in response to consumers pushing back against online ads that feel too aggressive and intrusive (*Five Charts: Why Users Are Fed Up with Digital Ads*), companies are now turning to influencer marketers who are perceived as trustworthy (De Veirman, Cauberghe & Hudders, 2017; Lim, Y., Chung, Y., & Weaver, P. A., 2012, 197-198) on platforms where user generated content encourages a free flow of information (*Kapoor, K. et al., 2018, 531*).

With almost everyone's ability to access a high quality camera on their phone, it's sometimes difficult to tell the difference between an advertised post and a post from a regular user. On the surface, the advertisements might feel like they're being created by an average user, but in

reality, the highly orchestrated content is usually created by multi billion dollar companies with profit and not people in mind. In some cases, the product or service being advertised might not have significant negative consequences, but there is real danger when companies use social media influencers to promote products that contain toxic chemicals.

Clorox is one such company that has systematically used social media platforms to boost sales for chlorine-bleach-containing products (CBP) which are made from sodium hypochlorite (NaOCl) (*Clorox® Regular Bleach2* | *The Clorox Company.*, 2016). These products can have extremely harmful and potentially lethal health effects especially when used on a daily basis without protective gear, as is the case for many workers in the cleaning industry.

CBP Background

For perspective, the Occupational Safety and Health Administration (OSHA), has adopted a standardized toxic chemical labeling system which lists NaOCl as a category 1 chemical. A category 1 is the highest level of hazard among the 5 categories. OSHA has defined category 1 chemicals as those that damage the skin irreversibly; items that cause blindness or severely diminished vision that has not reversed itself with three weeks; substances that cause respiratory sensitization, such as asthma; materials that can cause genetic alteration or sterility; and substances known or presumed to cause cancer in humans. Materials that target a single organ and can cause death or significant damage are also included in Category 1 (*Hazard Communication: Hazard Classification Guidance for Manufacturers, Importers, and Employers (OSHA 3844-02 2016)*; United Nations. Economic Commission for Europe. Secretariat., 2003).

There are a number of category 1 products, like Clorox® Regular Bleach², that are being advertised on social media platforms (*Clorox® Regular Bleach² | The Clorox Company.*, 2016). The presence of these CBPs on social media makes them seem harmless, but the reality is that they are potentially lethal with a very small amount of exposure.

Research has also shown time and time again that CBPs pose real health consequences, especially for already vulnerable communities like women in the cleaning industry. To understand this better it helps to look at the men, women, and children living in an industrial society who carry a chemical “body burden” which refers to the multitudes of synthetic chemicals (over three hundred according to the CDC (2009, 2017)) inside the human body. These chemicals enter the body through everyday activities like breathing, drinking water, eating, and spending time in polluted environments. Some chemicals are quickly excreted, while others are stored in fat and other tissues (MacKendrick, N., & Cairns, K., 2019, p. 309). Because of higher body fat composition, a lower average body weight, smaller plasma volume and lower average organ blood flow, women are more susceptible to chemical exposure in the workplace than men. With women already facing insurmountable inequalities like pay disparities and increasing caring and home responsibilities (Sorrentino, E., 2016, p. 194), chemical exposure from CBPs only exacerbates their already precarious situation. To make things worse, it’s women who seem to be the target audience for the CBP advertisements on social media platforms.

CBP advertisements give absolutely no indication that health problems like respiratory problems can arise –I have yet to come across a CBP advertisement where the model is using a protective respiratory mask. This is unsettling especially since it's been well documented that there is an increased risk of asthma and respiratory symptoms among professional cleaners and in

persons cleaning at home. One study suggests that long term respiratory health is even impaired 10 to 20 years after cleaning activities with chemical agents. The decline in lung function in women after both occupational cleaning and cleaning at home was comparable to 10 to 20 pack-years of tobacco smoking (Svanes et al, 2018, p. 1158).

A series of studies conducted in Europe also found that domestic cleaning women who used bleach experienced a significantly higher risk of asthma and chronic bronchitis than women not working as cleaning personnel. In the study, mean levels of airborne chlorine measured during cleaning with diluted and undiluted NaOCl ranged from 0.4 to 1.3 ppm—the National Institute for Occupational Safety and Health (NIOSH) recommends personal protective equipment when occupational exposure of chlorine gas exceeds 0.5 ppm per day (Bondi, C. A. M., 2011, p. 431-2). This study clearly highlights the fact that cleaning personnel are, on average, exposed to a high enough chlorine gas amount where they would require the use of protective equipment.

Another reason why CBPs are so dangerous is that the sodium hypochlorite (NaOCl) is so reactive with other pollutants in the atmosphere and can create halogenated volatile organic compounds (OHC). From examining eight different CBPs (pure and diluted) by headspace experiments and indoor air concentration measurements, for example, researchers discovered that the leading OHCs produced in very high concentrations were carbon tetrachloride and chloroform (up to 101 mg m⁻³) (Odabasi, M., Elbir, T., Dumanoglu, Y., & Sofuoglu, S. C., 2014, p. 1445-1448). Carbon tetrachloride and chloroform are listed by the US Environmental Protection Agency as a likely carcinogenic to humans (US EPA, O., 2018, May 15, *Carbon Tetrachloride Problem Formulation*; US EPA, O. (n.d.). *Chloroform CASRN 67-66-3*). In her book, *Silent Spring*, Rachel Carson describes these harmful reactions best by saying “...chemicals now

pervading the world in which we live, acting upon us directly and indirectly, separately and collectively. Their presence casts a shadow that is no less ominous because it is formless and obscure...” (Carson, R., 1962, p. 188).

In a separate study that investigated CBPs, carbon tetrachloride and chloroform were also detected along with five other OHCs (chlorobenzene, 2-chlorotoluene, 4-chlorotoluene, 1,2-dichlorobenzene and 1,4-dichlorobenzene) and two haloacetic acids (dichloroacetic acid and trichloroacetic acid) (Shin, H.-S., & Lim, H.-H., 2017, p. 163). These dangerous secondary pollutants are measurable with current technology, but there is still so much that is unknown because of sampling and measuring limitations that researchers are faced with.

Several studies have also shown that environmental chemicals like OHCs are transferable from mother to fetus through the placenta during pregnancy and later through breastfeeding. Transmission of OHCs during these “windows of vulnerability” is associated with low birth weight, preterm birth, birth defects, and health disorders, including learning and behavior disorders, reproductive and problems, and cancer (Vizcaino, E., et al., 2011, p. 422-423; MacKendrick, N., & Cairns, K., 2019, p. 310). Since OHCs released into the environment are highly lipophilic and bioaccumulate in biological systems, it’s important to note that children are especially vulnerable to these environmental pollutants because their immunological system and mechanisms of chemical decontamination are not fully developed (Sala, M., et al., 2001).

Advertising CBPs to the General Public

Because of the high level of potential adverse health effects on such vulnerable communities, the dissemination of information regarding these CBPs simply cannot be left to

social media influencers on platforms like Facebook, Instagram, Twitter, and YouTube. Many of those posts use Orwellian speech to place CBPs as an essential ingredient among common things like coffee and dessert when having family over. A Clorox paid partnership with Univision's Despierta America did just that with their Instagram video post which shows a group of women who call themselves "mothers in action."

In the span of one minute, these hip "moms" talk about coffee, dessert and Clorox with the video ending in an image of CBPs. At the end of the video, the "moms" ironically say thank you to Clorox even though Clorox paid for the product placement (despiertamerica, 2019, March 30). These posts are meant to compel people to disregard their own perception of reality in place of the presented version. There is an unperceived attempt to leave the individual completely dependent on the advertisement's definition of reality—being a "mom in action" means using CBPs. This advertisement places moms in an especially precarious situation, because, after all, who doesn't want to be a "mother in action?"

These CBP advertisements are engineered in a similar way that human-centered advertising campaigns are employed by technology giants like Apple, Microsoft, and Sony. They seem to empower the user with control, choice and freedom, but the reality is that users are engaging in a top-down system that only gives the impression of control, choice and freedom (Drew, 2013, p. 2). Companies like Clorox have strived to portray a certain ideal about their product at the expense of the well-being of consumers. The use of CBPs in almost all of Clorox's advertising posts, for example, shows the use of CBPs with no protective gear even though the labeling on their CBPs clearly indicates that protective gear is needed.

A 2019 Clorox YouTube video, for example, shows a person named Dr. Laundry wearing a smock and giving the impression that we're looking at a medical professional. Dr. Laundry is shown using chlorine-based bleach without any protective gear and the video's content is solely about the care of clothes, not people (*Clorox Presents Dr. Laundry Bleach for Beginners: Bleachability Test*).

Also in 2019, Clorox created a YouTube video that placed its cleaning products at the center of a former gang-member's transformation story, but there is at least one instance where the former gang-member isn't using any protective gear while handling CBPs (*Homeboy Industries, Los Angeles | The What Comes Next Project*). These social media posts are only a small sample of many that shows how companies like Clorox are more interested in product placement than the safety of underrepresented and marginalized communities.

In a recent blog post hosted on Clorox's website, the following question was posed: "even with all the data and micro-targeting available to large brands, how do they find the right influencer to reach the right consumer?" Their answer was "we've found that influencer marketing isn't a numbers game. Influencers with the best content, the ones telling authentic and personal stories, drive more engagement and trust with their readers. That's why we at Clorox value an influencer's intangible qualities as a writer and business partner over the size of his or her platform – because the best influencers know what will resonate with their audience (*3 Secrets to Successful Influencer Marketing: It's Personal - Good Growth Blog | The Clorox Company*. 2018, February 18)." It's clear that multi billion dollar companies like Clorox are more interested in perceived authenticity whether that authenticity is there or not.

Mass Communication Background

It's important to look back at the history of communication to better understand how we've arrived at a point where communication about toxic chemicals can be disseminated so recklessly to the general public with no consequences. Since the mid-1800s capital presence in communication has increased exponentially with new technologies and government policies paving the way (Drew, 2013, p. 10).

The radio act of 1912, for example, took public access away from citizens and handed it over to US businesses to support capitalist activities (Drew, 2013, p. 11). Then, it wasn't until after World War I that the government started to ease its grip on the radio waves (Drew, 2013, p. 20) at which point commercial and non-commercial entities like labor unions, churches and community groups fought for the limited radio broadcasting space.

Out of this tumultuous start to mass communication, grew a demand from the public for ownership of the airwaves. Public access advocates argued that airwaves should be treated like natural resources that are not owned by any one person or entity, but are instead available to everyone (Drew, 2013, p. 21). This idea of public ownership of radio airwaves set the stage for reforms that have established broadcasting networks as a public resource (Drew, 2013, p. 21). Today, politics continues to shape who has access to broadcast networks, for example, the internet which was initially funded with US taxpaying dollars is now a largely private domain (Drew, 2013, p.25).

It's also important to remember that the information that is broadcast is a social product (Drew, 2013, p. 25) and since it's disseminated on a public resource, it has a direct impact on the public. Today, communication networks in most parts of the US and across the world are now

widely available and have allowed multibillion-dollar corporations to manipulate cultural communication for financial gain (Drew, 2013, p. 12).

Theoretical Approach

My research is framed within Critical Theory, which reveals and challenges power structures that are deeply embedded in society and culture. For example, Habermas, a philosopher in the tradition of Critical Theory, is concerned with the various forms of distorted communications that exist in society like presenting marketing problems as scientific ones and using authority or experts as guides (Ozanne, J. L., & Murray, J.B., 1995, p. 519). This can give a false representation of a prevalent normativity that's informed by multiple biases. These biases are then translated into new norms that when adopted amplifies existing power structures and inequalities. To apply the concepts of Critical Theory, my project uses Paulo Freire's Critical Pedagogy as a roadmap to create a consciousness that's needed to demystify and understand the power relations that take place (Freire, 2018) between CBP manufacturers and consumers.

My project looked at Everett Rogers' Diffusion of innovation (Rogers, E., 2003) to better understand the social capital in social networks and the way influencers successfully diffuse innovative ideas and new products. The rapid growth of social media in recent decades has made online social networks the dominant channel of information exchange (Zhang, L., et al., 2016) which has created more opportunities, but not without potentially having a negative impact.

Another source of guidance was *Media, Communication and Development* by Linje Manyozo which explores three primary approaches to development communication—media for development (emphasis on content), media development (emphasis on structure), and participatory

communication (emphasis on process). The book provides case studies that highlight the failures and successes relating to development programs and communication. Overall, it's a synthesis of media, communication, and development best practices (Manyozo, L., 2012). A key section for my project is the participatory communication. A Friirian concept in that section that I'm drawn to and that really speaks to what the goal for this project is that "the communicative facilitator ideally understands the praxis of living with the people if they are to effectively help communities to speak and unspeak their world" (Manyozo, L., 2012, p. 156).

Conclusion

The use of CBPs is something that is not only harmful to vulnerable communities, but it's something that affects most everyone, even if these products are not used at home. One study suggests, for example, that people spend 80% to 90% of their time indoors (Hines, A., et al. 1993, p. 3) in places like medical buildings, the gym, grocery stores, or workplace environments where the use of CBPs is highly likely . While this study is over 20 years old, it wouldn't be surprising if that percentage is actually higher today where the ability to conduct business and take care of personal errands online decreases the necessity to go outdoors for some people. More research is certainly needed, but it is clear that CBP advertising, at the very minimum, needs to accurately represent the proper use of CBPs and the potential adverse health effects that can result from using CBPs.

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