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Occupational Health Risks and Comprehensive Management Strategies for E-Commerce Live Streamers

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Abstract: *The rapid growth of e-commerce has made live streaming a vital marketing tool for real-time engagement with consumers. However, the profession comes with distinct occupational health risks. This paper investigates the physical, biological, ergonomic, psychosocial, and chemical risks they face, such as disrupted circadian rhythms, voice strain, and mental health pressures.. This study addresses the specific health challenges of e-commerce live streamers and proposes strategies to improve their well-being. A community service project, using a qualitative approach, was implemented to support live streamers through educational workshops, personalized consultations, and community-building activities. A literature review identified physical, biological, ergonomic, psychosocial, and chemical hazards. The program, with 193 participants, raised awareness of health risks and resulted in positive behavioral changes, such as improved ergonomic practices and mental health management. Participants reported enhanced well-being and better work-life balance, though challenges like time constraints and limited consultation resources were noted.To mitigate these risks, industry stakeholders should prioritize health interventions, including ergonomic adjustments and mental health support. Future research should evaluate the long-term impact of these interventions and establish policies to safeguard the health and productivity of live streamers.*

Keywords: *e-commerce, live streaming, occupational health risks, well-being, awareness*

INTRODUCTION

The growing popularity of e-commerce has given rise to live streaming as a powerful marketing tool. Live streaming has revolutionized and become an essential tool e-commerce, enabling businesses to showcase products and engage directly with consumers in real time. Live streamers play a pivotal role in this dynamic, requiring them to maintain energy, charisma, and blending entertainment with salesmanship to engage audiences often under unique and strenuous working conditions. E-commerce live streaming has become the most popular live streaming in many countries (Wang et al., 2022). In 2019, the Indonesia's E-commerce market was USD 20.9 billion, and it is expected to reach USD 82 billion in 2025, with a compound annual growth rate of 48% (Zhang & Zhang, 2023). However, the demands of live streaming often come at the expense

of the streamers' health. Irregular work hours, repetitive tasks, and the pressure to perform continuously create a complex occupational landscape. Live streaming involves long hours of standing or sitting in static positions, speaking continuously, managing complex equipment, and dealing with public scrutiny. Additionally, irregular work hours disrupt sleep patterns and can lead to burnout. Burnout is a common issue that frequently arises in the field of customer service (Mirza, 2021). However, the phenomenon of burnout has not received serious attention from management, despite numerous research findings showing that burnout reduces organizational effectiveness (Mirza, 2022).

This paper addresses the occupational health risks specific to live streaming in e-commerce and emphasizes practical strategies to mitigate these challenges and support the well-being of live streamers. This community service project was designed to support e-commerce live streamers by addressing their unique occupational health risks. It focuses on empowering streamers to adopt healthier work practices, fostering a supportive community, and raising awareness about sustainable habits to improve both physical and mental well-being. The purpose of this community service is to identify key health risks faced by e-commerce live streamers, provide practical solutions through workshops, resources, and individual consultations, Foster a supportive community that encourages sustainable practices and mutual support.

METHOD

The community service initiative aimed to improve the well-being of live streamers and their agencies through a multi-faceted approach, combining education, personalized consultations, and community-building activities.

1. Educational Workshops

A series of workshops was conducted to raise awareness among streamers about the common health risks they face in their profession. These sessions covered key topics such as managing physical strain, preventing vocal damage, and maintaining mental health. Streamers were also trained to recognize early signs of burnout and other occupational health issues.

2. Consultations

Streamers had access to consultations with a range of health professionals, including ergonomists, nutritionists, and mental health counselors. These consultations provided guidance

on optimizing workspace ergonomics, managing nutritional needs during long work hours, and developing coping mechanisms for mental health challenges. Tailored advice was given to help streamers maintain balance between their professional and personal lives.

3. Community Building Activities

The initiative fostered a supportive community among live streamers through group discussions and online forums. These platforms allowed streamers to share their experiences, exchange tips on health management, and offer encouragement. By creating a network of peers, the project aimed to reduce feelings of isolation and enhance collective resilience in dealing with occupational challenges.

The study employed a qualitative approach, reviewing literature and existing reports on the occupational health risks encountered by live streamers. Focus areas included physical, biological, ergonomic, psychosocial, and chemical hazards. Best practices for mitigating these risks were identified through research from various fields, including ergonomics, vocal health, nutrition, and mental health management.

RESULT AND DISCUSSION

The community service program was conducted online on November 22, 2024, with a total of 193 participants, comprising live streamers and agency representatives. The COVID-19 pandemic has made researchers look into the pros and cons of using videoconferencing for qualitative research. A review shows that videoconferencing can be a good alternative to in-person research. It is cost-effective and can reach people from different locations. Its effectiveness improves if the sessions are well-planned and organized. Testing the process beforehand can also help build a better connection between participants and researchers. However, it's important to ensure that all participants can make their own choices freely to avoid any potential exploitation (Boland et al., 2022).

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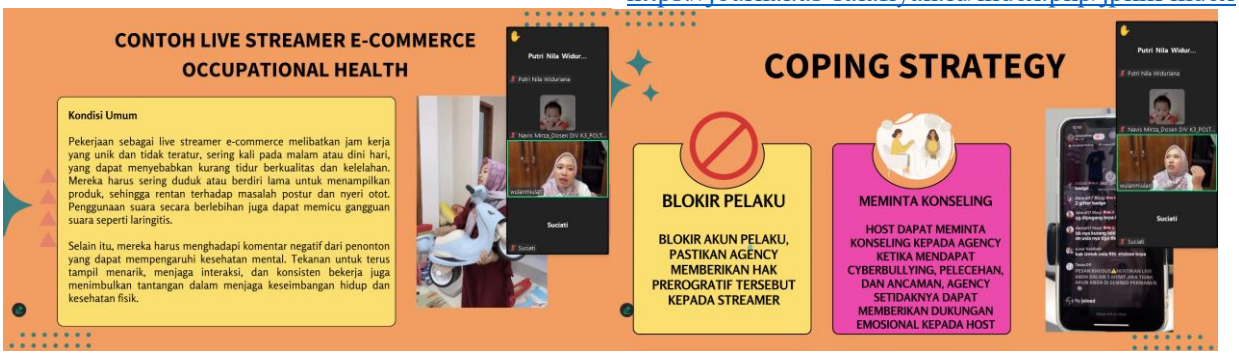

Figure 1. Zoom Community Service

Results of Community service Activities

1. **Improved Awareness**

Participants reported a heightened understanding of the health risks associated with live streaming. They became more conscious of the importance of ergonomic practices, vocal care, and maintaining a balanced diet. This increased awareness helped streamers recognize the impact of their work habits on their overall well-being.

2. **Positive Behavioral Changes**

Many streamers successfully integrated the knowledge gained from workshops and consultations into their daily routines. Notable behavioral changes included:

- Setting up ergonomic workstations to reduce physical strain.
- Taking regular breaks to stretch, rest their eyes, and recharge.
- Practicing vocal care techniques to avoid overuse and strain.
- Prioritizing sleep and effectively managing work schedules to maintain a healthy work-life balance.

3. **Enhanced Mental Well-Being**

The group discussions and mental health workshops equipped streamers with practical tools to manage stress and handle online criticism more effectively. Many participants reported feeling more confident in their roles and experienced a significant reduction in feelings of isolation.

4. **Feedback on Community Support**

Participants highly valued the peer support network established through the initiative. The ability to share challenges, seek advice, and offer mutual encouragement created a sense of

camaraderie among streamers. This ongoing support became a vital resource for motivation and problem-solving.

Challenges

- **Time Constraints**: Streamers with demanding schedules found it challenging to attend all the workshops and consultations, limiting their ability to fully benefit from the program. The adoption of Live Video Streaming (LVS) for online education via mobile devices offers a solution to time constraints and limited resources. In China, mobile devices are more widely used than personal laptops, with 817 million of the 824 million internet users accessing the web through mobile devices. Livestreaming, a popular form of mobile-based social interaction, has 433 million users in China, representing over half of the internet population. Research shows that livestreaming has already been used for online education in China for some time, making it a natural and widely accepted method for schools and teachers to broadcast classes online during this period of transition(X. Chen et al., 2021).
- **Sustaining Engagement**: Keeping participants consistently involved in the initiative required continuous effort, especially in maintaining momentum after the initial excitement. Respondents often seem unresponsive during online synchronous Zoom sessions, which affects the nonverbal dynamics of respondent–instructor interactions. Communication challenges arise from internet issues, lack of facial expressions, body language, and movement. Additionally, respondents report difficulty maintaining focus, especially when multitasking(Sholeh, 2024). Suggested strategies to enhance engagement include positioning the camera for clear visibility, using active facial and body responses as if communicating one-on-one, maintaining good posture, reducing multitasking and notifications, and creating cues for specific tasks. Optimizing attention and visual refreshment can also improve participation during online sessions (Peper et al., 2021).
- **Resource Limitations**: Providing access to health specialists for every participant was difficult due to limited funding and resources, making it challenging to offer personalized consultations to all streamers.

In addition to fostering greater awareness and positive behavioral changes among streamers, the initiative successfully identified key occupational health risks and implemented effective

mitigation strategies. These risks ranged from physical and ergonomic hazards to mental health challenges. By working closely with health professionals, the program developed tailored solutions to address these risks, helping streamers create safer and healthier work environments.

The following are the findings regarding health risks and the mitigation measures implemented.

1. Physical Risks

Prolonged Screen Exposure:

Streamers spend hours in front of screens, causing digital eye strain, headaches, and visual fatigue. Blue light exposure exacerbates these issues, leading to disrupted sleep cycles.

Mitigation Strategies:

- Implement a 20-20-20 rule: every 20 minutes, look 20 feet away for 20 seconds.

This finding is in accordance with Kaurs's research. Digital Eye Strain (DES) is a condition caused by prolonged use of digital devices, leading to symptoms like dry eyes, itching, blurred vision, and headaches, along with non-ocular issues such as neck stiffness and fatigue. Before COVID-19, DES affected 5-65% of people, but with the rise of digital learning during lockdowns, its prevalence in children increased to 50-60%, with new complications like eye misalignment and worsening myopia. Managing DES involves reducing screen time, frequent blinking, improving lighting, minimizing glare, taking regular breaks, and following the 20-20-20 rule to ease eye strain (Kaur et al., 2022). Increased use of digital devices contributes to eye strain and other health issues, particularly sleep disturbances. Screen exposure for more than two hours, especially in air-conditioned environments, can dry the eyes and cause strain, which is worsened by poor lighting and ergonomics. Digital device usage, especially in the evening, alerts brain activity and disrupts sleep patterns. Excessive screen time is linked to difficulty falling asleep and staying asleep, highlighting the need for better attention to digital health and well-being, particularly as screen time surged during the pandemic (Dhabaria et al., 2022).

2. Biological Risks

Disrupted Circadian Rhythms:

Irregular work hours, particularly late-night streams, disrupt the natural circadian rhythm, resulting in sleep disorders, fatigue, and metabolic complications such as obesity and diabetes.

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Dietary Imbalances:

Unstructured eating habits, including skipping meals or consuming high-calorie fast foods, increase risks of gastrointestinal disorders and cardiovascular diseases.

This review highlights that shift work can lead to serious health issues such as sleep disorders, psychiatric problems, gastrointestinal disturbances, metabolic disorders, cardiovascular disease, urologic issues, and even certain cancers. These arise from disruptions in the circadian clock, often linked to genetic changes. Importantly, dietary imbalances also play a role, as irregular meal times and poor nutrition further disrupt circadian rhythms. This disruption can lead to metabolic disorders and other health problems. Shift workers may also struggle with social isolation and face increased risks of accidents due to excessive sleepiness and decreased performance (Silva et al., 2020).

Voice Overuse and Laryngitis:

Frequent talking, often at high volumes, over long periods strains the vocal cords. This leads to laryngitis, characterized by voice loss, throat pain, and chronic irritation. Although there is no specific research on vocal health among e-commerce live streamers, data from studies on telemarketers can serve as a relevant comparison. Approximately 45% of telemarketers reported experiencing one or more vocal symptoms. Of these, 16.46% indicated experiencing vocal tension while speaking, and 10.13% reported frequent throat clearing to improve vocal clarity. Additionally, 5% noted that they speak continuously without taking breaks, while 40.51% reported using their voices in noisy environments, which can further strain vocal health (Fuentes-López et al., 2019).

Mitigation Strategies:

- Maintain a consistent sleep schedule and minimize exposure to blue light before bedtime.
- Practice diaphragmatic breathing and vocal exercises to reduce strain.
- Consume a balanced diet rich in fruits, vegetables, lean proteins, and whole grains.
- Stay hydrated with water and herbal teas to support vocal health.
- use humidifiers

Diaphragmatic Breathing Exercises can enhance respiration and vocal strength, leading to an increase in Maximum Phonation Time. As a result, these exercises can be recommended for

vocalists, and incorporating physiotherapy into training programs may be beneficial in improving vocal dynamics (Chukwu et al., 2022).

3. Psychosocial Challenges

Mental Health Strain:

Live streamers face intense audience scrutiny, cyberbullying, and high expectations to perform consistently. This contributes to stress, anxiety, depression, and burnout. Research in china finds revealed that 59.5% of live streamers experienced cyberbullying and 30.6% of live streamers experienced burnout(S. Chen et al., 2024). More than half of US adults who use the internet have dealt with different types of Cyberharassment reporting cyberbullying (30%), trolling (25%), sexual harassment (23%), doxing (19%), cyberstalking (16%), online impersonation (15%), revenge porn (10%), cyber defamation (8%), hacking (8%), and message bombing (6%) (Abarna et al., 2022).

Social isolation further exacerbates these challenges as many streamers have limited personal interactions due to irregular schedules and odd work hours. This is consistent with research findings that show the prevalence of emotional mental disorders, including symptoms of depression and anxiety, among individuals aged 15 and older in Indonesia is approximately 6.1%, which translates to around 11 million people. Among adolescents (aged 15-24), the depression rate is 6.2% (Farika et al., 2024).

Mitigation Strategies:

- Engage in regular counseling or mental health check-ins.
- Practice mindfulness, meditation, and relaxation techniques to manage stress.
- Develop a robust support network of friends, family, and fellow streamers.
- Limit exposure to negative comments through moderation tools or blocking features.

Post-traumatic stress disorder (PTSD) in live streamers exposed to cyberbullying is a growing concern in understanding the mental effects of online harassment. A study reviewed the symptoms, risk factors, and coping strategies for PTSD. Symptoms include intrusive thoughts, avoiding triggers, mood changes, and heightened reactions. Main risk factors include lack of social support, frequent cyberbullying, and the emotional toll of negative comments. Recommended coping strategies involve family and community support, mental health screenings, and debriefing

sessions (Mirza & Dhania, 2023). The coping strategies provided are not only problem focused strategies but a combination of problem focused, cognitive and emotion focused strategies (Jacobs, 2023).

4. Chemical Hazards

Exposure to Cosmetics and Pollutants:

Frequent use of makeup, often with harsh chemicals, leads to skin irritation or long-term health issues. The use of cosmetics can lead to various side effects on health. While cosmetics themselves are not toxic, if made from harmful chemicals, they can trigger side effects such as allergies and skin irritation. The usage and composition of ingredients in cosmetics need to be carefully monitored, as continuous and excessive use of cosmetics containing harmful substances can pose serious health risks(Sanderiana, 2012). Poor ventilation in streaming environments can accumulate pollutants like dust and carbon dioxide, impacting respiratory health.

Mitigation Strategies:

- Use hypoallergenic and skin-friendly cosmetic products.
- Ensure proper ventilation and consider air purifiers to maintain indoor air quality.
- Take regular breaks from makeup and maintain a skincare routine to protect the skin.

A "break" or "breather" in beauty practices is seen as an opportunity for skin and hair to "rest" and improve in appearance. Dosekun describes this as "aesthetic rest," where individuals take intentional breaks from the negative effects of hyper-feminine beauty routines to better tolerate the ongoing use of these beauty technologies (Wood, 2024).

5. Ergonomic Risks

Postural Strain: Improper seating, prolonged sitting, or standing, combined with poorly designed workstations and repetitive movements, contributes to musculoskeletal disorders such as back pain, neck stiffness, and shoulder discomfort. Reserch finding in china show that 49.3% maintained a continuous sitting work posture (Chen et al:2024)

Mitigation Strategies:

Implementing ergonomic furniture, Position screens at eye level to minimize neck strain. taking regular breaks alleviate physical strain. Stretch and perform light exercises during breaks.

The finding of the study showed that a postural shift frequency of 20-30 times/h significantly led to lower perceived discomfort in the neck, shoulder, upper back, and low back compared to a postural shift frequency of 10 times/h during 1 hour of sitting (Akkarakittichoke, 2021).

CONCLUSION

The occupational health risks faced by live streamers in e-commerce streaming involves unique challenges that impact physical, mental, and overall health .The occupation of live streaming introduces diverse health challenges that can compromise the well-being of streamers.that require urgent attention. However, these challenges can be effectively managed through strategic interventions By integrating ergonomic adjustments, vocal training, mental health support, and establishing balanced dietary habits, streamers can achieve a healthier work environment. Industry stakeholders, including employers and streaming platforms, must prioritize these measures to sustain the well-being and productivity of live streamers by fostering supportive environments and offering resources for health management as part of their professional culture.

This study underscores the need for further research on the long-term occupational health effects of live streaming. Future investigations should evaluate the effectiveness of interventions over extended periods and explore policy recommendations to standardize streamer health and safety practices. Future research could involve longitudinal studies to evaluate the effectiveness of proposed interventions and their impact on the productivity and well-being of live streamers.

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