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Leveraging Social Media for COVID-19 Vaccine Uptake in Urban Dhaka: A Public Sector Management Perspective

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Abstract

Introduction: *The COVID-19 pandemic posed unprecedented challenges for the public health system worldwide, affecting low and middle-income countries like Bangladesh severely. In Dhaka, dense urban settlements, widespread miscommunication, and fear of the vaccine hindered the success of early vaccination. Traditional media did not reach the poor, so the Directorate General of Health Services (DGHS) had to make use of social media tools to promote the use of vaccines.* ***Materials and Methods:*** *This qualitative study spans Dhaka, Bangladesh, from January 2021 to December 2022. It analyses secondary data sources, including government reports, peer-reviewed journals, and social media. The digitally engaged urban youth, middle-class homes, and digitally excluded groups like slum dwellers and the elderly population are some of the targeted populations.* ***Discussion:*** *Social networking sites, primarily Facebook, YouTube, and Twitter, were instrumental in disseminating culturally appropriate, geolocated vaccine messages. The "Tika Dibo" campaign raised awareness and pushed registration via the 'Surokkha' app, particularly among digitally literate youth. However, digital marginalization, limited monitoring of disinformation, and decentralized campaign management capped the overall effect. Strategic constraints included inadequate real-time feedback loops and no tailored communication for marginalized groups.* ***Conclusion:*** *Social media is a promising medium for low-cost and scalable public health outreach in urban LMIC settings. However, for optimal impact, online campaigns must be complemented by inclusive access strategies, timely monitoring of data, and better institutional coordination. Bangladesh's experience offers important lessons for integrating social media into mainstream, long-term public health planning beyond emergency response contexts.*

Keywords: *Social media and public health, Urban health governance, Vaccine hesitancy in LMICs, Public sector management, Digital health strategies, Health misinformation, Dhaka health infrastructure, Adaptive public health campaigns and Behavioural communication in pandemics.*

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Introduction:

Due to socioeconomic limitations, health communication gaps, and inadequate infrastructure, low and middle-income countries like Bangladesh were disproportionately impacted by the COVID-19 pandemic, which was a serious test of public health systems worldwide (Islam et al., 2023)[1]. The nation's capital and most populous city, Dhaka, quickly became a breeding ground for COVID-19 transmission due to its huge population density, vast informal slum areas, and mobility patterns that made containment challenging (Patwary et al., 2022)[2].

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Hesitancy in vaccination presented a serious challenge to the national immunization drive launched in early 2021 and was a key obstacle to the pandemic war. Misinformation, public institution distrust, cultural miscommunication, and uneven messaging were the main factors for this reluctance, and the viral nature of online information on social media platforms accelerated the problem (Mahmud, Bin Reza and Ahmed, 2021)[3]. Conventional platforms like print, radio, and state television lacked the reach, agility, and interactivity necessary to influence marginalized communities and youths in Dhaka's urban poor settlements, said Chowdhury et al. (2023)[4]. Consequently, the Ministry of Health and Family Welfare's Directorate General of Health Services (DGHS) initiated a public sector effort to incorporate social media platforms, particularly Facebook, YouTube, and Twitter, into the country's COVID-19 vaccination communication plan (Hossain, 2021)[5]. Public participation in real-time, countering misinformation, encouraging vaccination registration (via the 'Surokkha' app), and sharing personalized messaging in graphics and native language were all enabled through these channels (Malik et al., 2024)[6]. Multi-stakeholder partnerships between ministries, NGOs, and digital communications experts were a part of the organisational setup. There were some major management issues, however, such as digital divide, lack of real-time analysis, and weak ability to design messaging specific to urban hard-to-reach populations (Hossain, 2021)[5]. This backdrop offers a critical lens upon which to view the operationalisation of social media-driven public health promotion in Dhaka and map out points of development.

Materials and Methods:

The study applies a qualitative case study to study the strategic application of social media on the part of the public sector to market the COVID-19 vaccines in urban Dhaka, Bangladesh. The study period is January 2021 to December 2022, which coincides with the launch and execution of the national COVID-19 vaccination campaign.

The spatial setting is Dhaka city, the capital and largest city of Bangladesh, with high population density, large informal settlements, and large digital divides. The target group is city residents segmented by digital access, i.e., (i) university students and digitally capable youth; (ii) middle-income social media consumers; and (iii) digitally excluded populations such as slum dwellers and seniors.

Sources of data for this study include secondary sources such as reports of government health communication, published journal articles, online campaign material (e.g., "Tika Dibo"), and available use analysis from online channels such as Facebook and YouTube. Theoretical foundations in public sector management and in health communication theory are also used to analyse campaign design, reach, and institutional effectiveness. This approach strategy enables a thorough insight into how digital strategies were applied in the urban LMIC environment and how far they bridged communication barriers and behavioural hurdles to vaccination.

Results & Discussion:

Social media was at the core of extending the coverage and acceptance of the vaccination campaign among digitally engaged urban populations, especially students and middle-class young adults. Strategic messaging natively framed visual content, and integration with the 'Surokkha' vaccination registration application assisted in raising awareness of vaccines. There were still significant constraints, however, above all, the digital divide, uneven disinformation management, and the absence of real-time monitoring and responsive feedback mechanisms. These constraints reveal gaps in strategic leadership, coordination, and inclusive access planning. Observations based on organizational theories such as Kotter's change model and the McKinsey 7S Framework show there must be increased managerial capacity, decentralized decision-making, and a robust digital communications infrastructure.

Previous Efforts:

A nationwide vaccination campaign launched in February 2021, sweeping lockdowns, and preparedness of the healthcare system were the main focuses of Bangladesh's early attempts at controlling the COVID-19 pandemic. Widespread public inoculation centres spread out in major cities like Dhaka were instrumental in the early rollout of vaccines, which were aided by the Serum Institute of India. Conventional media like radio, TV, and formal press conferences constituted the bedrock of early communication campaigns (Islam et al., 2023)[1]. Although this channel disseminated elementary information, it failed to address prevalent cultural scepticism as well as misinformation, especially amidst urban youths and slum residents (Chowdhury et al., 2023)[4]. The Directorate General of Health Services (DGHS) took action by taking recourse to social media platforms to launch targeted health communication interventions in collaboration with the Ministry of Health and Family Welfare and with technical assistance from organizations such as WHO and UNICEF. One such initiative was the "Tika Dibo" campaign, which promoted vaccine registration through the 'Surokkha app' and generated confidence by releasing short films, infographics, and testimonials in Bengali on Facebook, YouTube, and Instagram (Sabbir, Taufique and Nomi, 2021)[7]. It was especially effective in reaching university students, urban youth, and middle-class neighbourhoods with internet access. According to a study carried out by Chowdhury et al. (2023)[4], the young people who were exposed to social media campaigns recorded a palpable improvement in their vaccine knowledge and use of the 'Surokkha' portal. However, for the digitally marginalized groups, like the aged and slum dwellers who lack an internet connection and digital literacy, the reach of the strategy was not as effective (Hossain, 2021)[5]. Adaptive leadership and some aspects of entrepreneurial behaviour were evident in the management of the campaign, such as the utilization of WhatsApp groups by the local health volunteers for community-level outreach. At the national level, however, such innovations were fragmented and unorganized (Mahmud, Bin Reza and Ahmed, 2021)[3]. This indicates that specific managerial roles, more particularly, the liaison and disseminator roles, which could have improved vertical and horizontal communication across health sectors, have not been applied consistently (Shakeel et al., 2022)[8].

Furthermore, the effort was hindered by limited misinformation monitoring capabilities and a shortage of

real-time feedback systems. It was challenging to measure the success of certain communications approaches or refute circulating rumours in the absence of strong monitoring and evaluation (M&E) tools (Mahmud, Bin Reza and Ahmed, 2021)[3]. Dysfunctional leadership and the lack of a shared framework for digital management prevented the social media efforts from realizing their full potential, though they did fill some communication gaps.

Recommendations:

A list of evidence-based, context-specific, and management-oriented recommendations is offered with the aim of improving the effectiveness and inclusiveness of COVID-19 vaccination marketing through social media in urban Dhaka. These are framed to surmount the structural inadequacies of the public health system in a low and middle-income country like Bangladesh, along with the noted shortcomings in prior initiatives.

1. Create a Centralised Unit for Digital Health Communication

DGHS must commission a specialized group of digital planners, behaviour researchers, and public health experts. Henri Fayol's concepts of coordination, specialisation, and unity of command are complementary to this. With this methodical management, Ethiopia's healthcare system underwent analogous developments (Linnander et al., 2017)[9]. A similar concept can improve public sector campaign design, delivery, and follow-up through the dissemination of timely, consistent, and culturally appropriate COVID-19 message across media if utilized in social media.

2. Maximize Digital Reach by Communicating on a Range of Platforms

Social marketing campaigns must use community radio, SMS, and IVR (interactive voice response) in addition to social media to combat digital exclusion. Dissemination of vaccine-related information to marginalised communities can be achieved through collaboration with telecommunications providers such as Grameenphone. This demonstrates an inclusive innovation strategy with a focus on equity and accessibility for marginalised communities (Hossain et al., 2021)[5].

3. Utilise Local Micro-Influencers Influential local opinion leaders:

Youth volunteers, community health workers, and religious leaders, must be formally integrated into public sector campaigns' outreach strategies. Social Network Theory describes that people, when persuaded by their friends or other familiar persons in their social networks, are more likely to adopt new trends (Jain et al., 2022)[10]. This approach improves trust and relatability; two important issues identified in previous campaigns.

4. Showcase Adaptive Messaging and Real-Time Monitoring

DGHS should employ AI-driven social listening tools that track, evaluate, and respond to disinformation trends in real time to counter misinformation effectively. Coordination with platforms like Facebook and YouTube can more quickly remove harmful information and adaptive messaging (Mazumder et al., 2024)[11].

This is also in line with Kotter's change model, like creating the necessity for urgency and facilitating quick wins through responsive communication. Fast-paced communication systems enhance vaccination campaign results, according to prior research in international settings (Shakeel et al., 2022)[8].

5. Leverage Training to Enhance Organisational Capacity:

DGHS communication teams and healthcare providers need to be specifically trained in digital communication, behavioural messaging, and misinformation management. According to the McKinsey 7S Framework, under the "skills" and "staff" dimensions, this facilitates skills development and internal capacity building (Bismark et al., 2018)[12]. To bridge the gap between offline and online engagement, on-the-ground digital ambassadors can also be role-played by adept healthcare providers (Jain et al., 2022)[10].

6. Curating a strong framework for monitoring and evaluation (M&E):

To monitor engagement metrics, message reach, sentiment trends, and actual vaccination uptake corresponding to communication bursts, a real-time observational dashboard must be established. This is in consonance with Drucker's Management by Objectives (MBO), which promotes data-driven performance measurement, monitoring, and planning (Ugwu and Ugwu, 2024)[13].

The public sector in LMIC settings is the intended audience for these guidelines. They are informed by behaviour research, management theory, and current empirical findings. By applying these strategies, the broader digital public health communication ecosystem in Bangladesh could be rendered far more resilient and responsive, in addition to enhancing vaccine uptake (Abedin et al., 2021)[14].

Conclusion:

One of the most compelling examples of adaptive public health practice in a low-resource environment is that of the Bangladeshi public sector's use of social media as a platform for social marketing to promote the COVID-19 vaccine in urban Dhaka. Misinformation, vaccine hesitancy, and mass mobilization needs were the motivations that prompted the government to shift from traditional methods of communications to social media like Facebook and YouTube (Mahmud, Bin Reza and Ahmed, 2021)[3].

These approaches, despite weaknesses, demonstrated that social media can be an affordable and scalable tool to disseminate localized, culturally adapted, and real-time public health messages in urban metropolitan cities with high population density (Sada Soorapanth et al., 2023)[15].

This case study highlights the importance of both technological change (use of digital platforms) and the underpinning management infrastructure. All three phases of campaign coordination, back-channel feedback from data, and engaging digitally excluded groups are missing, which are missed opportunities that could have been managed more effectively with stronger strategic leadership using tools such as Kotter's change model (Ugwu and Ugwu, 2024)[13]. Moreover, electronic communication poses a risk of worsening rather than mitigating inequalities if there are not inclusive access plans (Zhou et al., 2024)[16].

The wider implication is obvious - social media must be formally recognized as a key site for public health communication rather than an ad-hoc solution during emergencies. This demands inter-sector collaboration, institutional investment in e-governance in digital health, and the incorporation of behaviour insights into public health planning at all levels (Shakeel et al., 2022)[8]. For other LMICs with similar problems, Bangladesh's experience in Dhaka has lessons. In order for public health outcomes to be equal, adaptable, and successful, future plans must embed managerial and technology innovation.

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