



The Roles of Social Media in Hypertension Management Programs

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ABSTRACT

Hypertension is still one of the leading causes of morbidity and mortality globally. Complications of hypertension cause innumerable social, economic, and health cost burdens, reaching 131 million dollars per year in the United States. However, blood pressure control through lifestyle modifications and pharmacological intervention, achieving blood pressure targets is often unsatisfying. With its simple, cost-efficient, multifunctional, and enormous coverage characteristics, social media is promising to be utilized in health programs. Social media could provide massive information and accommodate the hypertension community to increase hypertension awareness. Incorporating social media in hypertension management improves patients' lifestyles and pharmacological adherence more than conventional methods. The exact mechanism of how social media-based health programs increase treatment adherence is complex and has not been well-defined; raised awareness, bidirectional communication, and a qualified coach (physician) seem to be the essential factors. It should also be well aware that screen time duration and emotional alteration due to social media exposure could also potentially increase blood pressure.

Keywords: Hypertension, hypertension management, internet, social media

ABSTRAK

Hipertensi masih menjadi salah satu penyebab utama morbiditas dan mortalitas global. Komplikasi hipertensi menimbulkan beban sosial, ekonomi, dan biaya kesehatan yang mencapai 131 juta dolar setiap tahun di Amerika Serikat. Kontrol tekanan darah melalui modifikasi gaya hidup dan intervensi farmakologis, hasilnya seringkali masih belum memuaskan. Media sosial dengan karakteristiknya yang simpel, murah, multifungsi, dengan cakupan sangat luas tampak menjanjikan untuk digunakan dalam program-program kesehatan. Media sosial dapat menyediakan berbagai informasi dan mengakomodasi komunitas untuk meningkatkan kesadaran terhadap hipertensi. Penggunaan media sosial dalam manajemen hipertensi tampak mampu memperbaiki pola hidup dan ketaatan farmakologi lebih baik daripada metode konvensional. Mekanisme pastinya bersifat kompleks dan masih belum dapat dijelaskan dengan baik; namun peningkatan kesadaran, komunikasi dua arah, dan pendamping (dokter) terqualifikasi tampak sebagai faktor-faktor penting. Hal yang seharusnya juga diperhatikan adalah durasi *screen time* dan perubahan emosional karena saat menggunakan media sosial juga dapat berpotensi meningkatkan tekanan darah. Pandit Bagus Tri Saputra, Sherly Yolanda, Dinda Dwi Purwati, Sulistiawati. Peran Media Sosial dalam Program Tata Laksana Hipertensi.

Kata kunci: Internet, media sosial, program hipertensi, tekanan darah tinggi



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INTRODUCTION

More than 1.25 billion people globally have high blood pressure, increasing annually.¹ The failure to control blood pressure causes numerous complications such as irreversible retinopathy, chronic kidney failure, stroke, and acute coronary syndrome.^{2,3} In addition, uncontrolled blood pressure declines, decreases productivity, decreases the quality of life, and substantially increases healthcare-related costs.^{4,5} Developed countries such as the United States spent 131 million dollars on hypertension and its associated complications

annually.⁵ In contrast, Indonesia spent 1 million dollars, or 75% of Indonesian Health Insurance annual expenditure, for the same reason.⁶

As the core of hypertension management, blood pressure control is achieved by pharmacology, pharmacologic, and lifestyle interventions;^{2,3} nonetheless, blood pressure target control is still difficult to meet.⁵ Nearly half of hypertensive adults were unaware of their condition, and only one in five patients have controlled blood pressure.¹ Asymptomatic case, inadequate

knowledge, low drug adherence, and failure to control various risk factors^{2,5,7} contributed to uncontrolled blood pressure, particularly in developing countries.¹

Social media is "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and allow the creation and exchange of user-generated content."⁸ It was estimated that social media users per January 2022 were 4.6 billion, with a 424 million increase in the previous year.⁹ With its enormous

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coverage, social media is a promising platform for various programs.¹⁰ Social media has imperative roles for the future health systems due to its advantages: simple, cost-efficient, multifunctional, equipped with numerous features, massive coverage, and able to permeate geographical and race barriers.^{3,10-12} More than 67% of hypertension patients were internet users.¹³ Social media-based telemedicine for hypertension management in the preventive and curative aspect is a promising innovation.¹⁴⁻¹⁶ As there was scarce literature that specifically discussed the role of social media in hypertension management,¹³ this article aimed to review this issue.

DISCUSSION

Social Media as Information Provider

In this internet era, the function of social media as an information provider penetrate race, physical, cost, and geographic barriers.^{12,14,17,18} The role of social media in distributing health-related information is expected. Specifically, more than 58% of hypertension patients accessed a website that provides information on a specific medical condition or problem.¹³ Since pharmacological adherence and a healthy lifestyle play pivotal roles in hypertension management,^{2,3} community-based prevention has a potential impact on raising awareness for successful management.

Facebook's users are varied in age and have the public group feature, commonly used for specific objectives. In 2013, at least 187 Facebook hypertension community groups (private groups not included) were in the US, and 85% were based internationally. The three most common communities' objectives are raising awareness (60%), supporting patients or caregivers (11%), and sharing experiences (10%).¹³ As a comparison, the most common objective of cancer communities, was fundraising.¹⁹ The rationale for this phenomenon is that knowledge plays a vital role in lifestyle modification and pharmacological adherence, which is hypertension management's principal prevention of complications.^{2,5} Other social media, such as WhatsApp²⁰ and WeChat,²¹ also have high health information current, particularly during COVID-19 pandemic.^{20,21}

Despite its massive coverage as an information provider, the presence or contribution of experts in hypertension-related social media

groups is minimal,¹³ this condition may risk misunderstanding and hoax spreading. Additionally, the prevalence of health information misunderstandings in social media groups is 87%.²² Moreover, one of five hypertension community groups in social media was related to unlicensed product advertisement¹³ and probably involved a conflict of interests. The presence of experts in the strategic hypertension community without conflict of interest may filter false information or unnecessary advertisement and even minimize misunderstandings. Hoaxes spread faster than accurate information;²³ however, if the true information is provided earlier before the hoaxes, it may prevent further spreading of misleading information. Hypertension communities in different countries' social media may pose different challenges, as they differ in characteristics and pattern.

Social Media in Advertising Hypertension Project

Numerous social media advantages in advertising hypertension-related programs have been recorded. Measure Your Blood Pressure (MYP), a hypertension campaign targeting adult Facebook users in the US, reached 80,000 active users with 121,683 impressions. Around 2,057 users clicked the link for full health articles, but only 2.5% of the total coverage opened the full articles; Facebook advertisement significantly increases MYP participation than the conventional method alone.²⁴

Facebook advertisement to promote the clinical trial study of hypertension increased participation in 2 of 3 cities in Australia. The third city, which showed an insignificant result, is an urban area with better website promotion preparation.¹¹ As this hypertension clinical trial was performed offline, high traffics and strenuous urban life still became barriers to participation even though they had already engaged in the advertisement. This study showed that both Facebook and website advertisement might demonstrate similar outcomes in the promotion.¹¹

Social media is a potential tool to reach specific populations, particularly the isolated and high-risk population, that is unreachable by the conventional method.^{25,26} High blood pressure is more common in non-Hispanic black adults (54%) than in non-Hispanic

white adults (46%). Using specific attributes to increase participation in a specific group may be beneficial, such as using dark-skinned artists or models to increase non-Hispanic black participation. The exact direct cause is unknown, but familiarity may increase participants' trust in social media-based hypertension-related programs.

However, social media utilization in advertising hypertension programs may increase younger participants as most social media users were relatively young adults;^{11,24} thus, using social media for programs targeting younger participants seems more beneficial than programs targeting older participants. However, the trend showed an increase in social media users,⁹ including elderly users.¹¹ Interestingly, there were no socio-economic differences between conventional and social media participants.²⁷

Social Media and Treatment Adherence

Management of asymptomatic chronic diseases, such as hypertension, is often followed by high treatment failure. Only half of Americans have controlled blood pressure.¹⁸ Social media-based health promotion potentially improves motivation and attitude toward chronic disease treatment,^{12,17} which is associated with better outcomes.²⁸

While unhealthy lifestyles are associated with disease progression,⁷ the way social media in helping to create a healthy lifestyle in hypertension patients is complex. The WhatsApp-based intervention was inferior to face-to-face-based intervention to raise exercise motivations among patients.²⁹ On the other hand; internet-based health promotion successfully increased physical activity in 44 from 72 (61.1%) studies compared with the conventional method.³⁰

The weight loss observed in participants with internet intervention³¹ may reflect decreased sedentary time, increased physical activity, and better diet regulation.³² This could be explained by how self-monitoring-based coaching via social media allows bidirectional communication toward a better lifestyle.^{31,33} There is a positive correlation between coaching frequency and participants' weight loss.³⁴

In addition to coaching, self-monitoring may



raise patients' awareness of asymptomatic signs.^{35,36} Consequently, a healthy lifestyle and pharmacological adherence would improve. Nowadays, wearable smartwatch features can be connected with various social media (Facebook, WhatsApp, WeChat, etc.) and record vital signs and daily activities. It is exceedingly helpful for users and coaches,³¹ to monitor blood pressure, heart rate, moving distance, sleep time, calory balance, sedentary time, step counts,¹⁰ and more advanced features. Smartwatch is also affordable, simple, and widely available.³⁷ Home Blood Pressure Monitoring (HBMP) is recommended and superior to Office Blood Pressure Monitoring (OBPM) to predict hypertension complications.^{35,36}

As social media-based intervention improves a healthy lifestyle, WhatsApp-based intervention raises knowledge and pharmacological treatment adherence in patients with hypertension complications. A supportive atmosphere and fruitful discussion (feedback) in a community group with a physical presence are essential elements.¹²

Social Media Roles in Blood Pressure and Mortality

Hypertension management goals are to improve productivity and decrease morbidity and mortality through effective blood pressure control.³⁸

Social media facilitate numerous features that potentially improve hypertension management, but social media's direct effect on blood pressure, productivity, and mortality were scarcely evaluated.

The intervention group of a randomized controlled trial was asked to share educational content about hypertension on social media, expecting their motivation to increase in applying a healthy lifestyle. Surprisingly, the study failed to show a blood pressure decrease in the intervention group.¹⁵ while secondary prevention for hypertensive patients with

complications by WeChat potentially decreases morbidity and mortality. A validated cardiac rehabilitation program, monitoring system, systematic database, and trained coach are the key to social media-based hypertension management.³⁹ It emphasizes the importance of the patient, system, and physician (coach) aspects in elaborating social media application for hypertension management.^{10,16,31–33,35,36,39}

On the other hand, social media may also increase blood pressure in several ways. First, screen time was correlated with higher blood pressure, which may be mediated by sedentary life, unhealthy food; inadequate sleep duration, and quality.⁴⁰ Second, internet users may be associated with Problematic Internet Use (PIU), such as depression, anxiety, social isolation, and impulsivity.⁴¹ Those physiological stress will increase blood pressure.^{42,43}

We found limited literature on the direct consequences of social media-based intervention on blood pressure and mortality in hypertension patients. Theoretically, lifestyle improvement by social media intervention has beneficial effects on blood pressure and decreases mortality.^{44–46}

Recommendations for Social Media-based Hypertension Program

Health promotion-based social media is a promising innovation. Stakeholders and experts are essential in integrating or reforming previous systems, and still, many opportunities are open to exploration. However, some issues should also be anticipated, among others are system component validity.

First, social media users' age distribution and the high-risk hypertension population are correlated and predictable. Even though social media users in hypertension programs are associated with younger participants, the trend showed an increase in elderly social media users. As younger social media active

users are high-risk populations in the next few years, early engagement is an appropriate step to enforce treatment adherence and prevent hypertension complications in the future.

Second is the need to create a bidirectional system. Social media increase coverage and permeate information barriers. However, without a bidirectional system, social media capacity in the health promotion of hypertensive patients may be equal to website or mass media promotion. Regarding the importance of bidirectional interaction in the internet-based health program, real-time features and any other advanced features (such as video conferences) should enable patients and physicians to interact bidirectionally to increase the quality of social media-based hypertension treatment.

Third, a validated and legitimate physician (coach) is imperative. Besides the patient's contribution, the physician also sufficiently contributes to hypertension management failures, such as lenient blood pressure targets and inadequate and inappropriate treatment.^{47,48} Authorized physician has an essential role in media social-based hypertension management as they tend to be obeyed by audiences. Audiences respect physicians by how they communicate and answer questions, their certificates, titles, or training.⁴⁹

CONCLUSION

Hypertension morbidity and mortality depend mainly on blood pressure control, often off-target and associated with high-cost treatment. Social media provide various features and a vast audience unlimited by geographical, race, and physical barriers. Social media implementation in hypertension programs may increase participants' coverage, improve healthy lifestyles and associate with better pharmacological adherence. However, its effects on blood pressure and mortality need more comprehensive study.

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