



Mobile Applications: Methods for Increasing Delivery and Adherence to Methadone Maintenance Treatment in Rural and Remote Communities

Saeid Komasi¹, Mozhgan Saeidi², Behzad Heydarpour² and Ali Soroush^{3,*}

¹Clinical Research Development Center, Imam Reza Hospital, Kermanshah University of Medical Sciences, Kermanshah, Iran

²Cardiac Rehabilitation Center, Imam Ali Hospital, Kermanshah University of Medical Sciences, Kermanshah, Iran

³Lifestyle Modification Research Center, Imam Reza Hospital, Kermanshah University of Medical Sciences, Kermanshah, Iran

*Corresponding author: Lifestyle Modification Research Center, Imam Reza Hospital, Kermanshah University of Medical Sciences, Zakarya Razi Blvd., Kermanshah, Iran. Tel: +98-8334276299, Fax: +98-8334276299, Email: alisoroush.kums@yahoo.com

Received 2017 May 06; Revised 2018 April 14; Accepted 2018 April 22.

Keywords: Methadone Maintenance Treatment, Drug Abuse, Mobile, Adherence

Dear Editor,

In the recent years, methadone/buprenorphine maintenance treatment (MMT/BMT) centers have been able to be effective in controlling drug abuse and related high-risk behaviors in Iran (1). The treatment protocol of these centers is multi-component. In addition to drug therapies, this protocol includes psychotherapy and social work services (2, 3). According to the protocol defined by the Iran Health Ministry for MMT/BMT centers, each patient during the first six months of the treatment is obliged to refer to the center every day (3). This instruction is actually facing serious challenges, as recent studies indicate the highest rate of dropout occurs in the first six months of treatment (3, 4). Although this challenge is due to a number of factors, insufficient motivation, the cost of medication and services, and difficulty of access to the treatment center are the major causes (5). Specifically, the mentioned obstacles threaten the success of treatment for those patients, who live far away from the center of providing service. Obviously, a significant proportion of drug addicts live in rural and remote areas. These people usually have to travel a long distance to obtain medicine and clinical services (6). Meanwhile, the cost of transport and risks related to traffic accidents should be considered. In Iran, recently, some organizations, such as the Social Welfare and Universities of Medical Sciences have been able to reduce a portion of the financial burden of patients by offering medical subsidies (3). It has been able to partially increase adherence to treatment. However, the challenges of distance and accessibility to services in remote areas still remains.

Extensive strategies can be provided to facilitate ac-

cess to services. One of these strategies is the use of mobile applications, such as Telegram, Mobogram, Viber and Whatsapp messenger, WeChat, and Line messenger (7). Although patients in remote areas do not have access to their own treatment clinic, in most villages, there is the possibility of internet communication. Based on the format of services delivery, medication for at least a period of time (e.g. one week) can be provided to the patient after stabilizing drug dose (e.g. two first weeks). Thus, the physician can follow-up and monitor the health and the dose via internet and mobile applications on a daily basis. If necessary, the physician can ask the person to refer to the clinic physically. In addition to the weekly counseling, the center psychologist can send appropriate audio and video clips through these applications. Meanwhile, social workers can provide necessary support and supervision for each patient using this delivery format.

Given that it is not solely focused on receiving center-based services (7), this new technology-tailored strategy can facilitate access. This delivery strategy is likely to increase the participation and adherence to MMT/BMT among drug addicts living in rural and remote areas. Since during the recent years mobile interventions and relevant applications are strongly recommended and expanded (7, 8), the current authors recommend that MMT/BMT should be integrated with comprehensive support and health services (8) consisting of web-based and mobile intervention (7). There are major challenges for deploying clinical mobile applications, including financial, hardware, connectivity to existing clinical information systems, security, and user interfaces. However, the ease of developing and ex-

panding mobile apps should not lead to neglecting real challenges of clinical applications. Otherwise, patient and health system safety is potentially threatened (9).

Acknowledgments

The authors appreciate the Clinical Research Development Center of Imam Reza Hospital, Kermanshah University of Medical Sciences.

Footnotes

Authors' Contribution: All authors participated in the design of the study and drafted the manuscript and read and approved the final manuscript.

Conflict of Interests: None of the authors had conflicts of interest to report.

References

1. Eslami Shahrababaki M, Ziaaddini H, Hagh Doost AA, Ghasemi M, Eslami Shahrababaki P, Alizadeh Nouri R, et al. Methadone treatment in Iranian opiate addicts: a preliminary report. *Addict Health*. 2011;**3**(1-2):53-60. [PubMed: [24494117](#)]. [PubMed Central: [PMC3905526](#)].
2. Komasi S, Saeidi M, Zakiei A, Amiri MM, Soltani B. Cognitive restructuring based on metaphor therapy to challenge the irrational beliefs of drug addicts undergoing buprenorphine treatment. *Int J High Risk Behav Addict*. 2017;**6**(1). doi: [10.5812/ijhrba.31450](#).
3. Komasi S, Saeidi M, Amiri MM, Nazeie N, Shams Alizadeh N, Soroush A. Triggers of substance abuse slip and relapse during outpatient treatment in methadone/buprenorphine maintenance therapy clinics: a predictive model with emphasis on treatment-related factors. *Jundishapur J Health Sci*. 2017;**9**(3). doi: [10.5812/jjhs.57688](#).
4. Kassani A, Niazi M, Hassanzadeh J, Menati R. Survival analysis of drug abuse relapse in addiction treatment centers. *Int J High Risk Behav Addict*. 2015;**4**(3). e23402. doi: [10.5812/ijhrba.23402](#). [PubMed: [26495256](#)]. [PubMed Central: [PMC4609495](#)].
5. Che Y, Assanangkornchai S, McNeil E, Chongsuvivatwong V, Li J, Geater A, et al. Predictors of early dropout in methadone maintenance treatment program in Yunnan province, China. *Drug Alcohol Rev*. 2010;**29**(3):263-70. doi: [10.1111/j.1465-3362.2009.00157.x](#). [PubMed: [20565518](#)].
6. Komasi S, Saeidi M, Sariaslani P, Soroush A. A new delivery model to increase adherence to methadone maintenance treatment. *Caspian J Intern Med*. 2018;**9**(1):104-5. doi: [10.22088/cjim.9.1.104](#). [PubMed: [29387329](#)]. [PubMed Central: [PMC5771370](#)].
7. Guarino H, Acosta M, Marsch LA, Xie H, Aponte-Melendez Y. A mixed-methods evaluation of the feasibility, acceptability, and preliminary efficacy of a mobile intervention for methadone maintenance clients. *Psychol Addict Behav*. 2016;**30**(1):1-11. doi: [10.1037/adb0000128](#). [PubMed: [26618796](#)]. [PubMed Central: [PMC4924621](#)].
8. Tran BX, Vu PB, Nguyen LH, Latkin SK, Nguyen CT, Phan HT, et al. Drug addiction stigma in relation to methadone maintenance treatment by different service delivery models in Vietnam. *BMC Public Health*. 2016;**16**:238. doi: [10.1186/s12889-016-2897-0](#). [PubMed: [26956741](#)]. [PubMed Central: [PMC4784456](#)].
9. Ehrler F, Wipfli R, Teodoro D, Sarrey E, Walesa M, Lovis C. Challenges in the implementation of a mobile application in clinical practice: case study in the context of an application that manages the daily interventions of nurses. *JMIR Mhealth Uhealth*. 2013;**1**(1). e7. doi: [10.2196/mhealth.2344](#). [PubMed: [25100680](#)]. [PubMed Central: [PMC4114482](#)].