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EVALUATION OF THE USEFULNESS OF THE E-POP APPLICATION AS A THERAPEUTIC PROGRAM FOR REDUCING ALCOHOL CONSUMPTION IN THE TIME OF THE SARS-COV-2 PANDEMIC

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e-Reduced Drinking Programme (E-POP)
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Summary

Objectives: The aim of the study was an evaluation of the E-POP application performed by the users of this therapeutic program supporting the reduction of alcohol consumption in the time of the SARS-CoV-2 pandemic.
Methods: 1854 E-POP users (1058 males and 796 females, average age was 38,78 years) were enrolled in the study. Users interested in participation in the E-POP program, anonymously logged in and accepted the regulations and appropriate consents related to data processing. 503 participants registered for the therapy. The final evaluation of a full/ complete E-POP programme was performer by 37 people.
The demographic characteristics of the E-POP users (gender, age, number of participants at every stage of the application) were described and the evaluation of the E-POP application in five categories made by the users who completed the 11-week therapeutic program in the period from March 2020 to march 2021 was presented.
Results: Out of the total number of 1854 E-POP users who took part in a „diagnostic and informative” stage of E-POP program, 27% of users registered for therapeutic work in the „time for a change” stage. Participants (n = 38) who completed the several-month E-POP program assessed the application in terms of five dimensions. The results of the program evaluation indicated the highest rating in terms of expanding knowledge and skills in reducing alcohol drinking dimension (4,3/5), as well as the willingness to recommend E-POP program to others (4,27/5). The remaining ratings oscillated around 4/5. Males and females did not differ significantly in assessing the E-POP usefulness in alcohol consumption reduction.
Conclusions: Nearly 30% of E-POP users who took part in a „diagnostic and informative” stage of E-POP program logged in to the next „time for a change” stage. The application was well rated

by users, indicating great satisfaction and benefits from using the program. The EPOP application is a useful tool supporting work on reducing alcohol consumption, especially in the conditions of limited availability of therapeutic assistance during the SARS-CoV-2 pandemic.

Introduction

Mobile applications in the time of the SARS-CoV-2 pandemic

Mobile applications are becoming more popular and accepted in health care interventions [1, 2]. They broaden the ability to help people with an alcohol problem and increase therapeutic efficiency [2–4], especially when, due to the SARS-CoV-2 pandemic, access to traditional health care system is limited. Mobile applications make it possible to access people, who, for various reasons (financial limitations, time limitations, lack of medical care in neighbourhood, the need to remain anonymous) do not want or are not able to use classical therapeutic help [5-7]. The E-POP application, thanks to its flexible structure, gives an opportunity to adjust it to an individual activity rhythm, without forced time schedules, anywhere in the world. Soon after the outburst of the SARS-CoV-2 pandemic, World Health Organisation [8] published data on the risk of drinking alcohol and the Covid-19 disease. It indicated, that consumption of alcohol may worsen the course of the disease, therefore reduction of alcohol consumption was advised. Due to the need of isolation, stress, uncertainty related to dynamically changing situation, there is a risk of increased alcohol consumption. This risk does not only refer to the group of people who use alcohol in a problematic way.

The E-POP application as a response to the needs of people who want to reduce alcohol consumption

It is estimated, that 15% of EU population, consumes alcohol in amounts that are recognised to be problematic [9], which means that about 6 millions of Poles belong to that group [10]. A significant number of people looking for help does not want to become abstinent, but to reduce their consumption of alcohol. The State Agency for the Prevention of Alcohol-Related Problems (PARPA) in cooperation with the Jagiellonian University Collegium Medicum, taking into consideration, the contemporary needs of people who use alcohol in a problematic or harmful way, created an electronic version of the Drinking Reduction Programme. It consists of a mobile application and an internet platform www.e-pop.pl [11]. It is recommended by the State Agency for the Prevention of Alcohol-Related Problems to addiction treatment centres and all other interested parties. This project was co-financed from the funds for public health tasks defined by the National Health Programme for years 2016 – 2020.

The E-POP programme can be applied both in individual work on changing the drinking pattern, and in classical work on addiction therapy [12, 13]. This application is meant for

people who are motivated to reduce consumption of alcohol with no medical counterindications. According to the guidelines for drinking reduction programmes (www.parpa. pl) [14], it is advised that the pattern of alcohol consumption of E-POP users does not exceed mild or moderate alcohol consumption. Application offers four stages of work on changing the pattern of alcohol consumption (1) diagnostic – informative, (2) registration and deepened diagnosis, (3) eleven week programme of changing work, (4) evaluation of change after 6 months from the initial registration. Individual weeks of therapeutic work focus on separate issues related to alcohol consumption issues [13, 15].

Tasks in the EPOP programme are based on the assumptions of cognitive – behavioural therapy and the motivational dialogue technics. Users of the application receive information about alcohol abuse and the ways of changing their drinking patters. They fill in questionnaires related to alcohol consumption (Problematic Drinking Scale (SPP), AUDIT test, Alcohol Addiction Scale (ADS-PL)) and receive individually trimmed feedback on their results [11, 14]. In the following weeks, users may undertake an individual work on a broad range of issues related to the reduction of the alcohol consumption.

In the course of interactive tasks, users of the E-POP application evaluate their resources, that are helpful in the process of change, work on the issues of risks and increased angers, learn how to cope with emotions and failures, find healthy alternatives to neutralise previous functions of their drinking style, work on motivation to change their behaviour and introduce actions that would suit their objectives in the best way.

Users of the application, for eleven weeks fill in an interactive self – observation questionnaire, by indicating the amount of consumed alcohol. It enables comparison of the amounts of alcohol consumed in a day, a week and the whole period, and their subsequent verification in comparison to the limit indicating a low risk of health damages as well as an own limit. Users may also access various useful functionalities, like an EPOP Forum (https://forum.e-pop.pl/) [16]. Users of the application set their individual aims in changing their drinking patterns in the fifth week of work and later evaluate them after eleven weeks of therapeutic work as well as six months after the first logging in. At the end of therapeutic work, users may evaluate the application and its helpfulness in changing their alcohol consumptions pattern.

Material and methods

Research group: In the abovementioned period of time, the E-Program Ograniczania Picia (E-POP) Application, was installed by 1854 participants. Average age of a participant was 39,78 years (SD = 8,48). The following methods of analysis were applied: 1. Analysis of data from the E-POP application (gender, age, stage of therapeutic work in the programme) 2. Evaluation survey (AE). Three months after finishing therapeutic work with the application, participants filled in a survey in five areas, by marking on a scale from 1 to 5 (where 1 means low level and 5 – very high) in the following categories:

— AE 1. Thanks to this application they broadened their knowledge and skills in limiting alcohol consumption;
— AE 2. Exercises, educational materials, self-observation scale and other contents and functionalities of the application were attractive to them;
— AE 3. They would recommend this application to someone;
— AE 4. They were satisfied with changes in consumption of alcohol;
— AE 5. The programme was helpful in limitation of drinking.

The obtained results were collected in the period between March 2020 and March 2021, when the first participants registered some months ago were finishing their work with the E-POP app.

Results

The group of registered participants comprised 1058 men and 796 women. The biggest number of participants (664) belonged to the age group between 30–39 years, 569 participants were between 40–49 years, 249 participants were above 49, and the youngest group 18–25 years comprised 372 participants. Data on the age and gender distribution are presented in the Table 1.

Table 1. **Number of E-POP users according to age and gender**
(informative – diagnostic stage)

Age group	No. of women	No. of men	Total
18–29	208	164	372
30–39	253	411	664
40–49	242	327	569
50–59	67	116	183
60 +	26	40	66
	796	1058	1854

Out of 1854 participants, who went through the informative – diagnostic stage of the E-POP application, over 27% (n=503) registered into the second stage "time for change" (a continuous work of 11 weeks on limiting the amount of consumed alcohol). From this group, 38 (7,6%) participants went through the whole 11-week programme, and 30 participants evaluated their alcohol consumption after 3 months, wrapping up the fourth stage "change after six months" (Table 2).

Table 2: **List of participants who completed: the informative – diagnostic stage, certain number of weeks in the "time for change" stage and "change after six weeks" stage in relation to gender.**

Completed stage/ week of work in the E-POP app	No. of women	No. of men	Total
Diagnostic – informative stage	569	782	1351
"Time for change" stage			
Week 1: For a good start	147	162	309
Week 2: I want to and I do not want to	15	25	40
Week 3: Slowing down	17	22	39
Week 4: Ways to limit drinking	7	6	13
Week 5: Contract for change	8	9	17
Week 6: Risks and objectives	2	14	16
Week 7: Alcohol and emotions	8	8	16
Week 8: High risk situations	2	2	4
Week 9: Managing accidents	3	2	5
Week 10: Healthy alternatives	2	4	6
Week 11: Analysis of change and summary	4	4	8
"Change after six months" stage	12	18	30
Total number of participants	796	1058	1854

The key aspect of this presentation is the analysis of surveys filled in by the participants who completed the "time for change" stage. Out of 38 participants, one person did not do the evaluation. This group comprised 15 women (mean age: 39,53; SD = 10,55) and 22 men (mean age: 39,95; SD = 7,0). Table 3. Presents results of the survey in the group of men and women.

Table 3. **Comparison of answers in the categories from the evaluation surveys between men and women**

Evaluation categories in the evaluation survey			Mean		SD		Significance test for comparing two means		
	Mean group value	SD	K (n=15)	M (n=22)	W	M	t(35)	df	p
AE 1. Broadening of knowledge and skills in limiting alcohol consumption	4,30	0, 74	4,33	4,27	0,90	0,63	0,24	35	0,811

table continued on the next page

AE 2. Attractiveness of exercises and other functionalities in the app.	4,08	0,98	4,27	3,95	0,70	1,13	0,95	35	0,350
AE 3. Recommendation of the app.	4,27	0,93	4,27	4,27	0,96	0,94	-0,02	35	0,985
AE 4. Satisfaction with the changes and drinking patterns	4,05	1,03	4,27	3,91	0,70	1,19	1,04	35	0,304
AE 5. The programme was helpful in the limitation of alcohol consumption	3,95	1,15	3,93	3,95	1,28	1,09	-0,05	35	0,957

Average results of the assessment in the whole group indicate that the highest score was given to "broadening of knowledge and skills in limiting alcohol consumption" AE1 = 4,3/5, followed by AE3 = 4,27/5. Other results oscillate around 4/5. Usefulness of application in limiting amount of consumed alcohol was evaluated in relation to gender. There were no significant differences between women and men, with result oscillating in the range between 3,91/5 and 4,33/5.

Discussion

Development of new technologies that enabled production of smartphones, is one of the most significant achievements in the history of the world. Digitalisation has also entered the realm of psychotherapy. Review of databases *Web of Science* (WoS) and *EBSCO Publishing* (EBSCO) in search of articles on mobile applications supporting reduction of alcohol consumption has shown a very limited number of published evaluative articles [2, 17, 18]. Characteristic of people downloading the E-POP app is coherent with results of other analyses and evaluations of e-therapeutic programmes [2, 18]. In Poland there are two applications recommended by addiction treatment organisations (PARPA, National Centre for Addiction Prevention), E-POP and a free of charge, anonymous application mWsparcie (mSupport), dedicated to patients addicted to alcohol [19, 20]. The E-POP application broadens treatment opportunities for people striving to control their alcohol consumption and to maintain pro-health changes already introduced into their lives. In an earlier report [15] from our research, it has been confirmed that one in four women and one in three men who downloaded the application, filled in the criteria of mild to moderate abuse of alcohol consumption. One in four participants decided to register and undertake therapeutic programme. In most cases, these people received a diagnosis of moderate abuse of alcohol consumption. According to E-POP guidelines, probability of limitation of alcohol consumption was evaluated for each participant. It has been concluded that one in three participant has this chance. Participants who resigned from the programme, were mainly people whose drinking pattern does not indicate problems

with alcohol consumption [15]. It meant that interest in the E-POP application as a tool helpful in reduction of alcohol consumption was high among people who use alcohol in a problematic way.

There are analyses of usefulness of applications related to alcohol consumption such as Self-Help Model Scale (SHMS) [21]. Taking into consideration criteria of the SHMS scale, the E-POP app contains an informative and motivational aspect (mainly in the first informative – diagnostic stage as well as weeks: 1, 2, 3, 5, 10 and 11), identification of increased risk situations (week 6, 7, 8 and 9) as well as ways of coping with them (week 3, 4, 5, 8 and 9) and strategies of preventing relapses (week 7, 9 and 10). Aspects indicated by the criteria of the SHMS scale are taken into account in functionalities of the E-POP application to a certain degree.

An important characteristic of the E-POP application is anonymity of its users. For many people with alcohol consumption problems, loss of anonymity is an important barrier that prevents them from undertaking treatment [2, 7]. Availability of the E-POP application gives an opportunity to enhance their functioning to a broad range of society. It is extremely important when the possibilities of undertaking direct, regular and long term contact in therapeutic centres and offices are limited. It is worth mentioning that the E-POP application can be applied parallelly to a classic therapeutic help [13]. It is important to remember in the SARS-CoV-2 pandemic, that alcohol has harmful effect on the immune system. It reduces resilience to viruses, and reduces our ability to defend against contagious diseases [9].

Popularity of smartphones has opened new paths of communication and development and has changed social reality. It has opened new possibilities of helping people who want to reduce the amount of consumed alcohol, especially in the era of the SARS-CoV-2 pandemic. Results of studies show that mobile applications have a promising role in supporting the process of change in alcohol consumption patterns. Both women and men, stated that the E-POP application helped them broaden their knowledge and skills in the area of reducing alcohol consumption. This application also turned to be helpful for users in changing their alcohol consumption patterns. They are satisfied with these changes. Functionality of the application was also highly appreciated. In this context, further promotion of the E-POP application in various environments is advisable, as it is a professional application recommended by PARPA, guaranteeing anonymity for its users, free and easily available on smartphones and via website.

Limitations of the research

First of all, as the application was available for a short period of time and observations took only six months, it is advisable to evaluate changes in alcohol consumption patterns in its users when the number of people who completed the programme is higher. Furthermore, conclusions on the usefulness of the application based on self-descriptive evaluative data

may be less reliable than data collected by means of tools such as Self-Help Model Scale (SHMS) and Mobile Application Rating Scale (MARS)[21]. Subjective evaluation made by users gives their individual perspective.

Conclusions:

1. Almost 30 % of participants who entered the "informative – diagnostic" stage, log into the therapeutic stage "time for change".

2. Application is well received by the participants, they report a high level of satisfaction from alcohol consumption reduction by means of the E-POP programme.

3. The E-POP Application is a useful tool supporting reduction of alcohol consumption, especially when direct therapeutic support was limited during SARS-CoV-2 pandemic. Further promotion of the application is advised.

Sources of funding

References:

1. Payne HE, Lister C, West JH, Bernhardt JM. Behavioral functionality of mobile apps in health interventions: a systematic review of the literature. JMIR Mhealth Uhealth 2015; 3(1). DOI: 10.2196/mhealth.3335.

2. Wieczorek Ł, Klingemann J. Mobile applications used to limit alcohol consumption a literature review. Alkoholizm i Narkomania 2020; 33(1): 43–64. DOI: 10.5114/ain.2020.95979.

3. Tait RJ, Kirkman JL, Schaub MP. A Participatory Health Promotion Mobile App Addressing Alcohol Use Problems (The Daybreak Program): Protocol for a Randomized Controlled Trial. JMIR Res. Protoc. 2018; 7(5): e148. DOI: 10.2196/resprot.9982.

4. Barrio P, Ortega L, López H, Gual A. Self-management and shared decision-making in alcohol dependence via a mobile app: a pilot study. Int. J. Behav. Med. 2017; 24(5): 722–727. DOI: 10.1007/s12529-017-9643-6

5. Hoeppner BB, Schick MR, Kelly LM, Hoeppner SS, Bergman B, Kelly JF. There is an app for that – or is there? A content analysis of publicly available smartphone apps for managing alcohol use. J. Subst. Abuse Treat. 2017; 82: 67–73. DOI: 10.1016/j.jsat.2017.09.006.

6. Ramsey A. Integration of technology-based behavioral health interventions in substance abuse and addiction services. Int. J. Ment. Health Addict. 2015; 13(4): 470–480. DOI: 10.1007/s11469-015-9551-4.

7. Wieczorek Ł. Barriers in the access to alcohol treatment in outpatient clinics in urban and rural community. Psychiatr. Pol. 2017; 51(1): 125–138.

8. Światowa Organizacja Zdrowia (WHO). Alcohol and COVID-19: what you need to know. Pobrane z: https://www.euro.who.int/__data/assets/pdf_file/0010/437608/ Alcohol-and-COVID-19-what-you-need-to-know.pdf [data dostępu: 06.03.2021]

9. Wallace P, Murray E, McCambridge J, Khadjesari Z, White IR, Thompson SG., Kalaitzaki E, Godrey C, Linke S. On-line randomized controlled trial of and Internet based psychologically enhanced intervention for people with hazardous alcohol consumption. PloS ONE 2011; 6 (3), DOI: 10.1371/journal.pone.0014740.

10. Moskalewicz J, Kiejna A, Wojtyniak B, red. Kondycja psychiczna mieszkańców Polski. Warszawa: IPiN; 2012.

11. www.e-pop.pl [data dostępu: 10.10.2021]

12. Kotowska J, Olszewska-Turek K, Modrzyński R, Celebucka J, Bętkowska-Korpała B. Skala Picia Problemowego (SPP) – właściwości psychometryczne. Psychiatr. Pol. 2021; 216: 1–16. DOI:10.12740/PP/OnlineFirst/130991

13. Bętkowska-Korpała B, Modrzyński R, Celebucka J, Kotowska J, Olszewska–Turek K. Podręcznik E-POP dla terapeutów uzależnień. Wyd. PARPA; 2020.

14. www.parpa.pl [data dostępu: 10.10.2021]

15. Bętkowska-Korpała B, Modrzyński R, Olszewska-Turek K, Sochacka-Tatara E, Kotowska J, Celebucka J. Profil użytkownika E-POP – aplikacji mobilnej wspierającej ograniczanie picia alkoholu – badania pilotażowe. Alkoholizm i Narkomania 2021; 34 (3): 177–194 DOI: 10.5114/ain.2021.111788

16. https://forum.e-pop.pl/ [data dostępu: 10.10.2021]

17. Quanbeck A, Chih MY, Isham A, Gustafson D. Mobile delivery of treatment for alcohol use disorders: a review of the literature. Alcohol Res. 2014; 36(1): 111–122.

18. Modrzyński R, Malinowska J. Nowe wyzwanie dla systemu lecznictwa uzależnień. Zastosowanie Internetu do pomocy osobom z problemem alkoholowym. Alkoholizm i Narkomania 2014; 27(1): 67–75.

19. Wieczorek Ł, Klingemann J. mWsparcie dla pacjentów po podstawowym programie leczenia uzależnienia. Terapia Uzależnienia i Współuzależnienia 2020; 3: 32–36.

20. Klingemann J, Wieczorek Ł. Mobile application recovery support for patients with an alcohol use disorder: acceptance, usability, and perceived helpfulness. J. Addict. Dis. DOI: 10.1080/10550887.2022.2049177

21. Klingemann J, Wróblewski M, Wieczorek Ł. Aplikacje mobilne przeznaczone dla osób uzależnionych od alkoholu jako narzędzia wspierające proces zdrowienia Alcohol Drug Addict 2020; 33 (1): 19–42 DOI: 10.5114/ain.2020.95978

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