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Behavioural Intervention for People Living with HIV/AIDS with Ambivalent Attitudes toward the COVID-19 Vaccine

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Abstract. The COVID-19 vaccination program was made available in Romania first to vulnerable and at-risk groups in specific state-run centers, where people could get an appointment and receive the shot. People Living with HIV/AIDS (PLWHA) represent such a group. In the context of widespread misinformation and debate about the need for vaccination, our team took a proactive approach to assess vaccination levels and intentions among the unvaccinated. 100 PLWHA who declared ambivalent or unprepared to take the vaccine were offered one online or in-person counseling session. As part of the standard counseling protocol, psychologists asked patients about their intention to get vaccinated on a scale from 1 to 10 at the beginning of the session and again at the end. The protocol imposed that the counselor uses any combination of one or more of the following five behavior change techniques (BCTs): information about social and environmental consequences, credible sources, comparative imagining of future outcomes, anticipated regret, and action planning. Additionally, counselors could use other techniques on an ad-hoc basis if they evaluated this as necessary. Out of the 100 PLWHA at the end of the evaluation, 43 reported they took the vaccine. Sixteen patients in the sample said they took the vaccine by their own decision before the counselor reached out. For the entire group, the intention to get vaccinated increased by 3.36 points ($t = -13.25$, $p < .05$). At the follow-up evaluation, there was a 3.16-point increase for the group that did not vaccinate ($t = -11.38$, $p < .05$); and 4-point increase for PLWHA who did vaccinate (-6.92 , $p < .05$). Overall, the people in the unvaccinated group started with a significantly lower intention at the beginning of the session than those who eventually got the shot (mean 1.96 versus 3.25). The number of BCTs used was similar in the groups, regardless of vaccination status at the end of the assessment. Our experience shows that an increase in the intention to be vaccinated is possible among ambivalent patients, even when the intervention is limited to one session. The intervention helped approximately 32% of the patients. They were able to act and take the steps necessary to receive the COVID vaccine, while the ones who did not yet act reported a higher intention at the end of the intervention. The baseline intention could indicate the necessary number of follow-up sessions until a successful outcome. Health psychologists must further define the set of BCTs needed for subsequent interventions.

Keywords. HIV, behavioural intervention, COVID-19, attitudes, vaccination

1. Introduction

The COVID-19 vaccination campaign started in Romania by prioritizing first-line responders and vulnerable groups [1]; people living with HIV and AIDS (PLWHA) were among

these groups. However, the system did not allow decentralized or point-of-care vaccine administration. Instead, people had to present themselves to vaccination centers based on an appointment and an electronic confirmation. Traditionally, most PLWHAs receive vaccines and other health services at their HIV clinic, not at a different provider. Patients had to self-manage to access COVID-19 vaccines. Going through an entire self-management process included:

- Obtaining the information;
- Deciding to get the shot;
- Learning about the system procedures;
- Making an appointment;
- Following through with the vaccination process.

The Romanian healthcare system has been chronically confronted with understaffing and little capacity for providing orientation to patients, and this situation was exacerbated during the pandemic [2].

Baylor Black Sea Foundation (BBSF) has operated multidisciplinary services for PLWHA at the HIV Clinical Centre of Excellence in Constanta since the onset of the HIV epidemic in Romania [3]. Since its establishment, the foundation has worked in partnership with the public system, focusing on providing complementary services that are not part of the standard public health system. To date, the foundation is serving around one thousand seropositive patients of all ages, around half of them are young adults. The psychosocial department focuses on helping patients increase their health-related self-management skills, including preventing other illnesses.

In the above-described COVID-19 vaccination campaign context, the objectives of BBSF's counseling program were to assess patients' willingness to vaccinate and to provide them with credible information about vaccination. The program's overall goal was to enable PLWHA to protect their health and take advantage of the opportunity to get the vaccine in a timely manner.

2. Description of the counseling program

As part of usual care for PLWHA who attend the BBSF services, we set up a screening process of inquiring patients about their intention to vaccinate against COVID-19. The response could be one of the three: refusal, unsure/ ambivalent, and clear intention to get the vaccine. The program manager instructed the nurse not to express any agreement or disagreement with the patients' options. The nurse had to inform them in a neutral and non-judgemental manner that they could be linked with a counselor for more information and support if so desired.

BBSF reported the attitudes and motivations of patients we assessed elsewhere [4]. Among the most prevalent facilitators and barriers associated with the intention to vaccinate we identified the benefits perceived about being able to continue a normal social life (going to events and institutions, continuing work), perception of threat and high severity of the illness for oneself and the loved ones, social norms and other's experiences with the vaccine.

Based on those findings, the psychologists prepared a standard content focused on increasing the intention for COVID vaccination. The team consensus was to match reasons for ambivalence with standard content and one associated behavior change technique (BCT). The behavior change techniques BBSF psychosocial team uses for recording interventions in usual care are those listed in the BCT taxonomy [5] version 1. This structured list offers a reliable method for specifying, interpreting, and implementing the active ingredients of interventions to change target health behaviors, in this case, to take the vaccine by increasing the intention for this action.

Each matched pair of reason and BCT selected for the intervention are detailed in the table below:

Table 1. Counselling content

Reason/ interest to get vaccinated	Behaviour change technique and example of its use
I want to attend concerts, parties, receive medical care	<p>5.3. Information about social and environmental consequences</p> <p>“If you are vaccinated, you have a lower risk of transmitting the virus and, most importantly, a lower risk of developing a more severe form of the disease. Therefore, vaccinating allows you to live nearly the same life as before: you can travel abroad, attend concerts, and see your friends. You do not need to stay in quarantine when you return from a trip or spend money on COVID tests. “</p>
I am scared, I have seen the disease can be rather severe, even fatal	<p>9.1 Credible sources</p> <p>“We have inquired infectious disease doctors working in the Infectious Diseases Hospital information regarding the COVID vaccine, and this is what they have answered: the role of the vaccine is to protect you from a severe form of the disease. Considering the HIV infection may already weaken your immune system, additional protection might be just what you need. Out of the available types of vaccine, the doctors recommend Pfizer or Moderna. Many patients in your situation have already taken the vaccine and feel fine. “</p>
People around me have already taken the vaccine and they feel fine	<p>9.3. Comparative imagining of future outcomes</p> <p>“Imagine you do not vaccinate; you are at risk of developing a severe form of COVID, and you might have health issues for a long time. Also, if you wish to travel abroad, you must spend money on tests and stay in quarantine when you return. Imagine you took the vaccine: you might feel pain in your arm or have a fever or headaches. These you can treat with Paracetamol (Acetaminophen) or Ibuprofen. After this, you can be more relaxed as the risk of developing a more severe form is much lower; you may have social connections, go to concerts, can travel abroad without worrying about COVID tests or quarantine. “</p>

I don't want to get my family ill 5.5 Anticipated regret

"Now, let's imagine you do not get vaccinated. What could happen? You might get ill, and you might also get some other family members infected. Worst case scenario, you or somebody in your family might need hospitalization. Patients in the hospital cannot receive visitors. Also, it is difficult to find out information regarding their situation and what treatment they are on, especially if they are in severe condition. You can easily avoid this by getting vaccinated. How would you feel knowing it could have been avoided if all this happened to you? "

I want to travel or work 1.4 action planning

"In order to get vaccinated, all you need to do is present your ID to a vaccination center near you. If you have any adverse effects, infectious disease doctors recommend you take Paracetamol (Acetaminophen) or Ibuprofen. Remember that if you feel unwell, you can address the medical staff or your general practitioner."

Digital counseling has become a real-life implementation option during the pandemic in many settings, including the BBSF clinic. Other researchers have already observed its benefits in healthcare [6].

The counseling session unfolded in person or virtually (telephone or teleconference). At the beginning of the session, the patients were asked about their intention to get the vaccine. The measurement was made on a scale from 1 (no intention at all) to 10 (high intention). We repeated this assessment at the end of the session. For this specific intervention program, the nurse linked the patients who expressed ambivalence to their usual care case manager, a psychologist they knew. Depending on the patient's reason, the psychologist used one or several BCTs in the above list. If patients raised other reasons or the BCT was not enough to respond to a specific patient perspective, the psychologist could use any different technique she felt appropriate for the situation and code that in the intervention notes.

The counseling program unfolded for four months, between August and December 2021. Three counselors from BBSF were involved in the service delivery once the nurse made the referral. Three months after the counseling session, the nurse contacted patients again, and she recorded the vaccination status in two categories: vaccinated and unvaccinated.

3. Results

The team reached 120 patients living with HIV, of which 100 participated in the vaccine counseling session, face to face or virtually (the nurse could not contact the rest for various reasons). At the program's final evaluation, 43 patients reported they took the vaccine. Sixteen patients told the psychologists during the session that they had already taken the vaccine. Fifty-three patients did not vaccinate at the end of the program. The average age was 35.1 years, 46% were females, and 42% lived in rural communities. 38% were counseled face to face and the rest virtually. Most patients received one session, and only 12% of them met twice with the psychologist.

We have also analysed the pre and post-counseling intention to vaccinate for the entire group. The intention to get vaccinated increased by 3.36 points ($t = -13.25$, $p < .05$) from an average of 2.25 to 5.61. There was a 3.16-point increase for the group that did not vaccinate at the follow-up evaluation ($t = -11.38$, $p < .05$) from 1.96 point to 5.12; and a 4-point increase for PLWHA who did vaccinate (-6.92 , $p < .05$) from 3.25 to 7.25.

Overall, the people in the unvaccinated group started with a significantly lower intention at the beginning of the session than those who eventually got the shot (mean 1.96 versus 3.25).

Regarding the active ingredients of the counseling sessions, there was a remarkable similarity in terms of distribution of the prescribed BCTs in both groups: information about social and environmental consequences, credible sources, comparative imagining of future outcomes, anticipated regret, and action planning (see figure 1 and figure 2). A chi-square test of independence was performed to examine the relation between the group and the techniques used. The proportion of the techniques did not differ per group, indicating that the content of the sessions was similar. This result suggests that the team offered consistent content to all patients as planned. Pros and cons and psychoeducation were the most prevalent supplemental techniques used by the team in both groups.

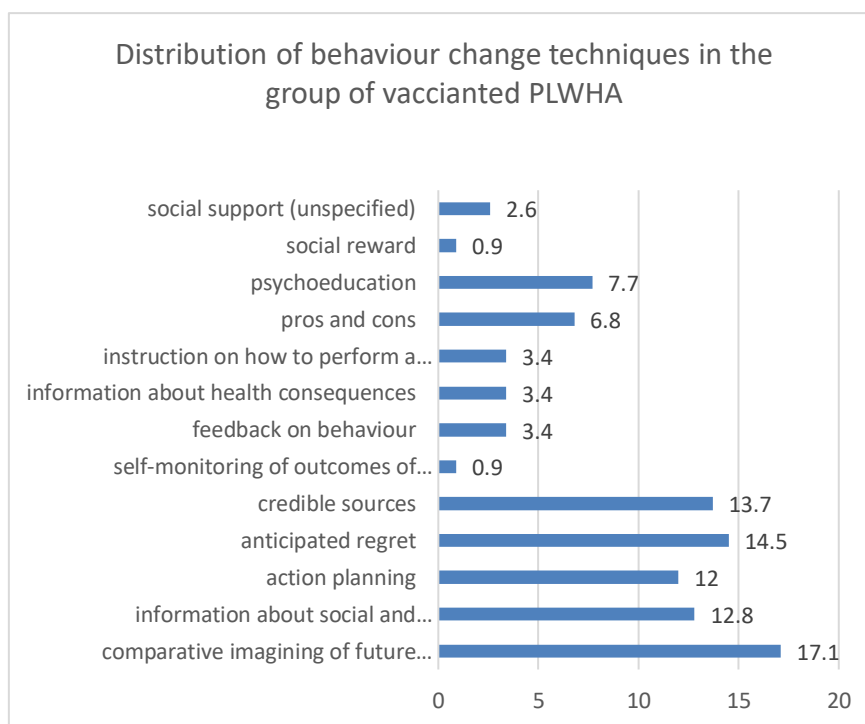


Fig 1: Distribution of behaviour change techniques in the group of vaccinated PLWHA

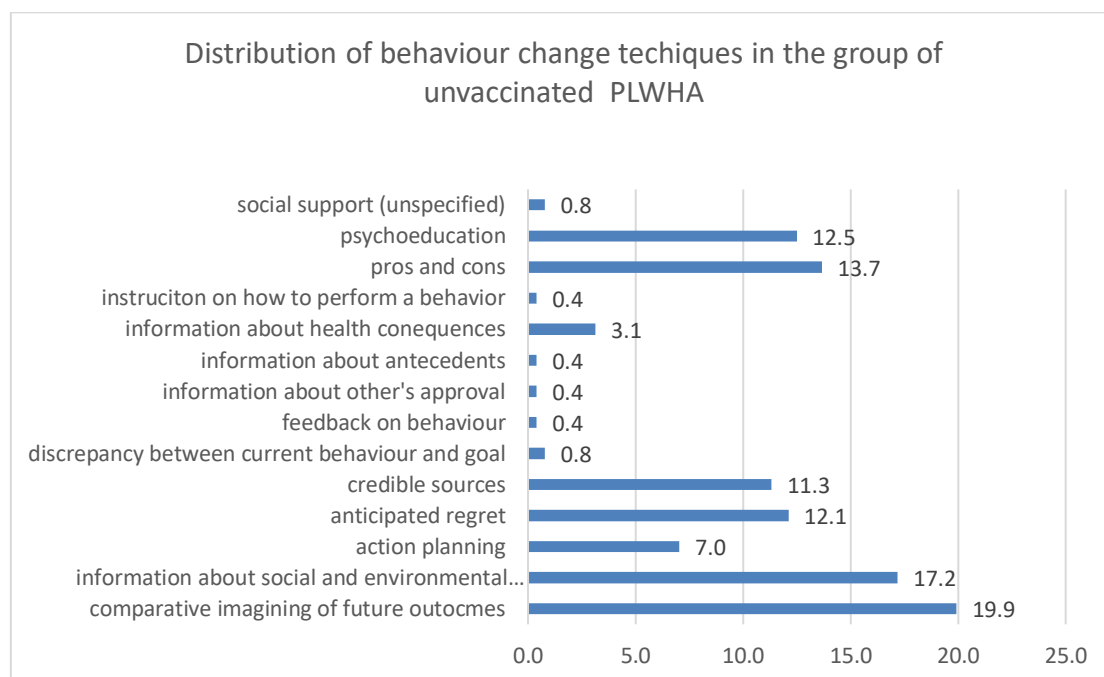


Fig 2: Distribution of behaviour change techniques in the group of unvaccinated PLWHA

The number of BCTs used during one session was similar in the groups (approximately four techniques), regardless of vaccination status at the end of the assessment.

The intervention helped approximately 32% of the patients. They were able to act and take the steps necessary to receive the COVID vaccine, while the ones who did not yet act reported a significantly higher intention at the end of the intervention.

Below we illustrate how the team used the BCTS in a session. The case study presents the face-to-face interaction between a health psychologist with four years of experience in the field of HIV and a woman living with HIV, age 33, with a high school education, married, and a mother of one.

A medical assistant contacted the patient on the phone concerning her vaccination status. The nurse referred her to a psychologist for a discussion. At the moment, she claimed she was not vaccinated and expressed reluctance about the vaccine's efficacy and adverse effects she heard about from people in the community.

We have used the credible sources technique to approach the first negative attitude (reluctance about the vaccine's efficacy). We have discussed the basic principles of vaccines and have drawn a parallel with the smallpox vaccine. As a result, the patient understood that if she were to be ill, she would undergo a more accessible form of the disease, which was an important aspect, considering she already had a chronic illness; therefore, her immune system would be overwhelmed. We have discussed the clinic's video materials. An experienced infectious disease doctor, well-known by the clinic's patients, explains HIV-positive patients' risks of becoming infected with SARS-COV-2. Also, the doctor explains the recommended types of vaccines for seropositive patients. The patient recalled watching the video materials and understood the vaccine's importance; however, she did not fully understand some aspects, such as the need to keep wearing a mask even after vaccination. We have discussed and explained these barriers, offering additional information.

For the second barrier declared by the patient, the fear of unpleasant adverse secondary effects, we have also used the credible sources technique, informing her of the most frequent adverse symptoms of the vaccine (for example, pain in the arm, fever). We explained her options; should that be the case addressing her general practitioner or somebody in the medical department in the clinic.

The patient stated she had not had COVID at the time of our discussion, and the closest person she knew who had had the disease was her brother. She declared he had developed a light form of the disease and received treatment for his symptoms; she mentioned no other family member got sick. Although she initially stated that many of her acquaintances talked about the adverse secondary effects of the vaccine, she explained her brother took the vaccine afterward, with no side effects. Considering her brother's experience, we have applied the comparative imagining of future outcomes technique, suggesting she imagine the adverse effects the patient might experience if she were to be vaccinated, compared to the possible symptoms if she were ill. She considered that COVID symptoms would probably be more severe than possible secondary effects of the vaccine.

She reported that at the start of the pandemic, the patient felt fear as she had recently given birth and wished to be isolated from everybody, fearing she or the baby would fall ill. We have applied the anticipated regret technique, explaining that being vaccinated means a lower risk of developing a more severe form of the disease and a lower risk of transmitting the virus to another person. We have explained that hospitalized persons can not receive visits, and it is difficult to find out information regarding their current condition or the treatment they receive, especially if they are isolated or unable to communicate. As a result, the patient anticipated that if she fell ill with a severe form of the disease, it might be necessary for her to get hospitalized. Therefore she would be unable to care for her child.

In a social sphere, vaccinated people can carry on with their lives almost the same way as before: they may travel abroad, go to concerts, and visit their friends without the need to stay in quarantine or pay for COVID tests. She recalled there had been just one situation in which she was denied access to a concert on the beach – the patient had to present a negative test, which she refused to take out of fear of a false positive result. Applying the information about social and environmental consequences technique, we emphasized that if she were vaccinated, there would be no need for actions like these.

Considering that after the discussion, the patient changed her attitude towards vaccination, we have used the action planning technique and offered information regarding how and when she could make an appointment near her place of residence – we have identified online the nearest center and its schedule. The psychologist informed the patient that she only needed to present her ID and reminded her of her options for adverse secondary effects.

Follow-up: after nearly a month, the patient announced she took the vaccine; she felt well afterward, with no side effects or other symptoms besides local pain in her arm. She states she is grateful for the information she has received during our discussion, and the patient considers it helped change her attitude.

4. Conclusions

Vaccination against COVID-19 has been a public health measure set up by states and governments within an unusual context. Individual stress levels, contradictory media campaigns, and social norms have been some of the factors that patients had to deal with when making a personal decision to get the prophylactic vaccination. As an organization that focuses on helping patients maintain their health, Baylor Black Sea Foundation immediately set up a

counseling program to respond to the needs of the patients. We also looked at the results obtained in the field, directly in interaction with patients. We observed that even simple and short-term interventions with the clear focus could help ambivalent patients increase their intention to get the vaccine. Following local context and existing resources, we can finetune further interventions and more complexity.

We recommend using a draft with standard content of interventions as a helpful tool for implementers, created with the help of BCTs. This way, clinics with other types of personnel, not necessarily health psychologists, would be able to implement a similar program.

Our experiences encourage the team to use this approach for other prophylactic objectives, such as other vaccines or various screenings for comorbidities.

Author Contributions

AMS wrote the main text of the manuscript and performed the statistical analysis. EMR, AFA, and FN unfolded the counseling sessions with the patients and recorded the data and the outcomes. EMR provided the case study. MB coordinated the program and set up the monitoring and evaluation framework. CB and SFM screened patients and linked them with care. All authors contributed to the article and approved the submitted version.

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