An Internet-based Intervention to Increase the Ability of LGB People to Cope with Adverse Events: A Feasibility Study

Andreea Bogdana Isbășoiu, Florin Alin Sava, Torill Marie Bogsnes Larsen, Norman Anderssen, Tudor-Stefan Rotaru, Andrei Rusu, Nastasia Salagean, Bogdan Tudor Tulbure

Submitted to: JMIR Formative Research
on: January 09, 2024

Table of Contents

An Internet-based Intervention to Increase the Ability of LGB People to Cope with Adverse Events: A Feasibility Study

Andreea Bogdana Isb??oiu[1, 2] PhD; Florin Alin Sava[1] PhD; Torill Marie Bogsnes Larsen[3] PhD; Norman Anderssen[4] PhD; Tudor-Stefan Rotaru[5] PhD; Andrei Rusu[1] PhD; Nastasia Salagean[1] PhD; Bogdan Tudor Tulbure[1] PhD

[1]Department of Psychology West University of Timisoara Timisoara RO
[2]Department of Psychology and Educational Sciences Transilvania University of Brasov Brasov RO
[3]Department of Health Promotion and Development University of Bergen Bergen NO
[4]Department of Psychosocial Science University of Bergen Bergen NO
[5]Department of Bioethics University of Medicine and Pharmacy “Gr. T. Popa” Ia?i Iasi RO

Corresponding Author:
Florin Alin Sava PhD
Department of Psychology
West University of Timisoara
4 Vasile Parvan Bvd.
Timisoara
RO

Abstract

Background: LGBTQ+ people are at higher risk of mental health problems due to widespread hetero- and cisnormativity, including negative public attitudes towards the LGBTQ+ community. In addition to combating social exclusion at the societal level, strengthening the coping abilities of young LGBTQ+ people is an important goal.

Objective: In this transdiagnostic feasibility study, we tested a 6-week online intervention program designed to increase the ability of non-clinical LGBTQ+ participants to cope with adverse events in their daily lives. The program was based on acceptance and commitment therapy (ACT) principles.

Methods: This interventional study design took the form of a single-group assignment of 15 self-identified LGB community members who agreed to participate in an open trial, with a single group (pre- and post-intervention design).

Results: Before starting the program, participants found the intervention credible and expressed high satisfaction at the end of the intervention. Treatment adherence operationalized by the percentage of completed homework assignments (88%) was also high. When we compared participants’ pre- and post-intervention scores, we found a significant decrease in clinical symptoms of depression (Cohen’s d = 0.44 90% CI [0.09, 0.80]), social phobia (d = 0.39 90% CI [0.07, 0.72]), and post-traumatic stress disorder (d = 0.30 90% CI [0.04, 0.55]). There was also a significant improvement in the level of self-acceptance and behavioral effectiveness (d = 0.64 90% CI [0.28, 0.99]) and a significant decrease in the tendency to avoid negative internal experiences (d = 0.38 90% CI [0.09, 0.66]). The level of general anxiety disorder (p = 0.115; d = 0.29 90%. CI [-.10, .68]) and alcohol consumption (p = 0.35; d = -0.06 90% CI [-.31, .19]) were the only two outcomes for which the results were not statistically significant.

Conclusions: The proposed web-based ACT program, designed to help LGBTQ+ participants better manage emotional difficulties and become more resilient, represents a promising therapeutic tool. The current program could be further tested with larger samples of participants to ensure its efficacy and effectiveness. Clinical Trial: ClinicalTrials.gov: NCT05514964

(JMIR Preprints 09/01/2024:56198)
DOI: https://doi.org/10.2196/preprints.56198

Preprint Settings

1) Would you like to publish your submitted manuscript as preprint?
Please make my preprint PDF available to anyone at any time (recommended).
Please make my preprint PDF available only to logged-in users; I understand that my title and abstract will remain visible to all users.
Only make the preprint title and abstract visible.

✓ **No, I do not wish to publish my submitted manuscript as a preprint.**

2) If accepted for publication in a JMIR journal, would you like the PDF to be visible to the public?

✓ **Yes, please make my accepted manuscript PDF available to anyone at any time (Recommended).**

Yes, but please make my accepted manuscript PDF available only to logged-in users; I understand that the title and abstract will remain v

Yes, but only make the title and abstract visible (see Important note, above). I understand that if I later pay to participate in <a href="http

Original Manuscript

An Internet-based Intervention to Increase the Ability of LGB People to Cope with Adverse Events: A Feasibility Study

Andreea Bogdana Isbăşoiu[1, 3], Florin Alin Sava[1], Torill Marie Bogsnes Larsen[2], Norman Anderssen[2], Tudor Ştefan Rotaru[4], Andrei Rusu[1], Nastasia Sălăgean[1], Bogdan Tudor Tulbure[1]

[1]West University of Timisoara

[2]University of Bergen

[3]Transilvania University of Brasov

[4]University of Medicine and Pharmacy “Gr. T. Popa” Iaşi

All authors have a PhD title.

Corresponding author: Florin Alin Sava, florin.sava@e-uvt.ro

Address: West University of Timisoara, Department of Psychology, 4 Vasile Pârvan Blvd., 300223 Timişoara, Romania, email: florin.sava@e-uvt.ro, phone: +40 256 592270, fax: +40 256 592310

Original paper

An Internet-based intervention to increase the ability of LGBT people to cope with adverse events: A single group feasibility study

Abstract

Background: LGBTQ+ people are at higher risk of mental health problems due to widespread hetero- and cisnormativity, including negative public attitudes towards the LGBTQ+ community. In addition to combating social exclusion at the societal level, strengthening the coping abilities of young LGBTQ+ people is an important goal.

Objective: In this transdiagnostic feasibility study, we tested a 6-week internet intervention program designed to increase the ability of non-clinical LGBTQ+ participants to cope with adverse events in their daily lives. The program was based on acceptance and commitment therapy (ACT) principles.

Method: The program consists of six web-based modules and low-intensity assistance for homework provided by a single care provider asynchronously. The design was a single-group assignment of 15 self-identified LGB community members who agreed to participate in an open trial with a single group (pre- and post-intervention design).

Results: Before starting the program, participants found the intervention credible and expressed high satisfaction at the end of the intervention. Treatment adherence operationalized by the percentage of completed homework assignments (88%) was also high. When we compared participants' pre- and post-intervention scores, we found a significant decrease in clinical symptoms of depression (Cohen's d = 0.44 90% CI [0.09, 0.80]), social phobia (d = 0.39 90% CI [0.07, 0.72]), and post-traumatic stress disorder (d = 0.30 90% CI [0.04, 0.55]). There was also a significant improvement in the level of self-acceptance and behavioral effectiveness (d = 0.64 90% CI [0.28, 0.99]) and a significant decrease in the tendency to avoid negative internal experiences (d = 0.38 90% CI [0.09, 0.66]). The level of general anxiety disorder (p = 0.11; d = 0.29 90%. CI [-.10, .68]) and alcohol consumption (p = 0.35; d = -0.06 90% CI [-.31, .19]) were the only two outcomes for which the results were not statistically significant.

Conclusions: The proposed web-based ACT program, designed to help LGBTQ+ participants better manage emotional difficulties and become more resilient, represents a promising therapeutic tool. The program could be further tested with more participants to ensure its efficacy and effectiveness.

Trial Registration: ClinicalTrials.gov: NCT05514964

Keywords: acceptance and commitment therapy, anxiety, depression, PTSD, LGBTQ+, online interventions, transdiagnostic, prevention.

Introduction

Social inclusion of LGBT individuals varies within and between countries (e.g., measures of public acceptance of homosexuality and same-sex family rights) [1]. However, the LGBT groups are, on average, at a higher risk for mental health problems [2, 3] as a result of various types of marginalization and discrimination working through processes of minority stress [4]. This includes repeated experiences of adverse social events that can lead to internalized homo-, bi-, and transphobia. For example, the vulnerability of gay men developing symptoms of depression and anxiety is explained by the stress of being part of the LGBTQ+ community. This type of stress includes experiences of discrimination and bullying, as well as the internalization of negative social attitudes. However, some research suggests that promoting self-acceptance may be beneficial in reducing self-stigma related to sexual orientation. The current study examined how a specially tailored online intervention program might help improve self-acceptance among LGB individuals.

Scientific background

The literature in this area includes studies of various types of interventions conducted to support the LGBTQ+ community, such as a camp intervention for LGBTQ youth to reduce depressive symptoms [5], a CBT intervention for body image, and self-care for gay men living with HIV [6], an affirmative CBT intervention for depression caused by sexual orientation discrimination [7], an identity-affirming web application to cope with minority stress [8], an intensive outpatient group program tailored form LGBTQIA+ to reduce depression and anxiety [9], a rejection sensitivity model used to extend minority stress theory to improve mental health [10], and even a socially assistive robot to be used by young LGBTQ+ at risk for self-harm [11]. All of these and others, including the present study, have been designed and implemented by psychologists who have shown an interest in improving the quality of life for the LGBTQ+ community.

Digital interventions such as those delivered via web platforms or smartphones are highly relevant for the LGBTQ+ population as many people prefer to conceal their identity, particularly in countries with high levels of homophobia and transphobia. A recent systematic review [12] on digital health interventions for LGBTQ+ participants concluded that there were

more interventions aiming at reducing sexually transmitted diseases than for other health concerns and that more targeted interventions are needed to cover mental health difficulties.

The current study aims to design and preliminary test a stand-alone digital intervention tailored for LGBTQ+ participants that originates from the Acceptance and Commitment theory [13,14,15]. Several studies have emphasized the protective role of psychological processes related to acceptance. Acceptance implies psychological flexibility, from which two essential resources are derived [13,14,15]. One resource is the ability to accept the experience of the present moment as it is rather than avoiding unpleasant events. A crucial rule is to accept the diversity of emotional experiences, not just the positive ones. One strategy for achieving this goal is to view unpleasant events as external events rather than over-identifying with these difficulties and blaming oneself. While avoidance is a coping strategy often used by LGBTQ+ people to deal with adverse events [16], there is also evidence to suggest that this emotional regulation strategy is associated with poor mental health [17]. Experiential avoidance, viewed by Hayes et al. [18] as the opposite of acceptance, is a stronger predictor of depression than internalized homophobia. It also mediates the relationship between internalized homophobia and the severity of depressive symptoms [19]. In a recent systematic review, there was a call for action for researchers to provide evidence for the effectiveness of Acceptance and Commitment Therapy in treating mental health issues expressed by the LGBT community [20] in the absence of methodologically robust studies on this topic. An exception outside the ACT area [21] provided evidence for the effectiveness of an online single session in reducing internalized stigma and slightly increasing identity pride. Increasing the number of sessions from 1 to 6 and focusing on ACT principles to increase self-acceptance may increase the effectiveness of an online intervention tailored to the mental health needs of LGBTQ+ adults.

Goals of This Study

The main objective was to design and implement an internet-delivered (digital) psychological program based on Acceptance and Commitment Therapy (ACT) principles to help LGBTQ+ individuals become more resilient.

The present study [NCT05514964] had three aims: (1) to tailor a prevention program based on ACT principles to the specific needs of the LGBTQ+ community; (2) to assess the feasibility of the program operationalized as treatment acceptability and treatment satisfaction among participants; and (3) to preliminarily test the impact of the intervention program on participants' levels of psychological flexibility, anxiety, and depression. Together with an

increased sense of personal agency – i.e., the ability to make changes in one's life and control one's destiny – we expect that LGBTQ+ individuals will be better equipped to cope with potential adverse events, including discrimination. The premises for an online intervention for LGBTQ+ participants are favorable because such interventions are more appropriate for LGBTQ+ people who are closeted and cover more geographical locations, including areas outside of major cities where face-to-face psychological services are less available.

We hypothesized that the ACT-based mental health prevention program tailored for the specific needs of the LGBTQ+ community would be perceived as being (i) credible (logical) in comparison with a neutral point on a not logical – very logical continuum and (ii) will lead to beneficiaries' satisfaction in comparison with a neutral point on a totally unsatisfied – very satisfied continuum.

Likewise, we hypothesized significant improvements in the (iii) level of anxiety, (iv) social anxiety, (v) depression, and (vi) alcohol consumption between the pre-test and post-test as evidence in favor of treatment feasibility for these primary outcomes.

Methods

Ethics Approval and Registration

The study was approved by the Ethics Committee of the West University of Timisoara, Romania (4137/27.01.2021) and was registered on ClinicalTrials.gov as NCT05514964. Written informed consent was obtained from all participants by surface email.

Recruitment and Procedure

Participants were recruited using a variety of advertising methods targeting the LGBTQ+ community. We used online postings supported by several local NGOs (Accept, MozaiQ, Identity Education, Campus Pride). The official description of the program was posted on the project website and social media (Facebook, Grindr), and posters were printed for LGBTQ+ nightclubs. A brief description of the program was included in a newsletter, and one of the authors presented the program to potentially interested participants during a Campus Pride event.

Participants were invited to log in to a psychotherapy platform using a personal email account to participate in the study. Before registering, participants were encouraged to create a new email account to maintain anonymity. Registered participants were asked to complete a series of screening questionnaires to assess their eligibility. Based on these descriptions, computer/internet literacy was

expected from participants in the study.

Treatment credibility was also assessed before the program. Inclusion criteria were being over 18 years of age, fluent in Romanian, and being gay, lesbian, bisexual, or transgender. All eligible participants in the study should also have low or moderate symptoms on at least one of the following self-report scales: generalized anxiety – GAD-7 (a score between 5 and 14); social anxiety - SPIN (a score between 21 and 40); depression - PHQ9 (a score between 5 and 14); alcohol use - AUDIT (a score between 8 and 14). The exclusion criteria were: suicidal ideation (i.e., exceeding a score of 1 on suicide item 9 from PHQ9), changes in psychotropic medication dosage in the past month (if present), bipolar disorder or psychosis (according to medication status), severe alcohol/substance abuse and/or dependence (AUDIT score $\geq$ 15), high/clinical levels of anxiety or depression (above the cut-off range - see above), current participation in other psychological treatment, an obvious barrier to participation (i.e., no current Internet access, extended travel plans during the treatment period etc.).

Procedure

Enrolled participants were asked to read the first intervention module and complete homework assignments. No bug fixes or unexpected events occurred in the functionality of the platform. Finally, after the six-week intervention, participants were invited to complete the post-intervention assessment measures, which self-assessed their levels of anxiety, depression, and alcohol use through online questionnaires. Treatment satisfaction data were collected after the intervention to measure whether participants were satisfied with the intervention through online self-assessed questionnaires.

Participants

While the intervention was active online, 169 individuals expressed interest in the study by accessing the web platform. Of these, 65 completed all or most of the screening questionnaires, and 15 were eligible for inclusion in the study (see Table 1 for demographics). All these 15 participants successfully completed the program.

Table 1. The demographic characteristics of included participants.

Demographic variables	M(SD) or frequencies
Age (in years)	
Mean (SD)	29.86 (9.53)
Range	21-50
Biological sex, n (%)	

Female	10 (66,7%)
Male	5 (33,3%)
Gender Identity, n (%)	
Woman	10 (66,7%)
Man	5 (33,3%)
Nonbinary	0 (0%)
Sexual orientation, n (%)	
Homosexual	6 (40%)
Bisexual	9 (60%)
Coming out, n (%)	
Undisclosed identity	3 (20%)
Revealed to some	7 (46.7%)
Revealed to all	5 (33.3%)
Marital status, n (%)	
Never married	10 (66,6%)
Married	1 (6.7%)
In a relationship	4 (26.7%)
Professional status, n (%)	
Student	5 (33.3%)
Part-time	1 (6.7%)
Full time	8 (53.3%)
Unemployed	1 (6.7%)

The program

The current prevention program is based on a previously tested intervention based on ACT principles [22] and reported according to the CONSORT-EHEALTH checklist [23]. However, this intervention was initially designed for the general population, and the original version of the program did not include specific references to sexual orientation. Therefore, our team decided to make the program LGBTQ+ friendly and tailor the content to the particular needs of this community. The tailoring process was theoretically informed by the APA's general recommendations for psychological practice with Lesbian, Gay, and Bisexual Clients [24]. These guidelines provide a general framework for psychological services with the LGBTQ+ community, systematically addressing the important issues and pertinent features that may arise in this context. We have also incorporated other suggestions from the literature [25, 26], where comparable interventions have been successfully tested with the LGBTQ+ community. Finally, we thoroughly discussed the tailoring process and the new content to be added to the program with several members of the local LGBTQ+ communities. Some of these members were actively involved in various local LGBTQ+ organizations, some had professional training in psychology, and some were community members. The tailoring process took about six

months, during which feedback was collected, discussed, and ultimately incorporated into the final version of the program. As a result, six customized modules adapted for the online environment were finally uploaded to a psychotherapy web platform.

The six modules covered six different topics: 1) Introduction to minority stress and the current program; 2) Defusion; 3) Coming out and the acceptance process; 4) Personal values; 5) Committed action; and 6) Compassion and self as context. The recommended time for each module was one week, so the total length of the program was six weeks. Participants were asked to complete approximately six homework assignments per module (36 for the entire program). At the end of each week, an online therapist provided written feedback to each participant on the platform. To ensure confidentiality, the content of the messages was securely stored on encrypted software. Participants received only a notification when a new written message was delivered to them within the psychotherapy platform, but their registered email was not used to provide any sensitive data. The content of the six modules is available for replicability/upscaling studies (the web address is concealed for the moment to ensure a blind peer review). Human involvement was limited to providing asynchronous written feedback and reminders for homework. The assistance was provided by a single care provider (research assistant).

Treatment credibility, satisfaction, and adherence measures

To assess the overall perceptions of the program, participants were asked to complete a measure of Treatment Credibility before the program began and a measure of *treatment satisfaction* immediately after the intervention. Five standard questions operationalized treatment credibility scored on a 10-point Likert scale (*i.e., The program: 0 = Doesn't seem logical ... 10 = Seems very logical)*. After the intervention, we assessed participants' satisfaction with the program by asking them to complete a series of quantitative and qualitative items (i.e., Overall satisfaction with treatment (1 = totally unsatisfied vs. 5 = very satisfied). More details on treatment credibility and satisfaction questions are presented in Tables 2 and 3.

Treatment adherence (the intensity or dose of the intervention) was estimated by the number of homework assignments completed for each participant.

Outcome measures

Primary outcome measures

The Social Phobia Inventory (SPIN) [27] was designed to measure the participant's level of social phobia. The scale is unidimensional, and the total score ranges from 0 to 68, with high scores associated with high levels of social phobia. In our study, the internal consistency was adequate

α=.87.

The Patient Health Questionnaire-9 (PHQ9) [28] was designed to measure the participant's level of depression, with high scores associated with high levels of depression. In this study, the internal consistency was α = .84.

The Generalized Anxiety Disorder-7 (GAD7) [29] was designed to measure the participants' level of anxiety or worry. The total score ranges from 0 to 21, with high scores associated with high levels of worry. The instrument has demonstrated adequate psychometric properties [30, 31], and in our sample, the internal consistency was α=.87.

The Alcohol Use Disorders Identification Test (AUDIT) [32] consists of 10 items measuring alcohol use. In our study, internal consistency for this scale was α=.73.

Secondary outcome measures

The Acceptance and Action Questionnaire II (AAQ-II) [33] assessed psychological flexibility. In this study, the internal consistency was α=.81.

The Brief Multidimensional Experiential Avoidance Questionnaire (B-MEAQ) [29] was designed to measure the participants' avoidance tendencies. The internal consistency in our study was α=.84.

The Diagnostic and Statistical Manual-5 *Post-Traumatic Stress Disorder Checklist* (PCL-5) [34] was used to measure symptoms of posttraumatic stress disorder (PTSD). For this study, the internal consistency of the PCL-5 was (α=.91).

Additional measures were used during the screening process related to how participants experience their lives as members of the LGB community. These three additional measures were (i) The Short Internalized Homonegativity Scale [35], (ii) The Sexual Orientation Concealment Scale [36], and (iii) the *Daily Heterosexist Experiences Questionnaire* [37].

Results

Treatment credibility, satisfaction, and adherence

Table 2 shows the mean scores for the included participants. The scores for all items were significantly above chance (set at five on the 10-point scale, all *Ps < .001*), as participants reported that the program seemed trustworthy.

Table 2. Descriptive statistics for the treatment credibility items

Assessed dimension	*M (SD)*
Intervention program seems logical	9.06 (1.03)

Confidence that the program will be helpful	7.93 (2.01)
Confidence in recommending the program to a friend.	7.93 (2.60)
Program seems effective in helping me manage my emotions.	8.20 (1.85)
I expect to be able to manage my emotions by the end of the program.	7.93 (1.38)

As shown in Table 3, participants completed most of the modules and seemed satisfied with the intervention. The fact that most participants remained active throughout the program and completed the post-intervention assessment proves that the program was perceived as useful despite the time (3.6 hours/week) and effort required to complete it.

Table 3. Descriptive statistics for the quantitative items included in the treatment satisfaction assessment

The overall satisfaction with the treatment	*M (SD)*
Overall satisfaction with treatment (1 = totally unsatisfied vs. 5 = very satisfied)	4.46 (0.51)
Quality of information provided (1 = very poor vs. 5 = very good)	4.53 (0.74)
Satisfied with intervention timing (1 = too short, 3 = appropriate, 5 = too long)	2.53 (0.64)
Number of completed modules (out of 6)	5.80 (1.08)
Number of fully grasped modules (out of 6)	5.46 (1.24)
The average time spent with the program (hours/week).	3.60 (1.99)
Program demandingness (1 = not demanding vs. 4 = very demanding)	2.77 (0.70)
The program helped me approach problems more effectively (1 = not at all vs. 4 = to a great extent)	3.40 (0.50)

Treatment adherence (the intensity or dose of the intervention) was estimated by the number of homework assignments completed for each participant. On average, participants completed 5.3 weekly assignments (out of a maximum of 6). More specifically, the 15 participants completed 480 out of a maximum of 540 assignments (88%), representing high adherence.

Treatment Outcomes

Subsequently, we assessed the impact of the program by comparing participants' levels of anxiety, depression, and alcohol use before and after completing the program. Table 4 shows us that participants improved on most outcome measures, except the AUDIT and GAD7. Participants' alcohol consumption seems to remain unaffected by the program while their anxiety and depression levels decrease. We also found that participants' psychological flexibility increased significantly (Cohen's d = .83).

Table 4. Means and standard deviations before and after the psychological intervention.

Measures	Pre-treatment	Post-treatment	Student's *t*	*P*	*Cohen's d* (90%CIs)

	means (SDs)	means (SDs)	*(df)*	*(one-tailed)*	
AUDIT	3.66 (3.35)	3.86 (3.37)	-.40 (14)	.35	-.06 [-.31, .19]
PHQ9	10.86 (6.04)	8.26 (5.67)	2.17 (14)	.02	.44 [.09, .80]
GAD7	9.26 (5.25)	7.60 (6.03)	1.25 (14)	.11	.29 [-.10, .68]
SPIN	25.00 (11.17)	20.26 (12.61)	2.13 (14)	.02	.39 [.07, .72]
AAQ-II	40.80 (7.81)	46.20 (8.93)	-3.23 (14)	.003	.64 [.28, .99]
B-MEAQ	48.80 (9.70)	44.53 (12.03)	2.24 (14)	.02	.38 [.09, .66]
PCL5	34.13 (14.17)	27.40 (22.34)	1.99 (14)	.03	.30 [.04, .55]

AUDIT: The Alcohol Use Disorders Identification Test; PHQ9: Depression-Patient Health Questionnaire–9; GAD7: Generalized Anxiety Disorder–7; SPIN: Social Phobia Inventory; AAQ2: Acceptance and Action Questionnaire 2; B-MEAQ: Brief – Multidimensional Experiential Avoidance Questionnaire; PCL5: PTSD Checklist for DSM-5.

We found a significant improvement in participants' psychological flexibility (AAQ-II Cohen's d=.64), the primary goal of any ACT-based intervention. We also found significant reductions in clinical symptoms of depression (d=.44), social phobia (d=.39), and posttraumatic stress disorder (d=.30). However, participants' levels of general anxiety disorder and alcohol use were the only two outcomes for which the results were not statistically significant.

Discussion

Principal Results

In this study, we examined the feasibility of an Internet-delivered prevention program tailored for LGBTQ+ individuals at risk for developing emotional disorders due to minority stress (e.g., being discriminated against, not being accepted by their families, etc.). The intervention was designed to increase personal agency and foster acceptance among LGB individuals. Overall, the intervention was perceived as credible based on participants' involvement in the program and generated high levels of satisfaction at the end of the program. Participants also demonstrated a high level of treatment adherence, completing 88% of the homework assignments. In terms of impact, we found significant reductions in clinical symptoms of depression, social phobia, and post-traumatic stress disorder following the intervention. There was also a substantial improvement in self-acceptance and a considerable decrease in avoidance of negative experiences.

This was the first online transdiagnostic prevention program targeting the LGB group based on the ACT framework. Despite prior calls to use standard ACT [38] or Affirmative ACT [39] for

LGBTQ+ communities, this is the first ACT-inspired open trial tailored for LGBTQ+ people. It is not, however, the first mental health program tailored to the LGBTQ+ community. For example, Pachankis et al. [26] used a 10-session LGBTQ+ tailored CBT (cognitive-behavioral therapy). They found reductions in a wide range of symptoms such as depression, anxiety, and co-occurring health risks (i.e., alcohol use, condomless sex) among young adult gay and bisexual men. It should be noted, however, that this intervention was based on face-to-face sessions with experienced CBT therapists.

Considering the privacy issues, the shortage of trained mental health professionals in Romania and internationally, and even those who exist may not have sufficient knowledge or experience in working with sexual minorities, an internet-delivered program looks pretty suitable for LGBTQ+ participants. They are more reluctant to participate in such programs, preferring to hide their identity. The challenge is to make evidence-based interventions available to underserved populations, such as LGBTQ+ people with emotional difficulties.

Internet-delivered or computerized interventions may address the above limitations by becoming an attractive alternative in a stepped-care approach for those seeking treatment for mild to moderate symptoms [40]. The Internet-based treatment format has the potential to reduce many of the barriers that currently impede access to mental health care: the small number of competent psychotherapists, geographic distance, and the high cost of face-to-face programs. However, many internet-delivered studies have not been implemented for the LGBTQ+ community, with one exception: the computerized CBT - Rainbow SPARKS, aimed at reducing depression symptoms in adolescents who manifested same-sex attraction [41]. However, the program was designed primarily for adolescents in a gamified form. Participants had to use avatars to collect all six gems for a shield. This strategy limits its applicability to adults, who are less likely to participate in a gamified psychosocial intervention.

Mental health issues in the LGBTQ+ community are multifaceted and have a significant impact on the psychological and physical well-being of those affected. Several studies have documented that people who are part of the LGBTQ+ community are vulnerable to various status inequalities [42, 43] related to income disparities, treatment in the workplace [44, 45], and social and legal discrimination, as same-sex unions are not recognized. Targeting and changing such societal processes requires several long-term structural changes. An online intervention program targeting personal acceptance, identity, engagement, and coping strategies is only one of several strategies to reach the LGB and LGBTQ+ communities.

Limitations

The present study was a feasibility study that provided us with experience in making relevant changes in different parts of the procedures and the program. First, we observed that several potential participants did not join the program because of too many measurements, including too many measurements that asked in great detail about the participants' lives and intruded too much into their privacy, which scared them, considering that we are in a country where this category of the population is very discriminated against. To diminish the risk that the research process itself could be seen as tiring and intrusive, as it involves revealing aspects of their lives that are stigmatized, we suggest dropping out some measures to reduce the burden of participants and advertising the call to potential beneficiaries only after establishing a first direct contact with them to decrease their mistrust level. Secondly, the study did not include follow-up measurements. Future studies should include follow-up measurements to decide whether the intervention has significant long-term effects. This would involve providing incentives for their long-term participation, including sharing the progress / preliminary results, to help participants notice their contribution is meaningful and valuable. Third, as with any feasibility study, an underpowered study undermines some potential conclusions. It may be that relying solely on increasing the sample size would be sufficient to decrease the generalized anxiety symptoms significantly. Or perhaps an extension from a 6-week to a 9-week program would be required to reduce the anxiety symptoms significantly. Similarly, the current program focuses extensively on internalizing problems, so a program redesign is needed when targeting externalizing problems such as alcohol use.

Conclusions

The 6-week online transdiagnostic program based on ACT, specifically designed for the LGBT community, is a promising intervention because the treatment is credible and results in beneficiaries' satisfaction. In addition, the dynamics of the pre and post-test data suggest clinical improvement in most of the measured outcomes, including depression, PTSD, and social phobia, as well as in the potential related mechanisms of change from an ACT perspective. The online program is particularly appropriate for use in countries where beneficiaries are less likely to disclose themselves and where there is a shortage of therapists due to geographic or other barriers.

Acknowledgments

The research leading to these results has received funding from the NO grants 2014-2021, under project contract no. 17/2020 (RO-NO-2019-0412).

Project title: *The social inclusion of LGBT people. Public attitudes and evidence-based interventions to increase their quality of life.*

Conflicts of Interest

The authors reported no potential conflict of interest.

Abbreviations

AAQ-II: The Acceptance, and Action Questionnaire II

ACT: Acceptance and Commitment Therapy

AUDIT: The Alcohol Use Disorders Identification Test

B-MEAQ: The Brief Multidimensional Experiential Avoidance Questionnaire

CBT: Cognitive Behavioral Therapy

CI: Confidence Interval

GAD7: The Generalized Anxiety Disorder

JMIR: Journal of Medical Internet Research

LGBT: Lesbian, Gay, Bisexual, and Transgender

LGBTQ+: Lesbian, Gay, Bisexual, Transgender Queer

PCL-5: The Diagnostic and Statistical Manual-5 Post-Traumatic Stress Disorder Checklist

PHQ9: The Patient Health Questionnaire

PTSD: Post-traumatic Stress Disorder

RCT: a randomized controlled trial

SPIN: The Social Phobia Inventory

References

1. Poushter J, Kent NO. The global divide on homosexuality persists. But increasing acceptance in many countries over past two decades. Washington, Pew Research Center; 2020. Available online at: https://www.pewresearch.org/global/2020/06/25/global-divide-on-homosexuality-persists/
2. Ross LE, Salway T, Tarasoff LA, MacKay JM, Hawkins BW, Fehr CP. Prevalence of depression and anxiety among bisexual people compared to gay, lesbian, and heterosexual

individuals: A systematic review and meta-analysis, J Sex Res 2018; 55(4-5): 435-456. doi:10.1080/00224499.2017.1387755

3. Connolly MD, Zervos MJ, Barone CJ, Johnson CC, Joseph CLM. The mental health of transgender youth: Advances in understanding. J Adolesc Health 2016; 59(5):489-495. doi:10.1016/j.jadohealth.2016.06.012
4. Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. Psychol Bull 2003; 129(5):674-697. doi:10.1037/0033-2909.129.5.674
5. Gillig TK, Miller LC, Cox CM. “She finally smiles…for real”: Reducing depressive symptoms and bolstering resilience through a camp intervention for LGBTQ youth. J Homosex 2017; 66(3):368-388. doi:10.1080/00918369.2017.1411693
6. Blashill AJ, Safren SA, Wilhelm S, Jampel J, Wade Taylor S, O’Cleirigh C, Mayer KH. Cognitive behavioral therapy for body image and self-care (CBT-BISC) in sexual minority men living with HIV: A randomized controlled trial. Health Psychol 2017; 36(10):937-946. doi:10.1037/hea0000505
7. Zapor H, Stuart GL. Affirmative cognitive behavioral therapy for a male with depression following sexual orientation. J Clin Case Stud 2015; 1-14. doi:10.1177/1534650115604928
8. Bauermeister J, Choi SK, Bruehlman-Senecal E, Golinkoff J, Taboada A, Lavra J, Ramazzini L, Dillon F, Haritatos J. An identity-affirming web application to help sexual and gender minority youth cope with minority stress: Pilot randomized controlled trial. J Med Internet Res 2022; 24(8):e39094. doi:10.2196/39094
9. Berry K, Gliske K, Schmidt C, Cray LDE, Killian M, Fenkel C. Lesbian, gay, bisexual, transgender, queer, intersex, asexual, and other minoritized gender and sexual identities–Adapted telehealth intensive outpatient program for youth and young adults: Subgroup analysis of acuity and improvement following treatment. JMIR Form Res 2023; 7:e45796. doi:10.2196/45796
10. Feinstein BA. The rejection sensitivity model as a framework for understanding sexual minority mental health. Arch Sex Behav-Springer 2020; 49:2247-2258. doi:10.1007/s10508-019-1428-3
11. Williams J, Townsend E, Naeche N, Chapman-Nisar A, Hollis C, Slovak P, Digital Youth with Sprouting Minds. Investigating the feasibility, acceptability, and appropriation of a socially assistive robot among minority youth at risk of self-harm: Results of 2 Mixed Methods Pilot Studies. JMIR Form Res 2023; 7:e52336. doi:10.2196/52336
12. Gilbey D, Morgan H, Lin A, Perry Y. Effectiveness, acceptability, and feasibility of digital health interventions for LGBTIQ+ young people: Systematic review. J Med Internet Res 2020; 22(12):e20158. doi:10.2196/20158
13. Hayes SC, Strosahl KD, Bunting K, Twohig M, Wilson KG. A Practical Guide to Acceptance and Commitment Therapy. New York, Springer Science; 2004.
14. Hayes SC, Pistorello J, Levin ME. Acceptance and commitment therapy as a unified model of behavior change. Couns Psychol 2012; 40(7):976-1002. doi:10.1177/0011000012460836
15. Hayes SC. A liberated mind. How to pivot toward what matters. New York, Penguin Random House; 2019.

16. Stitt AL. The cat and the cloud: ACT for LGBT locus of control, responsibility and acceptance. J LGBT Issues Couns 2014; 8(3):282-297. doi:10.1080/15538605.2014.933469
17. Chawla N, Ostafin B. Experiential avoidance as a functional dimensional approach to psychopathology: An empirical review. J Clin Psychol 2007; 63(9):871-890. doi:10.1002/jclp.20400
18. Hayes SC, Luoma JB, Bond FW, Masuda A, Lillis J. Acceptance and commitment therapy: Model, processes and outcomes. Behav Res Ther 2006; 44(1):1-25. doi:10.1016/j.brat.2005.06.006
19. Gold SD, Marx BP. Gay male sexual assault survivors: The relations among internalized homophobia, experiential avoidance, and psychological symptom severity. Behav Res Ther 2007; 45(3):549-562. doi:10.1016/j.brat.2006.05.006
20. Fowler JA, Viskovich SN, Buckley L, Dean J. A call for ACTion: A systematic review of empirical evidence for the use of Acceptance and Commitment Therapy (ACT) with LGBTQI+ individuals. J Context Behav Sci 2022; 25:78-89. doi:10.1016/j.jcbs.2022.06.007
21. Shen J, Rubin A, Cohen K, Hart EA, Sung J, McDanal R, Roulston C, … Schleider JL. Randomized evaluation of an online single-session intervention for minority stress in LGBTQ+ adolescents. Internet Interv 2023; 33:100633. doi:10.1016/j.invent.2023.100633
22. Forsyth JP, Eifert GH. The mindfulness and acceptance workbook for anxiety: A guide to breaking free from anxiety, phobias and worry using acceptance, and commitment therapy. Oakland, New Harbinger Publications; 2016.
23. Eysenbach G, CONSORT EHEALTH Group. CONSORT-EHEALTH: Improving and Standardizing Evaluation Reports of Web-based and Mobile Health Interventions. J Med Internet Res 2011; 13(4):e126. doi:10.2196/jmir.1923
24. American Psychological Association. Guidelines for psychological practice with lesbian, gay and bisexual clients. Am Psychol 2012; 67(1):10-42. doi:10.1037/a0024659
25. Pachankis JE. Uncovering Clinical Principles and Techniques to Address Minority Stress, Mental Health, and Related Health Risks Among Gay and Bisexual Men. Clin Psychol: Sci Pract 2014; 21(4):313–330. doi:10.1111/cpsp.12078
26. Pachankis JE, Hatzenbuehler ML, Rendina HJ, Safren SA, Parsons JT. LGB-affirmative cognitive-behavioral therapy for young adult gay and bisexual men: A randomized controlled trial of a transdiagnostic minority stress approach. J Consult Clin Psychol 2015; 83(5):875-889. doi:10.1037/ccp0000037
27. Connor KM, Davidson JRT, Churchill LE, Sherwood A, Foa E, Weisler RH. Psychometric properties of the Social Phobia Inventory (SPIN): new self-rating scale. Br J Psychiatry 2000; 176:379–386. doi:10.1192/bjp.176.4.379
28. Löwe B, Unützer J, Callahan CM, Perkins AJ, Kroenke K. Monitoring depression treatment outcomes with the patient health questionnaire-9. Med Care 2004; 1194-1201. doi:10.1097/00005650-200412000-00006
29. Spitzer RL, Kroenke K, Williams JBW, Lowe B. The GAD-7. A brief measure for assessing generalized anxiety disorder. JAMA Intern Med 2006; 166(10):1092-1097. doi:10.1001/archinte.166.10.1092

30. Johnson SU, Ulvenes PG, Øktedalen T, Hoffart A. Psychometric properties of the general anxiety disorder 7-item (GAD-7) scale in a heterogeneous psychiatric sample. Front Psychol 2019; 10:1713. doi:10.3389/fpsyg.2019.01713
31. Löwe B, Decker O, Müller S, Brähler E, Schellberg D, Herzog W, Herzberg PY. Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. Med Care 2008; 266-274. doi:10.1097/MLR.0b013e318160d093
32. Saunders JB, Aasland OG, Babor TF, De la Fuente JR, Grant M. Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. Addict 1993; *88*(6): 791-804. doi:10.1111/j.1360-0443.1993.tb02093.x
33. Bond FW, Hayes SC, Baer RA, Carpenter KM, Guenole N, Orcutt HK, ...Zettle RD. Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: A revised measure of psychological inflexibility and experiential avoidance. Behav Ther 2011; 42(4):676-688. doi:10.1016/j.beth.2011.03.007
34. Gámez W, Chmielewski M, Kotov R, Ruggero C, Suzuki N, Watson D. The Brief Experiential Avoidance Questionnaire: Development and initial validation. Psychol Assess 2014; 26(1):35–45. doi:10.1037/a0034473
35. Blevins CA, Weathers FW, Davis MT, Witte TK, Domino JL. The posttraumatic stress disorder checklist for DSM-5 (PCL-5): Development and initial psychometric evaluation. J Trauma Stress 2015; 28(6): 489-498. doi:10.1002/jts.22059
36. Smolenski DJ, Diamond PM, Ross MW, Simon Rosser BR. Revision, criterion validity and multi-group assessment of the reactions to homosexuality scale. J Pers Assess 2010; 92(6):568–576. doi:10.1080/00223891.2010.513300
37. Jackson SD, Mohr JJ. Conceptualizing the closet: Differentiating stigma concealment and nondisclosure processes. Psychol Sex Orientat Gend Divers 2016; 3(1):80-92. doi:10.1037/sgd0000147
38. Bennett CM, Taylor DD. ACTing As Yourself: Implementing Acceptance and Commitment Therapy for Transgender Adolescents Through a Developmental Lens. J Child Adolesc Couns 2019; 5(2):146-160. doi:10.1080/23727810.2019.1586414
39. Stitt AL. Of parades and protesters: LGBTQ+ Affirmative Acceptance and Commitment Therapy. J LGBTQ Issues in Counseling 2022; 16(4):422-438. doi:10.1080/26924951.2022.2092931
40. Balsam KF, Beadnell B, Molina Y. The Daily Heterosexist Experiences Questionnaire: Measuring minority stress among lesbian, gay, bisexual, and transgender adults. Meas Eval Couns Dev 2013; 46(1):3-25. doi:10.1177/0748175612449743
41. Kaltenthaler E, Sutcliffe P, Parry G, Beverley C, Rees A, Ferriter M. The acceptability to patients of computerized cognitive behavior therapy for depression: A systematic review. Psychol Med 2008; 38(11):1521-1530. doi:10.1017/S0033291707002607
42. Lucassen M F, Hatcher S, Fleming TM, Stasiak K, Shepherd MJ, Merry SN. A qualitative study of sexual minority young people's experiences of computerised therapy for depression. Australas Psychiatry 2015; 23(3):268-273. doi:10.1177/1039856215579542

43. Harper GW, Schneider M. Oppression and discrimination among lesbian, gay, bisexual, and transgendered people and communities: A challenge for community psychology. Am J Community Psychol 2003; 31:243-252. doi:10.1023/A:1023906620085
44. Bayrakdar S, King A. LGBT discrimination, harassment and violence in Germany, Portugal and the UK: A quantitative comparative approach. Curr Sociol 2023; 71(1):152-172. doi:10.1177/00113921211039271
45. Mara LC, Ginieis M, Brunet-Icart I. Strategies for coping with LGBT discrimination at work: A systematic literature review. Sex Res Social Policy 2021; 18(3):339-354. doi:10.1007/s13178-020-00462-w