



# Effects of “It Gets Better” Suicide Prevention Videos on Youth Identifying as Lesbian, Gay, Bisexual, Transgender, Queer, or Other Sexual or Gender Minorities: A Randomized Controlled Trial

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## Abstract

**Purpose:** The “It Gets Better” project (IGBP) features video narratives of lesbian, gay, bisexual, transgender, queer persons or persons with other sexual or gender minority identities (LGBTQ+) of overcoming coming-out-related difficulties. This is the first experimental study investigating effects of these videos.

**Methods:** We conducted a double-blind randomized controlled trial on-site in Austria and online in German-language settings from January to November 2020 with LGBTQ+ youth (14–22 years;  $n=483$ ), randomized to an IGBP ( $n=242$ ) or control video ( $n=241$ ). Suicidal ideation (primary outcome), help-seeking intentions, hopelessness, mood, and sexual identity were assessed at baseline ( $T_1$ ), postexposure ( $T_2$ ), and 4-week follow-up ( $T_3$ ). We assessed differences among gender identities, sexual orientations, with regard to depressive symptoms, and the role of identification. Data were analyzed with linear mixed models and mediation analysis.

**Results:** There was no overall effect on suicidal ideation, but nonbinary/transgender individuals experienced a small-sized improvement ( $T_2$ : mean change [MC] from baseline MC =  $-0.06$  [95% confidence interval {CI}  $-0.16$  to  $0.05$ ],  $p=0.60$ ; mean difference [MD] to controls MD =  $-0.42$  [95% CI  $-0.79$  to  $-0.06$ ],  $p=0.02$ ,  $d=-0.10$ ). An indirect preventive effect on suicidal ideation at  $T_2$  through the degree of identification with the protagonist in the video was observed. There was improvement in help-seeking intentions in the intervention group ( $T_2$ : MC =  $0.25$  [95% CI  $0.15$  to  $0.35$ ],  $p<0.001$ ; MD =  $0.28$  [95% CI  $0.01$  to  $0.54$ ],  $p<0.05$ ,  $d=0.09$ ).

**Conclusion:** Video narratives featuring coping might have some potential to decrease suicidal ideation and encourage help-seeking among vulnerable youth identifying with videos, but effects are small and short-lived.

**Study Registration:** German Clinical Trial Registry (DRKS00019913).

**Keywords:** it gets better, media, randomized controlled trial, suicidal ideation, suicide, suicide prevention

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## Introduction

**L**ESBIAN, GAY, BISEXUAL, TRANSGENDER, or queer persons or persons with other sexual or gender minority identities (LGBTQ+) are important target groups for suicide prevention.<sup>1</sup> Particularly, young people in the development phase of their sexual identity have an increased risk of suicidal ideation and behaviors compared to non-LGBTQ+ peers.<sup>2</sup> This appears most pronounced for transgender and bisexual individuals.<sup>1,3</sup>

Interventions tailored to the needs of LGBTQ+ youth and evaluations are scarce.<sup>4</sup> The “It Gets Better” project (IGBP) aims to bridge this gap and empower youth by featuring personal video narratives of coping with difficulties during coming out.<sup>5</sup> Originally started in the United States, the project has spread to 17 countries, including Austria.<sup>5,6</sup>

The strategy of using personal narratives of hope and recovery is of increasing relevance to suicide prevention.<sup>7</sup> Emerging evidence suggests that brief media interventions featuring narratives of hope can reduce suicidal ideation in the audience, the “Papageno effect.”<sup>8–10</sup> Some studies suggest most pronounced effects for vulnerable people, especially people with depressive symptoms or a recent suicide attempt.<sup>10</sup> Research on the “Papageno effect” in LGBTQ+ individuals, however, is lacking. This is a missed opportunity, as they appear to rely more on media models due to the underrepresentation of role models in the immediate social environment.<sup>11</sup>

There are no experimental studies available that analyzed the effects of IGBP videos. Therefore, we conducted this randomized controlled trial (RCT), hypothesizing that participants would benefit from selected IGBP videos in terms of a reduction in suicidal ideation (primary outcome), improvements in help-seeking intentions, identity challenges, and hopelessness. We assumed a mediation effect on suicidal ideation through identification with the featured individuals. We explored if (1) effects varied for different gender identities, (2) sexual orientations, and (3) participants with/without depressive symptoms.

## Materials and Methods

### *Participants and recruitment*

The RCT was conducted online and on-site between January and November 2020. German-speaking participants (14–22 years), who were LGBTQ+, were invited to take part in a study on video effects. The online part of the study was conducted in German-speaking settings (i.e., Austria and Germany), while the on-site part of the study was conducted in Vienna, Austria.

The study was promoted through LGBTQ+ organizations in Austria and Germany and shared on LGBTQ+ facebook groups, reddit, or tumblr pages targeting LGBTQ+ youth. A well-known Austrian LGBTQ+ influencer shared the study on her Instagram channel. We also collaborated with Romeo to recruit gay and bisexual men.<sup>12</sup> All study materials were provided online using Social Science Survey.<sup>13</sup> An intake call/e-mail exchange took place for on-site participants to arrange an appointment for T<sub>1</sub> and check eligibility. Online participants had direct access to the questionnaire and eligibility was checked online. Informed consent was obtained from participants in accordance with ethics regulations. For minors participating on-site, we obtained additional parental consent.

### *Sample size calculation*

The sample size was estimated using G\*Power 3.1.9.2.<sup>14</sup> Using a repeated measures analysis of covariance with an assumed correlation of 0.79 between three repeated measurements, and 16 groups (gender: male or female; study group: intervention or control; identification: median split into high/low; and baseline vulnerability: median split into high/low), a two-sided significance level  $\alpha < 0.05$ , and a power of 0.80, we required a sample size of  $n = 288$  to detect an effect size of  $f = 0.23$ .<sup>9</sup> A power analysis using General Linear Mixed Model Power and Sample Size, which handles mixed models similarly, indicated a sample size of  $n = 284$ .<sup>15</sup>

### *Videos*

Two videos, featuring a young cisgender woman and man, respectively, were used for the experiment. These were selected by a jury of  $n = 19$  lesbian, gay, bisexual, and queer adolescents, as well as adolescents with other sexual minority identities (LGBQ+), and  $n = 9$  suicide and media experts. The jury was asked to rate videos for their perceived suitability to help prevent suicide and strengthen sexual identity. The videos judged to be most suitable by the jury were selected as intervention videos and are available on YouTube.<sup>16–18</sup>

**Rudi’s story.** Rudi talks about his struggle of realizing and accepting that he is gay. He is afraid of coming out to his conservative family and talks about having had depression and attempting suicide. With his first boyfriend, things improve and Rudi comes out to his family, who are more supportive than he had thought. Rudi encourages viewers to come out to the people important to them. The video is 7-minutes long.

**Alice’s story.** Alice talks about the conservative setting she grew up in. Her situation worsens when her mother catches her kissing a girl and threatens Alice to expel her from the family. Alice describes how music and support from her girlfriend kept her going. Eventually, Alice moves to an urban area, where she feels better. Alice encourages others to get in contact with LGBTQ+ youth groups. The video is 3-minutes long.

Alice and Rudi were asked to produce a video for the control group of the trial. Requirements were a similar length and setting. The content was about personal narratives of incorporating a healthy lifestyle into everyday life (i.e., how to eat healthy and exercise regularly), thus unrelated to difficulties with coming out.

### *Procedure*

After obtaining informed consent, participants could select between watching a video featuring a female or a male protagonist. They were then randomly allocated to the respective intervention/control group using the random generator in Social Science Survey ensuring equal group sizes (1:1 allocation ratio).<sup>19</sup> Participants and researchers were blinded to group assignment until data collection was completed.

The sociodemographic variables were assessed at baseline (before randomization, T<sub>1</sub>). All outcome variables were

assessed at  $T_1$ , after watching the video ( $T_2$ ) and at 4-week follow-up ( $T_3$ ). Identification with the featured protagonist was assessed at  $T_2$  and blinding success at  $T_3$ . After participation, all individuals were informed about the study objective and received contact information to crisis support services.

### *Sociodemographics*

To collect data on sociodemographics, we used purpose-designed questions. We assessed age, place of residence (Austria, Germany, and other, with an additional question to specify the country of residence), gender identity, and sexual orientation. Furthermore, we assessed any history of suicidal behavior in the past (e.g., “Did you ever attempt suicide?”) and current mental health treatment (yes/no).

The questions assessing the participants’ sexual and gender identity were based on best practice examples.<sup>20,21</sup> Both questions were intended to be as inclusive as possible with only as many answering options as necessary. In addition, participants had the possibility to describe their identity through an open text field (“I would best describe myself as...”). After data collection was finished, all open text fields were examined and, due to sample size constraints, some categories had to be merged. In particular, people who identified as gender fluid, genderqueer, demigender, or questioning were grouped together with nonbinary and transgender individuals.

### *Primary outcome measure*

**Reasons for Living Inventory-Adolescents.** We assessed suicidal ideation with the 32-item Reasons for Living Inventory-Adolescents about reasons for not wishing to die by suicide (e.g., “I believe I can find other solutions to my problems”).<sup>22</sup> The scale has five subscales: future optimism, suicide-related concerns, family alliance, peer acceptance and support, and self-acceptance. Participants answered on a Likert scale from 1 (not at all important) to 6 (extremely important). The scale correlates well with other measures of suicidal ideation.<sup>23</sup> Scores were reverse-coded, with higher scores indicating higher suicidal ideation (Cronbach’s  $\alpha=0.94$ ).

### *Secondary outcome measures*

**The General Help-Seeking Questionnaire.** The General Help-Seeking Questionnaire measures the likelihood of seeking help in case of suicidal thoughts.<sup>24</sup> Participants were asked to rate sources (e.g., “friends,” “phone helpline”) on a Likert scale from 1 (extremely unlikely) to 7 (extremely likely). We grouped sources into personal (Cronbach’s  $\alpha=0.67$ ) and professional help (Cronbach’s  $\alpha=0.65$ ).<sup>25,26</sup>

**Lesbian, Gay, and Bisexual Identity Scale.** The Lesbian, Gay, and Bisexual Identity Scale measures sexual minority identity and internalized homonegativity.<sup>27,28</sup> The 27-item scale (e.g., “My sexual orientation is a central part of my identity”) is rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Subscales were merged into “Identity Challenges/Negative Identity” (Cronbach’s  $\alpha=0.83$ ).<sup>27</sup> Higher scores indicate more unease with one’s sexual identity (Cronbach’s  $\alpha=0.83$ ).

**Mood subscale.** The mood subscale (Affective State Scale) assessed the participants’ mood. It uses eight adjectives (e.g., merry, sad) rated on a Likert scale from 1 (not at all) to 4 (highly).<sup>29</sup> Higher scores indicate better mood (Cronbach’s  $\alpha=0.88$ ).

**Beck Hopelessness Scale.** We used the short version of the Beck Hopelessness Scale to assess hopelessness.<sup>30,31</sup> This questionnaire has 10 items (e.g., “The future seems vague and uncertain to me”). It is rated on a scale from 1 (fully disagree) to 6 (completely agree, Cronbach’s  $\alpha=0.83$ ).

### *Additional measures*

**Patient Health Questionnaire-9.** Participants indicated depressive symptoms in the past 2 weeks (e.g., little interest or pleasure in doing things).<sup>32</sup> The questionnaire consists of nine items with a Likert scale from 0 (not at all) to 3 (nearly every day). High scores indicate more depressive symptoms (Cronbach’s  $\alpha=0.85$ ).

**Identification.** The Cohen’s Identification Scale was used to assess identification with the protagonist.<sup>33</sup> This questionnaire has 10 items. It is rated on a 5-point Likert Scale from 1 (do not agree) to 5 (fully agree) (e.g., “While viewing the video, I felt as if I was part of the action,” Cronbach’s  $\alpha=0.90$ ).

**Blinding success.** We also assessed blinding success. Participants were asked which group they thought they were allocated to (intervention group, control group, and do not know). This was assessed at  $T_3$ .<sup>34</sup>

### *Data analysis*

The data were analyzed with linear mixed models, which are appropriate to handle missing data by taking into account all available data from each participant.<sup>35</sup> A group (intervention group, control group)  $\times$  time (preintervention  $T_1$ , postintervention  $T_2$ , and follow-up 4 weeks later  $T_3$ ) model was built for the primary research question. To analyze variations with gender identity, we added gender (cisgender male, cisgender female, and nonbinary/transgender) to the basic model.

Variations in effects with severity of depressive symptoms (as indicated by a score of  $>14$  on the Patient Health Questionnaire-9)<sup>32</sup> were tested by adding severity of depressive symptoms (yes/no) to the model. Sexual orientation was categorized into homosexual, bisexual, and other, the latter containing queer, pan/omnisexual, asexual, and questioning participants.

Due to the low number of participants in combined subgroups, we tested effects in separate models. Because of age differences, all analyses, including gender identity or sexual orientation, were adjusted for age. Multiple testing was Bonferroni corrected. Stratified analyses for gender identity and sexual orientation were reported for significant interactions only. A mediation analysis was run on the entire sample to test mediation effects of identification regarding suicidal ideation at  $T_2$  using the SPSS Macro “Process v3.5” by Andrew F. Hayes (Model 4; 5000 bootstrapping samples).<sup>36</sup>

### *Sensitivity analyses*

We conducted four sensitivity analyses to examine any differences of findings from the total sample. We ran

subsample analyses with (1) online participants ( $n=321$ ), (2) participants resident in Austria ( $n=264$ ), (3) participants who watched the video featuring the female protagonist ( $n=295$ ), and (4) participants with complete participation ( $n=297$ ).

*Ethics statement*

Ethical approval was obtained from the Institutional Review Board of the Medical University of Vienna (1013/2019). All procedures contributing to this work complied with the Helsinki Declaration of 1975, as revised in 2013.<sup>37</sup> Trial registration: German Clinical Trial Registry (DRKS00019913).<sup>38</sup>

**Results**

Overall,  $n=242$  (50.1%) participants were randomized to the intervention and  $n=241$  (49.9%) to the control group. A total of  $n=297$  (61.5%) completed the trial (Fig. 1). Following the intention-to-treat principle, all randomized participants ( $n=483$ ) were included in the statistical analysis.<sup>39</sup>

*Descriptive characteristics*

We tested differences in the baseline characteristics between the two groups. There were no differences regarding the participants' characteristics. This also applied to the outcome variables at baseline (Table 1).

*Differences between survey completers and dropouts*

Participants who dropped out after randomization ( $n=186$ ) were younger and more likely from Germany. Furthermore, they had more severe depressive symptoms. They also showed worse scores in mood, hopelessness, internalized homonegativity, and identity challenges at baseline compared to survey completers (Supplementary Table S1).

*Differences among gender identities*

Nonbinary/transgender participants ( $n=100$ ) were younger and more likely to have severe depressive symptoms. Furthermore, they were more likely to indicate a past suicide attempt and current mental health treatment than their cisgender peers (Supplementary Table S2). They also scored

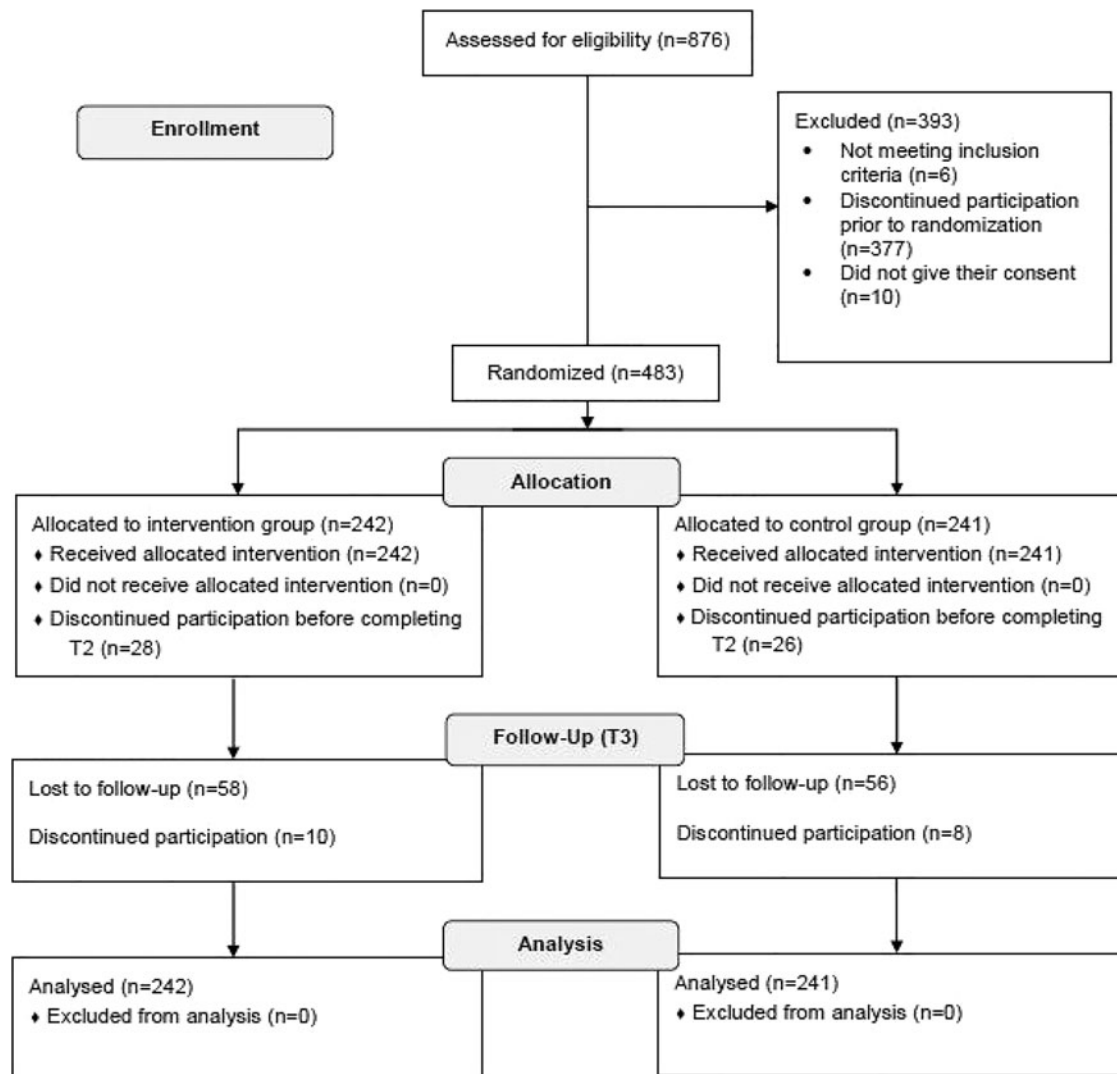


FIG. 1. Study flowchart.

TABLE 1. DESCRIPTIVE STATISTICS OF SOCIODEMOGRAPHICS AND OUTCOME VARIABLES AT BASELINE

Variable	Intervention group, n (%)	Control group, n (%)	$\chi^2/F$
<b>Age, mean (SD)</b>	18.96 (2.24)	19.16 (2.25)	0.95 <sup>a</sup>
<b>Nation</b>			0.20 <sup>b</sup>
Austria	132 (54.5)	132 (54.8)	
Germany	106 (43.8)	106 (44.0)	
Other	4 (1.7)	3 (1.2)	
<b>Gender identity</b>			1.09 <sup>c</sup>
Cisgender male	70 (28.9)	60 (24.9)	
Cisgender female	122 (50.4)	131 (54.4)	
Nonbinary/transgender	50 (20.7)	50 (20.7)	
<b>Sexual orientation</b>			3.75 <sup>d</sup>
Gay	63 (26.0)	54 (22.4)	
Lesbian	53 (21.9)	52 (21.6)	
Bisexual	64 (26.4)	69 (28.6)	
Questioning	13 (5.4)	11 (4.6)	
Queer	30 (12.4)	40 (16.6)	
Pan/omnisexual	13 (5.4)	8 (3.3)	
Asexual and romantic	6 (2.5)	7 (2.9)	
<b>Suicide attempt in past year</b>			0.51 <sup>e</sup>
Yes	43 (17.8)	37 (15.4)	
No	199 (82.2)	204 (84.6)	
<b>Current mental health treatment</b>			0.001 <sup>e</sup>
Yes	53 (21.9)	53 (22.0)	
No	189 (78.1)	188 (78.0)	
<b>Severe depressive symptoms</b>			0.91 <sup>e</sup>
Yes	59 (24.4)	50 (20.7)	
No	183 (75.6)	191 (79.3)	
<b>Baseline assessment of outcomes, mean (SD)</b>			
Suicidal ideation	2.68 (0.88)	2.72 (0.93)	0.28 <sup>a</sup>
Hopelessness	2.88 (0.85)	2.93 (0.89)	0.39 <sup>a</sup>
Mood	2.73 (0.68)	2.77 (0.65)	0.50 <sup>a</sup>
Help-seeking personal contacts	3.76 (1.35)	3.73 (1.30)	0.07 <sup>a</sup>
Help-seeking professional help	3.67 (1.55)	3.77 (1.60)	0.47 <sup>a</sup>
Internalized homonegativity	1.80 (1.12)	1.76 (1.12)	0.17 <sup>a</sup>
Identity challenges/negative identity	2.90 (0.75)	2.92 (0.76)	0.08 <sup>a</sup>

<sup>a</sup>ANOVA,  $df_1 = 1$ ,  $df_2 = 481$ .

<sup>b</sup>Fisher's exact test.

<sup>c</sup>Chi-squared test,  $df = 2$ .

<sup>d</sup>Chi-squared test,  $df = 6$ .

<sup>e</sup>Chi-squared test,  $df = 1$ .

ANOVA, analysis of variance; df, degrees of freedom; SD, standard deviation.

worse in suicidal ideation, mood, and hopelessness at baseline (Supplementary Table S2). Differences among study participants (1) with or without depressive symptoms and (2) of different sexual orientations are presented in Supplementary Tables S3 and S4.

#### Blinding success

More participants did not know their group assignment ( $n = 120$ ; 40.4%) compared to participants who guessed correctly ( $n = 105$ , 35.4%) or incorrectly ( $n = 72$ ; 24.2%). There was no difference between the intervention and control group ( $\chi^2 = 3.48$ ,  $df = 2$ ,  $p = 0.18$ ). These observations suggest successful blinding.

#### Sensitivity analyses

The patterns identified in the sensitivity analyses of subsamples were generally comparable to the full sample. For participants who watched the video featuring the female pro-

tagonist and for online participants, however, interaction terms for suicidal ideation were not significant anymore compared to the full sample, although the estimates pointed in the same direction as in the full sample. This was likely due to the smaller size of the respective subgroups analyzed.

#### Main result: effects of videos on intervention group

No effect was observed in the group  $\times$  time model for the primary outcome suicidal ideation (Table 2). Help-seeking intentions for personal contacts increased after exposure to the intervention video ( $T_2$ : mean change [MC] from baseline  $MC = 0.25$  [95% confidence interval {CI} 0.15 to 0.35],  $p < 0.001$ ; mean difference [MD] compared with control video  $MD = 0.28$  [95% CI 0.01 to 0.54],  $p < 0.05$ ,  $d = 0.09$ ). The difference between the two groups at  $T_3$  was close to zero ( $T_3$ :  $MC = 0.17$  [95% CI  $-0.01$  to 0.36],  $p = 0.08$ ;  $MD = 0.11$  [95% CI  $-0.17$  to 0.39],  $p = 0.45$ ,  $d = 0.03$ ). An improvement in mood and hopelessness was found in both groups (Table 3).

TABLE 2. FINDINGS FROM LINEAR MIXED MODELS FOR SUICIDAL IDEATION AND SECONDARY OUTCOME VARIABLES

Study variable		Group	Time	Group × time
Primary outcome				
Suicidal ideation	<i>F</i> ( <i>df</i> <sub>1</sub> , <i>df</i> <sub>2</sub> )	0.12 (1, 479.85)	1.97 (2, 366.14)	0.56 (2, 366.14)
	<i>p</i>	0.73	0.14	0.57
Secondary outcomes				
Hopelessness	<i>F</i> ( <i>df</i> <sub>1</sub> , <i>df</i> <sub>2</sub> )	0.38 (1, 479.43)	14.45 (2, 377.05)	0.01 (2, 377.05)
	<i>p</i>	0.54	<b>&lt;0.001</b>	0.99
Mood	<i>F</i> ( <i>df</i> <sub>1</sub> , <i>df</i> <sub>2</sub> )	0.25 (1, 465.98)	13.35 (2, 363.53)	1.55 (2, 363.53)
	<i>p</i>	0.62	<b>&lt;0.001</b>	0.21
Help-seeking personal contacts	<i>F</i> ( <i>df</i> <sub>1</sub> , <i>df</i> <sub>2</sub> )	0.40 (1, 475.43)	23.91 (2, 362.20)	3.66 (2, 362.20)
	<i>p</i>	0.53	<b>&lt;0.001</b>	<b>0.03</b>
Help-seeking professional help	<i>F</i> ( <i>df</i> <sub>1</sub> , <i>df</i> <sub>2</sub> )	0.72 (1, 475.20)	3.04 (2, 356.27)	0.19 (2, 356.27)
	<i>p</i>	0.40	<b>0.049</b>	0.82
Internalized homonegativity	<i>F</i> ( <i>df</i> <sub>1</sub> , <i>df</i> <sub>2</sub> )	0.02 (1, 473.79)	3.26 (2, 355.29)	1.00 (2, 355.29)
	<i>p</i>	0.89	<b>0.04</b>	0.37
Identity challenges/negative identity	<i>F</i> ( <i>df</i> <sub>1</sub> , <i>df</i> <sub>2</sub> )	0.14 (1, 476.00)	2.22 (2, 354.25)	0.16 (2, 354.25)
	<i>p</i>	0.71	0.11	0.85

Note: *F* and *p* values with degrees of freedom (*df*<sub>1</sub> and *df*<sub>2</sub>) given in parentheses from linear mixed models representing the change of the respective outcome variable with regard to group (intervention group and control group), time (T<sub>1</sub>, T<sub>2</sub>, and T<sub>3</sub>), and interactions between these factors. Significant *p* values (<0.05) are marked in bold; the analyses were adjusted for multiple testing using the Bonferroni correction.

#### Differences by gender identity

A significant group × time × gender identity interaction was revealed for suicidal ideation (Table 4). Scores were lower for nonbinary/transgender participants in the intervention group than the control group at T<sub>2</sub> (MC = −0.06 [95% CI −0.16 to 0.05], *p* = 0.60; MD = −0.42 [95% CI −0.79 to −0.06], *p* = 0.02, *d* = 0.10). The effect was mainly due to an improvement on the subscale future optimism but not maintained at 4-week follow-up (Table 3).

#### The influence of depressive symptoms

A group × time × gender identity × severity of depressive symptoms interaction emerged related to suicidal ideation (Supplementary Data). Nonbinary/transgender participants with severe depressive symptoms appeared to benefit more strongly from the intervention in terms of a short-term reduction of suicidal ideation compared to controls. This comparison was short of statistical significance (Supplementary Table S5).

#### Sexual orientation

No effect for suicidal ideation was found. For hopelessness, a group × time × sexual orientation interaction was present (Supplementary Table S6). There was a short-term decrease in hopelessness for participants identifying other than homosexual or bisexual (e.g., pansexual, queer) (T<sub>2</sub>: MC = −0.13 [95% CI −0.25 to −0.01], *p* = 0.03), although the MD to controls was not significant (MD = −0.12 [95% CI −0.42 to 0.19], *p* = 0.46, *d* = −0.03).

#### Identification with the protagonist

Assignment to the intervention group predicted greater identification with the video protagonist (*B* = 0.60, 95% CI 0.45 to 0.75, *p* < 0.001). Higher identification, in turn, was associated with lower suicidal ideation scores at T<sub>2</sub> (*B* = −0.29, 95% CI −0.39 to −0.20, *p* < 0.001). Due to the indirect effect

through identification, participants from the intervention group had suicidal ideation total mean scores that were 0.17 (95% CI −0.26 to −0.10) points lower than the control group (Supplementary Fig. S1).

#### Discussion

This is the first RCT about the effects of selected videos from the IGBP on LGBTQ+ youth. There was no effect of the videos on the total intervention group regarding suicidal ideation, although an indirect small-sized beneficial effect was observed through identification with the protagonist. Nonbinary/transgender individuals responded with a short-term decrease in suicidal ideation compared to the control group that appeared potentially most pronounced among those with severe depressive symptoms. For participants watching an IGBP video, there was a short-term small-sized improvement in help-seeking intentions compared to controls.

Our findings show some preliminary “proof of concept” that personal narratives of LGBTQ+ individuals targeting LGBTQ+ youth appear safe and might have some beneficial effect on vulnerable youth. The question of safety is relevant because of examples of well-intended messages related to suicide that have yielded unintended harmful effects.<sup>40,41</sup> However, the present findings also indicate that the videos did not have any impact on suicidal ideation across all participants, and the effect on help-seeking was small and short-lived.

Some previous studies suggest a protective effect of short media interventions on suicidal ideation, particularly for individuals with some degree of vulnerability to suicide.<sup>9,10</sup> Within LGBTQ+ youth, nonbinary/transgender participants are an important risk group,<sup>3</sup> which was also reflected in their high depressive symptom scores in this study. However, as this subgroup was small, further replication studies are needed to examine and replicate any effect in larger samples.

TABLE 3. FINDINGS FROM LINEAR MIXED MODELS FOR SUICIDAL IDEATION AND SECONDARY OUTCOME VARIABLES AMONG ALL PARTICIPANTS AND STRATIFIED FOR GENDER IDENTITY

	Control group (n = 241)		Intervention group (n = 242)		Cohen's d	
	Mean score (95% CI)	MC (95% CI) <sup>a</sup> from baseline	Mean score (95% CI)	MC (95% CI) <sup>a</sup> from baseline		MD (95% CI) <sup>b</sup>
<b>Suicidal ideation total score</b>						
After exposure (T <sub>2</sub> )						
Cisgender male	2.63 (2.40 to 2.87)	0.02 (-0.08 to 0.12)	2.60 (2.39 to 2.82)	-0.04 (-0.13 to 0.05)	-0.03 (-0.35 to 0.29)	-0.01
Cisgender female	2.57 (2.41 to 2.73)	-0.01 (-0.07 to 0.06)	2.64 (2.48 to 2.81)	0.04 (-0.03 to 0.11)	0.07 (-0.16 to 0.30)	0.03
Nonbinary/transgender	3.22 (2.96 to 3.47)	-0.004 (-0.11 to 0.10)	2.79 (2.53 to 3.05)	-0.06 (-0.16 to 0.05)	-0.42 (-0.79 to -0.06)*	-0.10
All groups combined	2.81 (2.68 to 2.93)	0.002 (-0.05 to 0.06)	2.68 (2.55 to 2.80)	-0.02 (-0.07 to 0.03)	-0.13 (-0.31 to 0.05)	-0.06
4 weeks later (T <sub>3</sub> )						
Cisgender male	2.82 (2.58 to 3.06)	0.21 (0.02 to 0.39)*	2.58 (2.36 to 2.80)	-0.06 (-0.23 to 0.11)	-0.24 (-0.56 to 0.09)	-0.07
Cisgender female	2.60 (2.44 to 2.75)	0.02 (-0.10 to 0.13)	2.77 (2.60 to 2.93)	0.16 (0.04 to 0.29)*	0.17 (-0.06 to 0.40)	0.07
Nonbinary/transgender	3.08 (2.82 to 3.33)	-0.14 (-0.34 to 0.05)	2.89 (2.64 to 3.15)	0.05 (-0.15 to 0.23)	-0.18 (-0.55 to 0.18)	-0.05
All groups combined	2.83 (2.70 to 2.96)	0.03 (-0.07 to 0.12)	2.75 (2.62 to 2.87)	0.05 (-0.05 to 0.14)	-0.08 (-0.26 to 0.10)	-0.04
<b>Suicidal ideation future optimism</b>						
After exposure (T <sub>2</sub> )						
Cisgender male	2.53 (2.23 to 2.83)	-0.01 (-0.18 to 0.16)	2.38 (2.10 to 2.66)	0.02 (-0.14 to 0.18)	-0.15 (-0.56 to 0.26)	-0.03
Cisgender female	2.54 (2.34 to 2.74)	-0.01 (-0.13 to 0.10)	2.50 (2.29 to 2.71)	0.00 (-0.12 to 0.12)	-0.04 (-0.33 to 0.25)	-0.01
Nonbinary/transgender	3.10 (2.77 to 3.43)	0.01 (-0.18 to 0.20)	2.56 (2.23 to 2.89)	-0.20 (-0.39 to -0.02)*	-0.54 (-1.01 to -0.08)*	-0.10
All groups combined	2.72 (2.56 to 2.89)	-0.004 (-0.10 to 0.09)	2.48 (2.32 to 2.64)	-0.06 (-0.15 to 0.03)	-0.24 (-0.47 to -0.01)*	-0.09
4 weeks later (T <sub>3</sub> )						
Cisgender male	2.60 (2.28 to 2.92)	0.06 (-0.23 to 0.35)	2.24 (1.94 to 2.53)	-0.12 (-0.39 to 0.14)	-0.36 (-0.79 to 0.08)	-0.07
Cisgender female	2.52 (2.31 to 2.72)	-0.03 (-0.21 to 0.15)	2.59 (2.37 to 2.81)	0.09 (-0.10 to 0.28)	0.07 (-0.23 to 0.38)	0.02
Nonbinary/transgender	2.86 (2.53 to 3.20)	-0.23 (-0.53 to 0.06)	2.78 (2.44 to 3.11)	0.01 (-0.28 to 0.30)	-0.09 (-0.57 to 0.39)	-0.02
All groups combined	2.66 (2.49 to 2.83)	-0.07 (-0.22 to 0.08)	2.54 (2.37 to 2.70)	-0.01 (-0.15 to 0.14)	-0.12 (-0.36 to 0.11)	-0.05
<b>Hopelessness</b>						
After exposure (T <sub>2</sub> )						
Cisgender male	2.66 (2.44 to 2.89)	-0.06 (-0.18 to 0.06)	2.62 (2.41 to 2.82)	0.08 (-0.03 to 0.20)	-0.05 (-0.35 to 0.25)	-0.01
Cisgender female	2.77 (2.62 to 2.92)	-0.12 (-0.20 to -0.04)*	2.80 (2.64 to 2.95)	-0.13 (-0.22 to -0.05)*	0.03 (-0.19 to 0.24)	0.01
Nonbinary/transgender	3.19 (2.95 to 3.44)	-0.08 (-0.21 to 0.06)	2.95 (2.71 to 3.19)	-0.22 (-0.36 to -0.09)**	-0.24 (-0.58 to 0.10)	-0.06
All groups combined	2.88 (2.76 to 3.00)	-0.09 (-0.15 to -0.02)*	2.79 (2.67 to 2.91)	-0.09 (-0.16 to -0.03)*	-0.09 (-0.26 to 0.08)	-0.05
4 weeks later (T <sub>3</sub> )						
Cisgender male	2.76 (2.54 to 2.98)	0.03 (-0.15 to 0.21)	2.46 (2.26 to 2.67)	-0.07 (-0.24 to 0.09)	-0.29 (-0.59 to 0.01)	-0.09
Cisgender female	2.78 (2.64 to 2.93)	-0.11 (-0.22 to 0.01)	2.92 (2.77 to 3.08)	-0.01 (-0.13 to 0.12)	0.14 (-0.07 to 0.35)	0.06
Nonbinary/transgender	3.13 (2.90 to 3.37)	-0.14 (-0.32 to 0.05)	2.94 (2.70 to 3.17)	-0.24 (-0.42 to -0.06)*	-0.20 (-0.53 to 0.14)	-0.05
All groups combined	2.89 (2.77 to 3.01)	-0.07 (-0.16 to 0.02)	2.77 (2.66 to 2.89)	-0.11 (-0.20 to -0.01)*	-0.12 (-0.28 to 0.05)	-0.06

(continued)

TABLE 3. (CONTINUED)

	Control group (n = 241)		Intervention group (n = 242)		Cohen's d	
	Mean score (95% CI)	MC (95% CI) <sup>a</sup> from baseline	Mean score (95% CI)	MC (95% CI) <sup>a</sup> from baseline		MD (95% CI) <sup>b</sup>
Mood						
After exposure (T <sub>2</sub> )						
Cisgender male	2.81 (2.64 to 2.99)	-0.01 (-0.10 to 0.09)	2.93 (2.77 to 3.09)	0.10 (0.01 to 0.19)*	0.12 (-0.12 to 0.35)	0.04
Cisgender female	2.86 (2.74 to 2.98)	0.05 (-0.01 to 0.12)	2.74 (2.62 to 2.87)	0.04 (-0.03 to 0.10)	-0.12 (-0.28 to 0.05)	-0.06
Nonbinary/transgender	2.61 (2.42 to 2.80)	0.01 (-0.10 to 0.11)	2.76 (2.58 to 2.95)	0.13 (0.03 to 0.23)*	0.16 (-0.11 to 0.43)	0.05
All groups combined	2.76 (2.67 to 2.85)	0.02 (-0.04 to 0.07)	2.81 (2.72 to 2.91)	0.09 (0.04 to 0.14)**	0.05 (-0.08 to 0.19)	0.04
4 weeks later (T <sub>3</sub> )						
Cisgender male	2.84 (2.63 to 3.05)	0.01 (-0.22 to 0.24)	3.07 (2.88 to 3.26)	0.24 (0.03 to 0.45)*	0.24 (-0.05 to 0.52)	0.07
Cisgender female	2.98 (2.84 to 3.11)	0.17 (0.03 to 0.32)*	2.74 (2.59 to 2.88)	0.03 (-0.13 to 0.18)	-0.24 (-0.44 to -0.04)*	-0.11
Nonbinary/transgender	2.81 (2.59 to 3.03)	0.20 (-0.03 to 0.44)	2.90 (2.68 to 3.11)	0.26 (0.03 to 0.49)*	0.09 (-0.22 to 0.40)	0.03
All groups combined	2.87 (2.76 to 2.98)	0.13 (0.01 to 0.25)*	2.90 (2.79 to 3.01)	0.18 (0.06 to 0.29)*	0.03 (-0.13 to 0.18)	0.02

\*p < 0.05; \*\*p < 0.01 (two-tailed).

<sup>a</sup>Comparison of means with baseline with Bonferroni-corrected contrast tests.

<sup>b</sup>Comparison of means for intervention group with the control group with Bonferroni-corrected contrast tests. CI, confidence interval; MC, mean change; MD, mean difference.

Of note, gender diverse people were not featured in either of the videos. Furthermore, their representation was weak across the Austrian and American IGBP videos.<sup>16,42,43</sup> A specific tailoring to gender diverse individuals appears crucial to better harness any protective potential.<sup>16,44</sup>

The finding of this study that videos primarily reduced suicidal ideation through identification is important. It provides a possible pathway to protective media effects on suicidal ideation. Although the variance that was explained by the predictors was small in size, identification appears key for suicide-protective effects, and its relevance was also brought up in focus groups with LGBQ+ youth.<sup>16</sup>

The effect sizes for help-seeking were small. This is consistent with previous studies in the area.<sup>9,10</sup> Overall, small effects would still be meaningful from a public health perspective if the intervention is delivered to a large proportion of the target group.<sup>45</sup>

As indicated by the absence of change in suicidal ideation across the intervention group, the materials used in the IGBP appear at low risk of triggering increases in suicidal ideation. Their focus is on coping with adversity, and suicide prevention is not explicitly brought up in the videos. The absence of a focus on suicide prevention is a dilemma, because positive effects might be larger if videos addressed explicitly how to cope with suicidal ideation. A more explicit discussion would also address LGBQ+ youth's criticism about the lacking focus on suicidal ideation in the videos.<sup>16</sup> Guidelines are available on how to discuss suicidality in a safe way, and future IGBP video makers should be encouraged to use them.<sup>46-48</sup>

The tested videos showed some potential to improve help-seeking intentions particularly from private sources. Speaking with trusted others is crucial in suicide prevention.<sup>49</sup> The featured narratives included a supportive significant other, which might have triggered this effect. These videos, and IGBP videos in general, however, did not address professional help-seeking, which has been criticized by LGBQ+ youth and prevention experts.<sup>16,42</sup> An emphasis on professional help-seeking might yield larger and potentially more sustainable effects.

**Study limitations**

These findings are not generalizable to all IGBP videos. Most IGBP videos do not emphasize the types of adversities youth had to face, or how things got better, which makes any impact unlikely.<sup>42</sup> Only short-term effects of one-time exposure to the videos were tested. We did not assess sex assigned at birth or ethnicity; hence, stratified analyses by these variables were not possible.

Furthermore, there was a considerable loss to follow-up in online participants between T<sub>2</sub> and T<sub>3</sub>. It is well established that online studies carry an increased risk of loss to follow-up, and this study needed to swiftly implement an ad-hoc online component to cope with restrictions to movement during the COVID-19 pandemic, which made it impossible to carry out the study on-site only as originally planned.<sup>50,51</sup> Personalized strategies to improve retention, such as personal e-mail contact, phone calls, and the provision of monetary incentives, might have increased retention and should be considered for future trials.<sup>52,53</sup>

Finally, Cronbach's  $\alpha$  levels were low for measuring help-seeking intentions. This limitation has been described before. It is found to be a common issue for short scales.<sup>26,54</sup>



TABLE 4. FINDINGS FROM LINEAR MIXED MODELS INCLUDING GENDER IDENTITY FOR SUICIDAL IDEATION AND SECONDARY OUTCOME VARIABLES

Study variable		Group	Time	Gender identity	Group × time	Group × gender identity	Gender identity × time	Group × gender identity × time
Primary outcome								
Suicidal ideation	$F(df_1, df_2)$	1.57 (1, 481.34)	1.40 (2, 366.11)	7.47 (2, 481.67)	0.46 (2, 366.16)	2.13 (2, 481.47)	1.27 (4, 366.14)	3.69 (4, 366.14)
	$p$	0.21	0.25	<b>0.001</b>	0.63	0.12	0.28	<b>0.01</b>
Suicidal ideation— future optimism	$F(df_1, df_2)$	2.98 (1, 477.64)	0.85 (2, 367.29)	4.62 (2, 477.99)	1.31 (2, 367.34)	0.93 (2, 477.80)	0.88 (4, 367.32)	2.60 (4, 367.33)
	$p$	0.09	0.43	<b>0.01</b>	0.27	0.40	0.48	<b>0.04</b>
Secondary outcomes								
Hopelessness	$F(df_1, df_2)$	1.48 (1, 480.53)	12.29 (2, 377.97)	10.17 (2, 480.70)	0.22 (2, 378.00)	1.42 (2, 480.72)	4.26 (4, 377.99)	3.40 (4, 378.00)
	$p$	0.22	< <b>0.001</b>	< <b>0.001</b>	0.80	0.24	<b>0.002</b>	<b>0.01</b>
Mood	$F(df_1, df_2)$	0.11 (1, 467.14)	13.29 (2, 363.84)	1.96 (2, 467.52)	2.95 (2, 363.93)	2.59 (2, 467.84)	0.71 (4, 363.93)	2.47 (4, 363.94)
	$p$	0.74	< <b>0.001</b>	0.14	0.05	0.08	0.59	<b>0.04</b>
Help-seeking— personal contacts	$F(df_1, df_2)$	1.81 (1, 474.47)	18.51 (2, 363.13)	3.77 (2, 474.86)	3.96 (2, 363.22)	2.52 (2, 474.93)	1.04 (4, 363.20)	0.41 (4, 363.21)
	$p$	0.18	< <b>0.001</b>	<b>0.02</b>	<b>0.02</b>	0.08	0.39	0.80
Help-seeking— professional help	$F(df_1, df_2)$	0.52 (1, 475.14)	0.88 (2, 356.64)	0.56 (2, 475.53)	0.17 (2, 356.69)	0.08 (2, 475.59)	1.70 (4, 356.72)	1.53 (4, 356.73)
	$p$	0.47	0.42	0.57	0.84	0.92	0.15	0.19
Internalized homonegativity	$F(df_1, df_2)$	0.02 (1, 472.38)	1.24 (2, 354.93)	11.51 (2, 472.56)	1.40 (2, 354.99)	1.78 (2, 472.61)	1.42 (4, 355.01)	1.78 (4, 355.02)
	$p$	0.88	0.29	< <b>0.001</b>	0.25	0.17	0.23	0.13
Identity challenges/ negative identity	$F(df_1, df_2)$	0.29 (1, 475.80)	1.12 (2, 354.20)	3.01 (2, 475.99)	0.06 (2, 354.22)	0.34 (2, 476.02)	0.97 (4, 354.23)	0.31 (4, 354.23)
	$p$	0.59	0.33	0.05	0.94	0.72	0.43	0.87

Note:  $F$  and  $p$  values with degrees of freedom ( $df_1$  and  $df_2$ ) given in parentheses from linear mixed models representing the change of the respective outcome variable with regard to group (intervention group and control group), time ( $T_1$ ,  $T_2$ , and  $T_3$ ), gender identity (cisgender male, cisgender female, and nonbinary/transgender), and interactions between these factors controlled for age. Significant  $p$  values (<0.05) are marked in bold; the analyses were adjusted for multiple testing using the Bonferroni correction.

## Conclusion

This study indicates some positive potential for narratives of hope and recovery to increase help-seeking and decrease suicidal ideation in some groups of LGBTQ+ youth. The effects, however, were small and short-lived. More planning needs to be done regarding how to discuss suicidal ideation in the videos, increase diversity, and how to best facilitate identification to develop powerful narratives that resonate well with specific LGBTQ+ groups.

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## Authors' Contributions

T.N., B.T., and M.P. conceptualized the study. S.K. collected the data. Data analysis and interpretation were done by all authors. S.K. drafted the article; T.N., B.T., and M.P. critically revised the article regarding important intellectual content. All authors read and approved the final article.

## Availability of Data and Materials

Data from this study can be obtained from the authors upon reasonable request.

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## Supplementary Material

Supplementary Data  
 Supplementary Figure S1  
 Supplementary Table S1  
 Supplementary Table S2  
 Supplementary Table S3  
 Supplementary Table S4  
 Supplementary Table S5  
 Supplementary Table S6

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