

Promoting mental health through watching, chatting and playing on Twitch and Minecraft: a participatory action research.

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Abstract

Background: Mental health concerns among adolescents and young adults have increased post-pandemic. Mental health literacy remains insufficient in this population despite its importance for health outcomes. Gaming platforms, central to youth culture, offer potential for innovative health interventions.

Objective: To co-design with Minecraft players and Twitch streamers, implement, and evaluate a gaming-based intervention delivered through Minecraft and broadcasted on Twitch to promote mental health literacy among adolescents and young adults (aged 15-25 years).

Methods: Using a co-design approach with four streamers and a clinical psychologist, "#walkyourtherapist" was developed as a streaming event where a psychologist-streamer pair combined gameplay with mental health literacy education. A quasi-experimental comparative study evaluated the intervention through MHLq questionnaire (pre/post), observations, chat analysis, and interviews. A different streaming community served as the control group.

Results: Three "#walkyourtherapist" sessions reached over 600 unique viewers. The intervention group was measured at baseline (n=97) and follow-up (n=43). Though these measurements cannot ensure the same individuals participated at both times, the community showed significant improvement in mental health literacy scores (from 94 to 104, p<0.01), particularly in knowledge of mental health problems, first aid skills, and self-help strategies. Streamers reported high satisfaction and increased personal mental health awareness.

Conclusions: This innovative approach shows promising results for youth mental health promotion through gaming platforms. The successful engagement and improved literacy scores demonstrate the potential of virtually co-constructed interventions leveraging streamers within existing communities. Future research should focus on improving control group participation and maintaining long-term engagement to enable stronger evidence generation. Clinical Trial: ClinicalTrials.gov NCT06473857

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Original Manuscript

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Trial Registration: ClinicalTrials.gov NCT06473857

Keywords

mental health literacy ; health promotion ; minecraft ; adolescent and young adults

Introduction

Since the COVID-19 pandemic, a rise in anxiety, suicidality, and in hospitalizations with mental health diagnoses has been reported among adolescents and young adults (1,2) revealing their urgent need for mental health support. The improvement of the individuals skills and knowledge which aid the recognition, management or prevention of mental disorders – the so-called mental health literacy – could be a relevant part of this support (3). Previous studies highlight that mental health literacy levels are insufficient in individuals aged 15-25 years (4), despite its importance in improving health

outcomes (5).

Mental health literacy is impacted by various factors such as individual factors (e.g., gender, health status), family and community factors, and the existing institutional and social context, including media (5). To effectively increase this literacy among young people, health promotion actions must be tailored to their uses, languages, interests, and realities. Interactive and playful components are particularly important for ensuring the effectiveness of interventions (6).

Recent research highlights the need for innovative approaches to promote mental health literacy. Video games offer unique potential for participatory health interventions with adolescents, as they combine an engaging platform with opportunities for active involvement in both design and implementation (7). However, evidence regarding their effectiveness in health promotion remains limited (8).

Video games are deeply integrated into youth culture, with 76% of people under 18 years old playing video games in the USA, and 34% of European adolescents reporting daily gaming activities (9,10). Among these games, Minecraft® (Mojang Studios, 2011) has established itself as a major platform, with players under 21 years old representing 63.59% of its player base (11). Within Minecraft, players use their avatars to create their own worlds, explore others' creations, and interact with fellow players.

Beyond gaming itself, live streaming has become extremely popular among players, particularly on Twitch® (Amazon, 2011), the largest streaming platform for gamers. Nearly 100,000 streamers broadcast Minecraft content weekly on the platform (12). Recent public health campaigns involving social media influencers have shown promise in promoting health behaviors (13). This emerging potential, combined with streamers' established role in shaping community norms, suggests opportunities for leveraging these relationships for mental health literacy interventions (14,15).

Our hypothesis is that collaborating with Twitch streamers within Minecraft communities represents a promising approach for mental health literacy interventions that could effectively reach and engage young people through familiar and trusted digital environments.

The objective of the study was to codesign with Minecraft players and Twitch streamers, implement and evaluate a gaming-based intervention delivered through Minecraft and broadcasted on Twitch to promote mental health literacy among adolescents and young adults (aged 15-25 years).

Methods

The study methodology follows the following stages: 1) co-design of an intervention with streamers and mental health professionals, 2) process evaluation (implementation, reach, acceptability and appropriateness) and 3) evaluation of the intervention's effectiveness on mental health literacy.

Co design process

Co-design group characteristics

The co-design group included five members and was facilitated by a researcher. The group consisted of four young male streamers (aged 18-24 years) actively broadcasting Minecraft content on Twitch, and a clinical psychologist (aged 50) who streams video games as part of his therapeutic practice. One of the streamers served as a key reference participant, helping with recruitment and providing ongoing coordination between the other streamers and the research team, resulting in greater involvement throughout the project without implementing actions in his own community. The young

streamers were recruited through direct Twitch messages sent to French Minecraft content creators who had communities of over 5,000 followers and whose streaming content and community management aligned with the research team's ethical standards. Streamers were compensated at a rate of approximately 10 euros per hour of participation.. The clinical psychologist was invited to join the project based on his established expertise in using video games to support adolescents and young adults in therapeutic settings. An additional streamer was recruited to serve as a control group but was not involved in the co-design process.

Detailed characteristics of streamers involved are presented in Table 1

Table 1: Involved steamers' characteristics

Username	TBD	Sartar	FloxyS	Skiken	ByPhantom	Bruno
Age	21	24	23	18	17	50
Role	Referent streamer	Streamer (intervention group)	Streamer (intervention group)	Streamer (intervention group)	Streamer (control group)	Psychologist (co animator in the intervention group)
Minecraft game mode	Bedwar	Survival	Building	Building	Survival ultra Hardcore	Survival and Building
Number of Twitch followers	10 300	15400	7000	14600	4400	41
Streaming since	2021	2019	2018	2015	2021	2023
Mean number of weekly live-streams	6	6	3	5	1	3
Average number of viewers per stream	18	35	30	35	20	5

Workshop Design

The intervention development was grounded in four main theoretical frameworks: mental health literacy (16), behavior change theory (17) focusing on youth empowerment, social learning theory (18) emphasizing peer education, and online community dynamics theories (19).

Following Bowen et al.'s methodology (20) the co-design process included: (a) individual interviews assessing streamers' knowledge of mental health and online health promotion; (b) collaborative workshops integrating expertise in gaming, streaming, and mental health; (c) feasibility analysis of proposed interventions; and (d) implementation planning for Minecraft and Twitch platforms. All activities were conducted online using co-designers' preferred platforms.

Workshops synthesis and developed interventions

Ten virtual workshops in videoconference were conducted between October 2023 and June 2024. The resulting interventions combined gaming elements within Minecraft and social interactions through Twitch live streaming, while adhering to communication styles and social codes familiar to young gamers.

Intervention: #walkyourtherapist

The intervention, #walkyourtherapist, consisted of live-streams co-hosted by a youth streamer and the clinical psychologist. Each stream followed the standard Twitch gaming content format: the hosts play Minecraft together while providing gameplay commentary, naturally weaving in discussions about mental health topics. Mental health themes were selected by each youth streamer based on their personal interests and comfort level, in collaboration within the co-design group.

Implementation

Three live-streams were implemented on separate Twitch channels, each hosted by a different streamer and focusing on distinct mental health themes: 1) FloxyS explored how gaming skills can transfer to real-life situations, promoting skill acquisition and empowerment, 2) TBD addressed gaming performance through mental health awareness, emphasizing self-awareness and emotional regulation, 3) Sartar discussed reasons for playing video games and finding balance between activities in teenagers' lives.

Each two-hour stream enabled real-time interactions between viewers and hosts (youth streamer and psychologist) through the Twitch-embedded chat function. Clear roles were established: the psychologist provided mental health expertise while the streamers shared personal experience without positioning themselves as mental health experts. The discussion format remained flexible to accommodate viewer engagement and feedback.

Evaluation

Evaluation methodology

Following the UK Medical Research Council guidance on developing and evaluating complex interventions (21,22), we conducted a mixed-methods evaluation combining process and effect assessments. The intervention's effects were measured using a pre-post design with a control group.

Participants recruitment

Participant recruitment in the live streams was conducted through the streamers' social media networks in the month preceding each session (detailed communication strategy in Appendix 1).

During each live-stream session, viewers received oral and written (chat) invitations to participate in the baseline questionnaire. Eligibility criteria were: age 15-25 years and consent to participate. The intervention group included participants who attended any portion of a session and completed the baseline questionnaire. Following the same process, a control group was recruited from a non-participating Minecraft streamer's community, animated by a streamer who was not involved in the intervention. Participants in the control group were exposed only to regular gaming content.

Data collection and measures

Analysis materials were composed of quantitative data: mental health literacy questionnaire (MHLq) (19), socio-demographic information, process metrics; and qualitative data: researcher observation notes (Appendix 2), chat transcripts, semi-structured interviews based on a short guide with youth streamers (conducted by the referent streamer after research team training to minimize desirability bias) (Appendix 3).

The effect evaluation relied on the evolution of the mental health literacy levels measurements according to MHLq between baseline and 2-month after intervention measurements, at the scale of the streamer community. The MHLq consists of 29 items across four dimensions (23). Scores range from 29 to 145, no threshold exists for the interpretation. To maximize questionnaires completion, a draw was held among participants, with the chance to win Minecraft accounts (each account cost 30 euros and twelve were gifted).

Key indicators of the process evaluation included the reach (viewer metrics and participant demographics), the acceptability (viewer engagement through chat and streamer feedback), the fidelity (stream duration and content adaptation).

Data analysis

Based on precedent studies led in similar target population (23), we expected a mean MHL-q score of 110 at baseline (standard deviation: 7) and an increase to 116 post-intervention. To ensure 90% statistical power with a 5% alpha risk with an anticipated 30% attrition, a sample of 38 participants per group (intervention and control) was required at both baseline and follow-up.

Analysis were quantitative (frequentist statistics) and qualitative (thematic analysis (24)).

Statistics were descriptive and comparative. Continuous variables, normally distributed, are

described by their mean (standard deviation (SD)) and number of missing data. Categorical variables are described by counts and percentages and number of missing data. Pre-post comparison was assessed using Student's t-test and chi-squared tests for continuous and categorical variables, respectively. Statistical analysis was conducted using Jamovi v2.5 (2024).

Qualitative analysis was conducted using an inductive approach and thematic coding applied to chat elements, observation grid and interviews with streamers. A thematic tree was constructed, and key verbatim quotes were extracted. The analysis was performed by a public health researcher trained in qualitative methods.

Ethics

The study received ethical approval from Inserm's independent ethics committee (IRB0000388 - opinion n°22-963). All participants received information and consented to take part in the study. The study is registered in Clinical Trials (NCT06473857.).

Results

Process evaluation of #walkyourtherapist

The three live-streams were conducted between April and July 2024, each taking place on a Tuesday evening from 5pm onwards. The reach of each live-stream is presented in Table 2.

Table 2: Live streams' characteristics

	16 April live-stream	15 May live-stream	28 July live-stream
<i>Streamer</i>	FloxyS	TBD	Sartar
<i>Predefined Topic</i>	Skills	Performance	Reasons to play
<i>Live-stream duration (hours)</i>	2.5	2.3	2.5
<i>Mean number of viewers at each minute</i>	27	33	52
<i>Number of unique viewers</i>	106	214	293
<i>Number of participants in the chat</i>	57	58	86
<i>Number of new followers</i>	7	12	11

Analysis of the observation grids revealed an equitable distribution of speaking time between the streamer and the psychologist, with high level of attention given to the chat room, where questions and comments were systematically answered. The quality of moderation (similar to that of regular lives)

and the absence of "trolls" (someone who intentionally disrupts online interactions to upset or annoy others) in the chat room were identified as facilitators of the intervention. Most chat participants directed personal questions towards the psychologist, actively reacting and engaging with the live content. At the beginning of the chat, several questions and comments were directed at Bruno regarding his profile, profession, and role as a psychologist.

In two of the three live-streams, the unplanned topic of video game addiction was raised, along with associated stigma and misconceptions:

"I agree with you and with what Bruno says: there's too much stigmatization in video games, it's immediately perceived very negatively, unfortunately." (P1, Twitch viewer)

"For me, video games (when I was at high school) were a huge escape, so the addiction came very quickly and accompanied me (I also did a lot of sport 16 hours a week). But as soon as my personal problems were sorted out, it became a way of finding people I'd never have met or been able to talk to." (P2, Twitch viewer)

The quality of interaction between the psychologist and the live streamer varied significantly depending on the nature of the game mode (bedwars, building or survival), influencing the ability to address mental health matters simultaneously with the gaming activity. In the specific game modes such as bedwars, dedicated intervals had to be implemented to allow the streamer to focus their attention on the therapeutic exchange with the psychologist.

Process evaluation: acceptability and appropriateness

The participating youth streamers reported pre-existing interest in mental health topics, though they acknowledged having limited prior knowledge in this domain.

"For me, it's something I pay a lot of attention to, and I'm very interested in the people around me" (Sartar 25).

"The truth is I don't think there's enough, at school or our parents, we're not sufficiently aware of this." (FloxyS,21)

Regarding mental health literacy development, streamers reported acquiring new knowledge and strengthened interest through study participation. Nevertheless, two of the streamers perceived only moderate gains in their mental health knowledge as a result of the intervention.

"I think I've learned a few things, but it's still about 5% of what I know" (Sartar)

"My knowledge has increased a little, but I'd say we've gone from 1 to 1.25-1.50, we've explored a very small part, it's a very vast subject". (TBD)

"I know that thanks to the stream and Bruno I've learned a lot" (FloxyS)

Following the live-stream intervention, two streamers reported increased awareness of their personal mental health and enhanced capacity to provide mental health support to their close social circle.

"Afterwards, I can say that it has evolved in the sense that I'm taking more care of myself and... I play a lot less bedwars, for example. Which is a good thing. I've taken up survival. It's much more relaxed. Right. You see, I stream a lot less too. (.) Well, much less. (..) Maybe that's an impact too, you know. Maybe the stream (the intervention) has helped me too, you know. (...)" (TBD)

The streamers unanimously reported high satisfaction with their study participation, noting both personal fulfillment and positive reception from their respective communities and viewership. It has resulted in the continuation of lives shared with the psychologist for 2 of

them outside the research project.

« we've prepared all this but it turns out that people aren't going to, they might not connect with the thing, they might listen but they might not react and all that. and in the end it went very well, we got a lot of feedback in the chat room, it was very interactive, (...) in any case on twitch and the networks, yeah, there was a lot of good feedback from the players, so it's very cool.» (FloxyS)

Chat participants emphasized both the perceived expertise of the mental health professional and the engaging nature of the live stream:

«It shows that he knows what he's talking about and that he's a pro, which is a pleasure ».
(P3, twitch viewer)

« the most interesting Twitch live I've ever watched – totally » (P4 and P5, twitch viewers)

Effects evaluation

Questionnaire respondents

Among the respondents from the intervention group communities, ninety-seven participants completed the questionnaire at baseline and forty-three two months after the intervention. In the baseline sample, most participants were boys, in education, with a median age of 19, 9.3% were not in education, training or employment (NEET). The respondents from the control group communities (n=23 at baseline, n=8 at 2 months after) were significantly younger and more frequently in education compared to the intervention group (with $p<.01$ and $p = 0.01$ respectively) (Table 3).

MHLq scores

At baseline, MHLq scores did not differ significantly between the two groups ($p=0.28$). Post-intervention, a significant increase in median MHL-q scores was observed among the intervention group streamers' communities (97 versus 104, $p<0.01$, Student's t-test). Conversely, the control group streamers' communities, which did not achieve the target sample size, showed no significant changes (98 versus 99, $p=0.78$). Further dimensional analysis of MHLq scores in the intervention group communities demonstrated significant improvements across three domains: knowledge of mental health problems, first aid skills and help seeking behaviors and self-help strategies ($p<0.01$, $p = 0.04$ and $p=0.03$, respectively) (Table 3).

Table 3: Participants' characteristics

	Intervention group					Control group				
	Baseline (n=97)		2 months after (n=43)		P value	Baseline (n=23)		2 months after (n=8)		P value
Gender	n	%	n	%		n	%	n	%	
Boys	84	86.6	39	90.7	0.69	22	95.6	8	100.0	0.55
Girls	12	12.4	4	9.3						
Other	1	1.0	0	0.0		1	4.4			
Age										
Mean (sd)	19(4)		19(3)		0.34	16(1)		16(2)		0.94
Situation										
In education	66	68.0	33	76.7	0.69	22	95.6	8	100.0	0.55
Employed	15	15.5	6	13.9		0		0		
NEETs	9	9.3	2	4.7		0		0		0
In training (with remuneration)	7	7.2	2	4.7		1	4.4	0		
Discussed mental health issues with family and friends in the past month	44	45.4	21	48.8	0.70	6	26.1	4	50.0	0.21
Declared they know how to take care of their mental health	73	75.3	33	76.7	0.85	17	73.9	5	62.5	0.54
Score MHLq										
Mean (sd)	94(19)		104 (7)		<0.01	98(7)		99 (12)		0.78
Knowledge of mental health	38.2(9.3)		44.2(4.9)		<0.01	42.8(4.5)		42.4(5.8)		0.84

problems sub-score						
Erroneous beliefs/stereotypes sub-score	18.5(4.7)	19.6(3)	0.14	18.7(2.1)	18.1(1.7)	0.46
First aid skills and help seeking behavior sub-score	20.9(6.21)	23.0(4.1)	0.04	20.9(4.5)	21(6.8)	0.97
Self-help strategies sub-score	16.1(3.2)	17.2(2.2)	0.03	15.6(3.01)	17.5(1.8)	0.10

Discussion

The intervention, developed through a virtual collaborative process with four youth streamers and a clinical psychologist, reached over 600 unique viewers across three live-stream sessions. Among the intervention group communities, a significant improvement in mental health literacy was observed. The intervention demonstrated both feasibility and acceptability, with streamers reporting increased personal mental health awareness and positive community engagement, while viewers emphasized the value of combining professional expertise with peer-driven content delivery.

Although previous literature has documented the potential of digital platforms for health promotion, the specific use of gaming streams for mental health interventions remains relatively unexplored (25). Our research builds upon existing evidence of streamers' influence on community behavior and engagement (13, 14, 27). The Twitch platform, combining gaming and social influence, offers unique opportunities for participatory health promotion (26). While earlier initiatives on Twitch demonstrated community interest but revealed knowledge gaps and potential misinformation (27–29), our innovative approach of pairing streamers with mental health professionals represents a key advancement in digital mental health promotion. This dual-expertise model represents a key advancement: streamers contributed their gaming expertise, personal experiences, and deep understanding of their established communities where they are trusted figures, while mental health professional ensured accurate information delivery. By combining these complementary forms of expertise, our intervention addressed both engagement and content quality, potentially offering a more effective model for digital mental health promotion among adolescents and young adults.

The significant improvement in Mental Health Literacy Questionnaire (MHLQ) scores observed two months post-intervention corroborates existing research on internet-based mental health literacy interventions among adolescents. A recent systematic review showed that digital mental health literacy interventions are as effective as traditional face-to-face interventions, demonstrating strong effects on mental health literacy outcomes and moderate effects on mental health outcomes. Importantly, these positive effects proved to be sustainable over time, with no significant decrease during follow-up assessments. The review also revealed that digital mental health literacy interventions were more effective among adults and young adults compared to adolescents. Using – as we did – more youth friendly media could be an opportunity to enhance effectiveness in this age group (30). Another recent systematic review of web-based mental health interventions focused on interventions targeting young people aged 10 to 25 found that while these interventions had a significant positive effect on mental health literacy, they did not significantly improve help-seeking intentions or attitudes; an area in which our intervention demonstrated improvement (31). The authors proposed two hypotheses regarding the lack of effect on help-seeking intentions. First, web-based interventions alone may be insufficient to address the emotional and social barriers that prevent young people from seeking help or reducing stigma. Our intervention tackled this limitation by integrating a psychologist who shared their digital environment and communication codes. Second, they suggested that web-based interventions may not have been adequately tailored to the specific needs and preferences of young people, who face different help-seeking challenges and opportunities compared to adults. We addressed this limitation by co-designing with young people and maintaining flexibility in the topics and themes addressed during chat sessions.

The multifaceted nature of our intervention raises important questions about the specific mechanisms driving changes in mental health literacy scores. These potential mechanisms include personal factors (such as knowledge acquisition, cognitive reframing, and self-protection) and community-related factors (including interactive and participatory learning,

social learning, and peer modeling). While no theoretical model was initially developed for this novel and highly interactive intervention, the observed outcomes across different questionnaire domains could inform future theoretical frameworks and help identify key mechanisms of action. The observed improvements may result not only from the intervention itself but also from subsequent changes in streamer content and community dynamics. While our findings demonstrate promising results, future research should address two key aspects. First, longitudinal studies are needed to evaluate the long-term sustainability of the intervention effects (32), although previous research has demonstrated the temporal stability of digital mental health literacy interventions (30). Second, the scalability of this intervention warrants careful consideration, particularly regarding its potential implementation across multiple gaming platforms. The current focus on Minecraft, while effective for our target population, inherently limits the intervention's reach. Expanding the intervention to diverse gaming environments could facilitate access to broader demographics. Indeed, gaming genre preferences have been shown to correlate with distinct sociodemographic profiles: first-person shooter games tend to attract predominantly younger males from lower socioeconomic backgrounds, real-time strategy games appeal to older players, while role-playing games demonstrate higher engagement among female players (33). This demographic segmentation by gaming genre suggests that a multi-platform approach could enhance the intervention's accessibility and impact across different population segments, potentially reaching underserved communities that might benefit from mental health support.

Strengths and limits

Key strengths include the innovative co-design approach combining clinical and community expertise, the use of established gaming platforms familiar to the target population that seems to be a promising approach for reaching AYA population. Notably, the intervention successfully engaged NEETs (10% of participants), a group typically underrepresented in general population health promotion initiatives and suffering of impaired health (34–36). While the intervention yielded significant improvements in mental health literacy scores, several limitations should be considered. The main limitation was our inability to recruit sufficient numbers in the control group communities at the 2 times of the research, preventing relevant inter-groups comparisons. These recruitment difficulties in the control group can be explained by the streamer's lesser involvement and motivation, and therefore more complicated recruitment in his community. Additionally, since different participants responded at the two time of questionnaire survey, we cannot rule out the possibility that those who completed the follow-up questionnaire may have had naturally higher mental health literacy levels. Despite reaching over 600 unique viewers across the streams, questionnaire completion rates were relatively low, and mobilizing the communities to answer the two-month questionnaire proved challenging even with incentives, so selection bias can not be excluded, affecting the strength of our results. Furthermore, significant demographic differences between intervention and control groups, particularly regarding age and educational status, may affect result interpretation. The predominantly male sample (86.6%), while reflecting typical gaming community demographics, limits our understanding of the intervention's impact across genders.

Conclusion

This study demonstrated both feasibility and effectiveness of a mental health literacy intervention co-designed and delivered through Minecraft and Twitch streaming platforms. By combining gaming influencers' expertise with professional mental health knowledge, the

intervention successfully improved participants' mental health literacy while generating substantial viewer engagement. The positive reception from both streamers and their communities suggests that gaming platforms offer promising opportunities for youth mental health promotion. This innovative approach highlights the potential of virtually co-constructed interventions that leverage opinion leaders to promote mental health within their existing communities.



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Conflict of interest

None of the authors have any conflicts of interest to disclose.



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Supplementary Files