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ABSTRACT

Youth offer valuable insight on health communication needs and solutions in their communities. We propose youth participatory action communication research (YPACR) as a model for health campaign development that engages youth perspectives in applying systematic theory-informed communication research to addressing youth-identified health priorities. YPACR informed a series of paid high school internship programs in West Philadelphia, in which youth interns identified mental health help-seeking communication as a need among peers. In Phase 1, guided by the reasoned action approach and Hornik & Woolf method, youth interns conducted a survey measuring behavioral beliefs, normative beliefs, and control beliefs associated with mental health help-seeking, as well as trusted sources of mental health information, among local high school students. Survey results suggested control (self-efficacy) was an important message target and peers were trusted mental health information sources. In Phase 2, youth interns developed TikTok-style messages focused on strengthening control beliefs and promoting a youth-selected mental health support resource. Youth interns distributed an online survey experiment to test whether youth-created messages shown alongside resource information increased help-seeking self-efficacy compared to an information-only control. The YPACR framework contributed to youth-relevant campaign goals, study measurements, recruitment approaches, data interpretation, and message design. We discuss the benefits and challenges of this youth-driven health campaign development model and recommendations for future research.

Youth offer valuable insight on health communication needs and solutions in their communities (Gutuskey et al., 2016; Mitra, 2014). Youth participatory action research (YPAR) is an approach in which youth collaborate in developing and executing interventions to address challenges affecting their lives (Cammarota & Fine, 2010). YPAR facilitates a process of mutual learning, especially when conducting research with communities overaffected by health inequities and underrepresented in research (Lindquist-Grantz & Abraczinskas, 2020; Ozer, 2017). Theory-informed communication campaign research, when integrated with YPAR principles, offers opportunities to *benefit* and *benefit from* youth participants. Youth have the potential to provide expertise on the health priorities, beliefs, and information sources in their peer communities, which can inform tailored measures, recruitment efforts, and messages. Yet, few examples of youth collaborating in health campaign formative research exist.

This article presents a participatory model of youth health campaign development. We first describe a conventional approach to theory-informed formative campaign research and outline the principles of YPAR. We then propose a youth participatory action *communication* research (YPACR) model, which seeks to apply theory-informed systematic health campaign development research to addressing youth-identified health communication needs and developing campaigns that reach and resonate with youth. To illustrate YPACR, we apply this model in youth programs in West Philadelphia. Finally, we discuss the unique opportunities afforded by integrating YPACR in campaign development.

Theory-informed formative campaign research

Health communication campaigns leverage media to encourage healthy behaviors. Formative research aims to inform campaign message development and test message effects before launching a campaign at scale (Fishbein & Cappella, 2006; Hornik & Woolf, 1999; Jemmott, 2012). Behavior change theories offer frameworks for guiding the formative research process. In particular, the reasoned action approach (RAA) is a model of behavior change widely applied in developing health promotion campaigns (Cooke

& French, 2008; Fishbein & Ajzen, 2011; Fishbein & Cappella, 2006; Hackman & Knowlden, 2014; Tyson et al., 2014). According to the RAA, intention to engage in a particular behavior is the strongest predictor of that behavior and three types of cognitions directly predict intention: attitudes (informed by *behavioral beliefs*, or anticipated outcomes from engaging in the behavior), perceived norms [informed by *normative beliefs*, or perceptions the behavior is common (descriptive norms) and accepted (injunctive norms) by relevant people or groups], and *self-efficacy* (*perceived behavioral control*, informed by *control beliefs*, or assessments of one's ability to engage in the behavior) (Fishbein & Ajzen, 2011). From the perspective of communication campaign planners seeking to encourage a health behavior, formative research can help determine which RAA construct or constructs matter for a given audience and behavior and the specific behavioral, normative, and control beliefs that are relevant within each construct (Fishbein & Cappella, 2006).

RAA-informed formative research can help direct campaign resources toward effective messaging strategies and reduce the potential for null or adverse effects. The campaign development process may include conducting survey research, designing data-informed campaign messages, and running message testing experiments. First, qualitative research with a small sample of the study population can help to identify beliefs within each RAA category, including outcome expectations (behavioral beliefs), normative referents (normative beliefs), and control factors (control beliefs) that are relevant for a given behavior and audience (Fishbein & Ajzen, 2011; Robbins & Niederdeppe, 2015; Sangalang et al., 2019). Next, quantitative survey research can capture which RAA constructs, and specific beliefs within these constructs, should be addressed in a messaging campaign to encourage behavior change (Fishbein & Cappella, 2006; Hornik & Woolf, 1999; Jemmott, 2012).

Informed by the RAA, the Hornik and Woolf method is a validated approach (Hornik et al., 2019; S. J. Lee et al., 2016) that offers three criteria for using cross-sectional data to determine whether a belief is a promising communication target, including: (1) there is a substantial proportion of the audience that does not already hold the belief (i.e., "room to move"), (2) the belief is associated with the target behavior or behavioral intention, and (3) it is feasible to alter the belief with campaign messages (a subjective assessment) (Hornik & Woolf, 1999). Hornik and Woolf results may indicate which behavioral benefits to highlight, which individuals or groups are influential normative sources, and what practical guidance is needed to increase behavioral control. Campaign planners have used this method to identify the type of information to include when designing campaign messages encouraging behavior change across a range of areas, such as e-cigarette prevention (Rath et al., 2021; Zhao et al., 2024) and COVID-19 vaccination (Yang et al., 2023). Finally, experiments test whether messages are effective in altering or strengthening beliefs as intended before launching campaigns at scale (M. Kim & Cappella, 2019).

The opportunities and challenges of conventional formative research

Prior campaigns have relied on behavior change models and formative research to positively influence youth health behaviors. Formative research with adolescents and young adults has highlighted the importance of identifying youth values – such as autonomy, social belonging, and social justice – in campaign planning. For example, the "Truth" anti-smoking campaign hired diverse young adults to interview other youth, convened annual youth summits, and created a youth review board to provide feedback on the development process (Hicks, 2001). Quantitative survey data, analyzed with the Hornik and Woolf method, suggested campaign messages would be most likely to prevent youth smoking if they strengthened the belief that *not* smoking was socially encouraged and a way to assert independence against the tobacco industry (Rath et al., 2021). Thus, the Truth campaign developed advertisements that successfully reduced youth smoking behavior by creating a youth-friendly brand image and revealing the tobacco industry's manipulative and unjust practices (Farrelly et al., 2002; Hersey et al., 2005; Richardson et al., 2010; Vallone et al., 2018). Teens exposed to Truth advertisements were more likely to associate not smoking with a sense of independence and to disagree that smoking made people look cool (Farrelly et al., 2009). According to Farrelly et al. (2009), the Truth campaign prevented an estimated 450,000 adolescents from initiating smoking in one year and was particularly effective with Black and Hispanic youth. Yet, many youth-focused health campaigns have not yielded such success (Yeager et al., 2018). For example, compared to exposure to Truth, exposure to industry-sponsored anti-smoking campaigns, such as Philip Morris's "Think. Don't smoke" and Lorillard's "Tobacco is wacko if you're a teen" has been associated with more positive views of the tobacco industry, favorable attitudes toward smoking, and higher intention to smoke among adolescents (Farrelly et al., 2002; Henriksen et al., 2006). Other anti-smoking campaigns, such as "The Real Cost" have integrated theory-informed formative research and have been effective with general youth audiences, but have had lower reach among Black and Hispanic youth compared to non-Hispanic White youth (Delahanty et al., 2020). The Truth campaign recognized the unique messaging strategies needed for youth health interventions and showed the potential for theory-informed survey and experiment studies, combined with youth engagement, to generate messages that reach and resonate with diverse youth audiences.

However, even when guided by systematic formative research, youth-focused campaigns may face challenges. In general, most health interventions for adolescents focus on suppressing short-term impulses to avoid long-term harms, ignoring adolescent needs for autonomy and belonging; most of these interventions are less effective with teens compared to children and young adults (Yeager et al., 2018). Some campaigns targeting adolescents have even had adverse ("boomerang") effects (Hornik et al., 2008; Yeager et al., 2018). Boomerang effects may be caused by psychological reactance – whereby adolescents respond to health recommendations as threats to autonomy and seek to assert independence (Brehm & Brehm, 2013; Hersey et al., 2005). Adult-created health messages may also conflict with peer norms, leading to de-motivation (McDonald et al., 2013). Additionally, health campaigns may fail to recognize

structural barriers to health in minority and low socioeconomic communities (Ayers, 2009).

Further, and contributing to the challenges above, the availability and quality of data capturing the health communication needs of diverse youth may be limited (E. W. J. Lee & Viswanath, 2020). Efforts to include youth in underrepresented communities in survey research may be seen as extractive, exclude measures relevant to youth experiences, distance youth from any benefits of sharing their beliefs, and fail to capture authentic youth responses (Beattie et al., 2023). Thus, conventional data sources may not provide a comprehensive picture of youth health needs, information channels, and media preferences. In short, innovative approaches are needed to include diverse youth perspectives in developing health communication campaigns that preserve youth engagement, investment, authenticity, and trust in the research process.

Youth participatory action research

YPAR recognizes youth as partners in the development and execution of research to address issues affecting their lives (Akom et al., 2016; Anyon et al., 2018; Flicker, 2008). YPAR stems from Paulo Freire's liberationist view of education in which the teacher (or researcher) and pupil (or participant) exchange knowledge through a democratic process of dialogue (Freire, 1970). YPAR does not replace conventional research methods but embeds them within an equity-centered framework, allowing for authentic dialogue and mutual learning between adult researchers and youth. YPAR is a critical framework for building bridges between resource-rich, predominantly White-led academic institutions and youth living in disadvantaged, often Black and Brown, surrounding communities (Fine, 2017; Harkavy et al., 2013). Three tenets of YPAR include youth participation in the research process, emphasis on youth participant development, and applying research to impact local youth communities (Anyon et al., 2018). As described below, these principles have been used in various contexts outside health communication.

First, YPAR programs involve youth participation across the research process. For example, in one study addressing food insecurity, adolescents participated in determining research questions, study design, instrument development, recruiting participants, data collection, data interpretation, presenting, and applying findings to improve healthy food access in their communities (Akom et al., 2016). From defining research questions to implementing interventions, youth participation offers opportunities to benefit the quality of research programs. Youth input can contribute to developing research questions that meet youth needs; youth-friendly recruitment materials, data collection instruments, and protocols; appropriate interpretation of study results; dissemination of intervention materials through peer networks; and immediate application of research recommendations (Flicker, 2008). These benefits of youth participation rely on authentic engagement from youth participants – and the extent to which participation in research benefits youth directly.

Thus, a second, related principle of YPAR focuses on youth participant development. The YPAR research process should serve as an intervention that benefits participants. Positive

outcomes for youth YPAR participants may include increased feelings of agency, knowledge, social competency, critical consciousness, socio-cognitive development, and a sense of community belonging (Anyon et al., 2018; Shamrova & Cummings, 2017).

Third, YPAR programs address broader youth community needs, applying research to local real-world action. YPAR programs have addressed issues aligning with youth community priorities, including racial injustice, health, education, violence, and safety (Anyon et al., 2018; Lindquist-Grantz & Abraczinskas, 2020). These projects have focused on building awareness, promoting advocacy, and facilitating community organizing (Anyon et al., 2018).

The principles of YPAR have the potential to be integrated with health campaign research. Many YPAR programs have recognized a need to reach youth through social media and peer-to-peer communication and highlighted the potential benefits for youth participants in creating public health messages (Greene, 2013; Palmedo et al., 2022; Rogers et al., 2017). Yet, most YPAR programs do not include systematic theory-informed approaches to media development and evaluation. To the authors' knowledge, no prior program has reported including youth as collaborators in the broader formative research process of campaign message development and testing, including quantitative surveys and experiment studies. Few YPAR programs have focused on designing media campaigns, relied on evidence-based behavior change models, and included quantitative methods. Integrating YPAR and theory-informed formative communication research can potentially inform health campaigns that resonate with youth, particularly in communities that are underrepresented in research.

The present study: Youth participatory action communication research

The current paper offers a youth health campaign development model, youth participatory action communication research (YPACR). YPACR applies theory-informed and evidence-based practices, such as defining specific campaign goals (behaviors and audiences), gathering data on relevant beliefs, using the Hornik and Woolf method, and running message testing experiments. However, extending prior health communication work, YPACR integrates the principles of YPAR. It *engages* youth as collaborators in each research phase, leverages opportunities for communication research to enhance *youth participant development*, and *applies* communication research methods and theory to developing campaigns for local communities. The purpose of YPACR is to support the development of theory-informed youth-driven health campaign research that directly benefits and resonates with youth. Ultimately, YPACR advances the literature by applying validated systematic formative research approaches in collaboration with youth to address youth-identified communication needs.

For illustrative purposes, we describe how the YPACR model was used in a West Philadelphia youth internship program in 2021–2022. Across two sequential studies, youth participants engaged in multiple phases of formative research, including goal-setting, survey research, and message design

and testing. This paper aims to illustrate the potential for theory-informed data collection and analysis to inform youth-driven campaigns in a local setting; we include quantitative studies as examples, though the sample sizes are limited, and we do not intend to draw generalizable conclusions from these studies. In the discussion, we reflect on the benefits and challenges of the YPACR model in advancing health communication more broadly.

Applying the YPACR model in Philadelphia

The context

Founded in 1992, the Netter Center for Community Partnerships is a university-based center that advances civic and community engagement in Philadelphia (Harkavy et al., 2013). The Netter Center facilitates and sustains partnerships between community organizations, local public schools, and the university. Netter Center partner high schools serve students, over 90% of whom are Black and from economically disadvantaged backgrounds ("West Philadelphia High School," 2023). Netter Center employees are trained to work with adolescents and serve as liaisons between community schools and university students and faculty.

Starting in the spring of 2021 (Phase 1), Netter Center employees and communication researchers co-led a series of high school student research internships, incorporating a YPACR model. Figure 1 illustrates the sequence of research activities across programs, continuing through the spring of 2022 (Phase 2). Research was approved by the University of Pennsylvania's Institutional Review Board and informed consent was attained from all participants.

Phase 1: Spring 2021 survey program

The first phase of the YPACR program was a 12-week paid virtual internship, which ran between February and April 2021. Youth interns were recruited through prior Netter Center programs and referrals from program alumni, teachers and sports coaches, printed flyers posted in schools, and social media posts re-shared by schools and local youth organizations. Outreach materials emphasized opportunities to impact the community and included links to sign up for

follow-up. Adult staff members provided logistical support in applying and registering, which was a common need.

The research team comprised eight youth interns and eight adult staff members (four paid undergraduate mentors, a graduate student researcher, and three Netter Center employees). The team met thrice weekly on Zoom for 1–2 hours after school. Each week, youth interns volunteered for one of the following roles: note taker, vibe booster, or timekeeper. The note-taker documented the session on a shared Google Document with guidance from an adult staff mentor. The vibe booster worked with a mentor to plan 5-minute bonding activities. Vibe boosting was typically scattered across sessions to give the team a break from research or as a closing activity to leave the team in good spirits. Before initiating research and throughout the program, activities were integrated to strengthen a sense of community and shared purpose within the research team. During orientation, all members articulated their intentions for participating. Intentions were written on a shared document, which became a reference point for the remainder of the program. Returning to this documented collective mission, each session offered the flexibility and the structure to meet shared intentions.

Topic selection: Defining campaign goals

Youth intern, adult contributions, and research outputs for each formative research phase are summarized in Figure 2. Adult staff facilitated a set of discussions focused on campaign goal-setting. Youth interns brainstormed a list of health challenges they observed affecting their peers and communities. Issues raised included smoking and vaping, junk food advertising, racism, addiction, and mental health. The adult researcher generated an anonymous survey in Qualtrics through which youth interns voted on the issue they viewed as the highest priority. High school student mental health was the most selected topic.

In another activity, youth interns divided into smaller breakout rooms to brainstorm potential campaign audiences and target behaviors to improve high school student mental health. Each small group chose one potential audience and behavior from their list and shared their rationale with the larger team. Ideas included encouraging teachers and school administrations to incorporate mental health coping strategies in
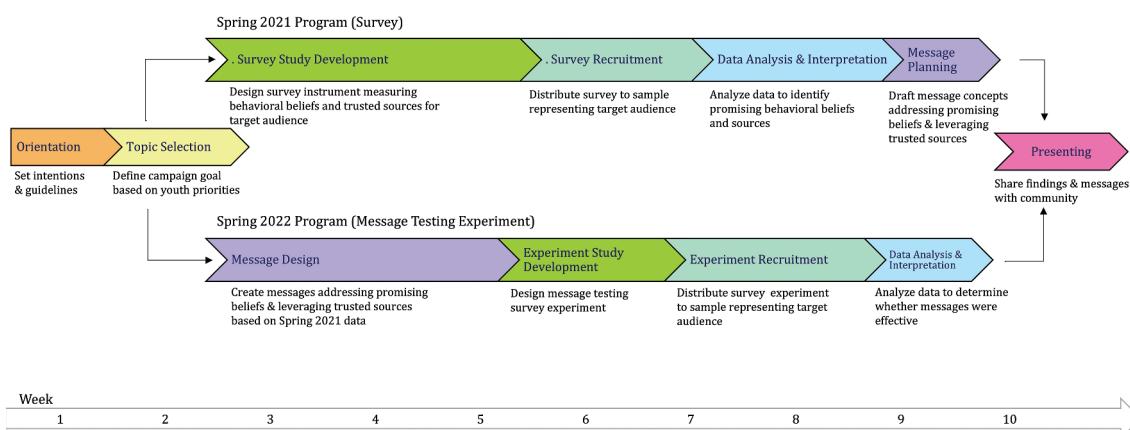

Figure 1. YPACR research program phases.

Phase	Topic selection	Study development	Study recruitment	Analysis
Youth procedures	Discuss and select campaign goal relevant to peer community needs	Discuss potentially relevant peer mental health help-seeking beliefs and information sources; review survey	Design incentive and distribution materials; Share survey with school list serves, teachers, principals, and peers	Review and share interpretation of results
Adult procedures	Contextualize research program; facilitate topic selection process	Convert youth contributions to an online survey; incorporate youth feedback	Support incentive and distribution material design	Clean data; conduct Hornik & Woolf analysis; share youth-friendly summary of results and discuss with youth
Research output	Campaign goal: Improve mental health by encouraging high school students to seek help	Online survey measuring help-seeking need, behavior, 12 behavioral beliefs, trust in 9 information sources	Survey respondents (N=69) attending 13 Philadelphia high schools; 92% experienced recent mental health challenges	Promising message targets: control beliefs; Promising channels (trusted sources): peers

Figure 2. Phase 1 youth and adult procedures and outputs by research phase.

curricula, media platforms to restrict youth exposure to triggering messages, parents of high school students to listen, high school students to support peers facing mental health challenges in seeking help, and high school students facing mental health challenges to seek help for themselves. Youth interns directly messaged their top choice vote to an adult staff member. Through this process, the team chose to encourage local high school students facing mental health challenges (intended audience) to seek mental health support (target behavior).

The research team then developed a survey study to answer the following research questions: What types of beliefs are likely to encourage local high school students to seek help for mental health challenges and are therefore promising campaign message targets? Which sources of mental health resource information are most trusted among local high school students and are therefore promising campaign channels?

Survey study materials and methods

Survey development

Fishbein and Ajzen (2011) provide a template for conducting qualitative elicitation research to identify relevant beliefs within each RAA construct for a given context. Through this initial process, a small sample of members of an intended population may list potential advantages and disadvantages, barriers and facilitators, and individuals or groups who would approve or disapprove of the target behavior (Fishbein & Ajzen, 2011). Researchers can then include elicited responses as quantitative survey measures administered to a larger sample and identify which beliefs are associated with the behavior (e.g., Brennan et al., 2017; Parvanta et al., 2013; Sangalang et al., 2019; Vallone et al., 2018).

Adapting this template for a participatory setting, adult facilitators asked elicitation questions to youth interns, who, as high school students, had closer proximity than the adults to

the intended population. Adult facilitators asked youth interns to consider, from the perspective of their peer audiences, what good and bad outcomes might result from engaging in the target behavior (behavioral beliefs), who might approve or disapprove of the target behavior (normative referents), and what factors might make it easier or harder to engage in the target behavior (control beliefs) (Fishbein & Ajzen, 2011). Interns also brainstormed sources of mental health resource information their peers would trust or distrust. Responses were written on a screen-shared document.

In addition to this team-wide discussion, youth interns interviewed each other in paired breakout rooms, asking about potential barriers to mental health help-seeking they had experienced or observed. Each pair described their findings with the larger team and responses were added to the shared document. This multistep process offered the opportunity for youth partners to elaborate on help-seeking challenges in smaller and larger settings and to provide expertise based on their own experiences.

From these activities, lists of potential underlying beliefs and information sources were generated and converted into close-ended survey questions. Adults developed an instrument on a Google document to share with the high school students. Youth interns reviewed each survey question and ensured the wording was appropriate, understandable, and accurately representative of the intended measure. Adult researchers converted questions to an online Qualtrics survey. All study team members tested the survey and provided feedback to inform the final version.

Survey recruitment

The survey sample included students attending youth interns' high schools. Youth interns distributed the survey link through school list-serves, posted on personal social media accounts, and sent direct messages to friends between March 10–23, 2021. Figure 3 illustrates recruitment materials developed and distributed by youth interns. Interns developed two

Instagram posts (Figure 3a–b), an e-mail template (Figure 3c), and a customized mug as incentive for completing the survey (Figure 3d). Respondents followed an online link to an initial consent form. After agreeing to participate, a screening question asked whether respondents currently attend high school. Those who were not in high school were directed to the survey debrief page, which included mental health support resources. Only those who confirmed they were in high school were considered eligible for the survey. Following survey completion, each respondent was redirected to an external link with an online mailing information form for the customized mug. The separation of this online form from the survey ensured personal information was disconnected from anonymous survey data.

Survey measures

The outcome of interest was mental health help-seeking among those who had faced recent mental health challenges. The survey asked whether respondents had faced any mental health challenge in the past six months and, if yes, whether they had sought support. Twelve items measured beliefs about help-seeking identified in discussions with youth interns. These included two behavioral belief items about potential adverse outcomes of help-seeking, two behavioral belief items

about potential positive outcomes, two injunctive norm beliefs about family member approval, two injunctive norm beliefs about peer approval, two descriptive norm beliefs regarding perceived commonness of help-seeking among one's peers and community, and two control beliefs about the extent to which one felt capable of seeking help. Beliefs were measured on Likert scales (1 = *Strongly disagree* to 4 = *Strongly Agree*). When relevant, responses were reverse coded so that, for all beliefs, the most anti-help-seeking response received a score of 1 and the most pro-help-seeking response received a 4. The survey also measured respondent trust/distrust in each of the following as a source of information about mental health: teacher, doctor, parent/guardian, grandparent, sibling, school counselor, religious/spiritual leader, coach, and friends (1 = *Strongly Distrust* to 4 = *Strongly trust*).
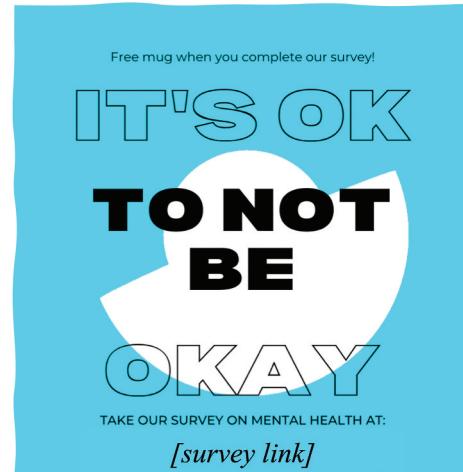
Survey analysis and interpretation

Applying the three Hornik and Woolf criteria, each belief was assessed for whether it (1) was not widely held by survey respondents [percentage to move (PM) = 100% - The percentage of respondents who strongly held the belief], (2) was associated with help-seeking behavior [relative odds ratio (ROR) = ((The proportion of eligible respondents who strongly held the belief who sought help (A)/The proportion

a. Instagram post 1

b. Instagram post 2

c. Email template for school list serves

Dear Students of *[insert high school name]*,
I am a part of the *[insert program]* program at the *[insert university name]*. We are researching mental health amongst High School students. After we get our results, the data will help to spread awareness towards other high school students with mental health issues. The survey will only take 5-10 minutes to complete and your information will be confidential. Any questions that you don't feel comfortable answering is ok. Feel free to skip any if needed. **After completing this survey, you have an option to receive our personalized mug**. We appreciate any input you have towards this. If you know any other high school students, please share this with them. Please complete the survey by *[insert date]*.

d. Proof of customized mug incentive

Figure 3. Phase 1 distribution materials developed by youth interns.

of eligible respondents who did not strongly hold the belief who sought help (B))/(1-A)/(1-B)], and (3) would be feasible to change with messaging (a subjective assessment) (Hornik & Woolf, 1999). The "percentage to gain" score was also calculated to capture the first two criteria in one metric, identifying beliefs associated with a target behavior that are not widely held in a study population (Hornik & Woolf, 1999). The percentage to gain score for each belief was computed as the difference between the percentage of respondents who had sought help in the past six months across the whole sample and the percentage of respondents in the most pro-help-seeking response category who had sought help. Ultimately, this calculation would allow the research team to select target beliefs – beliefs that, if held by a greater proportion of the high school student population, would likely lead to a greater proportion of individuals facing mental health challenges seeking help (Rath et al., 2021; Yang et al., 2023; Zhao et al., 2024). The third criterion, feasibility, was discussed over several conversations with the research team.

Respondents were included in the Hornik and Woolf analysis if they had reported having faced any mental health challenge ($n = 49$). The mean trust in each source of information, and the percentage of respondents who strongly trusted and distrusted each source, was also calculated. Results tables were presented to youth interns for discussion and interpretation. Youth interns reflected on potential explanations for results, with the adult researcher taking notes on a shared screen.

Survey study results

Respondent demographic data is included in Appendix A (Table A1). A total of 69 teens attending 13 high schools across Philadelphia participated in the study (with 68% completing the entire survey). The mean age was 16-years-old. Most respondents were non-White (38% Black, 12.5% did not know their race/ethnicity, 11% Hispanic/Latinx, 9% Asian/Middle Eastern, 3.6% Indigenous). About half of the respondents identified as women (54%) while nearly a quarter identified as non-binary (23.1%). In total, 92% of respondents had faced a mental health challenge in the six months before completing the survey and thus were considered eligible for help-seeking. Of those eligible 39% had sought help in the past six months.

Promising beliefs

The Hornik and Woolf method, including the PM, ROR, and percentage to gain scores, helped determine which beliefs to address with messages to encourage youth mental health help-seeking (Hornik & Woolf, 1999). For example, 20% of eligible respondents strongly agreed with the control belief statement, "I know who to turn to when I need help coping with mental health challenges" (PM = 100% − 20% = 80%). Among the 20% of respondents who strongly agreed, 75% had sought help, while among the 80% who did not strongly agree only 43% sought help. Thus, the odds of help-seeking were four times higher than among those who did not strongly agree [ROR = (0.75/0.43)/(1−.75)/(1−.43) = 1.7441/(.25/.57) = 1.7441/0.4386 = 3.98]. The percentage to gain

score (36%) captured the difference between the actual percentage of respondents across the sample who sought help (39%) and the percentage who would be expected to seek help in the population if everyone strongly agreed that they knew who to turn to for support (75%).

Other beliefs had lower percentage to gain scores, and were ranked as less promising, due to either weak correlation with help-seeking behavior or already high endorsement across the sample. For example, the descriptive norm belief "it is common for people in my community to seek support for mental health" was not widely held; only 7% of respondents strongly agreed with this statement (PM = 93%). However, this belief was not positively associated with help-seeking behavior (ROR = 0.49) and thus had a low percentage to gain score (−6.0%), suggesting that even if everyone in the population strongly agreed that help-seeking was common in the community, help-seeking prevalence would not increase. On the other hand, strong disagreement with the injunctive norm belief "my family would feel betrayed [if I were to seek help]" was somewhat positively associated with help-seeking behavior (ROR = 1.2) but was already relatively common (held by 30% of the sample; PM = 70%). The percentage to gain for this belief was 11%, suggesting only 11% more of the population would seek help if everyone believed help-seeking would not lead to their families feeling betrayed.

Each belief and corresponding percentage to gain is included in Table 1. For more detailed statistics, see Appendix A (Table A2). In summary, beliefs with the highest percentage to gain scores were the two about self-efficacy (control beliefs), including knowing where to find help (36%) and knowing who to turn to for support (36%). Those with moderate percentages to gain included injunctive norm beliefs – perceived approval from family (11% and 23%) and peers (14% and 17%). Beliefs with the lowest percentages to gain were about the potential benefits and disadvantages (behavioral beliefs; 4% and 11%) and commonness (descriptive norms; −6% and 3%) of help-seeking. Thus, control beliefs were determined to be promising message targets relative to norm beliefs and behavioral beliefs based on the first two Hornik and Woolf criteria.

The third Hornik and Woolf criterion involves a subjective assessment of whether a belief is feasible to change through communication (Hornik & Woolf, 1999). The research team discussed whether youth-created messages could increase youth confidence in their ability to find help. On the one hand, the limited awareness of help-seeking resources highlighted structural barriers to mental health support in the community that could not be addressed with individual-level behavior change alone. This finding contributed to the development of subsequent youth programs focused specifically on mental health literacy, support, and coping and broader discussions about school-level and policy-level change needed to increase access to mental health support services for teens. On the other hand, in the short-term, the team also recognized that sharing information about the mental health resources that were already available could potentially increase teen self-efficacy and help address immediate mental health challenges.

Table 1. Hornik and Woolf results (Phase 1).

RAA Construct	Belief item	Perc, to gain
Control beliefs	I don't know where to find support for coping with mental health challenges.*	36%
	I know who to turn to when I need help coping with mental health challenges.	36%
Injunctive norms- peers	… My peers would make fun of me*	17%
	…My peers would label me as crazy.*	14%
Injunctive norms- family	… My parents would be supportive.	23%
	… My family would feel betrayed*	11%
Behavioral beliefs- positive outcomes	My mental health would improve if I received help from others.	11%
	…It would help me resolve the issue and get better.	6.0%
Behavioral beliefs- adverse outcomes	…My information would not be kept private*	5.0%
	…I would feel ashamed*	4.0%
Descriptive norms	It is common for people my age to seek support for mental health.	3.0%
	It is common for people in my community to seek support for mental health.	−6.0%

$N = 49$. Includes participants who reported having experienced any mental health challenge in the six months prior to taking the survey. Percentage to gain was calculated for each belief based on the difference in the total percentage of the proportion of respondents who sought help (39%) and the percentage who strongly held the belief who had sought help. All items beginning with ellipses follow the stem, "If I were to seek help for coping with mental health challenges in the next two months … " *Indicates reverse coded.

Table 2. Trust in each source for mental health information (phase 1).

Source	M*	SD	N
Friends	3.36	0.77	56
Doctor	3.22	0.73	55
Parent/guardian	2.75	1.11	56
Siblings	2.67	1.06	51
Grandparent	2.59	1.05	51
School counselor	2.56	1.02	55
Teacher	2.48	0.9	58
Coach	2.34	0.84	41
Religious leader	2.30	1.01	44

*1 = Strongly distrust, 2 = Distrust, 3 = Trust, 4 = Strongly trust; *$p < .05$, **$p < .01$, ***$p < .001$.

Trusted information sources

Table 2 shows trust in each mental health information source, with friends receiving the highest mean trust score ($M = 3.36$; SD = 0.77). Half of respondents (50%) strongly trusted friends, compared with 36% who strongly trusted doctors, 34% who strongly trusted parents, and 24% who strongly trusted grandparents.

Message planning

The research team developed message concepts based on survey data to build self-efficacy and leverage trust in peers around mental health help-seeking. To develop message concepts, adult staff created an anonymous online worksheet. Prompts included hypothetical scenarios in which a friend was facing a mental health challenge and did not know where to find help. Interns were asked to provide a list of responses they might offer to address the concern. Altogether, 49 responses ("message appeals") were provided and sorted by adult researchers and staff.

In the following session, interns worked in three smaller groups. Each group was given a list of five message appeals selected by adults from the online worksheet and asked to choose one or two of their top choices. Next, interns planned messages, including channel, design, caption, and their chosen message appeals. Across the three groups, nine Instagram images and two TikTok video drafts were created. All posts included captions and links to free mental health resources for high school students. Interns presented their messages to peers

in the final program meeting. Posts were later shared on the Netter Center program Instagram page.

Phase 2: Spring 2022 message testing experiment program

From January to April 2022, the Netter Center offered a 12-week in-person YPAR internship at two school sites. A new team of youth interns was recruited through similar mechanisms as in the spring of 2021. This expanded iteration of the internship program partnered with an undergraduate health communication seminar. Undergraduate course materials focused on the tenets of YPAR and health campaign research theory and methods. As part of course work, six undergraduate students traveled weekly to one of two school sites to collaborate with youth interns (one to three adult staff members, one researcher/instructor or teaching assistant, three undergraduate students, and ten youth interns at each site). Course materials for undergraduate students supported each phase of the research process. Undergraduate students collaborated with the researcher/instructor to prepare and practice activities during class time. The first orientation sessions took place in a college campus classroom and included participants assigned to both sites. For the rest of the semester, teams met for one hour each week at their respective school sites.

Youth intern, adult contributions, and research outputs for each formative research phase are summarized in Figure 4. The Spring 2022 programs engaged in a similar process of topic selection as the Spring 2021 program – first choosing a health issue and then an intended audience and target behavior to address the issue. Both sites separately selected mental health among peers as a priority issue. Mental health was explored through team discussions, photovoice activities, and a review of the prior team's survey findings.

Message design

As a course assignment, undergraduate mentors learned and applied the Hornik & Woolf method in Excel using the Spring 2021 survey data and devised message design recommendations. After discussing the assignment in class, undergraduates prepared to describe findings to youth interns and plan videos that would address promising beliefs. Undergraduate mentors

Figure 4. Phase 2 youth and adult procedures and outputs by research phase.

presented the main points of the Spring 2021 survey study findings to youth interns at each school site. Based on the data, the research team agreed to increase self-efficacy (i.e., strengthen control beliefs) around seeking mental health support and leverage their positions as trusted mental health information sources for peers. Youth interns sought to create new content that (a) built self-efficacy by promoting a mental health support resource that they themselves vetted and (b) elevate authentic youth voices through current TikTok trends.

First, interns developed a list of criteria for support resources they would trust and share with their peers. Criteria included reasonable wait time, options to both text and call a professional, assistance with LGBTQ+ specific challenges, and multilingual services. Adult facilitators and undergraduate mentors compiled a document with free youth mental health resources and a table to assess each resource based on youth-identified criteria. Using this template, three interns and an undergraduate mentor researched and assessed each helpline and reported their findings with the larger group. Through this process, the team decided to promote the Philly HopeLine, a service that met all youth-identified criteria.

Second, all twenty interns and six undergraduate mentors were involved in TikTok-style video creation and worked in smaller groups with the flexibility to create organic content related to mental health support to present alongside information about the PhillyHopeline. Youth interns and undergraduate mentors filmed videos with embedded text highlighting the importance of mental health help-seeking integrated with relevant TikTok trends, including dances to the song "The Magic Bond (Questions I Get Asked)" by Hoàng Read, "Freekum Dress" by Beyoncé, "Oui" by Jeremih, "Yup" by E-40 Choices, and "Just a Cloud Away" by Pharrell Williams; a montage of photos to "Love You So" by King Khan and the BBQ Show; and clips of interns discussing the importance of mental health to the camera. In total, the team created ten

videos, each featuring 1–4 youth interns and ranging in style (see videos compiled in Appendix B).

Message testing experiment

The research team developed an online survey experiment to test youth-created video effects on peers. It was hypothesized that exposure to the videos would strengthen self-efficacy and intentions to use the recommended helpline among high school student respondents (preregistered hypothesis: https:// aspredicted.org/G2F_M5V).

Experiment recruitment

The study link was distributed to high school students outside the program from March 27 - April 11 2022. Youth interns and undergraduate mentors designed posters with memes alongside survey QR codes and hung posters in their schools. Interns also approached peers in school hallways and at sporting events and asked school principals and teachers for assistance with the distribution. As with the Spring 2021 survey, participants followed an online link to an initial consent form, followed by a screening question to confirm they were current high school students. Those who responded they were not in high school were ineligible and directed to a debrief page. Only those who confirmed they were in high school were considered eligible for this study.

Experiment design

Figure 5 summarizes the experiment design. All respondents who agreed to participate in the survey and met eligibility criteria were randomly assigned to a treatment or control group. Those in the treatment condition were shown three randomly selected youth-created videos. The pool of ten videos was uploaded to Qualtrics and, through the Qualtrics Loop and Merge function, three of the ten were randomly selected to play for each participant in random order. Each video was displayed
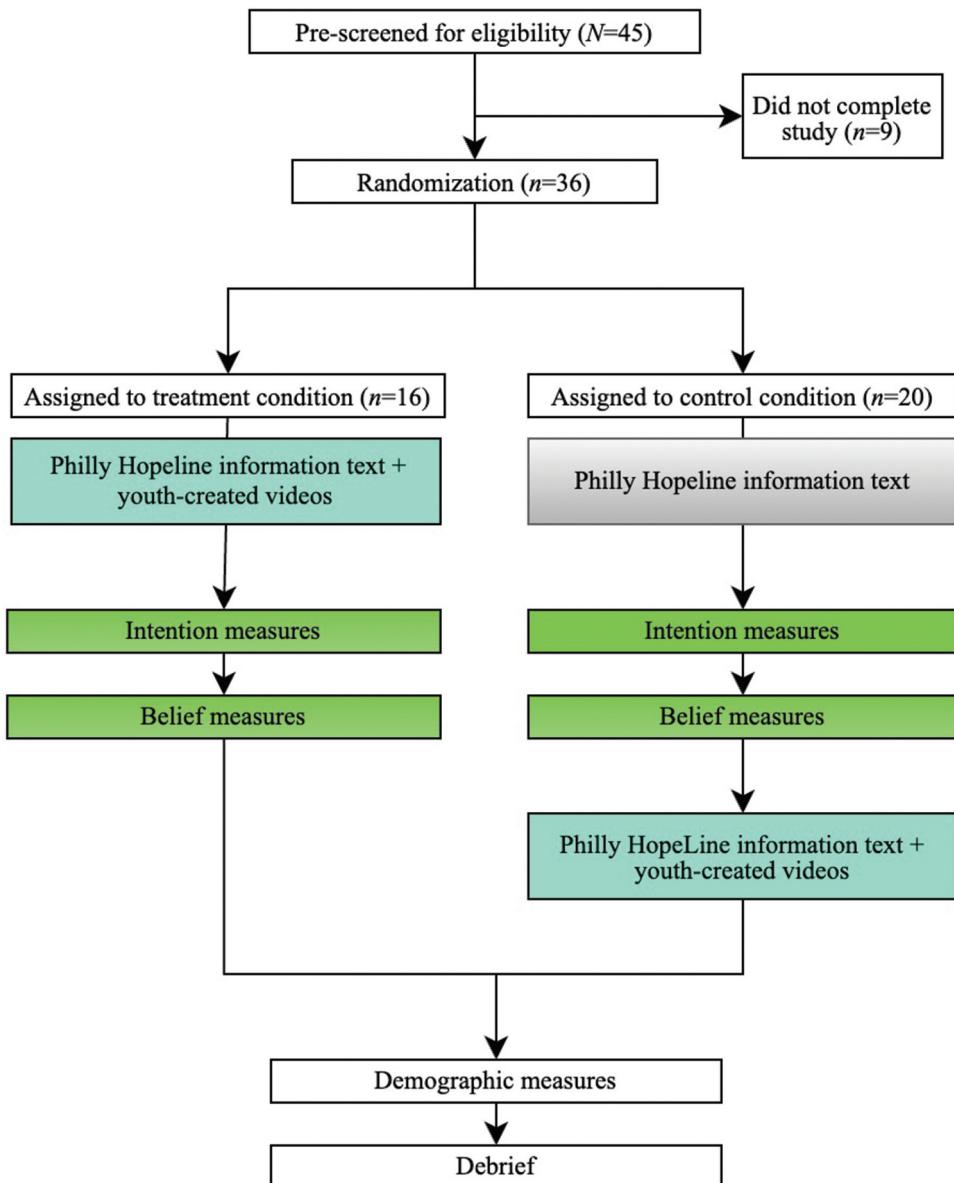
**Figure 5.** Phase 2 message testing experiment design.

alongside a short description of the Philly HopeLine pulled from the helpline's website (see Figure 6 for example). After viewing the videos, respondents completed a questionnaire measuring intentions to call or text the helpline (1=*Very unlikely*; 4=*Very likely*) and self-efficacy (an average of responses to the two control belief measures used in Phase 1; 1=lowest self-efficacy, 4=highest self-efficacy). Items were presented in random order to control for order effects. Respondents in the control condition viewed the description of the Philly HopeLine, responded to questions measuring outcomes, and then viewed three youth-created videos at the end of the survey.

Experiment analysis
Adult researchers, staff members, and undergraduate mentors cleaned and analyzed data in Stata 15.0. One tailed t-tests examined the difference in means for self-efficacy and intentions to use the helpline between those in the treatment and control condition.

Experiment results
Appendix A (Table A1) includes demographic data for experiment respondents. In total, 45 teens attending eight Philadelphia high schools participated in the experiment (36 completed the entire survey; completion rate 87%). The mean age was 15 years, and most respondents were Black/African American (88%). Supporting hypotheses, the mean self-efficacy for the treatment group ($M = 3.06$, $SD = 0.56$, $N = 17$) was higher than that of the control group ($M = 2.73$, $SD = 0.57$, $N = 23$). The treatment group also reported higher intention to call or text the Philly HopeLine ($M = 2.35$, $SD = 0.93$) compared to the control group ($M = 1.87$, $SD = 1.08$). This pattern of results suggests youth-created videos strengthened respondents' confidence in their ability to seek help and intentions to use a recommended resource. Difference in mean results were displayed in the form of bar charts and discussed with youth interns.
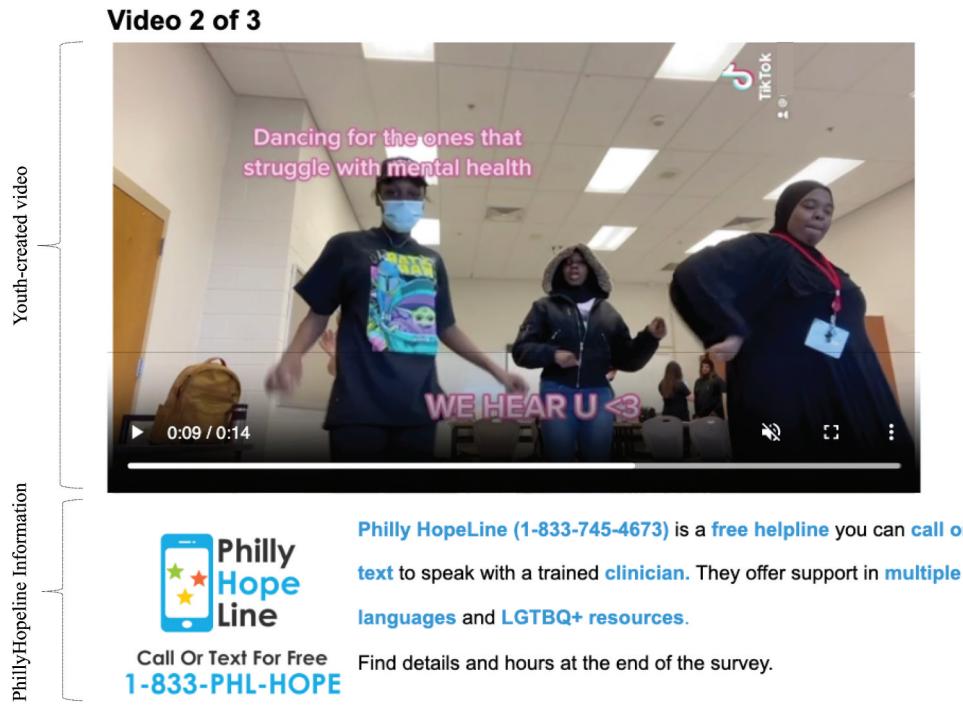
Figure 6. Phase 2 message testing experiment example treatment.

Presenting

Giving all participants opportunities to share research findings was a critical component of YPACR programs. Youth interns and undergraduate mentors in both programs presented findings to the university community and local partners at end-of-semester events, coauthored abstracts and journal articles, and traveled to present at national public health conferences.

Discussion

The current paper applies YPACR, a novel approach to health communication campaign development that integrates YPAR principles with theory-informed formative campaign research methods. YPACR-informed teen research internship programs in West Philadelphia explored local health priorities, trusted sources of information, barriers and facilitators to health, and behavioral beliefs among mostly Black teens from 2021–2022. Youth interns selected mental health as a priority issue affecting their peers and chose to encourage peers to seek mental health support. Guided by the RAA and Hornik and Woolf (1999) method, a collaboratively developed survey identified peers as trusted sources of mental health information for local high school students and found that low self-efficacy was an essential barrier to teen mental health help-seeking. Drawing from survey findings, a second cohort of youth interns designed messages offering peers information about a youth-selected mental health support resource to build self-efficacy. Results from a message testing experiment suggested youth-created videos had the desired effect, strengthening help-seeking self-efficacy among high school students in the broader community.

Contributions to health communication literature

This study contributes significantly to the health communication literature by illustrating how behavior change theories, such as the RAA (Fishbein & Ajzen, 2011), can be applied in the context of YPAR/YPACR, informing data-driven and youth-created health campaigns. Prior campaigns have engaged youth in limited phases of development, particularly in message design and dissemination (England et al., 2021; Hicks, 2001; MacArthur et al., 2016). The Truth campaign took a major step toward engaging youth and integrating youth values in health campaigns (Evans et al., 2018; Farrelly et al., 2009; Hersey et al., 2005). Yet, the Truth campaign was ultimately adult-driven – starting with an adult-selected focus on tobacco prevention. Creating opportunities to design campaigns that are responsive to youth priorities may help identify the root causes of tobacco use and other risk behaviors, such as mental health challenges (Green et al., 2018). To date, no study has included youth throughout the formative research process, from topic selection to message testing and evaluation.

The RAA offers a framework for evidence-based communication research, but the model leaves space for tailoring campaign goals, survey instruments, and messages to the research population. By engaging youth as decision-makers, YPACR orients health campaigns toward topics immediately relevant to youth needs and interests, facilitates the creation of tailored survey measures, opens opportunities to recruit diverse study respondents, and invites authentic youth perspectives in data interpretation and application (Gutuskey et al., 2016; Mitra, 2014). Drawing from the example application of YPACR illustrated in this paper, we reflect on these specific contributions and related future directions below.

Topic selection

The RAA emphasizes the importance of specific campaign goals, starting with a clearly defined audience and behavioral outcome the campaign seeks to address (Fishbein & Ajzen, 2011; Middlestadt, 2007). However, the theory does not instruct on *how* to set campaign goals or who should be involved in this process. Campaign topics are often determined by experts and funders (Middlestadt, 2007). Expanding on the RAA literature, YPACR facilitates youth-driven topic selection – still defining specific behaviors but focusing on those that are chosen by youth.

In the current study, multiple groups of teens selected mental health as a priority issue in their peer communities. Since the COVID-19 pandemic, mental health challenges and inequalities among adolescents have accelerated (Samji et al., 2022). Between 2019 and 2023, the total number of US-funded PubMed articles on adolescents (13–18 years) with "mental health" and "communication" in the title increased by 50% (from 28 articles between 1997–2019 to 42 at the end of 2023). Yet, no study published during this 26-year time period focused specifically on Black teens under 18-years-old. This data highlights a gap in the communication literature, with minimal focus on addressing mental health communication needs among Black teens. YPACR participants were proactive in identifying this gap. The responsive structure of YPACR allowed for the dedication of time and resources to this issue and paved the way for future research in this area. As this example reflects, engaging in dialogue with youth early in research studies can shed light on youth priorities and lived experiences that match needs in the literature. Yet, to scale up this approach, more work is needed to establish funding and incentive structures that support researchers in developing mechanisms to listen to community needs.

Measures

Another contribution of the current YPACR programs was the development of tailored data collection instruments and measures for use among Black teens. The RAA provides a framework to develop data collection instruments measuring behavior predictors (Fishbein & Ajzen, 2011). Often, researchers measure direct predictors of intention (i.e., attitudes, norms, and perceived control) without including measures of the specific beliefs informing these constructs (i.e., behavioral beliefs, normative beliefs, and control beliefs) (Armitage & Conner, 2001; Robbins & Niederdeppe, 2015).

Fishbein and Ajzen (2011) include a template for identifying beliefs using open-ended questions for small samples of the study population. Elicited responses using this template inform close-ended quantitative survey belief measures (e.g., Robbins & Niederdeppe, 2015; Sangalang et al., 2019). However, elicitation studies may not always be practical and may restrict the diversity of perspectives and survey items generated. YPACR addresses this gap by focusing on relationship-building and sustained dialogue as foundational to understanding the specific beliefs, influencers, barriers, and facilitators relevant to behavior in a given youth community.

Prior YPAR studies have recognized the value of youth voices in developing data collection instruments (Beattie

et al., 2023). Building on existing RAA-informed studies, the current YPACR program involved an iterative and participatory measure development process, capturing beliefs and sources specifically relevant to the youth participants and their peers. Beliefs pertained to peer influence, parent and family approval, knowledge of where to find help, and specific advantages of help-seeking. Information sources included teachers, sports coaches, religious leaders, siblings, and grandparents. These measures align with previously identified predictors of adolescent mental health help-seeking, including stigma, family support, mental health literacy, and trust in adults, but were specifically tailored and worded to resonate with teens in the research community (Aguirre Velasco et al., 2020). More work is needed to compare the validity of measures generated through a participatory process compared to more conventional approaches (see Kikut-Stein et al., 2024).

Recruitment

In general, quantitative studies in health and social sciences seek to include representative samples by recruiting participants through panel services, social media, and online portals. These practices are efficient but susceptible to fraudulent responses (Agans et al., 2024) and often lead to the underrepresentation of groups that have lower access to conventional recruitment channels (E. W. J. Lee & Viswanath, 2020). Others have recognized the importance of implementing alternative recruitment strategies, such as snowball sampling, to reach ethnic minority and economically disadvantaged populations (Knight et al., 2009; Perez et al., 2013). YPACR offers a model for reaching underrepresented youth through peer-driven recruitment approaches. In YPACR programs, youth-created incentives and recruitment messages drew in study respondents who matched participants on demographic characteristics (mostly Black and attending schools in poverty-dense neighborhoods) and roughly matched the demographic breakdown of the minority-majority school district (US News and World Report, 2021). While the current study allocated limited time to recruitment, yielding relatively small sample sizes, future work should explore how youth-engaged recruitment can contribute to the diversity of participants in youth health communication research and ultimately to campaigns that resonate with more diverse audiences.

Data interpretation

Another strength of the YPACR model is its emphasis on youth contributions to data interpretation, extending knowledge beyond quantitative results. Guided by the RAA, the Hornik & Woolf method leverages cross-sectional survey data to inform campaign message themes (Hornik & Woolf, 1999; Yang et al., 2023). The first two criteria for promising beliefs – that the beliefs are not widely held by the study population and associated with behavior – are objective and can be quantitatively assessed. There is a substantial body of literature validating the utility of the first two criteria for campaign planning (Rath et al., 2021; Sangalang et al., 2019; Zhao et al., 2024). However, there is room for subjective assessment among campaign planners on the third criterion, involving the feasibility of addressing beliefs once they are

identified as promising. YPACR provides opportunities for youth involvement in subjective decision-making about which promising beliefs to address with communication.

In the current program, control beliefs, specifically not knowing where to find help, met the first two Hornik and Woolf criteria. The YPACR team decided low help-seeking self-efficacy among teens was both an issue of environment and communication. Youth interns described barriers to help-seeking, including limited access to mental health support and concern about family separation or institutionalization as a result of confiding in an expert. These findings aligned with prior work highlighting the importance of perceived behavioral control in predicting suicide prevention behaviors (Totura et al., 2019) as well as limited opportunities for youth in Black communities to confide in experts without fear of family separation or institutionalization (Lindsey et al., 2013). YPACR program conversations informed future Netter Center programming to address environmental barriers to help-seeking. In addition, teens also decided to address communication needs in the short-term by identifying and sharing information about a useful and trustworthy resource.

While the RAA is intended to improve understanding of individual-level behavior change, YPAR/YPACR is oriented toward addressing inequity at the structural and individual levels (Caraballo et al., 2017). The decision to address control beliefs with both communication and future programming illustrates how YPACR can complement individual-level behavior change models by addressing structural needs. While campaign messages focused on increasing the use of an available resource for youth outside the program (an individual-level behavior), the program itself offered structural support to participants. More work is needed to explore YPACR as an intervention, and to examine the potential benefits for adolescent participants in collecting and discussing data on multi-level drivers of adolescent behavior in the surrounding community.

Message design

Finally, the YPACR model enabled youth to apply research findings to creating messages for their peers. The RAA model and Hornik & Woolf method are instructive in directing campaign planners toward promising beliefs to address. However, these approaches do not provide guidance on how to create effective messages. Prior studies that have engaged youth in campaign planning have outsourced message design to creative agencies to generate more polished content (England et al., 2021; Hicks, 2001). While there are advantages to developing professional messages, we found youth interns were enthusiastic to share their knowledge about popular social media platforms, trends, and ways to strengthen peer control beliefs. Adults learned from these insights and the process yielded authentic youth-generated messages. There were two critical youth-driven elements of message design. First, was the selection of the promoted resource (Philly HopeLine). Second, was the integration of social media trends to convey youth involvement, leveraging teen voices as trusted information sources among peers. The Phase 2 experiment suggested there was a positive effect of youth-created messages over and above the standard helpline information.

These findings align with prior research, which notes the importance of responding to youth values and leveraging peer-to-peer influence in youth communication (Yeager et al., 2018). Past work has shown identification with a message source can increase acceptance of message content (Bearden & Etzel, 1982). In addition, certain message features may serve as cues of peer endorsement, influencing message reception and subsequent behavior (J. W. Kim, 2018). Peer cues and influence are particularly important for adolescents (Yeager et al., 2018). Building on this literature, YPACR offers opportunities for peer involvement in health campaign design to improve the diversity and quality of formative research data and the extent to which messages resonate with youth audiences as trends evolve. Youth participants may help build peer acceptance of research programs, increase peer willingness to participate in surveys and interviews, and design messages using peer cues and channels to reach peer audiences effectively.

Strengths and limitations

The YPACR model offers many potential benefits for health campaign development and youth programs, described above. However, it also presents challenges compared to conventional adult-driven models. Collaborating with youth partners requires researchers to prioritize relationships over research output (Flicker, 2008). The programs described centered the well-being of youth interns and undergraduate mentors. Some factors impeding efficient data collection were necessary guardrails to maximize youth and community benefits. For example, data collection was completed in the period before spring break, relied on convenience sampling, and resulted in relatively small sample sizes. While we do not have data to track response rates, there are over 118,000 students in the school district – of whom we surveyed less than 100 (US News and World Report, 2021). The generalizability of survey and experiment findings should be considered with caution due to the size and biases of samples. The timeline of YPACR programs also did not allow for large-scale campaign dissemination.

However, these limitations should be weighed against the value of the YPACR model in applying research to address immediate and local needs. As noted by Gaysynsky et al. (2022):

> A significant barrier to efficient, timely, and agile health communication practice is that it can take many years for communication research to be conducted and results to be disseminated. Many existing message development and testing processes are not rapid enough to be useful to practitioners ... Methods that enable researchers to quickly obtain data that can directly inform practice in real time are needed to ensure that health communication efforts, especially those enacted in crisis situations, are evidence-based.

The current study leveraged longstanding partnerships between the Netter Center, high schools, and youth programs to develop an evidence-based campaign that would respond to an immediate need in the community during the COVID-19 pandemic. This example highlights the foundational role of such institutional-community

relationships in supporting responsive health communication interventions. While more work is needed to inform knowledge of Black teen mental health communication broadly, we illustrate how data collected through a participatory process, though small in scale, may be directly useful to community practitioners in addressing immediate needs.

Conclusions

This is the first application of YPACR, a model that integrates the principles of YPAR with systematic theory-informed quantitative health communication research to address youth-identified communication needs. YPACR extends current behavior change theories by incorporating youth perspectives and experiences throughout the campaign development process. By actively involving youth in identifying community-level health challenges and developing contextually relevant interventions, YPACR acknowledges the interconnectedness of individual behaviors and social determinants of health (Ozer, 2017). YPACR-informed research emphasizes the importance of youth voices and community action in promoting health behavior change. In engaging youth as active participants in the research and campaign development process, the YPACR model not only facilitates behavior change at the individual level but also can inform broader social and environmental transformations.

In the programs described, YPACR was a robust framework for engaging with youth in health campaign development. The RAA directed the research team toward defining a specific behavioral goal and audience and offered a template for measure development, identification of promising message themes, and message testing (Fishbein & Ajzen, 2011). Guided by the RAA framework, youth interns selected the campaign goal, contributed tailored measures operationalizing theoretical constructs, led study recruitment efforts, offered insight on how to strengthen promising beliefs, and designed messages that positively impacted their peers. Ultimately, the principles of YPAR and systematic communication research worked in synergy to promote positive outcomes for participants and their broader peer communities. Moving forward, more work is needed to refine and scale up the YPACR model to maximize impact on youth health and well-being.

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