Title

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Journal

Early Intervention in Psychiatry: the development, onset and treatment of emerging mental disorders, 16(4)

Authors

Andorko, Nicole
Fitzgerald, John
Roemer, Caroline
et al.

Publication Date

2022-04-01

DOI

10.1111/eip.13178

Peer reviewed

HHS Public Access

Author manuscript

Early Interv Psychiatry. Author manuscript; available in PMC 2022 April 06.

Published in final edited form as:

Early Interv Psychiatry. 2022 April ; 16(4): 393–401. doi:10.1111/eip.13178.

Social work training to reduce duration of untreated psychosis: Methodology and considerations of a web-based training for community providers

Nicole D. Andorko[1], **John Fitzgerald**[1,2], **Caroline Roemer**[1], **Eric Solender**[1], **Emily Petti**[1], **Pamela Rakhshan Rouhakhtar**[1], **Karen E. McNamara**[3], **Melissa E. Smith**[4], **Robert W. Buchanan**[2], **Jason Schiffman**[1,5], **Jordan DeVylder**[5,6]

[1]Department of Psychology, University of Maryland, Baltimore County, Baltimore, Maryland

[2]Maryland Psychiatric Research Center, Department of Psychiatry, University of Maryland School of Medicine, Baltimore, Maryland

[3]The Systems Evaluation Center, University of Maryland School of Medicine, Baltimore, Maryland

[4]University of Maryland School of Social Work, Baltimore, Maryland

[5]Department of Psychological Science, University of California, Irvine, California

[6]Graduate School of Social Service, Fordham University, New York, New York

Abstract

Aim: Outcomes for individuals with psychotic disorders can be improved through early intervention services; however, identification continues to be a major problem in connecting individuals with these services. Social workers form a vast majority of the human service and mental health workforce in the United States and therefore have the potential to play a unique role in identifying and referring those who may benefit from specialty early intervention services.

Methods: The current article describes the methodological design, implementation, and participant recruitment procedures of a large-scale, web-based training program for social workers promoting identification and referral of individuals with emerging symptoms of a mental illness with psychosis in the context of a randomized clinical trial.

Results: The web-based study enrolled 1384 individuals. More than half of study participants enrolled within the first 3 months of the 14-month recruitment period. Completion of all study components was achieved by 959 individuals (69% of total enrolled), and completion status did not vary significantly by gender, ethnicity, or facility at which the individual was employed. Completion rates varied by race, such that participants identifying as White were more likely to complete the study, while those identifying as Black were less likely.

Correspondence: Jason Schiffman, Department of Psychology, University of Maryland, Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250, USA. schiffma@umbc.edu.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

Discussion: The results suggest the feasibility of using a web-based training program to engage social workers in early psychosis identification practices. Challenges related to encouraging participants to complete the training and lessons learned during the study recruitment are discussed.

Keywords

duration of untreated psychosis; early identification; early psychosis; mental health screening

1 | INTRODUCTION

Mental illness with psychosis can lead to chronic impairment and burden throughout life. Initial symptom onset is often associated with distress that may impact an individual's ability to maintain previous levels of functioning (Andrade et al., 2016; Griffiths et al., 2019). Substantial evidence over the past several decades has demonstrated that clinical and functional outcomes for individuals with psychotic disorders can greatly improve through early intervention. Efforts to identify and treat individuals with first-episode psychosis (FEP) and those at clinical high-risk for psychosis have shown that specialized and comprehensive services initiated during or prior to a first-episode can minimize symptoms, as well as improve functioning and treatment engagement, and delay initial onset and subsequent relapse (Álvarez-Jiménez et al., 2009; Csillag et al., 2016; Dixon et al., 2015; Fusar-Poli et al., 2012; Gleeson et al., 2011; Malla et al., 2006; Okuzawa et al., 2014; Penn et al., 2005; Thompson et al., 2015), with some positive effects lasting upwards of 10 years (Correll et al., 2018; Malla et al., 2018; Oliver et al., 2018; ten Velden Hegelstad et al., 2013).

Challenges remain in connecting individuals with a mental illness with psychosis to proper services, especially in the United States (Bertolote & McGorry, 2005; Csillag et al., 2016; Perkins et al., 2005). Successful approaches to reducing duration of untreated psychosis (DUP) have focused on building knowledge of the early manifestations of the illness among community service providers (i.e., suppliers of mental health services) and the general population (i.e., those in demand of services) (Joa et al., 2007). Efforts may be more effective if targeted towards these community settings (Marshall et al., 2005; Rietdijk et al., 2011). In a systematic review, Lloyd-Evans et al. (2011) suggests that "initiatives directed primarily at non-health community professionals," rather than medical professionals, may yield better results (Lloyd-Evans et al., 2011).

Social workers (SWs) form the vast majority of the human services and mental health workforce in the United States and have the distinction of being present in essentially every major community setting that serves adolescents and early adult populations (e.g., public schools; child and family services; homelessness services; health and behavioural health agencies; juvenile justice settings), a particularly important age range for the development of psychosis. SWs are skilled in facilitating successful referrals, making them an optimal workforce to identify early warning signs of psychosis and provide specialty referrals. It has been convincingly argued that an idiosyncratic strength of social work in an early intervention model may lie in the profession's capacity to integrate prevention and early intervention into its existing networks of community services (Hawkins et al., 2015). SWs

are thus uniquely positioned to detect a need for mental health services in naturalistic settings and to connect that demand with available resources, including early intervention services for FEP. To date, however, no group has specifically engaged SWs in the context of research as a means of reducing DUP.

The current paper seeks to describe the feasibility and methodological design of a large-scale, web-based training of SWs on the identification and referral of individuals with emerging symptomatology of psychosis. In a partnership between the Maryland Early Intervention Program (EIP; a network of specialty clinics for early mental illnesses with psychosis), the University of Maryland School of Social Work (UMSSW), and the University of Maryland Baltimore County (UMBC), investigators conducted a randomized controlled trial introducing an innovative online training program that emphasized the implementation of screening to a large network of over 1300 clinical SWs. The program was designed to increase awareness of early symptoms and signs of a mental illness with psychosis among SWs, thereby facilitating rapid access to specialty care, and reducing the extended DUP that is characteristic of current treatment as usual. Specific purposes of this paper are to (1) describe the methodology of the web-based training for SWs to detect and screen for early psychosis, (2) evaluate its feasibility, and (3) examine the characteristics of participants who completed the program.

2 | METHODS

2.1 | Participants

The recruitment pool was composed of licensed SWs practicing in Maryland and registered with the University of Maryland School of Social Work Office of Continuing Professional Education (UMSSW CPE; a network of more than 4500, collectively representing ~50% of the workforce of clinical SWs in Maryland). The study actively enrolled, $N = 1384$ participants from May, 2018 through July, 2019, exceeding the initial recruitment goal ($N = 1200$). Inclusion criteria included (1) being a practicing SW in Maryland or immediate surrounding area, (2) having access to a computer with internet, and (3) working with adolescents or young adults (clients between the ages of 12–30 years). After completing an online consent form, participants were randomly selected to an experimental (trained specifically to identify, screen, and refer young adults with emerging psychosis symptoms; $n = 696$) or control (trained on general mental health screening and levels of care; $n = 688$) condition. Participants were given the option to opt-out of the study at any time. When this selection was made ($n = 13$), all study data pertaining to that individual was completely removed from the dataset.

2.2 | Tools and measures

2.2.1 | Study website—Participants completed all aspects of the study through a website hosted on Amazon Web Services. The website programming was written in GoLang and with the Angular library in typescript. All data was securely stored in MySQL. Participants created individual logins and passwords allowing them to access trainings and return over multiple visits. The website was programmed to automatically randomize participants into one of the two experimental groups, and subsequently administered

condition-specific trainings. Trainings were delivered in the format of videos (described in detail below). Participants were required to watch each video in real-time, with fast-forwarding disabled. Transcripts for each presentation were available for download. An opt-out button was available at all times to allow participants to withdraw from the study. This website was not formatted for use on mobile phones; thus, computer access was needed to complete the study.

2.2.2 | Training videos—Five different training presentations, each roughly 30 min in length, were created by the study team. All participants, regardless of experimental condition, viewed the same first training video, while the experimental group viewed Training Videos 2 and 3, and the control group viewed Training Videos 4 and 5. Experimental group trainings focused on the identification of individuals with signs of emerging psychosis and referring to the Maryland EIP. Training for the control group mimicked the general themes of the experimental condition without a consistent focus on psychosis, and instead covered general mental health screening and levels and types of mental health care within Maryland. All trainings were in the format of a filmed presentation and were not interactive. Video presenters were the same across conditions (Jason Schiffman, PhD from UMBC, and Melissa Smith, PhD from the UMSSW). Figure S1 includes a still image example of one training presentation. Specific information included within each presentation is in Table 1.

2.2.3 | Demographic questionnaire—Participants completed nine self-report items regarding demographic and work-related items. Questions gathered information on gender, age, race, ethnicity, type of work setting, number of years of experience post-master's degree, geographical location of practice, and experience of working with youth with psychosis.

2.2.4 | Research questionnaires—The research questionnaires presented at the end of each segment included: Knowledge About Schizophrenia Questionnaire (Ascher-Svanum, 1999), California Brief Multicultural Competence Scale (Gamst et al., 2008), Screening Rationale Questionnaire (created by study team), Vignette Questionnaire (Armstrong et al., 2011; Jacobs et al., 2011), Assessment of Maryland Early Intervention Knowledge Scale (created by study team), and Provider Behavioural Expectation Scale (Golembo-Smith et al., 2011). Of note, detailed descriptions of each questionnaire will be provided in subsequent manuscripts focused on questionnaire responses.

2.2.5 | The Prime Screen—All individuals within the experimental condition were trained to administer the Prime Screen (Miller et al., 2004), a 12-item psychosis-risk screening tool that can be completed as a self-report or administered by a clinician. The Prime Screen takes only a few minutes to complete and is easy to administer and score. A positive score on the Prime Screen has been shown to be a strong indicator of development of future psychosis (Addington et al., 2015; Kline et al., 2012; Kline & Schiffman, 2014).

2.2.6 | Child and Adolescent Level of Care Utilization System—All individuals in the control condition were trained to administer the Child and Adolescent Level of Care Utilization System (CALOCUS) (Klaehn et al., 2002). The measure assists in level of

care determination for youth by quantifying the clinical severity and service needs of the individual. The CALOCUS, an applicable screening tool for practicing SWs, was selected as the training measure for the control condition as it nicely mirrored the Prime Screen's ability to assess relevant mental health symptoms and provide metrics useful for referral.

2.3 | Procedure

The study was completed entirely online. Recruitment emails were sent biweekly describing the study and providing a link to access the study website.

Once at the study website, individuals were first asked to complete eligibility questions. If eligible, participants completed demographic questions and were automatically randomized into their study group (see Figure 1a for Consort Diagram, and Figure 1b for a more detailed study protocol outline). All participants then completed three separate training segments. Each segment contained a training video, brief quiz on training material, and roughly 5 min of research questionnaires. After all training presentations, quizzes, and questionnaires were completed, participants received a $30 Amazon gift card and 1.5 continuing education units (CEUs). CEUs were administered and certified by the UMSSW CPE.

Following successful study completion, participants entered a post-study email listserv through which they received periodic emails containing general "tips" for mental health providers (See Table S1, e.g., of select tips), and information on how to refer to the Maryland EIP. Those who were part of the experimental group were also sent a PDF of the Prime screen within each email. The first two follow-up emails following completion were sent bi-weekly, and all subsequent emails were sent on a monthly basis.

2.3.1 | Encouraging study completion—

Given the online nature of the study, participants were able to enroll and leave the site without completing all study elements. Measures taken to encourage study completion following enrollment included: (1) a weekly email reminder to encourage all participants who enrolled, but had not yet completed, to either complete or withdraw from the study (financial compensation was provided for all who either completed or officially withdrew, but only those who completed received CEUs); (2) altering the language and aesthetic of the email subject and body every month to keep readers engaged, and sending additional emails during the final phases of the study highlighting deadlines for completion; and (3) entering all completed participants into a monthly raffle to receive an additional $90 Amazon gift card (only those who successfully completed the study were entered into the raffle).

2.4 | Data analyses

Basic descriptive and frequency analyses were completed to examine overall participation status and participant characteristics. Chi-square analyses were used to compare completion rates by experimental groups, as well as to compare all participant characteristics by completion status. When a chi-square was significant, adjusted residuals were examined as a post-hoc method to further determine if a specific group was more or less likely to complete the study. Using this post-hoc method, adjusted residuals are considered z-scores, and thus those that were larger than 1.96 were considered statistically significant. The data

that support the findings of this study are available from the corresponding author upon request.

3 | RESULTS

3.1 | Characteristics of participants who completed the web-based training program

Participant characteristics of the overall sample and split by completion status are presented in Table 2. The sample self-identified as predominately female (85.5%) in gender, non-Hispanic (84.1%) in ethnicity, and White (65.3%) with regards to race. Chi-square analyses indicated no significant difference in completion status by gender (χ^2 [2] = 3.10 p = 0.213, φ = .05), ethnicity (χ^2 [1] = 0.06 p = 0.894, φ = 0.01), or type of facility (χ^2 [4] = 3.84 p = 0.430, φ = 0.05). Race was significantly associated with completion status (χ^2 [4] = 28.75 p < 0.001, φ = 0.15), with post-hoc analyses indicating adjusted residual z-scores above 1.96 for individuals who identified as White (z-score = −4.0) and Black (z-score = 4.8), such that participants identifying as White were more likely to complete the study, while those identifying as Black were less likely. Adjusted residual z-scores were less than 1.96 for all other racial groups.

3.2 | Feasibility of the online training for SWs to detect and screen for early psychosis

In total, 1384 individuals enrolled in the study, with 959 (69% of total) completing the training, capturing 30% of the available participant recruitment pool (4567 individuals). Of the 425 enrolled participants who did not complete the study, over 20% discontinued following consent or demographic questionnaires. See Table 3 for a breakdown of participant completion status by experimental group, and Table S2 for a more complete overview of participant characteristics by both completion and experimental group status. Chi-square analyses indicated no significant difference in completion status by experimental group (χ^2 [1] = 2.32 p = 0.127, φ = 0.04).

The study ran from May 2018, to July 2019. Figure 2 provides a detailed overview of enrolment timeline. Over half (59%) of the participants enrolled in the study within the first 3 months of recruitment. Participants took on average 46.8 days (SD = 81.9) from the date of enrollment to complete all three trainings (ranging from 0 to 455 days), with ~18% (n = 168) of participants completing the same day as enrollment and 44% (n = 424) completing within 1 week.

4 | DISCUSSION

Training individuals who regularly engage with youth and young adults to identify and screen for emerging symptoms of a mental illness with psychosis may help reduce DUP by connecting those in need with proper services (Joa et al., 2008). Although it is unclear how many youth actually come into contact with SWs, they nonetheless are an important link in this endeavour, as they are present in almost every major community setting that serves adolescents and young adults. Using a novel web-based training format, the Maryland EIP, in collaboration with the UMSSW and UMBC, conducted a large-scale training of clinical SWs focused on identification and screening of emerging psychosis, as well as detailed information on the services available through the Maryland EIP and how to facilitate a

referral. Few studies to date have examined the use of web-based training to assist mental health providers in identifying and referring select client populations (Kobak et al., 2011; Stoner et al., 2014). This is the first such training focused on emerging symptomatology of a mental illness with psychosis, as well as the first to target SWs specifically with respect to recruitment.

Recruitment from the UMSSW CPE network (4500+ people) resulted in successful enrollment of over 1300 licensed clinical SWs within 16-months, rapidly providing training on the identification of early psychosis to a substantial portion of mental health providers across the state. Initial recruitment goals of $n = 1200$ were surpassed within the first 10-months of recruitment; over 50% of this total enrolled within the first month ($n = 613$), indicating both an interest in information on emerging mental illnesses with psychosis and confirming web-based training as a feasible approach for reaching and engaging mental health providers. The demographic profile of participants, predominately self-identified as White and female is consistent with the overall national profile of SWs (Salsberg et al., 2017). Despite the fact that the UMSSW CPE network contains ~50% of the clinical SW workforce in Maryland, the specific demographic profile of participants relative to the larger population of SWs was unfortunately not tracked. It is therefore unclear if the study enrollees are representative of the larger population of SWs in the region. This is a limitation of this study, and one that should be noted for future studies attempting similar protocols.

Approximately 70% of those enrolled in the online training completed all training segments, a percentage similar to a global, large-scale ($N = 120\ 000+$), web-based intervention training for human services providers (Heck et al., 2015). Throughout the course of study recruitment, unique challenges were identified regarding incentivizing participants to enroll in the web-based study, and more to complete all trainings and related materials. Various methods were employed to enhance study completion, including sending regular email reminders, providing both financial compensation and CEUs to those who completed, and conducting a monthly raffle in which all participants who completed were eligible to receive additional financial compensation beyond that which was received for study participation. Final numbers, nonetheless, indicate 31% of enrolled participants did not complete the training. It is unclear what may have led some participants to not complete the training in full and it is a limitation of the current study that this information was not collected. Of note, however, we are commencing a two-pronged follow-up study qualitatively asking participants, among other benefits and shortcomings of the study, why they did or did not complete the training.

Demographic profiles were similar based on completion status, with the exception of race, such that participants who identified as White were more likely to complete the study, and those who identified as Black were less likely to complete after they had enrolled. Given the dearth of information on similar web-based training, it is largely unclear what may be driving this discrepancy. Among other possibilities, factors may be related to system-level racial disparities in caseload, type of work-setting, or job-satisfaction (Negi, 2009), which can also be related to more limited time or access during work hours to complete the training. Further, evidence suggests a persistence of a “digital divide” in regards to psychological factors related to internet and computer usage, rather than access

alone (Dupagne & Salwen, 2005; Fairlie, 2017; Sun & Metros, 2011). This particular disparity provides an important lesson learned regarding implementation of fully web-based studies, and thought should be given a priori to the role of technology across racial groups. Although the solution to disparities around technology is inherently systemic and goes beyond trainings such as ours, the use of a web-based platform that also translates to smart-phones/tablets may be one method to improve this limitation, as racial disparities in smart-phone attitude and use are relatively small in comparison to computers (Fairlie, 2017). Providing a separate option for completing similar trainings in-person rather than online may be another format that is more accessible and comfortable for some participants. In addition, it has been long-understood that within longitudinal or multi-step studies, ethnic/racial minority populations are less responsive to typically used recruitment and retention strategies (Rivas-Drake et al., 2016). Recommendations from experts who have studied these outcomes highlight the importance of building trust within the community and recognizing and openly identifying the issues of power present in such trainings (Rivas-Drake et al., 2016). In the future, to improve this limitation, more direct and open acknowledgement of these situations, as well as the potential complexity of completing the study in the provided format could help to improve trust and thus potentially retention rates.

5 | CONCLUSIONS

We described the feasibility of training a large sample of SWs to identify, screen, and refer individuals with emerging psychosis symptomatology using a web-based training platform. Recruitment exceeded initial goals, resulting in a final enrollment sample of over 1300 SWs within the state of Maryland. Completion rates of 69% were on par with trainings of comparable content and sample eligibility (i.e., mental health providers). Web-based methods appear to be a feasible and successful way to engage a large sample of clinical SWs. Although SWs were the target of this study, the training is not specifically tailored to this discipline, thus making it conceivably generalizable to other advanced degree mental health clinicians. Furthermore, given that successful early intervention and prevention efforts likely benefit from a multi-pronged and inclusive strategy to outreach and engagement that extends beyond professionals, aspects of this training and its approach may be beneficial to anyone who might interact with youth at risk for psychosis. Future studies could consider a range of stakeholders when designing and testing similar trainings.

A link to free access to the training can be found here: https://is.gd/MEIPPsychosisScreening

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

ACKNOWLEDGEMENTS

Thank you to Tom Mitchell from the University of Maryland School of Social Work for his work to film, edit, and finalize all videos used in the trainings.

Funding information

National Institute of Mental Health, Grant/Award Number: PAR-18-232

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon request.

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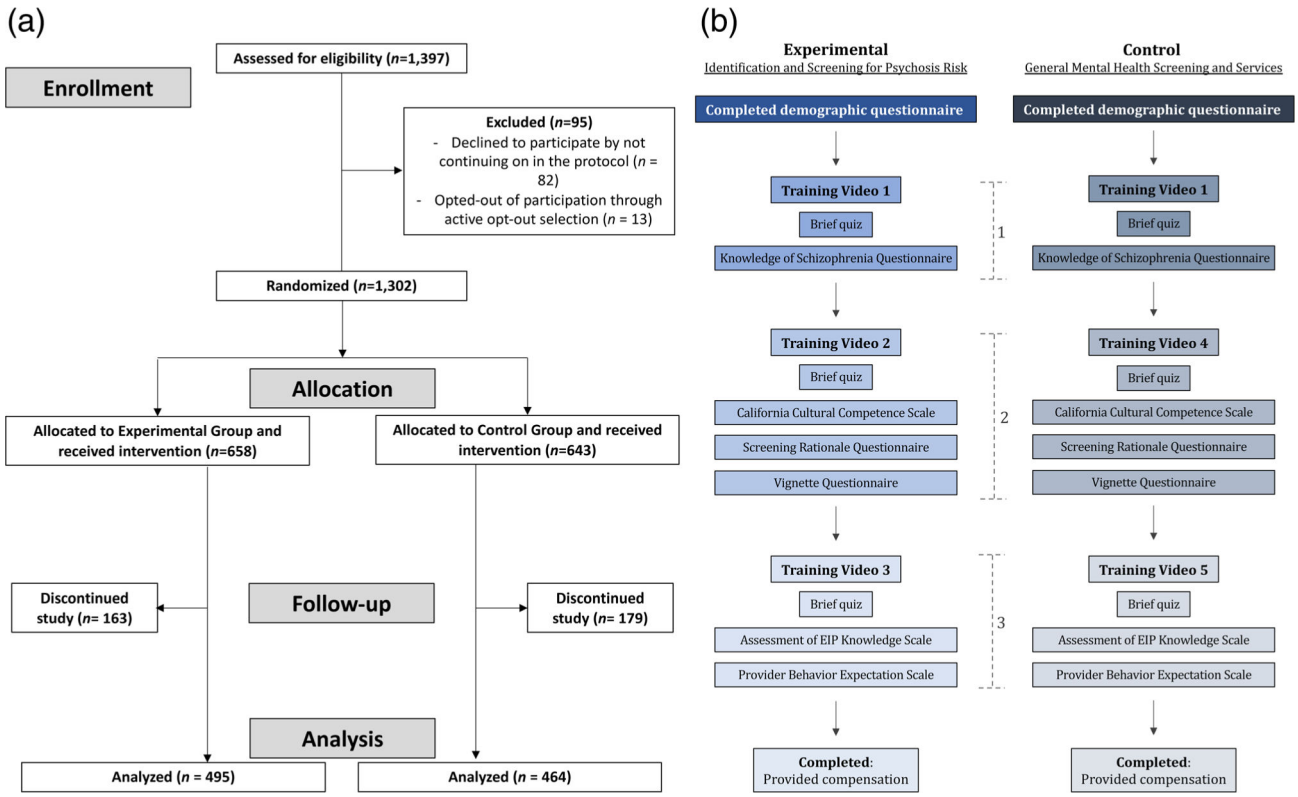

FIGURE 1.

(a) Randomized control trial consort diagram of participant flow. (b) Flowchart of study procedures for both the experimental and control groups

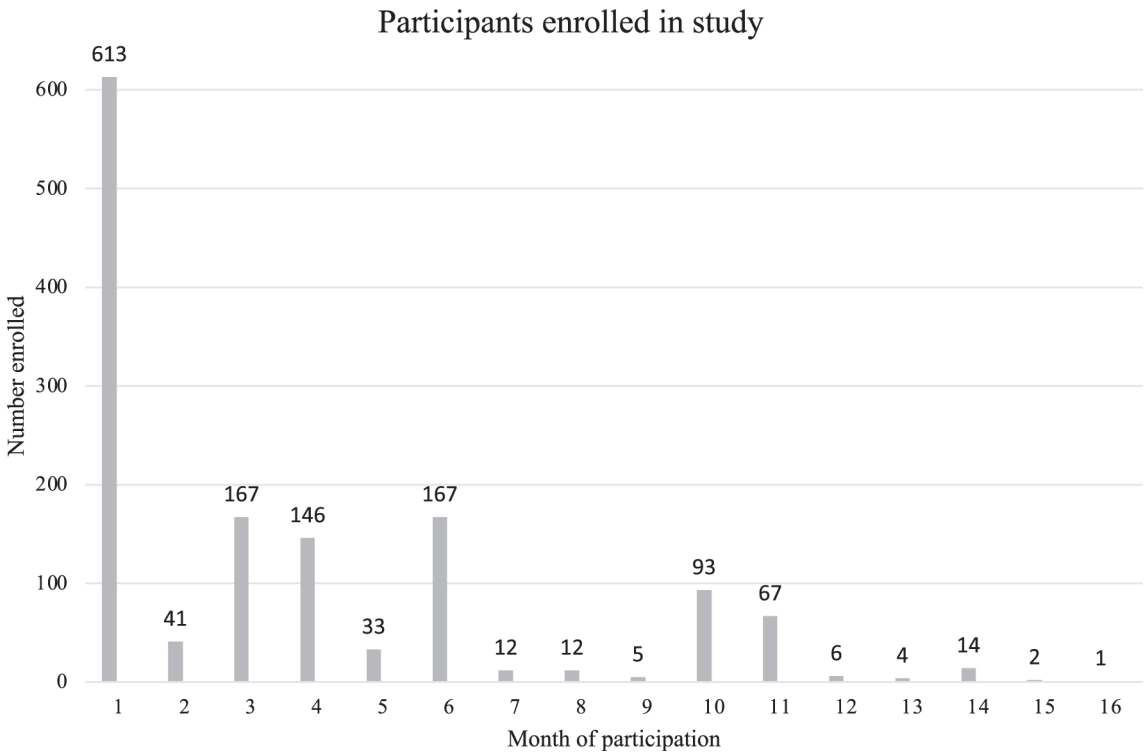

FIGURE 2.
Chart depicting number of participants enrolled each month

TABLE 1

Training video content descriptions

Condition	Training	Title	Content
Experimental and control	1	Early warning signs for schizophrenia: Symptoms	• Broad information on symptoms and presentation of schizophrenia • Myths about schizophrenia • Stigma and serious mental illness • Benefit of early intervention • Referring a client to Maryland EIP
Experimental	2	Early warning signs for schizophrenia: Recognizing the signs	• Additional benefits of early intervention for schizophrenia • Early presentations of schizophrenia • Value of schizophrenia assessment • Consideration of socio-cultural factors • Referring a client to Maryland EIP
	3	Early warning signs for schizophrenia: Screening and referrals	• General screening for schizophrenia • Using the Prime Screen (Miller et al., 2004) • Referring a client to Maryland EIP
Control	4	Mental health screening	• Importance of screening in mental health • Provider use of mental health screening • Descriptions of common mental health screeners
	5	Health services in Maryland	• Mental health resources in the state of Maryland • Levels of mental health care and their clinical presentations • Using the CALOCUS screening tool (Klaehn et al., 2002)

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TABLE 2

Study characteristics by completion status

	Total *N* = 1383	**Completed *N* = 959 (69.4%)**	**Not completed *N* = 424 (30.6%)**
Sex	***n* (% of total)**	***n* (% of category)**	***n* (% of category)**
Female	1183 (86%)	868 (91%)	315 (74%)
Male	110 (8%)	83 (9%)	27 (6%)
Other	8 (1%)	8 (1%)	0
Missing	82 (6%)	0	82 (19%)
Race[a]	*n* (% of total)	*n* (% of category)	*n* (% of category)
Asian	23 (2%)	21 (2%)	2 (1%)
Black	280 (20%)	175 (18%)	105 (25%)
Native American	6 (<1%)	5 (1%)	1 (<1%)
Pacific Islander	2 (<1%)	2 (<1%)	0
White	883 (64%)	680 (71%)	203 (48%)
Biracial	23 (2%)	18 (2%)	5 (1%)
Prefer not to answer	84 (6%)	58 (6%)	26 (6%)
Missing	82 (6%)	0	82 (19%)
Ethnicity	*n* (% of total)	*n* (% of category)	*n* (% of category)
Hispanic	78 (6%)	57 (6%)	21 (5%)
Non-Hispanic	1163 (84%)	864 (90%)	299 (71%)
Missing	142 (10%)	38 (4%)	104 (25%)
Facility	*n* (% of total)	*n* (% of category)	*n* (% of category)
Nonprofit	447 (32%)	332 (35%)	115 (27%)
Private practice	182 (13%)	124 (13%)	58 (14%)
Child welfare	141 (10%)	103 (11%)	38 (9%)
CPS	57 (4%)	42 (4%)	15 (4%)
Other	474 (34%)	358 (37%)	116 (27%)
Missing	82 (6%)	0	82 (19%)

Note: Chi-square analyses were used to compare participant characteristics by completion status.

[a]Chi-squared analyses indicated significant difference in completion status based on race $\chi^2 = 28.75$ (4), $p < 0.001$, $\varphi = 0.15$. All other comparisons were not significant ($p > 0.05$).

TABLE 3

Study completion status by experimental group

	Total *N* = 1384	**Experimental *N* = 696 (50.3%)**	**Control *N* = 688 (49.7%)**
Completed study	***n* (%)**	***n* (%)**	***n* (%)**
Yes	959 (69%)	495 (71%)	464 (67%)
No	425 (31%)	201 (29%)	224 (33%)
Phase of study for non-completers	*n* = 425	*n* = 201	*n* = 224
Consent	82 (6%)	37 (5%)	45 (7%)
Demographic questionnaire	205 (15%)	96 (14%)	109 (16%)
Training one	57 (4%)	27 (4%)	30 (4%)
Training two	57 (4%)	32 (5%)	25 (4%)
Training three	24 (2%)	9 (1%)	15 (2%)

Note: Chi-square analyses were used to compare completion status by experimental group. Groups were not significantly different (χ^2 (1) = 2.32; p = 0.127, φ = 0.04).