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A pilot replication of QUIT, a randomized controlled trial of a brief intervention for reducing risky drug use, among Latino primary care patients

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Abstract

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Trial Registration

http://www.clinicaltrials.gov

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Contributors

Lillian Gelberg: Drafting of the manuscript, critical revision of the manuscript for important intellectual content, obtained funding, study concept and design. **Ronald M. Andersen**: Drafting of the manuscript, critical revision of the manuscript for important intellectual content, obtained funding, study concept and design. **Melvin W. Rico**: Acquisition of data, study supervision, critical revision of the manuscript for important intellectual content. **Guillermina Natera Rey**: Acquisition of data, study supervision, critical revision of the manuscript for important intellectual content. **Mani Vahidi**: Acquisition of data, study supervision, critical revision of the manuscript. **Steve Shoptaw**: Critical revision of the manuscript for important intellectual content. **Barbara D. Leake**: Statistical analysis, critical revision of the manuscript for important intellectual content. **Martin Serota**: Critical revision of the manuscript for important intellectual content. **Sebastian E. Baumeister**: Statistical analysis, critical revision of the manuscript for important intellectual content. **Kyle Singleton**: Critical revision of the manuscript for important intellectual content.
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Conflict of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

Background—QUIT is the only primary care-based brief intervention that has previously shown efficacy for reducing risky drug use in the US (Gelberg et al., 2015). This pilot study replicated the QUIT protocol in one of the five original QUIT clinics primarily serving Latinos.

Design—Single-blind, two-arm, randomized controlled trial of patients enrolled from March–October 2013 with 3-month follow-up.

Setting—Primary care waiting room of a federally qualified health center (FQHC) in East Los Angeles.

Participants—Adult patients with risky drug use (4–26 on the computerized WHO ASSIST): 65 patients (32 intervention, 33 control); 51 (78%) completed follow-up; mean age 30.8 years; 59% male; 94% Latino.

Interventions and measures—Intervention patients received: 1) brief (typically 3–4 minutes) clinician advice to quit/reduce their risky drug use, 2) video doctor message reinforcing the clinician's advice, 3) health education booklet, and 4) up to two 20–30 minute follow-up telephone drug use reduction coaching sessions. Control patients received usual care and cancer screening information. Primary outcome was reduction in number of days of drug use in past 30 days of the highest scoring drug (HSD) on the baseline ASSIST, from baseline to 3-month follow-up.

Results—Intervention patients reduced past month HSD use by 4.5 more days than controls ($p<.042$, 95% CI: 0.2, 8.7) by 3-month follow-up in intent-to-treat linear regression analysis. Similar significant results were found using a complete sample regression analysis: 5.2 days ($p<.03$, 95% CI: 0.5, 9.9). Additionally, on logistic regression analysis of test results from 47 urine samples at follow-up, intervention patients were less likely than controls to test HSD positive ($p < .05$; OR: 0.10, 95% CI: 0.01, 0.99).

Conclusions—Findings support the efficacy of QUIT for reducing risky drug use.

Keywords

brief intervention; primary care; motivational interviewing; risky drug use; randomized controlled trial; community health centers

1. Introduction

The Mental Health Parity and Addiction Equity Act (MHPAEA) (Beronio et al., 2013) and the US Affordable Care Act (ACA) (Buck, 2011; Pating et al., 2012) ask primary care clinicians to integrate behavioral health, including drug use reduction, into routine care. Use of illicit drugs and non-medical use of prescription medications have significant impacts on public health (De Alba et al., 2004; Degenhardt and Hall, 2012; Dickey et al., 2004; Dickey et al., 2002; Grant et al., 2004; Jane-Llopis and Matytsina, 2006; Mack, 2013; McGeary and French, 2000; Mertens et al., 2003; Stein, 1999; U.S. Department of Health and Human Services (HHS) Office of the Surgeon General, 2016; Weisner et al., 2001) and healthcare costs (Barbosa et al., 2016; McAdam-Marx et al., 2010; Parthasarathy et al., 2001; Thomas et al., 2005; Zarkin et al., 2015). The National Prevention Council (National Prevention Council, 2011) and the Office of National Drug Control Policy (Hingson and Compton, 2014; Office of National Drug Control Policy, 2014) have recommended implementation of

brief interventions in primary care settings to address illicit drug use and prevent the development of substance use disorders. Integrating effective BI protocols into primary care could have major public health impact for the 20 million risky drug users in the U.S. (The National Center on Addiction and Substance Use at Columbia University (CASA Columbia), 2012; U.S. Department of Health and Human Services (HHS) and Office of the Surgeon General, 2016). Some randomized controlled trials testing the efficacy of brief intervention for reducing risky drug use in primary care settings in the US have yielded negative results. (Hingson and Compton, 2014; Roy-Byrne et al., 2014; Saitz et al., 2014) However, some observational studies, (Bashir et al., 1994; Cormack et al., 1994) and clinical trials abroad have shown promise (Humeniuk et al., 2012) as have randomized trials in nonprimary care settings in the US (Bernstein et al., 2005; Blow et al., 2017; Mitchell et al., 2012).

The Quit Using Drugs Intervention Trial (QUIT) is the only primary care-based brief intervention protocol that has shown efficacy for reducing risky drug use among adults in the US (Gelberg et al., 2015; Padwa et al., 2014). The 9th US-Mexico Binational Conference on Drug Demand Reduction held in 2011 recommended a pilot comparative randomized controlled trial of the efficacy of screening for drug use and brief intervention for drug users in community health centers in the US-Mexico border regions (Office of National Drug Control Policy, 2011), and funded a randomized controlled trial, the “US-Mexico Binational QUIT Study.” Here we report on a pilot replication of QUIT in the US, in one of the original QUIT study sites at a later time period (1 year later), testing the efficacy of the brief intervention protocol in reducing risky drug use in mostly Latino patients (the now “majority minority” in Los Angeles) (U.S. Census Bureau, 2012, 2015).

2. Methods

2.1 Setting

The selected federally qualified health center (FQHC) clinic was the largest in East Los Angeles that focused on healthcare for Latino patients. Inclusion criteria for clinicians were: (1) staff providers (physicians, nurse practitioners, and physician assistants) trained in primary care; and (2) agreed to follow the intervention protocol and participate in a clinician group intervention training session averaging 15 minutes and a 1–2 minute one-on-one reminder session before conducting the first intervention.

2.2 Enrollment in the trial

Research assistants conducted enrollment by approaching all adult patients in the waiting room before their clinician appointment in March through October, 2013. Patients self-administered all questionnaires on “talking touch-screen” tablet computers (Gelberg et al., 2015; Hahn et al., 2004; Hahn et al., 2011; Karlsson and Bendtsen, 2005; Singleton et al., 2011). The CONSORT diagram for enrollment is shown in Figure 1.

2.3 Inclusion And Exclusion Criteria

Inclusion criteria for patients included: (1) risky drug use in the prior 3 months (ASSIST score 4–26); (2) drug used in the past 30 days; (3) 18 or older; (4) spoke English or Spanish;

(5) had a primary care appointment; (6) anticipated living in the Los Angeles County area for the next 3 months (so they would be present for the 3 month outcome assessment); and (7) had an active phone number. Exclusion criteria included: (1) previously screened for this study, (2) under substance use treatment in the past 3 months, (3) scored as high users of drugs or alcohol on the ASSIST (27+), or (4) were pregnant.

Overall, 1,783 patients were approached to determine their eligibility for the ASSIST. Of those, 201 were not eligible. The most common reasons for ineligibility were that the patient was under 18 (106) or had already seen the doctor (47). In addition, 203/1582 (13%) patients eligible for the ASSIST did not complete the ASSIST because they were called in for their medical appointment before they could finish the ASSIST (156) or they declined to complete the ASSIST (47), leaving 1379 who completed the ASSIST (Figure 1).

The ASSIST screening instrument (Humeniuk et al., 2012; Humeniuk et al., 2008; McNeely et al., 2014; WHO ASSIST Working Group, 2002) was self-administered anonymously in English or Spanish, and identified risky drug use patients as “at moderate risk of health and other problems because of their drug use” (Humeniuk et al., 2012; Humeniuk et al., 2008). Patients' use of each drug category was coded as: no or low use (score 0–3); risky (moderate) use indicating clinician brief advice (score 4–26); or high use (score 27 and above). If a patient scored in the risky range for a stimulant (methamphetamine, amphetamines, cocaine), clinicians focused on that stimulant even if it was not the HSD, since our conversations with experts in addiction suggested that stimulants were the most common drugs other than marijuana used illicitly by the patient population. Time to complete the ASSIST screener averaged 4.5 minutes (SD: 5.4, median: 2 minutes); 74% of patients needed less than 6 minutes to complete it. Dropout rates in the intervention and control groups were 28% and 15%, respectively (p=.203).

Of the patients completing the ASSIST, 1,274 screened patients were not eligible for the trial -- mostly because the ASSIST found them not to be risky drug users (ASSIST 0–3). An additional 40 patients who completed the ASSIST and were eligible for the trial were excluded because they failed to complete the enrollment process. That left 65 current risky drug users who were enrolled and randomized into the trial.

2.4 Incentives And Consent

Patients were paid $30 for the initial assessment (average 42 minutes) and $50 for the follow-up assessment (average 50 minutes); those completing all study activities were eligible for a $500 lottery.

Informed consent was obtained -- orally for screening and in writing if they qualified for enrollment. The consent, screening, baseline, and follow-up surveys included questions regarding eight chronic conditions, exercise, diet, and tobacco and alcohol use history in part to mask the purpose of the study, naming it the “Living Well Study.” The research protocol was approved by UCLA’s Institutional Review Board.

2.5 Randomization

Study eligible consenting patients were assigned equally to the intervention (n=32) or control group (n=33) by a computerized (Singleton et al., 2011) adaptive urn randomization program that blocked on ASSIST scores of 4–16 versus 17–26 (Stout et al., 1994).

2.6 Study Groups

At baseline, intervention patients received a face-to-face brief intervention during their clinician visit. Clinicians followed a paper scripted protocol "Summary to Clinician" provided by research staff based on the patients' HSD; the majority of clinicians reported on our post-visit "Intervention Plan" that their intervention lasted 3–4 minutes and all clinicians reported that they had counseled the patient on their HSD. The message covered drug addiction as a chronic brain disease (McLellan et al., 2000), the need to quit or reduce using drugs to prevent this disease, the physical and mental consequences of drug use, and the potential accelerated progression towards addiction caused by poly-substance use. Clinicians also told patients that they would receive telephone calls 2 and 6 weeks later from a health educator. Patients subsequently received a Drug Health Education Booklet with a Report Card for their HSD, and viewed a video doctor (2 minutes) reinforcing the clinician message (Gerbert et al., 2003; Gerbert et al., 2006; Gilbert et al., 2008). Patients were enrolled on their HSD, and it was that drug that the clinician (and health educator) focused on (even if they scored higher for alcohol); they would also briefly mention the benefits of reducing risky use of alcohol or tobacco if the patient screened positive on the ASSIST for risky use of these substances.

The 2- and 6-week telephone drug-use coaching sessions (20–30 minutes each) reinforced the clinicians' message, and followed a patient-centered protocol, focusing on HSD use reduction. As previously described (Gelberg et al., 2015), lay health educators (HEs) were trained in motivational interviewing (Miller and Rollnick, 2002) and cognitive behavioral techniques. Weekly meetings with the PIs and project director fostered a HE "Learning Community," where every case was discussed to maintain fidelity to the protocol. All 32 intervention patients received clinician brief advice (as reported on the clinician Intervention Plan), and 22 (69%) had at least 1 telephone session and 15 (47%) had both sessions.

Control patients completed the ASSIST but did not receive clinician brief intervention or coaching sessions; they did receive a video doctor and information booklet on cancer screening. At study exit, control patients received the intervention components of the video doctor and informational booklet.

2.7 Urine Drug Screen

Urine drug testing was conducted at baseline and follow-up to validate self-reported drug use. The Confirm BioSciences, San Diego, Integrated QuickScreen™ CLIA cup was used since it reliably tests for drugs of interest to this study (96–100% sensitivity). At baseline, 58/65 patients (89%) provided urine specimens and 47/51 (92%) did so at follow-up. Thirty-two patients tested positive for marijuana at baseline and all 32 disclosed past month marijuana use. Similarly, 2 patients tested positive for cocaine and both self-reported its use. At follow-up, 18 patients (13 control, 5 intervention) tested positive for marijuana; all of

these patients reported recent marijuana use. Three control patients tested positive for cocaine and/ or amphetamines - 1 for cocaine, 1 for amphetamines and 1 for both; all 3 disclosed their use of these drugs. Thus, for all intervention and control patients with urine tests, self-reports of drug use were confirmed by the tests at both baseline and follow-up. Finally, to complement the assessment of a group difference in degree of self-reported reduction in HSD use over the study period, chi-square and logistic regression analyses were conducted to determine whether there was a group difference with respect to the objective measure of testing positive for HSD use via urine analysis at follow-up.

2.8 Measures

The outcome measure was reduction in number of days of drug use in the past 30 days (Addiction Severity Index, ASI) (McLellan et al., 2006; McLellan et al., 1992; McLellan et al., 1980) of the patients' HSD between baseline and 3-month follow-up. The ASI is a standardized data collection tool that has excellent psychometric properties (Leonhard et al., 2000; Moos et al., 2000; Rosen et al., 2000). For this study, we employed self-reported use of substances for the past 30 days that provides similar results as the timeline follow-back method (Sobell et al., 1979; Sobell and Sobell, 1992). Patients self-administered the questionnaires and recorded their responses on the tablet computers at baseline and follow-up (research assistants were nearby in case patients needed assistance with the computer).

The Behavioral Model for Vulnerable Populations guided selection of variables used as potential covariates in analyses (Gelberg et al., 2000). Key characteristics are shown in Table 1. Perceived general health status was assessed by a five-point Likert scale item from the SF-12 (Ware et al., 1996; Ware et al., 1995); for analysis, responses were dichotomized to fair/poor health versus good, very good, or excellent health. Physical health was measured by self-reported history of 8 chronic medical conditions. Readiness to change drug use was assessed (Hile and Adkins, 1998; Rollnick et al., 1992). Baseline and follow-up questionnaires were identical.

2.9 Statistical Analysis

Reduction in past month HSD use between baseline and follow-up was approximately normally distributed and was assessed with linear regression analysis. Baseline variables in Table 1 associated with reduction in HSD use at the 0.05 level were candidate covariates. A parsimonious final model was obtained by manually removing covariates one at a time in descending order of p values until only those associated with reduction in HSD use at the 0.10 level remained and multi-collinearity was not a problem (Committee for Medicinal Products for Human Use (CHMP), 2015). A priori power testing for efficacy was not conducted for this pilot study.

Since 14 of the total sample of 65 patients were lost to follow up, intention-to-treat analysis was performed using multiple imputation (SAS 9.3 Procs MI and MIANALYZE) to impute their missing outcome values rather than carrying forward the last observation (LOCF) to accommodate the very real possibility of change over time (Hall et al., 2001; White et al., 2012; White et al., 2011). Baseline variables in Table 1 related to loss-to-follow-up were

included in the imputation model (Siddique et al., 2008), along with analytic variables. Twenty sets of imputed values were produced.

Two separate regression analyses were compared to check the sensitivity of our estimates of the effects of QUIT on drug use reduction. One was the intent-to-treat analysis including all 65 cases (Table 2b). The other used the 51 complete cases with both baseline and follow-up data (Table 2c).

Additionally, to investigate whether patients might have compensated for reducing their HSD use by increasing their use of alcohol and tobacco, we assessed changes in use of these substances among patients who reduced their HSD use by 1 day or more.

3. Results

Baseline characteristics (Table 1) show that 94% were Latino; on average had used their HSD for 12.9 years; had a mean HSD ASSIST score at baseline of 14.4 (range 4–26); and their most common HSD was cannabis (68%), followed by stimulants (17%). Intervention and control groups did not differ on baseline characteristics.

For the 51 patients with follow-up data, the mean number of days of HSD use in the past 30 days was balanced at baseline (Intervention: 11.0 days, Control: 12.6 days) (Table 2a). Past 30-day HSD use at follow-up was significantly lower for intervention patients (Intervention: 6.6, Control: 12.9 days). While the control group reported no change in HSD use over time (−0.29 days), the intervention group reported a significant unadjusted mean reduction of 4.4 days from baseline to follow-up (40% reduction, $p<.001$). Among the 47 participants who provided urine samples, those in the intervention group were less likely than controls to test positive for their HSD (25% vs. 56%; $P < 0.05$). A logistic regression analysis for testing HSD positive that controlled self-reported baseline HSD use confirmed that intervention group participants were less likely than those in the control group to test HSD positive at follow-up ($p < 0.05$; adjusted OR: 0.10, 95% CI: 0.01, 0.99) (not shown).

In the intent-to-treat linear regression model with multiple imputation of missing values (Table 2b), intervention patients reduced their HSD use an average of 4.5 (95% CI: 0.2, 8.7; $p=.042$) more days in the past month than did controls, controlling for baseline HSD use, high school graduation, number of children under 18 living with them, and having been sexually assaulted before they were 18 years old. The complete sample regression with the same covariates for the 51 patients with follow-up data produced similar results (Table 2c), with intervention patients reducing their HSD use an average of 5.2 more days than controls ($p<.03$; 95%CI: 0.5,9.9,).

Finally, among the 32 patients in the complete sample who reduced their HSD use by a day or more, 28 patients who reported risky alcohol use reduced that use by an average of 0.3 days (median=0) and 17 patients who disclosed smoking reduced their tobacco use by an average of 2.5 days (median=0). Neither change was significant ($p>0.05$, Wilcoxon signed rank test).

4. Discussion

In this study of mostly Latino primary care patients of an FQHC, the QUIT brief intervention group reported a 40% decline in mean HSD use, corresponding to an adjusted 4.5-day reduction in reported past month HSD use by 3-month follow-up compared to controls (5.2 day reduction in the complete case analysis); there was no compensatory increase in use of alcohol or tobacco. This degree of drug use reduction is meaningful clinically according to norms for reductions in marijuana use in clinical trials (Babor TF and The Marijuana Treatment Project Research Group., 2004; Coffey et al., 2002). The trial has clinical significance as its findings could apply to 12% of our study clinic patients that screen positive for risky drug use (ASSIST 4–26) (see Figure 1), and represents significant potential public health impact for the 20 million risky drug users in the US if replicated in other clinic populations (The National Center on Addiction and Substance Use at Columbia University (CASA Columbia), 2012; U.S. Department of Health and Human Services (HHS) Office of the Surgeon General, 2016). The findings are important given the limited number of randomized trials of screening and brief intervention for risky drug use in primary care, and notable in that the findings affirm the positive findings of the QUIT trial.

Some distinctive characteristics of the QUIT intervention that may contribute to its greater success than other brief intervention protocols designed to address risky drug use in primary care (Humeniuk et al., 2012; Roy-Byrne et al., 2014; Saitz et al., 2014) include: (1) use of primary care clinicians to deliver brief advice messages about drug use; (2) regular weekly “learning community” meetings among health coaches and the study team; (3) incorporation of quality of life issues patients spontaneously raised as barriers to drug use reduction into telephone coaching sessions; (4) embedding of drug use consent and patient assessment questions within a larger behavioral health paradigm to conceal the study’s drug focus and minimize potential contamination of the control group; and (5) patient self-administered assessment of drug use on tablet computers.

The original QUIT study, showed a significant reduction in HSD in 30-day risky drug use (2.2 day reduction in the ITT analysis using LOCF (last observation carried forward), 3.5 day reduction in the completer analysis) in intervention compared to control patients (Gelberg et al., 2015). Of particular importance for considering QUIT implementation -- risky drug use reduction was observed in each of the original study’s 5 FQHC organizations controlling for baseline HSD use, although we lacked the power to test for clinic specific significance: Clinic#1 4.5 day reduction, Clinic#2 11.8 days, Clinic#3 3.2 days, Clinic#4 1.5 days, Clinic#5 5.2 days. Also the original study’s FQHCs had varying characteristics (Gelberg et al., 2015), including location (in different areas of Los Angeles County), clinic size (serving 8,799 to 20,877 patients per year) (California Office of Statewide Health Planning and Development (OSHPD), 2012), and study patient characteristics: age (mean 32.2 to 49.2); male (42–75%); White/Asian (9–62%), African-American (3–66%), Latino (14–88%); and currently homeless (1.4–50%). The positive outcomes in all of these different clinics bolstered by positive outcomes from this pilot replication suggest that QUIT may prove effective and implementable in a variety of settings and across a variety of patient demographics.

Limitations of the study include: generalizability of the sample to other Latino populations, potential for social desirability bias to influence the primary outcome of self-reported drug use reduction which we tried to minimize by patients' self-administration of survey items on a tablet computer, loss to follow-up, and small sample size which limits subgroup analysis.

5. Conclusion

The ACA and the MHPAEA expanded behavioral health coverage to 62 million people, who might benefit from brief intervention programs for risky drug use in primary care settings such as FQHCs (Buck, 2011; Pating et al., 2012). An effectiveness/implementation study of QUIT in FQHCs is needed to confirm its general applicability to fulfill this need.

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Highlights

- QUIT (Quit Using Drugs Intervention Trial) brief intervention reduced past month drug use by 4.5 days.
- QUIT protocol was efficacious in a variety of primary care settings.
- Screening for substance use could be implemented in federally qualified health centers (FQHCs).

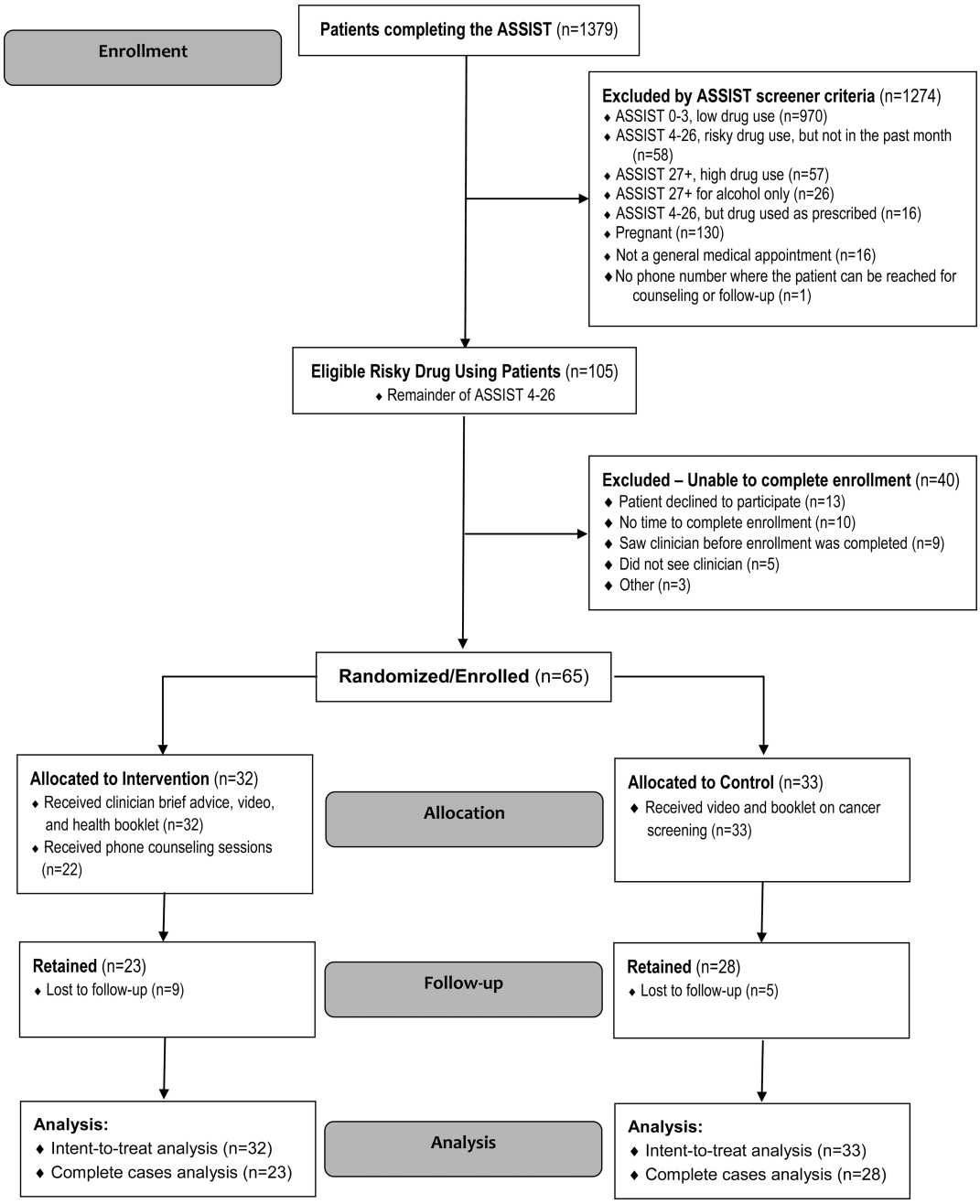

Figure 1.
CONSORT Diagram

Table 1

Baseline characteristics of study participants: risky drug using patients in a federally qualified health center in East Los Angeles

Characteristic	Total	Control	Intervention	p[a]
All subjects	**(n=65)**	**(n=33)**	**(n=32)**	
PREDISPOSING				
Socio-Demographics				
Age, mean (SD)	30.8 (12.0)	31.6 (12.7)	29.9 (11.4)	.586
Education ≥ 12yrs, n (%)	54 (83.1)	29 (87.9)	25 (78.1)	.294
Male, n (%)	38 (58.5)	19 (57.6)	19 (59.4)	.883
Hispanic, n (%)	61 (93.9)	30 (90.9)	31 (96.9)	.317
U.S. Born, n (%)	56 (87.5)	31 (93.9)	25 (80.7)	.142
Ever married n (%)	19 (29.7)	9 (27.3)	10 (32.3)	.663
# children < 18 years old living with patient, mean (SD)	1.0 (1.2)	0.8 (1.1)	1.1 (1.4)	.373
Homeless history, n (%)				
Homeless, lifetime	22 (34.4)	12 (36.4)	10 (32.3)	.730
Homeless, current	3 (4.6)	3 (9.1)	0 (0.0)	.239
Prison or jail time, past 12 months, n (%)	6 (9.4)	5 (15.2)	1(3.2)	.198
Sexual abuse, childhood, n (%)	11 (17.2)	4 (12.0)	7 (22.6)	.268
Highest Scoring Drug (HSD)[b] History and Beliefs				
Duration of HSD use(mean years, SD)	12.9 (12.9)	15.4 (13.7)	10.4 (11.7)	.102
Perception has problem with HSD, n (%)				.609
Do not have drug problem	37 (56.9)	17 (51.5)	20 (62.5)	
Probably have drug problem	19 (29.2)	10 (30.3)	9 (28.1)	
Definitely have drug problem	9 (13.9)	6 (18.2)	3 (9.4)	
Interest in reducing/ stopping HSD, n (%)				.911
Very	17 (26.2)	8 (24.2)	9 (28.1)	
Somewhat	28 (43.1)	15 (45.4)	13 (40.6)	
Not at all	20 (30.8)	10 (30.3)	10 (31.3)	
ENABLING				
Income ≤ $500/month, n (%)	45 (75.0)	25 (78.1)	20 (71.4)	.550
Insurance, past 3 months, n (%)	36 (56.3)	21 (63.6)	15 (48.4)	.219
NEED				
Fair or poor general health, n (%)	24 (37.5)	13 (39.4)	11 (35.5)	.747
# Chronic medical conditions, mean (SD)[c]	0.7 (1.1)	0.8 (1.1)	0.6 (1.0)	.228
Baseline # Tobacco Use Days past month, mean (SD)	6.8 (11.0)	6.4 (10.2)	7.2 (11.8)	.773
Baseline Any binge drinking day, past month, n (%)[d]	40 (61.5)	19 (57.6)	21 (65.6)	.505
Baseline HSD ASSIST Score, mean (SD)[e]	14.4 (6.2)	14.5 (6.5)	14.4 (6.0)	.942
Drug Type of HSD, n (%)				.665

Characteristic	Total	Control	Intervention	p[a]
All subjects	**(n=65)**	**(n=33)**	**(n=32)**	
Cannabis	44 (67.7)	24 (72.7)	20 (62.5)	
Cocaine/Crack	6 (9.2)	3 (9.1)	3 (9.4)	
Amphetamines	5 (7.7)	3 (9.1)	2 (6.3)	
Sedatives	2 (3.1)	0 (0.0)	2 (6.3)	
Opiates	8 (12.3)	3 (9.1)	5 (15.6)	
Other (inhalants, hallucinogens)	0 (0.0)	0 (0.0)	0 (0.0)	
HSD Use at Baseline, # days past 30 days, mean (SD)	11.9 (10.8)	12.4 (10.6)	11.4 (11.2)	.699
Polydrug use (risky use of multiple drugs, past 30 days)	21 (32.3)	10 (30.3)	11 (34.4)	.756

[a]Based on chi-square, two-sample t, or two-sample Wilcoxon test

[b]HSD = Highest scoring drug in risky range (4–26) on WHO ASSIST

[c]Number of 8 chronic medical conditions in lifetime: asthma, hepatitis, epilepsy, cancer, tuberculosis, HTN, diabetes, or HIV/AIDS

[d]Binge drinking day is defined as 5+ drinks for men <65 yo, 4+ for men >= 65yo and all women

[e]Baseline ASSIST Score for Highest Scoring Drug on the ASSIST conducted at screening

Table 2

Effect of the QUIT intervention on reduction in risky drug use among primary care patients of a federally qualified health center

a. Profile of past 30-day highest scoring drug[a] (HSD) use at baseline and 3-month follow-up, for patients completing the study (n=51)									
	Number of Days Used HSD, Past 30 Days				Reduction[b] In HSD Use Over Time		Adjusted Group Difference In HSD Reduction, Controlling for Baseline HSD Use[e]		
	Baseline		Follow-up						
Program	**Mean**	**p[c]**	**Mean**	**p[c]**	**Mean**	**p[d]**	**Mean**	**95% CI**	**P**
Group Difference		.620		.003			5.28	−0.06, 10.63	.053
Control Group (n=28)	12.64		12.93		−0.29	.557			
QUIT Intervention Group (n=23)	11.04		6.61		4.43	.001			

b. Intent-to-treat linear regression for group difference in reduction[a] in number of days used HSD[b] in past 30 days (n=65)				
	Decrease in Days of HSD Use, Past 30 Days			
Measure	**Coeff**	**s.e.**	**P**	**95% CI**
QUIT Intervention Group (ref: Control group)	4.46	2.2	.042	0.17, 8.74
Baseline HSD Use	0.22	0.1	.038	0.01, 0.42
High School Graduate	8.51	3.0	.005	2.63, 14.40
# Children <18 years old at home	2.91	0.9	.002	1.10, 4.73
Sexually assaulted < 18 years old	−5.32	2.8	.057	−10.80, 0.16

c. Completed sample linear regression for group difference in reduction[a] in number of days used HSD[b] in past 30 days, at 3 month follow-up (N=51)			
	Reduction in use from Baseline to 3 months		
Measure	**Coeff**	**s.e.**	**P**
Intervention Group (ref: Control group)	5.22	2.3	.030
Baseline HSD Use	0.28	0.1	.010
High School Graduate	11.33	3.3	.001
# Children <18 years old at home	3.60	1.1	.002
Sexually assaulted < 18 years old	−6.23	2.8	.029

[a] HSD = Highest scoring drug in risky range (4–26) on baseline WHO ASSIST

[b] Baseline minus follow-up HSD use

[c] Wilcoxon two-sample test for group difference

[d] Paired t test for change

[e] Program difference of HSD use differences over time adjusted for baseline HSD use

[a] Baseline minus 3 month follow-up HSD use

[b] HSD = Highest scoring drug in risky range (4–26) on baseline WHO ASSIST

[a] Baseline minus 3 month follow-up HSD use

[b] HSD = Highest scoring drug in risky range (4–26) on baseline WHO ASSIST