



Results from a pilot test of Prime Solutions®

Pamela A. Stafford, MA, Michele A. Crisafulli, MA, Blair Beadnell, PhD, & David B. Rosengren, PhD,
Prevention Research Institute, Inc., Lexington, KY

ABSTRACT

We conducted a pilot evaluation of a substance abuse treatment approach combining two evidence-derived, group-delivered motivational interventions, Prime For Life® (PFL) and Prime Solutions® (PS). Local program staff delivered these interventions sequentially to 72 individuals with alcohol- and drug-related offenses, who completed questionnaires at three timepoints: baseline, post-PFL, and post-PS. Participants showed improvements during PFL that were maintained through PS on several key factors: understanding tolerance, knowledge of what constitutes a standard drink, and perception of quantity of alcohol that creates risk. For perception of the amount of alcohol that creates risk for impaired driving, participants improved during PFL and showed additional improvement during PS. Motivation to drink in a low-risk manner remained unchanged during PFL then improved during PS. Participants improved in problem recognition and perception of positive social support during PS; we did not assess changes in these areas across PFL. In terms of substance use, participants reported decreases in the usual number of drinks consumed, the number of drinks consumed during peak drinking, the frequency of marijuana use, and whether or not they used any drugs. They also improved on intentions regarding if and how they would use these substances in the future. Overall, the Prime Solutions program showed considerable promise in this pilot evaluation, and further research is warranted.

INTRODUCTION

We conducted a pilot evaluation of a substance abuse treatment approach that combined two evidence-derived interventions developed by Prevention Research Institute (PRI). In this approach, the counselor provided content from the Prime For Life® (PFL) program followed by several sessions of the PRIME Solutions® (PS) program. PFL and PS are both provided in group settings and

are motivational interventions in that they use principles and techniques from Motivational Interviewing (MI) designed to engage clients in self-evaluation of drug and alcohol choices, minimize resistance, and address the common challenge of ambivalence about change. We designed the pilot evaluation to detect if and when changes in clients' risk perceptions, perceived social support, problem



recognition, knowledge, motivation, intentions for substance use, and substance use behavior occurred across the interventions.

PFL is an evidence-based intervention for people needing indicated prevention for substance use problems. The program uses presentations and exercises to help participants assess their risks as well as to explore their beliefs, providing information to gently challenge those associated with higher likelihood of problematic substance use and negative outcomes. As part of this process, participants evaluate their need for change and determine their choices for reducing risk. Widely used with individuals arrested for operating a motor vehicle under the influence (OUI), prior research suggests PFL is effective in changing attitudes, risk perceptions, and behavioral intentions. Several evaluations have also linked its use with reduced OUI recidivism.

PS is an evidence-derived treatment protocol designed to either build upon the foundation established in PFL or stand on its own. Using strategies drawn from a variety of practices (e.g., Cognitive Behavior Therapy), the program is intended to help clients achieve the Transtheoretical Model's (TTM) fourth Stage of Change, Action, which involves reducing problematic substance use. PRI developed the program to serve as an American Society of Addiction Medicine (ASAM) Level One outpatient program or as a central portion of any other ASAM Level of Care. In creating PS, the developers reviewed the research literature and took intervention methods that demonstrated strong, consistently positive outcomes for individuals with alcohol and drug problems,

combining them into a program that allows counselors to target the specific needs of either the individual or group. PS includes elements like decisional balance, craving logs, craving identification and intervention, anticipation of high-risk situations, use of social support, and reward principles to address the elements needed for successful recovery.

Developers created media-enriched, on-line materials and training methods to assist counselors using the program. Materials provide organizing principles for intervention components across sessions, methods for integrating session topics with 12-step approaches, recommendations from content experts about the conduct of each session, session goals, and other preparation materials (including videos modeling session elements). There is an outline for each session topic, which the counselor uses along with DVDs (containing PowerPoint images, videos and client scenarios) to deliver the PS materials and practice the tools contained within it.

In addition to content, PS's intervention method also focuses on how counselors deliver each session topic and what the session topic is trying to accomplish. For example, counselors are taught not to lecture about concepts, but rather engage clients in discussion where they draw the conclusions. As previously mentioned, the program's foundation is built on the TTM, which identifies specific processes involved in behavior change. PS materials and training assist counselors in recognizing change processes occurring in session, as well as honing skills to facilitate these processes.



Structure of Treatment Program

The treatment program required all clients to complete three 3-hour sessions of PFL over three consecutive days to prepare them for the PS program content. Counselors determined the required number of subsequent 3-hour PS treatment sessions for clients based on their clinical intake assessment. In this evaluation, 90% ($n = 65$) were required to complete four PS sessions (12 hours), 3% ($n = 2$) seven sessions (21 hours), and 7% ($n = 5$) ten sessions (30 hours).

Description of Participants

Appendix A contains details about the evaluation methods. A total of 90 clients from a single outpatient treatment facility in a southeastern United States city participated in the project between April 2012 and July 2013. They filled out questionnaires at three timepoints: entry into the treatment program (baseline), after completing PFL (post-PFL), and after completing PS (post-PS). Seventy-two participants (80%) completed surveys at all three timepoints and are included in these analyses.

Participants were on average 35.9 years old ($SD = 12.7$), and 25% reported their sex as female. The majority (81%) described their race/ethnicity as White, with 11% identifying as African American/Black, 1% as American Indian/Native American, 1% as Asian American/Asian, 3% as Latino/Hispanic, and 3% as Native Hawaiian/Pacific Islander. The majority of participants had education beyond high school: 36% had a bachelor's or graduate degree, 8% an associate's

degree, 33% some college or technical school, 18% a high school diploma or GED, and 4% less than a high school education. Approximately half had never been married, one-quarter were married or had a domestic partner, and one-quarter were separated, widowed or divorced. Slightly more than half (57%) had never been arrested before the event that brought them to treatment, with the remainder reporting one (28%), two (14%), or three or more (1%) prior arrests. A small minority (14%) had attended PFL before.

FINDINGS

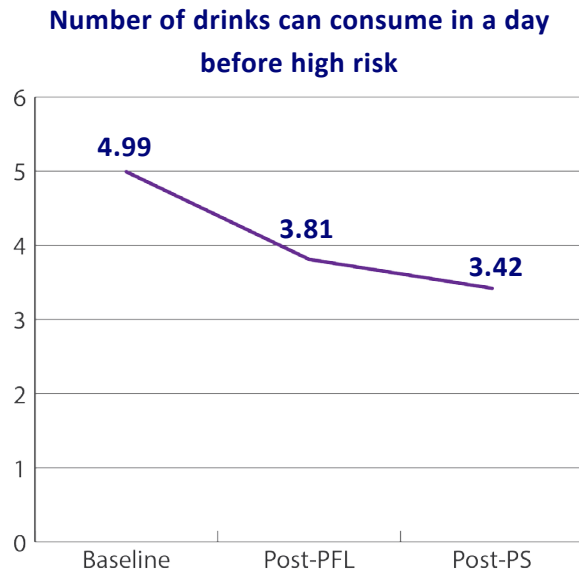
Appendix B describes our statistical analysis strategy and Appendix C contains tables showing means, standard deviations, and effect sizes for all outcomes. Here, we report on all findings meeting or – in three cases – close to meeting traditional standards of being statistically significant (in other words, not due to chance).

Four General Patterns of Improvements

We identified four patterns of improvement in terms of risk perceptions, social support, problem recognition, knowledge, and motivation. In one pattern, participants showed improvements during PFL that were maintained through PS. This pattern occurred for understanding tolerance, knowledge about what constitutes a standard drink, and risk perception with regard to quantities of alcohol that create risk. Figure 1 shows an example of one of these changes.

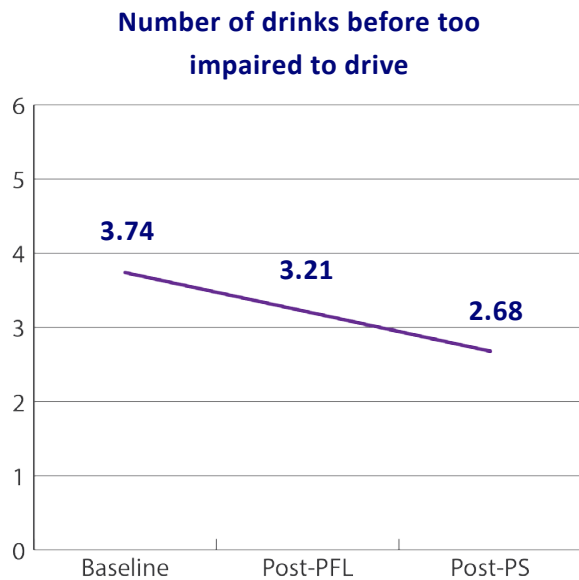


Figure 1



In the second pattern, we found improvement in risk perception during PFL and continued improvement in PS. This pattern occurred for the amount of alcohol it takes to create a risk for impaired driving, illustrated in Figure 2.

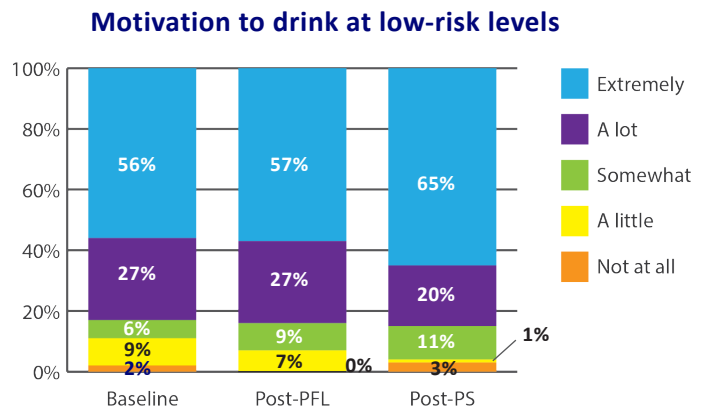
Figure 2



A third pattern was that motivation to drink in a low-risk manner remained unchanged during PFL then improved during PS. The

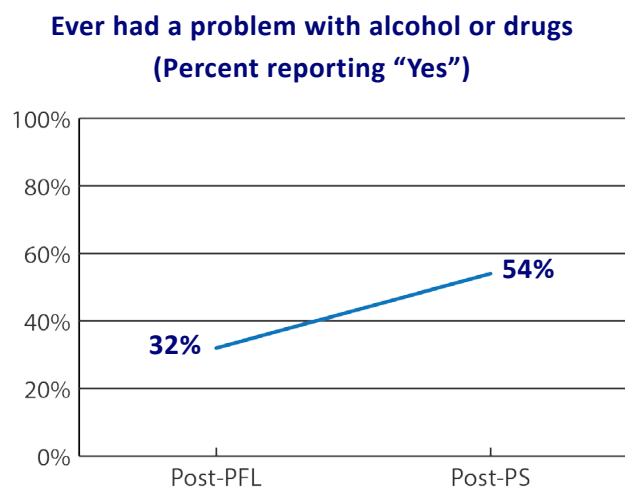
amount of change was small given that motivation was already high at baseline, leaving little room for improvement. Figure 3 shows this.

Figure 3



Finally, two improvements occurred during PS that may or may not have also occurred during PFL; we cannot be certain because these characteristics were not measured at baseline. Specifically, there were increases in the number of participants who reported ever having had a problem with alcohol or drugs, and in client perception of the amount of positive support they had for making reductions in their substance use. Figure 4 illustrates one of these findings.

Figure 4

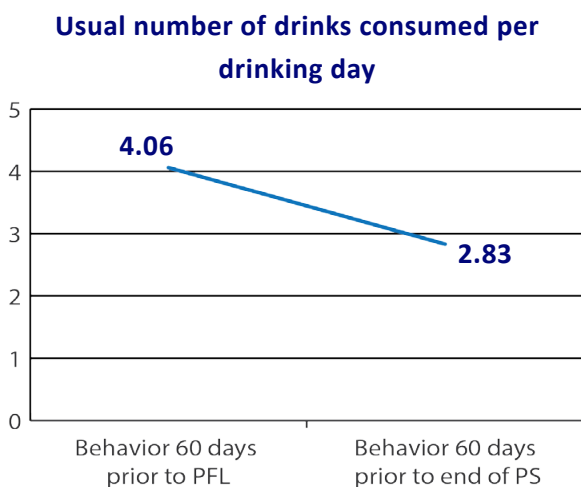




Substance Use and Intentions for Use

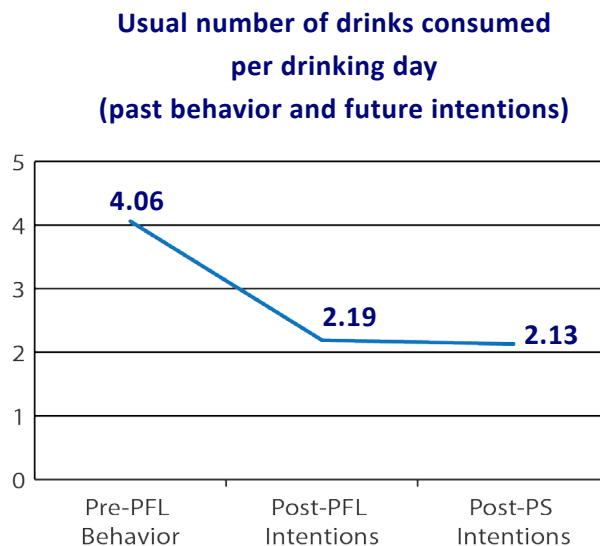
We also found reductions in substance use that occurred during the treatment experience (see Figure 5). Participants reported decreases in the usual number of drinks consumed, the number of drinks consumed during peak drinking, the frequency of marijuana use, and whether or not they used any drugs.

Figure 5



Beyond actual substance use, there were also improvements regarding intentions for future use (see Figure 6). Comparing clients' self-reported, pre-baseline substance use to their intentions for future use (asked post-PFL and again post-PS), people intended to drink less in the future than they had in the past. This was true for the usual and the maximum number of drinks to be consumed. A similar finding occurred for marijuana use and the use of any drug. Specifically, a higher percentage of people intended to abstain from drug use post-PFL than had been using previously, and this remained similar post-PS.

Figure 6



Characteristics that did not Change

We found no intervention changes on only a small number of outcomes. These included the perception of how much one put valued things at risk by using substances, motivation to stop drinking, motivation to abstain from drug use, and self-reports of having alcoholism or a drug addiction (the last one only measured post-PFL and post-PS, not baseline).

LIMITATIONS

The number of participants using illicit drugs and prescription drugs for nonmedical purposes was small. Hence, we were unable to assess whether participation in this program resulted in changes in actual and intended use of these. In addition, we were not able to test for changes in substance use intentions relative to baseline because clients were not asked about any substance use intentions at that time.



CONCLUSIONS

In this initial pilot evaluation, the Prime Solutions (PS) program showed considerable promise. It was used in combination with the previously tested Prime For Life (PFL) program, which enabled us to examine changes occurring over the course of both programs, individually and together as a treatment package. As has been shown in previous evaluations, PFL led to change in expected areas, such as thinking, knowledge, and motivation. Changes were sustained

during PS where participants also showed additional improvements in motivation, risk perception, perceived social support, and problem recognition. Furthermore, program participants reported decreased drinking and drug use during participation in these programs, as well as intentions to continue reducing their use after program completion. In the future, PRI will conduct additional evaluations of PS, looking specifically at its effects with all types of drug users, as well as its efficacy as a stand-alone program.



APPENDIX A: METHODS

Western Institutional Review Board (WIRB) reviewed and approved the protocol for this evaluation, and we obtained a Certificate of Confidentiality (CoC) from the Department of Health & Human Services (DHHS), National Institute on Alcohol Abuse and Alcoholism (NIAAA) to protect the clients who participated.

Procedure

All clients at the treatment facility complete an initial clinical intake assessment unrelated to research participation, after which a trained, on-site research coordinator (RC) approached them. Once a client expressed interest in the study, the RC provided and reviewed the informed consent document. Those deciding to participate in the project and the RC signed the document. Once informed consent was obtained, the RC handed participants an envelope containing the first (baseline) questionnaire. The participants completed the questionnaire in a private room and placed it in the envelope. After sealing the envelope, participants handed it to the RC, who then gave a \$20 Wal-Mart gift card as remuneration.

The RC asked participants who completed the baseline questionnaire to arrive early on the evening of their first PS group session in order to complete their second (post-PFL) questionnaire. As before, participants completed the questionnaire in privacy and sealed their envelope before handing it to the RC prior to the start of group. In return, they received a \$25 Wal-Mart gift card. Research participants completed their post-PS questionnaire in privacy during the last break of their final PS meeting. Clients placed the completed questionnaires into the envelope, sealed it, and handed to the RC in exchange for a \$35 Wal-Mart gift card.

Participant questionnaires were linked by a pre-determined, random 6-digit ID number placed at the top of the front page of each of the three respective surveys. No names appeared on any of the questionnaires sent back to PRI, and the RC never saw any individual's ID number. This procedure made it impossible to ever link participants' responses to their names/identities.

Measures

The first questionnaire obtained basic demographic information and baseline measures of risk perceptions and motivation to make changes. The second (post-PFL) questionnaire repeated many of the questions from the first questionnaire along with additional questions about substance use related problems, perceived social support, future substance use intentions, temptation to use substances at all or in high-risk amounts, confidence to abstain from substances or only use in low-risk amounts, and impressions of the PFL pre-treatment content. Clients also indicated the number of PS treatment sessions they were required to attend. The post-PFL questionnaire also asked about substance use in the 60 days prior to PFL; in light of research showing post-intervention reports of pre-intervention behavior are often more accurate, we used these responses to measure pre-PFL substance use behavior. The third (Post-PS) survey repeated many of the questions asked on at least one of the two previous. In addition, the Post-PS questionnaire asked about substance use in the past 60 days (which represented time they were in PS and possibly PFL, depending on how long it took participants to complete PS) and client impressions of both the PS program and the counselor who led their group sessions.



APPENDIX B: STATISTICAL ANALYSIS STRATEGY

As noted above, participants completed self-report questionnaires at baseline, post-PFL, and post-PS. In this document we have reported findings with an alpha level of .05, as well as three that were statistical trends ($p < .10$). Using Generalized Estimating Equations in SPSS v20, we examined longitudinal changes on targeted behavioral and cognitive outcome variables. Time was the sole predictor in the GEE models, and was treated as a dummy-coded categorical variable. When variables were measured at all three timepoints, we first examined baseline to

post-PS changes. We did this by treating baseline scores as the reference timepoint, and examining the regression coefficient testing baseline to post-PS change. If we found a statistically significant difference, we then reparameterized the regression model so the post-PFL scores were the reference point. This allowed us to determine the interval over which change occurred (i.e., baseline to post-PFL, or post-PFL to post-PS). We also calculated Cohen's d effect sizes to examine the magnitude of observed changes.

**APPENDIX C****Table 1**

Descriptive Statistics and Generalized Estimating Equation Comparisons of Baseline, Post-Prime For Life (PFL), and Post-Prime Solutions (PS) Outcomes (N = 72)

Outcome	Timepoint						GEE results					
	Baseline		Post-PFL		Post-PS		Overall change		Change between adjacent timepoints			
	M	SD	M	SD	M	SD	Baseline to Post-PS		Baseline to Post-PFL		Post-PFL to Post-PS	
							p	d ¹	p	d ¹	p	d ¹
Motivation												
for low-risk drinking	4.27	1.03	4.33	0.92	4.42	0.96	.046	0.16	.583	0.03	0.79	0.12
to stop drinking	2.68	1.56	2.59	1.49	2.78	1.48	.292	0.13	na ³	na ³	na ³	na ³
to reduce/stop drug use	3.38	1.35	3.33	1.38	3.71	1.29	.292	0.16	na ³	na ³	na ³	na ³
Perception of number of drinks												
before high risk	4.99	3.53	3.81	2.47	3.42	2.14	.000	0.53	.000	.042	.222	0.23
before too impaired to drive	3.74	2.50	3.21	1.99	2.68	1.99	.001	0.40	.026	0.24	.041	0.29
Pre-program behavior vs. post-PFL & post-PS intentions												
usual # drinks/drinking day	4.06	3.01	2.19	2.97	2.13	1.78	.000	0.69	.000	.57	.834	0.02
peak # drinks/drinking day	7.00	5.53	2.88	3.23	3.14	3.05	.000	0.78	.000	0.89	.336	0.10
any drug use	0.25	0.44	0.11	0.32	0.14	0.35	0.19	11% ²	.003	14% ²	.469	3% ²
frequency of marijuana use	0.63	1.31	0.24	0.96	0.24	0.85	.000	0.37	.000	0.38	.315	0.00
Knowledge about												
tolerance	4.14	0.85	4.39	0.83	4.48	0.76	.001	0.41	.002	0.35	.338	0.11
what constitutes a standard drink	0.22	0.42	0.41	0.49	0.46	0.50	.000	24% ²	.002	19% ²	.283	5% ²
Perceived risk to things of value												
if use drugs	3.28	1.49	3.21	1.42	3.09	1.56	.347	0.11	na ³	na ³	na ³	na ³
if continue prior drinking	3.44	1.46	3.40	1.34	3.43	1.47	.609	0.02	na ³	na ³	na ³	na ³
if drink at all	2.32	1.32	2.33	1.37	2.47	1.41	.385	0.11	na ³	na ³	na ³	na ³

Table notes:

¹Cohen's *d* is an effect size reflecting the magnitude of change. Interpretation: .20 = small, .50 = medium, .80 = large effect.

²For dichotomous outcome variables, percent change rather than Cohen's *d* was used for effect size.

³Adjacent timepoint change was examined only when overall change from baseline to post-PS was statistically significant.

**Table 2**

Descriptive Statistics and Generalized Estimating Equation Comparisons of Substance Use in 60 Days Before Baseline Versus Before Intervention Completion (N = 72).

Outcome	Timepoint				GEE results: overall change	
	Baseline		Post-PS		Baseline to Post-PS	
	M	SD	M	SD	p	d ¹
Usual # drinks/drinking day	4.06	3.01	2.83	2.43	.004	0.48
Peak # drinks/drinking day	7.00	5.53	4.83	4.22	.001	0.48
Any drug use	0.25	0.44	0.17	0.38	.054	8% ²
Frequency of marijuana use	0.63	1.31	0.49	1.21	.025	0.16

Table notes:

¹Cohen's *d* is an effect size reflecting the magnitude of change. Interpretation: .20 = small, .50 = medium, .80 = large effect.

²For dichotomous outcome variables, percent change rather than Cohen's *d* was used for effect size.

Table 3

Descriptive Statistics and Generalized Estimating Equation Comparisons of Post-Prime For Life (PFL) versus Post-Prime Solutions (PS) Outcomes (N = 72)¹

Outcome	Timepoint				GEE results	
	Post-PFL		Post-PS		Post-PFL to Post-PS	
	M	SD	M	SD	p	d ²
Problem recognition						
ever had a problem w/ alcohol or drugs	0.32	0.47	0.54	0.51	.000	22% ³
have alcoholism or drug addiction	0.18	0.39	0.14	0.35	.237	4% ³
Perception of social support from others						
would support decreased substance use	3.95	1.16	4.13	1.01	.078	0.22
would not support decreased substance use	1.29	0.79	1.23	0.74	.523	0.07

Table notes:

¹These outcomes were not measured at baseline.

²Cohen's *d* is an effect size reflecting the magnitude of change. Interpretation: .20 = small, .50 = medium, .80 = large effect.

³For dichotomous outcome variables, percent change rather than Cohen's *d* was used for effect size.

To cite this report:

Pamela A. Stafford, MA, Michele A. Crisafulli, MA, Blair Beadnell, PhD, & David B. Rosengren, PhD (2014). *Results from a pilot test of Prime Solutions® Pilot Study*. Lexington, KY: Prevention Research Institute, Inc.

For more information, contact Blair Beadnell, Director of Research and Evaluation Services, by emailing blair.beadnell@primeforlife.org, calling 859-296-5022, or visiting www.primeforlife.org.