

# A Review of the Empirical Support for PRIME For Life®

David B. Rosengren, PhD, Michele A. Crisafulli, MA, Mark Nason, MSW, & Blair Beadnell, PhD  
Prevention Research Institute, Lexington, KY

## Abstract

PRIME For Life® (PFL) is recognized as an evidence-based program by the National Registry of Evidence-based Programs and Practices (NREPP). This report provides a brief overview of the PFL program and the evidence that supports its use. In general, the program and its predecessors have demonstrated the capacity to affect risk perceptions, attitudes, and intentions. While there are fewer evaluations that document changes in subsequent substance use behavior, there is evidence that PFL does lead to short-term behavior change. Additionally, four evaluations found lower recidivism rates among PFL completers compared to noncompleters, people assigned only to probation, and people assigned to an alternative intervention. This report concludes with a discussion of strengths and limitations of this research, and future directions for evaluation.

## Introduction

PRIME For Life (PFL) is a program designed with characteristics supported by research as important in an evidence-based program, particularly for substance-abusing populations. First, it is theory based. PFL uses the Lifestyle Risk Reduction Model,<sup>1</sup> Transtheoretical Model,<sup>2</sup> and persuasion theory<sup>3,4</sup> as the underpinnings for its content. Second, PFL is structured and manual driven. Program modules are given in a specific order, and instructors have clear protocols guiding their delivery. Finally, instructor protocols and training emphasize the manner in which PFL is delivered since there is strong empirical support concerning the importance of practitioner style when providing substance abuse interventions.<sup>5,6</sup> Specifically, PFL

incorporates three elements of empirically-supported practices for substance abuse interventionists: a) establishing a collaborative relationship with participants, b) defusing resistance, and c) maintaining a clear direction.<sup>5,7</sup>

The curriculum can be delivered in a concentrated manner (e.g., over a 2-day period) or spaced over several weeks using shorter sessions. A group setting with a primarily mandated population is the usual delivery format. Adults are the typical participants, but PFL may be used with adolescents as young as 13. PFL uses a media-rich program supplemented by workbook and discussion activities. Prevention Research Institute (PRI) trains

program instructors to deliver information in a specific sequence, guided by detailed syllabi and check-sheets to ensure intervention fidelity. The typical presentation length for the curriculum is 16 hours, though across settings the range is 8 to 20 hours.

The PFL curriculum aims to provide information and alter cognitive factors found to be associated with substance misuse. For example, PRI designed PFL to increase perception of personal risk associated with drug use and high-risk drinking, such as risk to health and relationships. Facilitators accomplish this with carefully timed presentation of logical arguments and emotional experiences. This perception of risk, in turn, is believed to affect attitudes and beliefs, and help motivate the participant to reduce consumption. Consistent with other effective brief interventions,<sup>8,9</sup> PFL focuses on substance use self-assessment and identification of related experiences/problems. Additional content includes the role of biology in the development of alcoholism and addiction, the effects of alcohol and drugs, and detailed information about avoiding future alcohol- and drug-related problems in the form of low-risk guidelines. At present, these guidelines are no illegal drug use and—for people with alcoholism—abstinence from drinking. For people without alcoholism, the guidelines are no more than 1 standard drink (.5 ounces of pure alcohol) in an hour, 2 standard drinks daily, or 3 standard drinks on any day.

This report reviews 16 evaluations of PFL and its predecessors and adaptations (e.g., Talking With Your Students About Alcohol, TWYSAA; Talking With Your Kids About

Alcohol, TWYKAA; On Campus Talking About Alcohol, OCTAA; Talking About Alcohol and Drugs, TAAD). For simplicity we use PFL to describe these interventions throughout the report. These evaluations include a range of research designs such as pre- to post-intervention analyses of change (with follow-up assessments in some cases), control group comparisons, and analyses of state-collected driving records. Outcomes include cognitive factors (e.g., attitudes, risk perceptions, and intentions), self-reported substance use, and impaired-driving recidivism. Unless otherwise noted, all findings follow the generally accepted scientific standard of having statistical significance at .05 or less.

## Empirical Support for PRIME For Life

PRI, as well as independent investigators, have implemented two general types of evaluations of PFL. One type examines changes in thinking (e.g., motivations and risk perceptions) that occur during the course of participation in PFL, as well as intentions for use after PFL. The second type assesses behavior for a period of time after completing PFL. Most of these longer-term evaluations have focused on recidivism following PFL participation, though a few have looked at subsequent substance use behavior. Findings have typically supported PFL's effectiveness. For example, PFL demonstrates consistent improvements in attitudes, risk perception, and drinking and drug use intentions. There is also evidence of alterations in drinking and drug use in some but not all studies. In addition, there is an association between PFL completion and reduced recidivism. These results come from investigations with middle school and high

school students, youth in court diversion programs, college students, and persons arrested for or convicted of impaired driving.

### Adolescents

Two studies with adolescents showed positive benefit from program participation. One was a 2002 study that evaluated Kentucky's Early Intervention Program (EIP) for adolescents, which included PFL as the primary component. Evaluators reported on participants with complete data on substance use ( $n = 390$ ) out of 2,137 followed over a 6-month period. The authors found increases in self-reported abstinence from a number of substances: a 21% increase in abstinence from beer, 8.2% from wine, 20.7% from liquor, and 17.9% from marijuana.<sup>10</sup> In another study with adolescents, Daugherty and O'Bryan<sup>11,12</sup> used a non-randomized, quasi-experimental design to compare PFL to a standard 7<sup>th</sup> and 9<sup>th</sup> grade, classroom-based (CB) school prevention program. In addition, follow-up comparisons were done at 1, 2, and 3 years (PFL  $n = 475, 153$  and  $30$ ; CB  $n = 111, 31$  and  $17$ , respectively) for the 7<sup>th</sup>-grade cohorts. The 9<sup>th</sup>-grade cohort provided only 2 years of follow-up (PFL  $n = 341$  and  $99$ ; CB  $n = 158$  and  $81$ ). PFL students who began the program exhibiting high-risk attitudes were more likely to shift to low-risk attitudes. In addition, PFL students were more likely than those in CB to maintain low-risk attitudes at follow-up and to abstain for longer periods of time. They were also less likely to report drinking four or more drinks on a drinking occasion and less likely to report one or more alcohol-related incidents from the Fall to the Spring semesters.

### College Students

Two single-condition evaluations demonstrated positive responses to PFL among college students. Pryor<sup>13</sup> used an 8-hour version of the PFL concepts with 109 undergraduate advisors at Dartmouth College. Participants showed increases in two types of knowledge: the risks associated with various levels of drinking, and the connection between tolerance and alcoholism. Additionally, at posttest, 72% said they intended to follow low-risk guidelines, compared to about a third pre-PFL. At follow-up, 85% of participants said they followed low-risk guidelines most of the time; however, many acknowledged engaging in high-risk drinking sometimes. In another study, Oswald et al.<sup>14</sup> assessed participants in a 10-hour version of PFL at three time points: pre-intervention ( $n = 400$ ), post-intervention ( $n = 259$ ), and at a 3-month follow-up ( $n = 79$ ). Data analyses included only the 79 participants that completed all three assessment points. At post-intervention, the authors found increased perceived risk, decreased quantity and frequency of drinking, and decreased negative consequences from drinking. Of these, only the change in perceived risk was maintained at the 3-month follow-up at a statistically significant level. Unfortunately, 70% of participants were lost to follow-up in this evaluation, which limited both the statistical power to detect changes and the generalizability of the findings.

Three evaluations contrasted PFL college participants to comparison groups with mixed results. Johnson<sup>15</sup> compared students at the University of Richmond

who received PFL as part of a wellness course ( $n = 95$ ) to a randomly-selected control group of peers who had not yet received the course ( $n = 98$ ). After completion, PFL participants were more likely to perceive risk at high levels of consumption and to have engaged in refusal behavior. While PFL participants showed lower rates than the control group for 30-day use and 2-week binge drinking (consuming five or more drinks on an occasion), this difference was not statistically significant. In another study, Harrington, Brigham, and Clayton<sup>16</sup> examined an adaptation of PFL for fraternities and sororities. The three study groups were PFL completers, those assigned to PFL who did not attend, and those assigned to a control intervention. Posttests were administered 1 year after the pretest and showed treatment completers (compared to nonattenders) benefitted in terms of having less positive attitudes towards alcohol consumption. However, they did not differ in drinking outcomes. There was also a significant difference between PFL completers and the control condition, with control participants showing greater reductions in drinking. Because of between-condition pretest differences and breaches in the program implementation protocol, it is difficult to draw firm conclusions from this study. Finally, Sandberg<sup>17</sup> evaluated PFL at Örebro University in Grythyttan, Sweden (PFL  $n = 44$ , control  $n = 354$ ) and observed decreases in alcohol consumption across both conditions, but greater risk awareness in the PFL condition. Findings for the subset of participants identified as higher risk (men with Alcohol Use Disorders Identification Test [AUDIT] scores of 8 or higher and women with scores of 6 or higher) favored

the PFL condition. Specifically, he found a lower frequency of binge drinking among PFL participants at the 12-month follow-up that was statistically significant. Although he did not report on their statistical significance, effect sizes were greater for the PFL versus control conditions among higher-risk individuals; in particular, he noted improvements in risk awareness and decreases in average number of drinks per day and frequency of drinking. In general, Sandberg concluded that PFL showed stronger effects for those with higher risk and therefore appeared better suited for indicated prevention than for use in a universal prevention setting. The analysis strategy in this evaluation is atypical, so caution is appropriate when interpreting the findings.

### **Impaired-Driving Populations**

Investigations that evaluated changes immediately after participation have provided support for PFL's efficacy with people arrested for or convicted of driving under the influence of drugs or alcohol. Kallina-Knighton<sup>18</sup> examined PFL effects in impaired-driving programs across 31 sites in Georgia. Utilizing a within-subjects, pre-post design ( $n = 2,776$ ), she found that after completing PFL, participants held more accurate views regarding risk, endorsed fewer beliefs associated with high-risk drinking, and experienced increases in personal risk perception for developing alcoholism. A prior evaluation by Kallina<sup>19</sup> in South Carolina with impaired-driving offenders ( $n = 718$ ) found similar changes in attitudes and beliefs, risk self-assessment, and behavioral intentions. Nason<sup>20</sup> also found participant benefit in a

study of court-mandated offenders ( $n = 7,911$ ) in Indiana, Iowa, Maine, North Dakota, South Carolina, and Utah. Positive changes occurred in attitudes and beliefs, risk perception of drinking and of smoking marijuana, and motivation to reduce alcohol and drug use. Over three quarters of program participants also reported that PFL helped them decide to drink less or use drugs less, as well as develop skills and confidence in their ability to do so. Marsteller, Rolka, and Falek<sup>21</sup> conducted a series of evaluations of PFL from 1992 to 1996. In one study ( $n = 1,714$ ), they found that after completing the program 73% of participants reported planning to drink less. Endorsement of the primary indicator of risk perception increased from 42% to 77% (baseline to posttest). Subsequently, in a subsample of 180 offenders at 30 months, endorsement of the risk perception measure remained at 74.2%. They also found that 34.4% reported drinking less and 24.7% were abstaining at the 30-month follow-up.

Beadnell et al.<sup>22</sup> also investigated outcomes for people referred to intervention as a result of impaired driving in North Carolina. Comparing PFL participants ( $n = 450$ ) to a control condition (an intervention as usual;  $n = 72$ ), analyses showed that PFL participants exhibited significantly greater benefit on understanding tolerance, perceived risk for addiction, perceived risk for negative consequences, problem recognition, and program satisfaction. Both interventions showed intentions to use less substances than they had previously, with no significant differences between the two conditions.

Changes following PFL participation occur across different types of people and substance use severity. For example, the Kallina-Knighton<sup>18</sup> evaluation found that while key attitudes varied by education, gender, and race at pretest, these groups had similar amounts of improvement. Consistent with these findings, Beadnell et al.<sup>22</sup> found that when PFL produced greater change than the control condition, these effects existed across gender, age, and education. Additionally, studies show that effects occur even for people with more serious alcohol or drug involvement. For example, Kallina<sup>19</sup> found significant and similar effects for individuals with zero, one, two, or three alcohol dependence symptoms. In his sample of 7,911 court-mandated offenders, Nason<sup>20</sup> found that those with three or more indicators of dependence appeared to benefit more from PFL compared to those with either zero indicators or one to two indicators. Similarly, Beadnell et al.<sup>22</sup> found that the greatest changes were among individuals with the heaviest use.

Evidence also indicates that PFL is associated with reduced recidivism rates.<sup>23</sup> Two studies compared program completers versus noncompleters among people assigned to participate in PFL. In one study, Marsteller et al.<sup>21</sup> examined recidivism rates for up to 30 months among 230,691 offenders. They found that offenders who did not complete the program recidivated at the rate of 27.1% compared to a rate of 13.5% for completers. Although the lack of a true comparison group limited conclusions, the researchers noted that the annual number of impaired-driving

convictions in Georgia (where PFL was provided statewide) declined from 78,989 to 56,709 over a 5-year timeframe (a 28.2% decline). Fuchs and Hinton<sup>24</sup> compared recidivism rates for youth who completed PFL as part of a youth diversion program in Wisconsin ( $n = 130$ ) to those who chose not to ( $n = 225$ ). Completers had significantly lower 13.5-month recidivism rates (6.2%) than the comparison group (17.3%).

Studies that compare an intervention to an alternative approach are rare in the research literature for impaired-driving offenders; however, there are two such studies for PFL. Lowenkamp, Latessa, and Bechtel<sup>25</sup> looked at 1-year recidivism in Indiana for people who completed PFL ( $n = 1,781$ ), those who attended but did not complete PFL ( $n = 407$ ), and a probation-only comparison group ( $n = 2,188$ ). They adjusted for differences in risk between these groups and found that the probation and noncompleter groups had significantly higher recidivism than the PFL completers. The probability of re-arrest for the probation and noncompletion groups was 36% and 37%, respectively, significantly higher than for the PFL completer group (16%). Finally, Beadnell and colleagues<sup>26</sup> compared 3-year recidivism rates for PFL to a prior intervention (Intervention as Usual—IAU) among individuals arrested for operating a motor vehicle under the influence in Maine. They found that PFL and IAU noncompleters did not differ meaningfully in their rates of recidivism (11.4% vs. 11.0%, respectively). However, there were significant differences favoring PFL among those who completed it versus IAU (7.7% vs. 9.9%, respectively).

Similarly, among those required to complete the interventions plus treatment (because of greater symptom severity), recidivism was lower in the PFL group (9.5% vs. 13.7%). This study controlled for the small difference in overall recidivism rates across the two time periods, as well as gender and number of previous offenses.

### **Military Settings**

There is one study of PFL in a military setting. Hallgren et al.<sup>27</sup> reported a trial of PFL with Swedish conscripts ( $n = 1,371$ ). Using a quasi-experimental design, the researchers assigned soldiers in 10 Swedish Army units to either PFL or a control condition. They re-assessed participants at 5 and 20 months. Both groups showed significant positive changes in drinking and consumption attitudes at 5 months, but a return to baseline attitudes at 20 months. Changes in drinking behavior remained at 20 months, but there was no differential benefit noted for PFL versus the control condition. While this study included significant improvements over prior research by having prospective assignment and follow-up, the intervention providers departed from the PFL curriculum in numerous ways; hence poor fidelity limits the conclusions that can be drawn.<sup>28</sup>

## **DISCUSSION**

The reviewed studies show positive short-term change among PFL completers. This includes consistently finding improvements in attitudes and risk perceptions, outcomes known to be associated with positive changes in substance use choices. Two types of studies have examined behavior following PFL completion. In one type,

the relatively small number of studies that collect follow-up information on substance use, there is evidence of both short-term and sustained reductions in drinking and drug use. In the other type, examinations of driving records, PFL completion consistently appears associated with lower impaired-driving recidivism. There are gaps in research on PFL, and these findings have not been reproduced in every setting. Still, there is general consistency in results across a variety of settings, populations, and study methodologies that increases confidence in PFL's efficacy.

There is a need for trials with several characteristics to fill gaps in knowledge and address the limitations in existing studies. First, knowledge of PFL's effects could be maximized if trials included

suitable comparison conditions and long-term follow-up assessment. Second, studies should measure participant substance use behaviors directly rather than relying solely on cognitions (such as knowledge, attitudes and intentions). Third, in future studies researchers should measure intervention fidelity since departure from program delivery protocols can detract from efficacy. This was likely the case in the Harrington, Brigham, and Clayton<sup>16</sup> and Hallgren et al.<sup>27</sup> studies. PRI is presently testing an assessment instrument (Moving ForWarD) for this purpose. Even with these needs, work to date suggests significant and consistent benefit from completion of PFL across a variety of settings.

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To cite this report:

Rosengren, D. B., Crisafulli, M. A., Nason, M., & Beadnell, B. (2013). *A Review of the Empirical Support for PRIME For Life* (Technical Report 4.1). Lexington, KY: Prevention Research Institute.

For more information, contact Blair Beadnell, Director of Research and Evaluation Services, by emailing [blair.beadnell@primeforlife.org](mailto:blair.beadnell@primeforlife.org), calling 859-296-5022, or visiting [www.primeforlife.org](http://www.primeforlife.org).