

Examining Prime For Life® Outcomes Across Differing Ages

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Abstract

Instructors and clinicians have asked about potential differences in the effectiveness of Prime For Life® (PFL) when delivered to individuals of varying ages. This report describes evidence that PFL is an effective substance use intervention with participants of any age. We analyzed data from PFL participants who completed program evaluation surveys in ten states during 2011 and 2012. We found that, among individuals ranging from 15 to 82 years old, people of varying ages already differed before PFL in substance use behaviors and related issues. Younger adults showed more problematic characteristics on some factors, while older adults did on others. Additionally, youth (those under 18) showed a unique pattern of pre-intervention characteristics, sometimes being similar to older adults and sometimes similar to younger adults. In terms of benefit from PFL, all ages showed improvements during PFL, with the biggest changes typically occurring among ages that come to PFL with more challenges, such as problematic substance use and lower perceptions of risk. The findings support use of PFL with individuals of various ages. Although there is need for additional research with youth (those under 18), these results suggest PFL instructors may want to pay particular attention to specific outcomes depending on the age of their audience.

Introduction

Prime For Life® (PFL) is an indicated substance abuse prevention program provided to individuals with various backgrounds and demographic makeups. While research shows PFL is an effective program, instructors (and others) often ask our Training and Research teams about how well it works with specific age groups. These questions typically focus on how PFL works with individuals at opposite ends of the age spectrum: under-age individuals and those who are middle-aged and beyond.

What previous research shows

Previous evaluations focusing on specific age groups indicate effectiveness (see Technical Report 4.1 for a review¹), but only two have

compared varying ages to each other. Both studies compared PFL participants to people receiving alternative programs. One looked at baseline to posttest changes among people ranging from 15 to 71 years old². The other looked at 3 year impaired driving recidivism rates among people 18 to 90³. Both showed superior results for people receiving PFL compared to other programs. In terms of age, both studies showed PFL's greater benefit occurred for people of all ages. The only exception was for recidivism among younger people who had completed substance abuse treatment following PFL; their rearrest rates were similar to people who received the alternative program.

Goals of these analyses

We conducted the analyses here to further address the issue of how people of different ages benefit from Prime For Life. In considering the questions PRI receives from PFL instructors about differing age groups, we realized there is more to the issue than meets the eye. For example, perhaps rather than just benefitting differently, attendees actually come to PFL with different baseline behaviors and beliefs that impact how they receive PFL.

As a result, we designed our analyses to answer three research questions:

1. Do people of different ages differ in their pre-intervention (baseline) scores when they come to PFL?
2. Do people of different ages differ in the amount of change made from baseline to PFL completion (posttest)?
3. Do people of different ages differ in their posttest scores on outcome measures (i.e., how they are doing when they complete PFL)?

Methods

To answer these questions, we turned to the state evaluation data PRI collected from 10 states across the country in 2011-2012. The data consisted of data from 4,724 individuals who completed PFL (version 8). The average (mean) age was 33.7 (SD = 12.6), with a range of 15 to 82 years old. The majority were male (71%) and Caucasian (78%). In terms of race/ethnicity, the remaining sample was African American (12%), Latina/Latino/Hispanic (4%), or another race, including multi-racial (6%). Most (44%) had never been married, and the majority (88%) had at least graduated high school or earned a GED.

We selected eight key outcomes to focus on. Two involved scales related to participants' perceived risk for consequences related to

substance use (risks from drinking and risk for losing valued things), two involved participants' identification of social support for making positive changes to their substance use (number of people who would support them and the amount of influence those people exert), and the remaining four outcomes involved participants' prior and intended substance use behaviors (usual drinking, peak drinking, marijuana and other drug use, and driving after using substances).

Technical details regarding statistical analyses are provided in Appendix A.

Results

Throughout this report, we use the term "youth" to represent those who are 17 years of age and younger (≤ 17) and "underage adult" to refer to those who fall within the 18 to 20 year old range. In addition, any age differences discussed were statistically significant ($p \leq .05$). The only exceptions to this are outcomes mentioning youth. Because only a very small portion ($n = 41$; $<1\%$) of state evaluation respondents were minors, our ability to detect statistical significance in this group is limited, even when observable differences exist. Therefore, youth results reflect our observations and are not necessarily statistically significant.

Overall patterns

We found overall patterns across the eight outcomes. First, age was in fact related to participants' behaviors and beliefs upon coming to PFL. Second, people of all ages showed positive changes. Additionally, those ages starting PFL with the most room for improvement typically made the largest changes. Finally, even after showing as much as or even more improvement than others, these ages still tended to leave PFL with a small residual deficit compared to other ages. What this means is that various ages coming

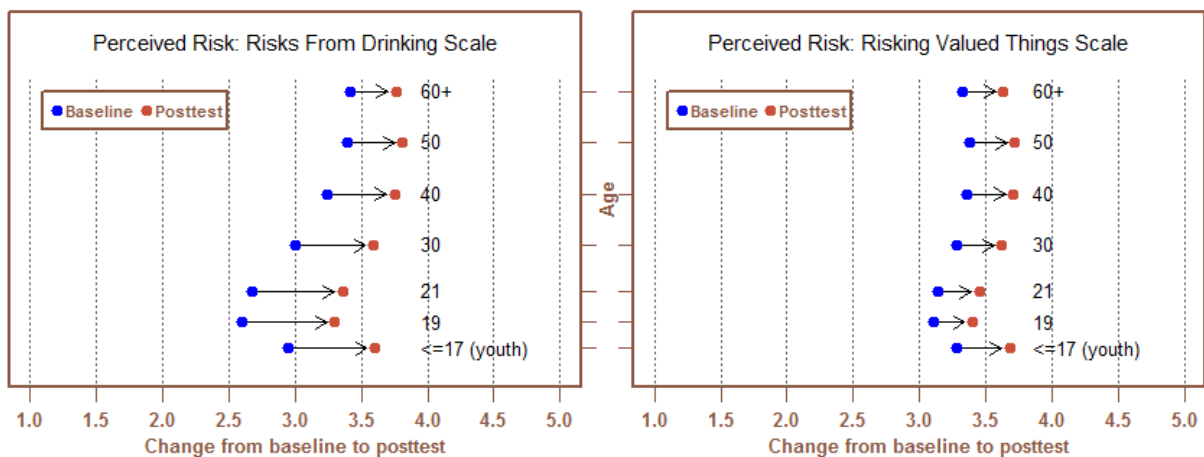
to the program with riskier beliefs and behaviors do improve, but they do not always “catch up” to the others by the time they depart.

Perceived risk for consequences related to substance use

Figure 1 shows results for perceived risk, with baseline and posttest scores shown for selected ages to illustrate the patterns we observed. For both types of perceived risk, we found that youth started PFL in better shape than the underage adults. Specifically, youth reported higher levels of perceived risk compared to underage adults, who had the lowest risk perceptions among all adults.

Beyond that, baseline risk perception improved with age: they became higher as age increased, although the differences were less noticeable for those over age 50. Over the course of PFL (from baseline to posttest), participants’ risk perceptions of substance use improved for all ages. In terms of perceived risk from drinking, larger changes occurred for youth and underage adults. On that outcome, the end result was that, although underage adults continued to show the lowest levels of perceived risk after PFL, the gap between them and the older adults was smaller than before. Differences between the older ages (i.e., above 30) diminished as well.

Figure 1: Perceived Risk

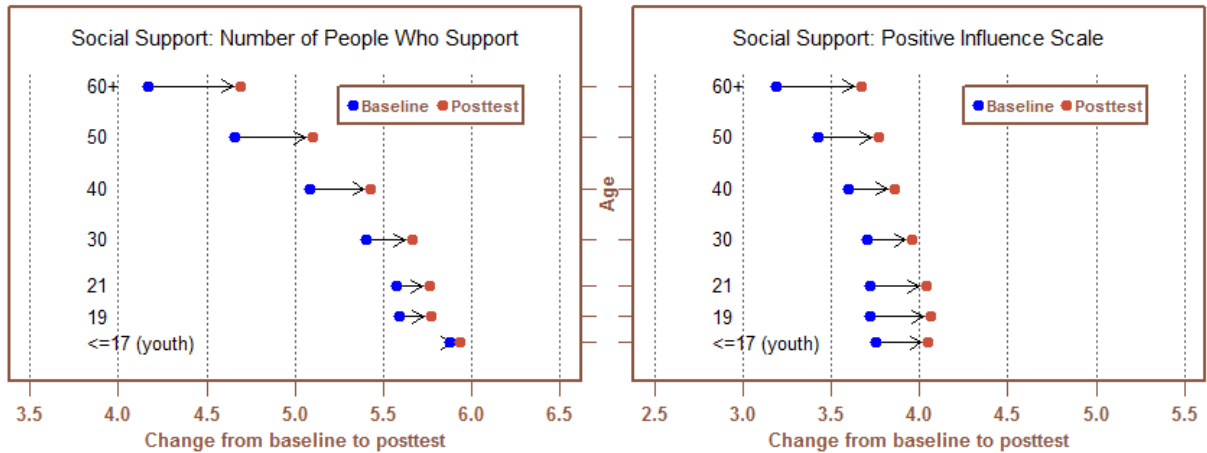


Social support

Social support outcomes showed a different pattern. Youth and underage adults came to PFL identifying the greatest amount of support for making low-risk substance use choices. This was true both for the number of people who they believed would support them, as well as for how much these people influenced them. Those under 30 looked fairly similar to each other, while there were bigger differences among the older ages. By PFL

completion, all ages identified increased positive support. The exception was youth who showed little change in their already higher level of support. Older ages, which started off with the lowest support, showed the largest increases. At posttest, youth and underage adults continued to identify the most support, with those 40 and older continuing to show increasingly smaller amounts.

Figure 2: Social Support

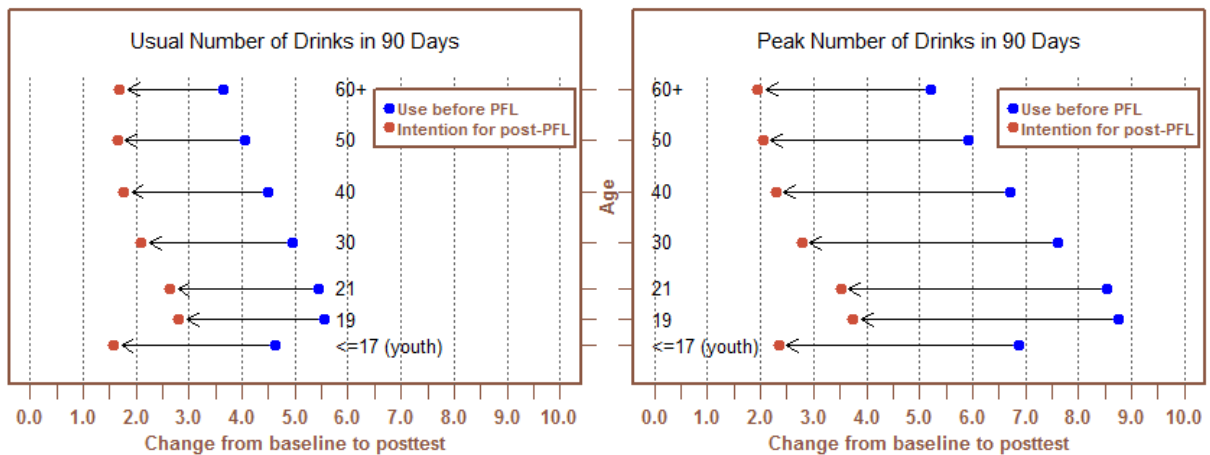


Substance use

Youth reported drinking smaller amounts in the 90 days before PFL compared to underage adults who, not surprisingly, reported the most. As age increased, the number of drinks consumed before PFL decreased, especially for peak drinking episodes. All ages made large improvements during PFL. Specifically, at posttest they intended to drink less in the future than they had in the past, especially the younger individuals. When asked at posttest about their future drinking intentions, underage adults continued to report the

largest number of drinks for both usual and peak consumption. However, their answers in both cases fell within or close to the low risk guidelines (≤ 3 drinks). Interestingly, although there were notable differences in baseline drinking across the older ages (over 40), there were minimal differences in their future drinking intentions. Additionally, youth reported future consumption intentions similar to these older ages, rather than those closer to their own age.

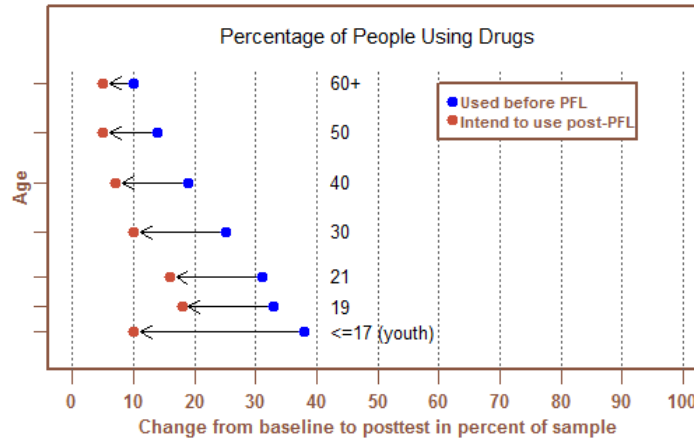
Figure 3: Drinking (Pre-PFL Behavior versus Post-PFL Intentions)



Use of marijuana and/or other drugs looked similar to alcohol consumption, except that youth were the age with the largest percentage reporting pre-PFL use, and this was most similar to underage adults. However, at PFL completion, the percentage of youth intending to use drugs after leaving

the program was more similar to older ages, especially those around age 30. The remaining ages were also less likely to intend to use drugs in the future although age differences did remain (i.e., drug use was less common among older ages). However, there seemed to be a general convergence across all ages.

Figure 4: Drug Use (Pre-PFL Behavior versus Post-PFL Intentions)

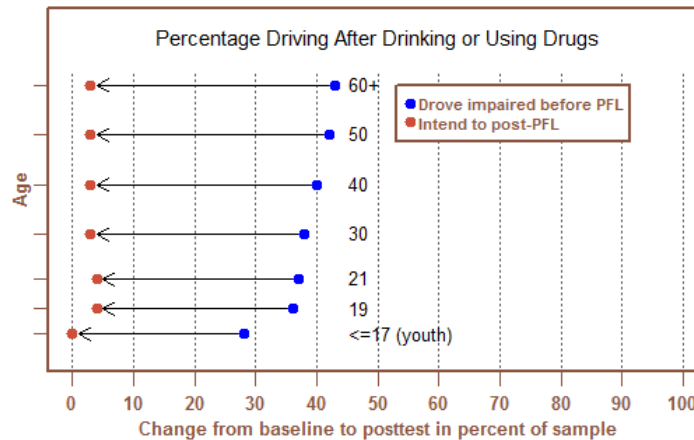


Driving Under the Influence

Older adults came to PFL having driven more frequently after drinking or using drugs. Large improvements occurred for all participants and, after completing PFL, the percentage of

participants who reported intending to drive after drinking or using drugs was $\leq 4\%$ across all ages.

Figure 5: Operating a Motor Vehicle Under the Influence (Pre-PFL Behavior versus Post-PFL Intentions)



Conclusions/Discussion

These findings support the use of PFL with people across the age span. Younger and older individuals all demonstrated improvement as a result of completing PFL.

This is consistent with, and adds to, previous research on the effectiveness of PFL with people of varying ages. One addition is the finding that varying ages bring notable differences with them to the program regarding their potential strengths and challenges. Younger ages tend to come to PFL with higher rates of pre-program substance use and a lower level of perceived risk associated with that use. In contrast, older ages tend to come to the program perceiving the least amount of available social support for making low-risk choices. While we found that PFL is effective for individuals in both cases, those issues may be something instructors want to keep in mind when welcoming new participants to the program. As noted before, those who start PFL with higher levels of substance use and/or riskier beliefs do improve, but they do not

necessarily match the posttest outcomes of other PFL participants. However, this is not to say that PFL is less effective for them. In fact, they often show the most improvement/change, they just do not quite “catch up” to the rest of the group by the time they complete the program.

Youth often showed a pattern that differed from the overall trends. This group revealed a unique story and their results sometimes appeared more similar to those of older PFL participants rather than to attendees closer to their own age. However, given the small number of individuals in this youngest group ($n = 41$), it is difficult to know whether the observed uniqueness is truly indicative of something special about youth, or if it is simply a result of the small sample size we had. Despite the inherent challenges involved when conducting research with minors, further study is warranted to determine if our current findings can be replicated.

References

¹Rosengren, 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.

²Beadnell, B., Nason, M., Stafford, P.A., Rosengren, D., & Daugherty, R. (2012). Short-term outcomes of a motivation-enhancing approach to DUI intervention. *Accident Analysis and*

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³Beadnell, B., Crisafulli, M.A., Stafford, P.A., Rosengren, D., & DiClemente, C.C. (under review). Operating under the influence: three year recidivism rates for motivation-enhancing versus standard care programs.

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Appendix A

Technical Details about Analyses

Research questions

1. Do people of different ages differ in their pre-intervention (baseline) scores when they come to PFL?
2. Do people of different ages differ in the amount of change they demonstrate from baseline to PFL completion (posttest)?
3. Do people of different ages differ in their posttest scores on outcome measures when they complete PFL?

Statistical approach

We conducted Generalized Linear Model (GLM) analyses for all analyses. Each dependent variable was treated in accordance with its distribution (e.g., continuous, count, or dichotomous).

Preliminary analyses

As a first step in understanding the nature of the relationship between age and the eight outcomes, and to inform our choice of the best analytic strategy, we conducted preliminary analyses. In these, we categorized participants into five age groups: ≤ 17 years old, 18-20 years old, 21-34 years old, 35-54 years old, and 55+ years old. Given the large sample size ($n = 4,724$) we created a smaller sample for these preliminary analyses to avoid excess statistical power (which would produce statistical significance for differences that were not practically meaningful). To accomplish this, we randomly selected 200 participants from each categorized adult age group and then added the ≤ 17 group which was already small ($n = 41$). This provided us with an analysis sample of 841 respondents.

We used the categorized version of age as the independent variable in these analyses. For research questions 1 and 3 we conducted Generalized Linear Model (GLM) analyses on the eight dependent variables at, respectively, baseline and posttest. If the Omnibus Type III Test of Model Effects for age on an outcome was significant, we then conducted post hoc pairwise comparisons across age categories to determine where differences existed. For research question 2, we conducted Generalized Estimating Equations (GEE). These included three independent predictors: Age, Time, and Age \times Time. If the Omnibus Type III Test of Model Effects for the Age \times Time interaction were statistically significant, we conducted post hoc pairwise comparisons to determine between which age groups significant differences existed.

All preliminary analyses revealed an effect for age, and scores on outcomes showed fairly linear trends for adults (age 18 and older). This suggested that an analysis strategy suited to this data would be one in which we tested for the linear effects of age. However, youth (those ≤ 17 years of age) were an exception to this pattern. As described below, this finding led us to choose to examine this age group in a separate analysis.

Primary analyses

Primary analysis utilized the original sample of 4,724 PFL participants and involved two analyses for each of our three research questions. In addition to the larger sample size, these analyses differed from the preliminary analyses in that we treated age as a continuous rather than a categorical independent variable in the analysis of adults. We capped age at 60 due to a sparse distribution of

individuals beyond that age and then centered it at the mean. We included as predictors a linear and, as a test of nonlinear trends, a quadratic effect of age. If we found a nonlinear pattern, we retained the quadratic effect but otherwise removed it. We then calculated predicted scores from the regression coefficients for specific age markers (19, 21, 30, 40, 50, 60+). In the second analysis, we compared youth (≤ 17) to underage adults (those 18 to 20 years old; $n = 534$) using a dichotomous predictor representing these groups.

Using these approaches, we assessed research questions 1 and 2 by conducting two GEE analyses using age as described above--continuous for adults in one, dichotomized for youth vs. underage adults in the other. We included Age, Time, and Age \times Time as independent variables. Regression coefficients for Age provided a test of research question 1 and the estimates for Age \times Time a test of research question 2. Research question 3 was answered using GLM as mentioned in the preliminary analyses section above, but using the linear and quadratic age predictors to evaluate participants' posttest beliefs and future behavioral intentions.