Effects of a trauma-informed curriculum on depression, self-efficacy, economic security, and substance use among TANF participants: Evidence from the Building Health and Wealth Network Phase II

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ARTICLE INFO

Keywords:
TANF
Economic security
Substance use
Depression
Trauma-informed

ABSTRACT

Rationale: Integrating trauma-informed peer support curriculum into the Temporary Assistance for Needy Families (TANF) program can help address caregiver trauma symptoms (e.g., depression, low self-efficacy, economic hardship) caused by exposures to violence and adversity that negatively impact one's ability to maintain employment and improve earnings; yet, it is unclear if trauma-informed peer support interventions designed for TANF impact co-occurring disorders, such as depression and substance use, that inhibit resiliency in the labor market.

Objective: The aim of this study is to examine whether integrating trauma-informed peer support curriculum into the TANF program is associated with reductions in co-occurring depression and substance use, and improvements in self-efficacy and economic security.

Method: From October 2015 to May 2018, 369 caregivers were enrolled in the 16-week Building Wealth and Health Network Phase II single-group cohort study. Participants responded to questions regarding their socio-demographic characteristics, mental health, economic security, and use of drugs and alcohol at baseline and four three-month follow-up surveys. Associations between the trauma-informed peer support curriculum and health outcomes were assessed using maximum likelihood estimation.

Results: Using class attendance records, participants were separated into a low-exposure group (< four classes; n = 156) and a high-exposure group (≥ four classes; n = 213). Maximum likelihood analysis revealed that the high-exposure group reported a lower Center for Epidemiologic Studies Depression Scale (CES-D) score (−1.245; p = 0.027) and lower economic Hardship Index score (−0.499; p < 0.001) than the low-exposure group. The analysis also revealed that for the high-exposure group, attending an additional class was associated with declines in CES-D score (−1.024; p = 0.016) and 12-point Alcohol Use Disorders Identification Test score (−0.557; p = 0.012).

Conclusions: These findings suggest that trauma-informed peer support programming improves economic security and self-efficacy and reduces the co-occurrence of depressive symptoms and alcohol use.

1. Introduction

The goal of the Temporary Assistance for Needy Families program (TANF) is to help low-income caregivers join or rejoin the workforce by providing temporary cash assistance while they look for a job or participate in an employment training program. Yet, the majority of TANF caregivers report high rates of work-limiting conditions, such as depression and mood disorders, as well as exposure to violence and adversity (D. Bloom et al., 2012; Bryner and Martin, 2005; Dworsky, 2007; Martin Megan and Caminada, 2012; Sun et al., 2016; Ziliak, 2009). Exposure to violence and adversity can cause symptoms of trauma, which are the psychological, emotional, and physical responses to events and experiences that are deeply distressing. Research on trauma exposure demonstrates that trauma is strongly associated with many negative health conditions such as depression, anxiety, and mood disorders, chronic illnesses such as cardiovascular disease, and
economic hardship (Agaibi and Wilson, 2005; Jackson et al., 2019; Lee and Park, 2018; Liu et al., 2012; Shonkoff et al., 2012; Williams Shanks and Robinson, 2013). Trauma-informed approaches are those that recognize signs and symptoms of trauma in individuals, families, staff, and systems, and fully integrate trauma-knowledge into carefully constructed policies and procedures to resist re-traumatization, create opportunities for emotional and psychological healing, and help build trust and repair relationships (Barnett et al., 2019; Bent-Goodley, 2019; Brooks et al., 2018; Elliott et al., 2005; Ko et al., 2008; Levenson, 2017; Phojanakong et al., 2020; SAMHSA, 2014; Scheer and Poteat, 2018; Williamson and Kautz, 2018). These approaches in health care and schools have been shown to improve health outcomes (e.g., post-traumatic stress disorder, depression, anxiety, somatic complications) over and above standard treatment and practices, and while trauma-informed approaches have started to become more widely implemented, comprehensive evaluations are still lacking (Hodgdon et al., 2013; Hopper et al., 2010; Kenny et al., 2017).

Under the current structure of TANF, caregivers with children under age six are required to satisfy a 20-h work requirement that prepares them to (re)enter the workforce, but the current programming within TANF does not directly address family health and wellbeing, despite the fact that mental and physical health challenges are major barriers to work and self-sufficiency (Kneipp et al., 2011). Moreover, although low income caregivers are more likely to obtain low-quality jobs with precarious work environments (Currie et al., 2015), current TANF programming policy places an emphasis on individuals securing any employment over securing high-quality employment. This policy could explain in part why researchers have documented over the last two decades that TANF beneficiaries encounter difficulty maintaining continuous employment following completion of their participation in the TANF program and continue to churn in and out of TANF (Hildebrandt and Kelber, 2012; Hildebrandt and Stevens, 2009; Lenz, 2002; Ziliak, 2015).

The Building Wealth and Health Network Phase I randomized controlled pilot trial (The Network Phase I) was designed with the goal of addressing family hardships associated with exposure to adversity and violence, social isolation, and low financial capability so that households can achieve self-sufficiency (Booshehri et al., 2018; Sun et al., 2016). The Network Phase I consisted of 28-weeks of trauma-informed peer support financial empowerment curriculum that helps participants create personal growth and savings goals, feel confident when facing difficult life situations, and problem solve. Additionally, participants received assistance opening a matched savings account. The Network Phase I was associated with lowered depressive symptoms, increased self-efficacy, and increased household economic security (Booshehri et al., 2018). Building on feedback from focus groups with Phase I participants and non-participants, a shorter 16-week single-group intervention was conducted (The Network Phase II), but it remains unclear whether a shorter trauma-informed curriculum design is capable of generating similar improvements as the 28-week design.

One additional and related question is whether the trauma-informed curriculum is capable of curbing substance use. Depression frequently co-occurs with substance use, and the relationship between depression and substance use is endogenous, meaning that people suffering from depression are more likely to use substances, and vice-versa (Flynn and Brown, 2008; Grant et al., 2004). The impact of the intervention on substance use was not directly examined in previous analyses of the intervention’s impacts (Booshehri et al., 2018; Phojanakong et al., 2020), and this lack of knowledge leads to an incomplete understanding of the barriers and pathways involved in the intervention’s ability for promoting sustained economic security and self-sufficiency. Therefore, this study seeks to test the effectiveness of the Network Phase II trauma-informed peer support financial empowerment curriculum on caregiver depression, self-efficacy, economic security, and use of alcohol and drugs.

2. Method

2.1. Study sample

Eligibility criteria were: [1] being a primary caregiver of a child less than six years of age, [2] ability to speak English, [3] beneficiary of one of the following government assistance programs: Temporary Assistance for Needy Families (TANF), Supplemental Nutritional Assistance Program (SNAP), Women, Infants, and Children (WIC), or low-income housing assistance (e.g., Section 8/Housing Choice, Philadelphia Housing Authority), and [4] residing in the city of Philadelphia. From October 2015 to May 2017, a total of 369 participants were recruited and enrolled into a 16-week single-group trial with the goal of evaluating the effectiveness of the Network Phase II trauma-informed peer support curriculum. After enrollment, all participants completed a baseline survey, and follow-up surveys were administered every three months for 12 months using an Audio Computer-Assisted Self Interview survey platform. Data were collected between October 2015 and May 2018 for the sample in this analysis.

2.2. The Network Phase II design

The Building Wealth and Health Network Phase II Cohort Trial (The Network Phase II) is a 16-week single-group intervention with both a trauma-informed peer support and financial education module that is facilitated by two coaches and developed for individuals with little to no income. The intervention contained 16 sessions based on the Sanctuary Model®, a theory-based, trauma-informed, and whole culture approach to social service delivery that is grounded in constructivist self-development theory, burnout theory, and systems theory; it seeks to help individuals that have faced adversity to build and repair healthy relationships, plan for the future, improve emotional regulation, and experience empowerment (S. L. Bloom and Farragher, 2013; S. L. Bloom and Sreedhar, 2008; Esaki et al., 2013). In particular, the peer support psychoeducation curriculum drew from the Sanctuary Model® S.E.L.F framework, which is an acronym that represents the four interactive domains of recovery from bad experiences: [S]afety (physical, psychological, social, and moral safety), [E]motion Management (processing and managing emotions in response to memories, persons, and events), [L]oss (heal from and address overwhelming loss), [F]uture (developing goals and envisioning a different future) (S. L. Bloom, 2013). The S.E.L.F. framework incorporates a shared language that allows coaches and participants to jointly conceptualize the recovery process. Class topics integrate concepts from the S.E.L.F. framework, such as creating emotional and financial goals (i.e., savings) and establishing techniques to achieve them, managing one’s social and financial reputation (i.e., how to read and improve credit scores), and recognizing how exposure to violence can shape one’s ability to trust people and institutions (i.e., banks, employers, social services agencies). After attending four sessions, participants open a savings account with a partnered credit union, where their savings (up to $20 per month) are matched one-to-one (Sun et al., 2016). Participants also receive small financial incentives for participating in sessions, completing goals, and completing the intervention. The Drexel University Institutional Review Board approved this study.

As the Network Phase II is a single-group study, an explicit control group was not included. As a result, class attendance records were used to construct variables that allow us to measure the effects of the trauma-informed intervention on both the extensive and intensive margin. On the extensive margin, we examine the effectiveness of the Network Phase II intervention using an indicator variable that separates participants into a low-exposure or high-exposure group. The low-exposure group included participants who attended less than four sessions, and the high-exposure group included participants that attended four or more sessions. Four sessions was selected as the attendance group cutoff because participants attending less than four sessions [1] had very low...
exposure to the trauma-informed peer support curriculum, [2] did not establish a peer relationship with program coaches and other participants in their respective cohorts, and [3] were ineligible to participate in the matched savings component of the financial education modules. Unlike participants in the low-exposure group, when participants in the high-exposure group establish knowledge of the Sanctuary Model approach introduced in each participant’s earliest sessions of the intervention and continue to participate in additional trauma-informed sessions, they are then able to engage with the trauma-informed peer support curriculum in a way where subsequent sessions help them begin to heal from past trauma, violence, and overwhelming life experiences. Therefore, we can then examine the effects of the Network Phase II intervention on the intensive margin using a continuous variable that captures the number of classes attended by members of the high-exposure group.

2.3. Outcome measures

Depressive symptoms were assessed using the 10-item Center for Epidemiologic Studies Depression Revised 10 (CES-D) scale. The CES-D scale identifies 10 items that reflect major aspects of depression, such as depressed mood, wandering thoughts, feelings of fear, loneliness, hopelessness, and restless sleep. This measure is reliable and consistent with the original 20-item CES-D scale across the general population (Chung et al., 2004; Radloff, 1977; Thomas et al., 2001). Each item measures depressive symptoms using four response categories ranging from zero to three (30 points total). Higher scores reflect greater depressive symptoms, where a score of 10 or more is representative of a respondent having clinically relevant symptoms of depression (Andresen et al., 2013).

Self-efficacy, defined as the ability to manage stress and adapt to challenging life events, was measured using the 10-item General Self-Efficacy Scale (GSE). The GSE scale has been demonstrated to be a reliable measure of self-efficacy, especially in low-income populations (Jerusalem and Schwarzer, 1992; Scholz et al., 2002). Each item measures a dimension of a respondent’s ability to deal with demands and accomplish goals using four response categories ranging from one to four (40 points total), where higher scores reflect a participant’s greater ability to deal with demanding situations.

Economic hardship was measured as a cumulative index of three validated measures of economic security: the U.S. Household Food Security Survey Module (HFSSM), an energy security survey, and housing security survey. The HFSSM is a validated 18-item scale developed by the U.S. Department of Agriculture to measure household food insecurity in households with children. Questions are framed to capture a dimension of food insecurity that is attributable to a lack of financial resources being present within the household to finance enough food for an active and healthy life for a household within the last 30 days (Jones et al., 2013). The individual items are aggregated, and households are assigned to one of three numerical response categories: zero if food secure, one if low food secure, and two if very low food secure. Following Frank et al. (2010), households are assigned to one of three numerical response categories for energy and housing security: zero if energy and housing secure, one if moderate energy and housing insecurity, or two if severe energy and housing insecurity (Frank et al., 2010). The measures for food, energy, and housing insecurity are combined to create a continuous hardship index score that ranged from zero to six.

Alcohol consumption was measured using the three-item Alcohol Use Disorders Identification Test (AUDIT-C) (Bush et al., 1998; Maisto et al., 2000). The AUDIT-C is a screening test to identify heavy drinkers and/or active alcohol use or dependence, where each item measures a dimension of alcohol use on a four-point scale (12 points total). Higher scores indicate increased risk of using alcohol in a way that is damaging to caregiver health. Last, drug use was measured using the 10-item Drug Abuse Screen Test (DAST-10) (Maisto et al., 2000). In addition to

Table 1
Baseline characteristics of participants in the Building Wealth and Health Network Phase II Trial, 2015-2018.

<table>
<thead>
<tr>
<th>Intervention Groups</th>
<th>Low Exposure (n = 156)</th>
<th>High Exposure (n = 213)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent's Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>144</td>
<td>206</td>
</tr>
<tr>
<td>Male</td>
<td>12</td>
<td>7.69</td>
</tr>
<tr>
<td>Immigration Status</td>
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<td></td>
</tr>
<tr>
<td>US born</td>
<td>153</td>
<td>99.35</td>
</tr>
<tr>
<td>Foreign born</td>
<td>1</td>
<td>0.65</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
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<td></td>
</tr>
<tr>
<td>Black non-Hispanic</td>
<td>137</td>
<td>87.82</td>
</tr>
<tr>
<td>Hispanic</td>
<td>10</td>
<td>6.41</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>3.21</td>
</tr>
<tr>
<td>White non-Hispanic</td>
<td>4</td>
<td>2.56</td>
</tr>
<tr>
<td>Sexual Orientation</td>
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<td></td>
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<tr>
<td>Heterosexual</td>
<td>135</td>
<td>90.00</td>
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<tr>
<td>Bisexual</td>
<td>13</td>
<td>6.87</td>
</tr>
<tr>
<td>Gay or lesbian</td>
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<td>1.33</td>
</tr>
<tr>
<td>Marital Status</td>
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<td></td>
</tr>
<tr>
<td>Living with a partner</td>
<td>25</td>
<td>16.03</td>
</tr>
<tr>
<td>Married</td>
<td>11</td>
<td>7.05</td>
</tr>
<tr>
<td>Never married</td>
<td>103</td>
<td>66.03</td>
</tr>
<tr>
<td>Divorced, separated, or widowed</td>
<td>17</td>
<td>10.90</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some high school or grade school</td>
<td>50</td>
<td>32.05</td>
</tr>
<tr>
<td>High school graduate or GED</td>
<td>71</td>
<td>45.51</td>
</tr>
<tr>
<td>At least some college and above</td>
<td>35</td>
<td>22.44</td>
</tr>
</tbody>
</table>

Note. Chi-square and Wilcoxon-Mann-Whitney tests analysis showed no between-group differences in control variables, except for educational attainment (p = 0.005) and ACEs (p = 0.033). Satisfaction in the first follow-up period (three-months), just weeks before the completion of the 16-week intervention. The χ² test showed no between-group differences (p = 0.374). serving as a reliable instrument to capturing use of drugs other than alcohol, the DAST-10 captures the consequences of the respondent’s drug use (Yudko et al., 2007). Each item in the DAST-10 is measured on a four-point scale (40 points total).

2.4. Control variables

We control for a number of socioeconomic variables to improve the predictive power and precision of coefficient estimates in the regression models, and to avoid omitted variables bias. Socioeconomic control variables include sex, race/ethnicity, sexual orientation, marital status, and educational attainment. Each of the socioeconomic variables are categorical, but are coded as indicator variables for use in the regression analysis (outcomes for the categorical variables are shown in Table 1). We also control for adverse childhood experiences (ACEs) using the validated 10-item ACE Survey (Felitti et al., 1998). Each of the 10 items in the ACE survey captures information related to personal and family experiences encountered by a respondent before their 18th birthday. ACE survey scores range from zero to 10; with higher scores reflecting more ACEs.
2.5. Statistical analysis

Chi-square and Wilcoxon-Mann-Whitney tests are used to estimate summary statistics and examine differences between the low-exposure and high-exposure groups at baseline (Winters et al., 2010). Furthermore, to determine a participant’s satisfaction with The Network Phase II intervention, we calculate a seven-item satisfaction score at the first follow-up period at month three (four weeks before the completion of the intervention for each cohort round). Each item in the program satisfaction measure was measured on a five-point Likert scale (35 points total)—higher scores correspond to higher program dissatisfaction (Likert, 1932). A χ² test was used to determine whether satisfaction varied between the low-exposure and high-exposure groups.

As with most studies that use longitudinal (repeated measures) data, missing data is an important issue that, if left unresolved, can lead to a decrease in precision and power, and bias in the estimation of within- and between-program effects (Bell and Fairclough, 2013). As our study deals with the challenge of wave non-response (occurring when units do not respond for one or more waves) and attrition (occurring when units participate in more than one wave, but leave the panel), we adopt a maximum likelihood (ML) approach to measure program effects. Unlike multiple imputation (MI), which addresses the missing data problem by filling in estimates for the missing data, the ML approach estimates a model using the observed responses to supplement the loss of information due to non-response (Little and Rubin, 2014). Similar to multiple imputation approaches, ML has been found to produce unbiased estimates of parameters and standard errors (Enders, 2010; Little and Rubin, 2014; Schafer and Graham, 2002).

ML analysis was used to examine how caregiver depression, self-efficacy, economic security, and use of alcohol and drugs vary by [1] exposure group, with coefficient values interpreted as the difference in an outcome measure between the high-exposure and low-exposure group and [2] number of classes attended by participants of the high-exposure group, with coefficient values interpreted as the average amount an outcome measure is expected to change when a participant of the high-exposure group attends an additional class. All models were estimated using Stata MP, version 15 (Stata Corp, College Station, TX) and include cohort and time effects. In this study, p-values below 0.05 are considered statistically significant.

3. Results

3.1. Summary statistics

Between October 2015 to May 2018, a total of 369 individuals participated in The Network Phase II trial. Using the intervention’s attendance records, the 369 participants were separated into a low-exposure group (n = 156) and high-exposure group (n = 213). On average, the low-exposure group attended 0.91 classes while the high-exposure group attended 9.18 classes. Socio-demographics at baseline are reported in Table 1, with distributions comparable by low-exposure and high-exposure groups. Respondents in the low-exposure group reported higher self-assessed dissatisfaction (M = 9.49, SD = 4.34) with the intervention than the high-exposure group (M = 8.06, SD = 3.30), but these differences were not statistically significant (p = 0.374). This finding suggests there was no selection bias that could lead to erroneous differences in outcomes related to separation of participants into exposure groups. Overall, no significant differences were observed between the high-exposure and low-exposure groups on participant gender, immigration status, race/ethnicity, sexual orientation, and marital status. Yet, there were differences between the two groups on educational attainment and ACEs: the high-exposure group reported higher educational attainment and higher ACEs scores than the low-exposure group; however, the difference in ACEs scores were not clinically significant.

Baseline outcomes in this study are reported in Table 2, with distributions comparable by low-exposure and high-exposure groups. Overall, no significant differences were observed between the high-exposure and low-exposure groups on any of the study outcomes, with an exception for the six-point economic Hardship Index (p = 0.025) that reported 2.40 and 2.76 for the high-exposure group and low-exposure group, respectively. Additionally, the baseline outcomes suggest that the study population for both groups is clinically depressed (> 10 CES-D score) and reports drinking patterns just below the threshold for hazardous drinking or active alcohol disorders (≥3 AUDIT-C score). Moreover, the study population for both groups also report high self-efficacy, moderate economic security, and a low degree of problems related to drug use (< 2 DAST-10 score) at baseline.

3.2. Depressive symptoms and self-efficacy

The ML results summarizing how caregiver depression, self-efficacy, economic hardship, and use of alcohol and drugs are reported in Table 2. The depression results (Table 2A) by exposure group revealed that respondents in the high-exposure group reported lower depressive symptoms (−1.245; p = 0.027) than respondents in the low-exposure group, as measured on the CES-D 10-point scale. Similarly, the depression results by number of classes attended by participants in the high-exposure group revealed that attending an additional class was associated with a decline in depressive symptoms (−1.024; p = 0.016). The trauma-informed intervention, however, was not associated with any changes in self-efficacy (Table 2B).

3.3. Economic security

The analysis of economic security (Table 2C) by exposure group revealed that respondents in the high-exposure group reported lower economic hardship (−0.499; p < 0.001) than respondents in the low-exposure group, as measured on the six-point economic Hardship Index. Yet, the economic security results by number of classes attended by participants in the high-exposure group was not associated with any changes in economic hardship.

3.4. Use of alcohol and drugs

The analysis of alcohol use (Table 2D) by exposure group revealed no differences in outcomes between respondents in the high-exposure group and respondents in the low-exposure group, as measured on the 12-point AUDIT-C scale. On the other hand, the analysis of alcohol use by the number of classes attended by participants in the high-exposure group revealed attending an additional class was associated with a decline in alcohol use (−0.557; p = 0.012). The trauma-informed

![Table 2](image)


<table>
<thead>
<tr>
<th>Intervention Groups</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Exposure (n = 156)</td>
<td>11.90</td>
<td>6.49</td>
<td>11.04</td>
<td>5.97</td>
</tr>
<tr>
<td>High Exposure (n = 213)</td>
<td>30.18</td>
<td>6.00</td>
<td>30.57</td>
<td>5.24</td>
</tr>
</tbody>
</table>

**Note.** χ² and Wilcoxon-Mann-Whitney tests analysis showed no between-group differences in outcome variables, except for hardship index measure (p = 0.025).
intervention was not associated with any changes in drug use (Table 3E).

4. Discussion

Results from The Network Phase II trial demonstrated that the trauma-informed peer support intervention was associated with lower depressive symptoms, as measured by both exposure group and number of classes attended by participants in the high-exposure group (Table 3). These findings are consistent with the results of other studies that demonstrate the ability for trauma-informed and peer support interventions to generate improvements in mental health (Booischehri et al., 2018; Pincus and England, 2015). Yet, the Network Phase II intervention was not associated with any changes in self-efficacy. While the Network Phase II curriculum was meant to help participants create goals, stay calm when facing difficult situations, and problem solve, the trauma-informed curriculum may not have caused changes to self-efficacy that could be detected using the general self-efficacy scale utilized in this study. Additionally, general self-efficacy was already high at baseline (see Table 2), and perhaps this measure was too general to capture nuanced self-efficacy changes associated with improvements in depression and economic security. An alternative instrument, such as the Self-Efficacy Survey that assesses self-efficacy in 10 functional areas, would have the sensitivity to measure changes in an individual’s self-efficacy in different functional levels and would be a strong alternative instrument to deploy in future cohorts (Panc et al., 2012).

The results also showed that the high-exposure group reported greater economic security than the low-exposure group, but there were no observed effects of additional classes attended by participants in the high-exposure group. One possible explanation for this result is that repeated exposure to the trauma-informed peer support and robust financial education modules provides participants with a stronger financial acumen and improved confidence and ability when facing economic challenges, such as managing competing bills and paying for basic needs. It could also be the case that because participants in the high-exposure group have access to a matched savings account, they potentially enjoy less material hardship and improved confidence in their ability to meet monthly living expenses due to possessing higher savings than participants in the low-exposure group (Mills et al., 2016). But, other researchers have documented that while matched savings accounts are able to help people save, total savings tend to be modest and incapable of supporting major goals (Loibl et al., 2018; Richards and Thyer, 2011).

Similar to the results for depression, where additional classes attended by participants in the high-exposure group were associated with declines in depressive symptoms, we also observed reductions in alcohol use with additional classes attended (see Table 3). The curriculum’s focus on emotional management, one of the key domains of the Sanctuary Model® S.E.L.F. framework, may have had a positive effect on reducing drinking, as being able to name and identify emotions has been shown to reduce problem drinking (Kashdan et al., 2010). Moreover, the significant effects in reducing alcohol use may be due to the similarities between the social connection and peer support contained in the trauma-informed curriculum and those of 12-step drug rehab and alcohol treatment programs (Worley et al., 2012). This finding is particularly significant as improvements in behavioral health and reductions in alcohol use may turn improve prospects for employment and increased income (Goodman, 2017; Greenfield et al., 1998).

Although the results revealed that attending additional classes is associated with reducing alcohol use for the high-exposure group, no differences were observed in alcohol use between the high-exposure and low-exposure groups. This seemingly conflicting result may be explained, at least in part, by the way the AUDIT-C instrument that we use in our study measures alcohol use. The AUDIT-C screens for risky drinking and alcohol use and dependence using three questions: “How often do you drink?”, “How many drinks are consumed in a typical day?”, and “How often are six or more drinks consumed on one occasion?” At each question, the weight of use of alcohol could decrease with one question, but increase on one or more of the other questions, thus creating point deficits. Therefore, we may be observing that some participants stop drinking or reduce the number of occasions that six or more drinks are consumed, while others increase how often they drink over the study period. This potential variance could explain why we observe no changes in AUDIT-C scores between the low-exposure and high-exposure groups but do observe declines in AUDIT-C scores in response to high-exposure participants attending additional classes. No changes were observed in drug use (see Table 3), but this result may be attributable to the already low degree of drug use observed among participants at baseline (see Table 2).

To our knowledge, this is the first workforce training program to integrate trauma-informed peer support curriculum with traditional TANF programming to improve mental health, reduce substance use, and increase economic security. Additionally, this intervention is one of the only interventions that sought to improve economic security as measured through food, housing, and energy security and showed positive economic effects with a shortened intervention and integrated curriculum. There have been other interventions that sought to improve mental health among TANF participants, but those interventions

<table>
<thead>
<tr>
<th>A. Depression (CES-D)</th>
<th>B. General Self-Efficacy (GSE)</th>
<th>C. Hardship Index (Food, Housing, Energy Insecurity)</th>
<th>D. Use of Alcohol (AUDIT-C)</th>
<th>E. Use of Drugs (DAST-10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Coefficient</td>
<td>p-value</td>
<td>Estimated Coefficient</td>
<td>p-value</td>
<td>Estimated Coefficient</td>
</tr>
<tr>
<td>Exposure indicator</td>
<td>−1.245 (0.562)</td>
<td>p = 0.027</td>
<td>0.327 (0.541)</td>
<td>p = 0.546</td>
</tr>
<tr>
<td>Class attendance (×)</td>
<td>−1.024 (0.425)</td>
<td>p = 0.016</td>
<td>−0.470 (0.411)</td>
<td>p = 0.253</td>
</tr>
</tbody>
</table>

Note. Numbers in parenthesis are standard errors. All maximum likelihood estimation models included sex, race/ethnicity, sexual orientation, marital status, adverse child experiences, educational attainment, cohort effects, and time effects as control variables.
focused on standard one-on-one counseling and improved access to conventional one-on-one treatment (Kneipp et al., 2013).

4.1. Limitations

Despite our study's positive findings, there are some limitations. First, all the outcome measures utilized in this study were self-reported measures. Therefore, it is possible that bias is introduced in the model from self-reported outcomes, such as lack of comprehension of questions or under-reporting activities. To minimize these concerns, we utilize survey instruments that are well established in the literature and have been demonstrated to be consistent in low-income populations (Lown et al., 2015; Maisto et al., 2000; Thomas et al., 2001; Woolfenden et al., 2014). Second, the Network Phase II was a single-group study that did not include an explicit control group, so we used class attendance to construct a low-exposure group and a high-exposure group to measure the effects of the intervention. If there were systematic differences between the two groups, our analysis would be biased, but we used structural aspects about the trauma-informed intervention to determine these groups and demonstrated that there were no major systematic differences in respondent characteristics between the groups at baseline (see Table 1). Moreover, we demonstrated that participant satisfaction with the intervention was not driving selection into either group (see Table 1). Third, while the AUDIT-C measure performs well in identifying hazardous use of alcohol, the aggregated nature of the instrument prevented us from reporting on how the structure of alcohol use evolved across follow-ups. Last, the study design only captured detailed information for our outcome measures over a 12-month period, so we are unable to determine the long-term effects of the Network Phase II outcomes.

5. Conclusions

This study demonstrated that exposure to at least four trauma-informed peer support sessions is associated with reducing depressive symptoms and that greater exposure to the trauma-informed peer support curriculum leads to further declines in depressive symptoms. On the other hand, greater exposure to the trauma-informed peer support curriculum appears necessary to ensure declines in the use of alcohol. Peer support programming allows people with personal experience dealing with mental health problems to support others who are dealing with mental health problems, and it is through this approach that peer support is able to promote belief in recovery, increased self-esteem, self-efficacy, and self-management, and build or rebuild healthy social networks (Repper and Carter, 2011). Therefore, peer support programming can be a powerful tool in treating the symptoms of trauma, such as depression, low self-efficacy, and economic hardship, which negatively impact a person's ability to secure employment, increase earnings, and reach self-sufficiency.

TANF programming generally focuses on providing group and one-on-one coaching services to help build life skills to promote success in the labor market, but at present, group coaching is not delivered through a cohort model that creates opportunities for peer support. This lack of peer support is a missed opportunity, as peer support and education programs have been shown to generate improvements in social cohesion, an important contributor to health behaviors and health outcomes that could improve the efficacy of TANF programming (Ramchand et al., 2017). Further, a trauma-informed peer support approach, such as the one utilized in the Building Wealth and Health Network Phase I and Phase II interventions, has shown promise for health, employment, and economic success (Anderson-Butcher et al., 2004; Booshehri et al., 2018; Jordan, 2006).

Future research is needed to demonstrate whether trauma-informed peer support curriculum has long-term effects on self-sufficiency and improved workforce participation. Moreover, although the intervention has been shown to generate improvements in household mental health and economic improvements in households participating in a variety of social safety-net programs (e.g., SNAP, TANF, Housing Assistance) in the Philadelphia metro area, future studies should also examine whether the Network Phase II intervention model has validity in other geographies and economically vulnerable groups.

Credit author statement


Acknowledgements

This study was funded by the W.K. Kellogg Foundation, Robert Wood Johnson Foundation - Systems for Action, Clanell Foundation, Inc., Pew Charitable Trusts, and Annie E. Casey Foundation.

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