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Poverty Reduction and Determinants of Health

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ABSTRACT

Poverty is a contributor to poor health yet it can be challenging to break the cycle of poverty. We analyzed the characteristics of 2,981 CirclesUSA program participants. Of the 2,981 who were screened at program intake, 12.8% achieved success. Participants were more likely to drop out if they had children at home and/or were experiencing generational poverty. Participants with full time employment, stable housing, access to transportation, who experienced situational poverty, held a degree or who were without children at home were more successful. The CirclesUSA approach to poverty is an effective peer coaching model.



KEYWORDS

Cycle of poverty; federal poverty level; mentoring; poverty reduction; social determinants of health

Introduction

Over 10% of the American population is experiencing poverty and this percentage is rising (Shrider et al., 2021). According to the US Census Bureau's updated data, 11.6% of people lived in poverty in 2021, up from 10.5% in 2019 (Shrider et al., 2021). Moreover, these estimates are higher in children as approximately 20% live in poverty in the United States (Chung et al., 2016). Poverty is a key social determinant of health and contributes substantially to avoidable diseases and over 250,000 deaths every year (Galea et al., 2011). For children, an additional cost of 1 trillion dollars was spent on children experiencing poverty when factoring in both healthcare and social needs (McLaughlin & Rank, 2018). Thus, the more we are able to support a child or family to get out of poverty, the more likely their health will improve and the costs to society will be lowered.

Knowing that poverty places such a burden on one's health and is a barrier to improving it, it is a logical next step to identify best practices or models for reducing poverty. This paper explores the impact of a peer mentoring model as a poverty reduction strategy. The program is led by CirclesUSA (CUSA), a nonprofit organization whose purported mission it to equip communities with the tools to reduce poverty and remove barriers to upward mobility that stand in the way (CirclesUSA, 2019).

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CirclesUSA supports low-income people by drawing upon the capacity of communities to support those experiencing poverty. The organization seeks to support people to get out of poverty “while inspiring and equipping communities to reduce their poverty rates by at least 10% in 10 years” (CirclesUSA, 2017). In each “circle”, a person experiencing poverty is called a Circle Leader (CL), and they are matched with two to three community members or “Circle Allies” who come from middle- or high-income levels (CirclesUSA, 2020). In addition to these Circle Allies, there are five resource teams (including a services team, community team, recruitment team, job and education team and a “Big View” team) to help Circle leaders (CLs) expand their social networks to achieve their financial goals and to move out of poverty (CirclesUSA, 2020).

CirclesUSA has four aims which are “spreading Circles to 10% of Counties and Cities in the USA and part of Canada”, “gaining commitment from communities to decrease 10% in the poverty rate,” “mitigating the Cliff Effect,” and “assisting households to achieve 200% of federal poverty guidelines” (CirclesUSA, 2017). Maintaining economic security after leaving the program has proven difficult as CLs can face a “Cliff Effect” and sink back into poverty if they do not reach 200% of the Federal Poverty Guideline which is defined as an essential factor of economic stability. To prevent this regression, CUSA believes it is necessary to build a sufficient foundation to overcome periods after the government stops supporting medical, childcare, accommodation, or cash assistance. To date, CUSA has implemented this program in 73 locations in the US including 18 states, 43 counties and 17 major cities (over 100,000 people); in addition to this, there are 18 locations in Canada (CirclesUSA, 2019).

In order to assess the success of the CUSA approach to poverty reduction, we sought to answer the following questions using a secondary data analysis of a large database provided to us from CUSA administrators:

- (1) What are the predictive factors for achieving 200% of the federal poverty guidelines from participation in a CUSA program?
- (2) What are the barriers to achieving 200% of the federal poverty guidelines from participation in a CUSA program?
- (3) Who stands to benefit most from a referral into a CUSA program?

Materials and methods

A cross-sectional research design was chosen for the study design. Data were collected from participants in CUSA who are called Circle Leaders (CL). We evaluated the increase in CL income over time while participating in the CUSA program and measured income as a proportion of the US Federal Poverty Level (adjusted based on the number of family members living at home

(Table 1)). An analysis was conducted comparing those who achieved 200% of the FPL to those who did not, controlling for demographic characteristics as identified in CL questionnaires.
 Table demographics.

Table 1. Federal poverty level 100% from 2008 to 2021.

Select State >>>>>48 Contiguous States<<<<<< Select % of Poverty Guidelines							
Per Year							
Household/Family Size	25%	50%	75%	100%	150%	200%	250%
1	\$3,645	\$7,290	\$10,935	\$14,580	\$21,870	\$29,160	\$36,450
2	\$4,930	\$9,860	\$14,790	\$19,720	\$29,580	\$39,440	\$49,300
3	\$6,215	\$12,430	\$18,645	\$24,860	\$37,290	\$49,720	\$62,150
4	\$7,500	\$15,000	\$22,500	\$30,000	\$45,000	\$60,000	\$75,000
5	\$8,785	\$17,570	\$26,355	\$35,140	\$52,710	\$70,280	\$87,850
6	\$10,070	\$20,140	\$30,210	\$40,280	\$60,420	\$80,560	\$1,00,700
7	\$11,355	\$22,710	\$34,065	\$45,420	\$68,130	\$90,840	\$1,13,550
8	\$12,640	\$25,280	\$37,920	\$50,560	\$75,840	\$1,01,120	\$1,26,400
Add for each additional person	\$1,285	\$2,570	\$3,855	\$5,140	\$7,710	\$10,280	\$12,850
Per Month							
1	\$304	\$608	\$911	\$1,215	\$1,823	\$2,430	\$3,037
2	\$411	\$822	\$1,233	\$1,643	\$2,465	\$3,287	\$4,108
3	\$518	\$1,036	\$1,554	\$2,072	\$3,108	\$4,143	\$5,179
4	\$625	\$1,250	\$1,875	\$2,500	\$3,750	\$5,000	\$6,250
5	\$732	\$1,464	\$2,196	\$2,928	\$4,393	\$5,857	\$7,321
6	\$839	\$1,678	\$2,518	\$3,357	\$5,035	\$6,713	\$8,392
7	\$946	\$1,893	\$2,839	\$3,785	\$5,678	\$7,570	\$9,462
8	\$1,053	\$2,107	\$3,160	\$4,213	\$6,320	\$8,427	\$10,533
Add for each additional person	\$107	\$214	\$321	\$428	\$643	\$857	\$1,071

For more information about the poverty guidelines visit: <http://aspe.hhs.gov/poverty>.

	Number	Percent
Gender		
Male	595	2.0
Female	2385	8.0
Age		
18–29	524	17.6
30–40	623	2.9
41–50	993	33.3
51–99	780	26.2
Education		
Graduate education	49	1.6
4-year degree	237	8.0
2-year degree	263	8.8
Certification/Technical training	330	11.1
Some college	792	26.6
High school	746	25.0
Not Applicable	348	11.7
GED	216	7.2
Employment		
Full-Time	833	27.9
Part-Time	689	23.1
Self-Employed	114	3.8

(Continued)

	Number	Percent
Unemployed	1345	45.1
Housing		
Own	354	11.9
Other	602	2.2
Rent	2025	67.9
Ethnicity		
Asian American/Pacific Islander/Asian	16	.5
Black/African American/African	962	32.3
Hispanic/Latinx/Chicanx	227	7.6
Native American/American Indian/Indigenous	57	1.9
Other	134	4.5
White/Caucasian/European	1585	53.2
Type of Poverty		
Situational	1437	48.2
Generational	1544	51.8
Pathway out of Poverty		
Both	1459	48.9
Other	257	8.6
Education	288	9.7
Employment	977	32.8
Children in household		
None	1040	34.9
1	602	2.2
2	662	22.2
3	371	12.4
4 or more	306	1.2

All personal identifying information was removed before being shared with researchers (including name, SSN, address) so that it was not possible to identify persons from the shared database. The study design was submitted to and exempted by the OHSU ethical review committee. Remaining data used for the analysis was from a database with over 60 variables and 2,981 subjects. Questionnaire variables were chosen and re-coded, cleaned, filtered or transformed into variables of interest. Age was calculated at the beginning of the program and those with age <18 years were replaced by missing system variables as only those 18 and over are allowed in the program. For sub-analyses, we transformed participants into two periods (2013–2016 and 2017–2020) based on the intake date in order to observe any difference in mean income between these two time periods. The CUSA program requires all CLs to answer two questionnaires at intake before starting the program's training, and at five time points throughout their participation in the program over eighteen months.

Circle Leaders were asked to answer a questionnaire that included demographic variables such as date of birth, gender, ethnicity, type of poverty experienced (generational versus situational poverty), major pathway they have chosen to pursue to achieve economic stability (employment versus education). Additionally, we collected information about housing status (own, rent or other), access to reliable transportation, education level (from GED to graduate level), completion of job readiness training, employment status (full-time, part-time, self-employed or unemployed), number of people

who are able to support them, the income of household members and the number of members in household (divided into adults >18 years, children and total).

The study used the CUSA definition of program success (achievement of 200% or more of the Federal Poverty Guidelines (FPG)) as a key study endpoint. Each CL's income was adjusted based on household size: $\% FPG = \text{Total Household Earned Income} / \text{Federal Poverty Level}$ (Table 1). We evaluated the likelihood of achieving 200% of FPG at any time of progression report in the CUSA program and the change in FPG of CLs over 18 months.

Our data analysis used a binary logistic regression to examine the predictive factors of CLs. Odds ratio and 95% confidence intervals were calculated to determine which factors were significantly associated with being successful CLs in CUSA with an adjustment made for age, gender and race. To explore the improvement of CLs during their participation with CUSA, their income was compared over time with data from five progress reports. We tested the overall trend from reports 1 to 5 and tested a pairwise comparison and used a repeated measure ANOVA with a Greenhouse-Geisser correction to determine if mean income differed statistically significantly between report time points. A post hoc analysis with a Bonferroni adjustment was used to assess whether mean income increased from intake to 18 months.

Results

Table 2 summarizes characteristics found to be associated with CLs achieving 200% of the federal poverty level after adjustment for age, gender and race. Circle Leaders who had achieved 200% of the FPL while within the program were similar in terms of gender, age and ethnic background. These include one's type of poverty (situational vs. generational), major pathway (employment vs. education), number of children in one's household, employment status (full time or self-employment, OR = 3.44 [2.59–4.57]), education level, access to transportation (OR = 1.46 [1.12–1.91]) and type of housing (owned or rented, OR = 1.55 [1.13–2.14]). No significant differences were found between those with part-time employment or unemployment. Those with graduate, 2-year and 4-year degrees were more likely to achieve success with OR = 2.46 (95% CI: 1.10–5.49), respectively compared to others with only their GED.

Associations were observed between success in the program and having improved social determinants of health such as owning a house, access to transportation, a higher level of education and stable employment. The odds ratios were significantly increased in achieving 200% of FPG for CLs having their own house and accessing transportation with OR = 1.55 (95% CI: 1.13–2.14) and OR = 1.46 (95% CI: 1.12–1.91), respectively. Those CLs with graduate, 4-year and 2-year degrees were more likely to achieve

Table 2. Odds of achieving 200% of federal poverty level by characteristic.

Predictors	Success	
	Odds Ratio (OR)	95% CI for OR
Gender		
Male	0.94	0.71–1.24
Female	1	
Age	1.00	0.99–1.01
Ethnic background		
Asian	0.55	0.07–4.36
Black	1.04	0.80–1.34
Hispanic	0.64	0.37–1.11
Native American	0.94	0.35–2.53
White	1	
Poverty Type		
Generational	0.76*	0.60–0.97
Situational	1	
Major Pathway		
Education and Employment	0.76*	0.59–0.98
Education	0.54*	0.34–0.86
Other	0.80	0.53–1.22
Employment	1	
Housing		
Own	1.55**	1.13–2.14
Other	0.81	0.58–1.14
Rent	1	
Transportation		
Access	1.46**	1.12–1.91
No access	1	
Education		
Graduate Education	2.46*	1.10–5.49
4-year degree	1.79*	1.02–3.15
2-year degree	1.86*	1.06–3.26
Certificate	1.54	0.88–2.68
Some college	1.04	0.63–1.74
High school	0.98	0.58–1.65
Not provided	0.69	0.36–1.33
GED	1	
Employment		
Full-time	3.44*	2.59–4.57
Self-employed	2.26*	1.30–3.93
Part-time	1.14	0.81–1.61
Unemployed	1	
Children Household	0.67*	0.60–0.74

*Significant at $p < .05$. **Significant at $p < .01$. ***Significant at $p < .00$.
 (After adjusted by CLs Age, Gender and Ethnic background).

success with OR = 2.46 (95% CI: 1.1–5.49), 1.79 (95% CI: 1.02–3.15) and 1.86 (95% CI: 1.06–3.26), respectively, compared to others with only their GED. The odds of CLs achieving FPG200 was 3.44 times higher for CLs having a full-time job with 95% (CI: 2.59–4.57) when unemployed CLs played as the reference group. Furthermore, experiencing generational poverty, choosing education instead of employment to move out of poverty, and having many children in one's household prevented CLs from increasing their income and achieving 200% of the federal poverty level.

Table 3. Association between characteristics and poverty type of circle leaders.

Predictors	Type of poverty (generational vs situational poverty)	
	Odds Ratio (OR)	95% CI for OR
Gender		
Male	1.22*	1.01–1.48
Female	1	
Age		
50 and over	0.47***	0.37–0.59
40–50	0.45***	0.36–0.56
30–40	0.80*	0.66–0.97
18–30	1	
Ethnic background		
Asian	0.62	(0.21–1.85)
Black	1.49*	(1.26–1.77)
Hispanic	1.23	(0.91–1.65)
Native American	1.32	(0.75–2.33)
White	1	
Housing		
Own	1.02	0.80–1.30
Other	0.72*	0.60–0.88
Rent	1	
Transportation		
Access	0.78*	0.66–0.91
No access	1	
Job Readiness		
Yes	1.47*	1.08–2.00
No	1	
Education		
Graduate Education	0.41*	0.21–0.81
4-year degree	0.49***	0.33–0.72
2-year degree	0.86	0.59–1.26
Certificate	0.53***	0.37–0.75
Some college	0.64**	0.47–0.88
High school	0.92	0.67–1.26
Not provided	1.61*	1.12–2.32
GED	1	

(After adjusted by CLs Age, Gender and Ethnic background).

*Significant at $p < .05$; ** Significant at $p < .01$; *** Significant at $p < .001$.

Generational versus situational poverty

Whether one had experienced situational versus generational poverty was associated with likelihood of achieving 200% of the federal poverty level while in the CUSA program. Circle Leaders experiencing generational poverty are 76.2% less likely to achieve 200% of the federal poverty level than those experiencing situational poverty (Table 3). To investigate further into this finding, we looked deeper into the characteristics of those experiencing generational and situational poverty and found the following: Age, gender, ethnicity, transportation, job readiness and education were all associated with the type of poverty the CLs had experienced (generational vs situational). Those experiencing generational poverty are more likely to be younger, African American and male. They were less likely to have access to stable transportation and were more likely to have attained a lower level of education compared to CLs experiencing situational poverty.

Improvement in income of CLs over time by each social determinant

For all of the 759 CLs who stayed with the program for 18 months and who completed the five intake meetings, their mean income increased by 41% (a repeated measure ANOVA with a Greenhouse-Geisser correction determined that Mean income differed significantly between report all time points, $F = 101.8$, p -value $<.001$). Their incomes rose from a mean of 78.7% to 119.8% of the federal poverty level.

At intake, CLs with a higher mean FPG to start, with stable employment (i.e., full-time and self-employment), with access to transportation, who own a home or who have higher levels of education all demonstrate a rise in income over time and a higher ending mean FPG when compared to the entire CL cohort. The starting point of all good conditions such as owning a house, accessing transportation, high education and stable employment in mean FPG are much higher than the average. Figure 1 displays the trends of mean income against the federal poverty level for each of six groups of CLs from the 1st to 5th intake. Overall, all CLs in each of the six groups had a statistically significant upward trend in mean FPG (p -value $<.05$).

For those CLs with more stable social determinants in place (such as those who owned their own house, had access to transportation, had achieved a higher level of education and/or had stable employment) the gain in mean income was higher than the average. For example, we observed an increase in income among CLs who owned a house from a mean of 106.3% to 139.6% ($F = 12.14$, p -value $<.001$) (Figure 2). Of interest was that this finding was only

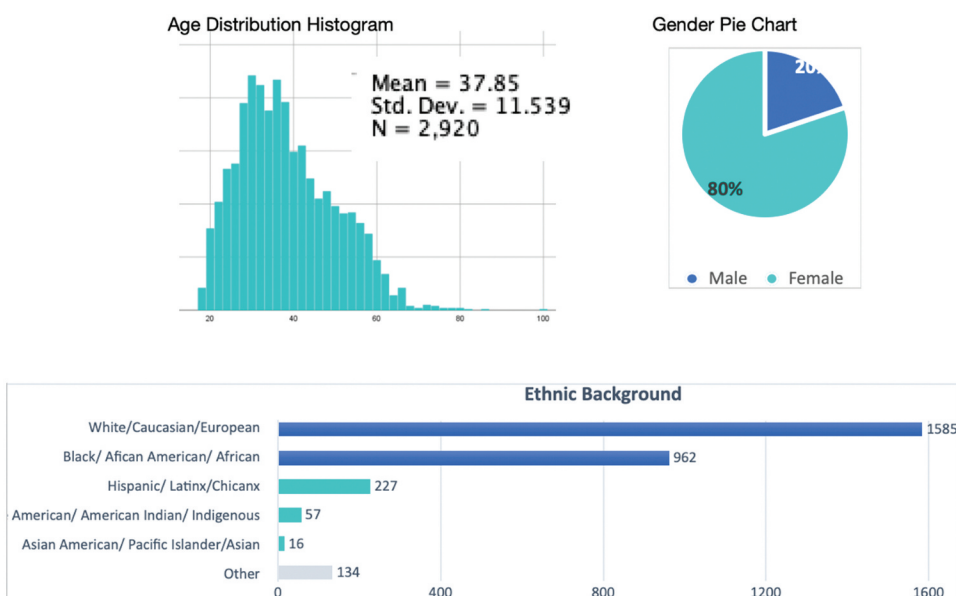


Figure 1. Demographic characteristics of circle leaders from 2018 to 2021.

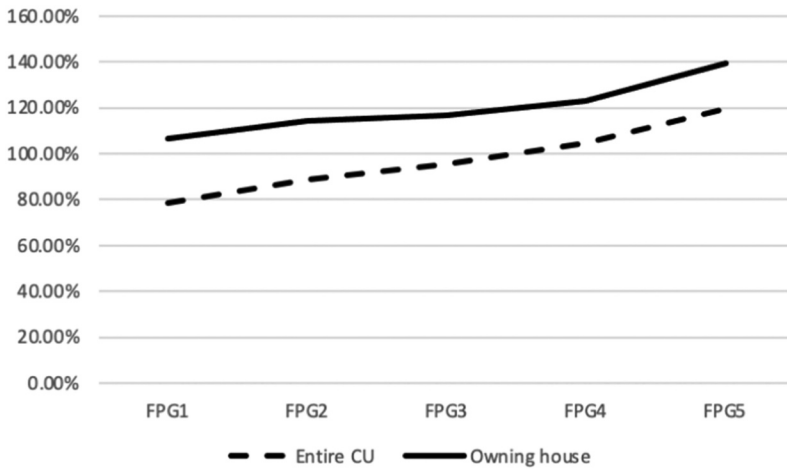


Figure 2. The change in mean income of CLs owing a house versus all CLs.

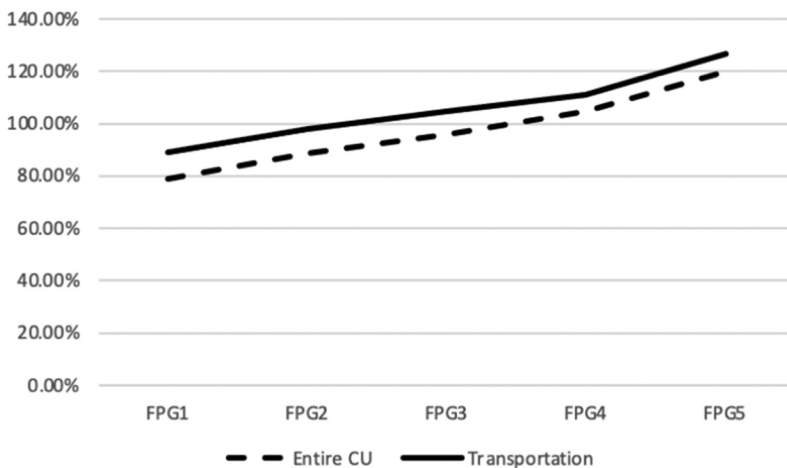


Figure 3. The change in mean income of CLs accessing transportation versus all CLs.

observed after all five intake periods, suggesting that CLs needed to remain with the program for at least 18 months to have a statistically significant increase in income over time. For CLs with access to transportation ($n = 495$), we observed an increase in mean income from 88.9% to 126.8% ($F = 57.41$, $p\text{-value} < .001$) (Figure 3). Again, this difference was only observed after 18 months of program participation (using a post hoc analysis with a Bonferroni adjustment).

For CLs with a high level of education ($n = 166$), we observed an increase in mean income from 99.3% to 138.4% of the federal poverty level as a result of program participation ($F = 18.2$, $p\text{-value} < .01$) (Figure 4). And for those with a full-time job or self-employment ($n = 265$), incomes rose from 113.2% to 139.9% of the federal poverty level ($F = 20.45$, $p\text{-value} < .001$) (Figure 5). Thus,

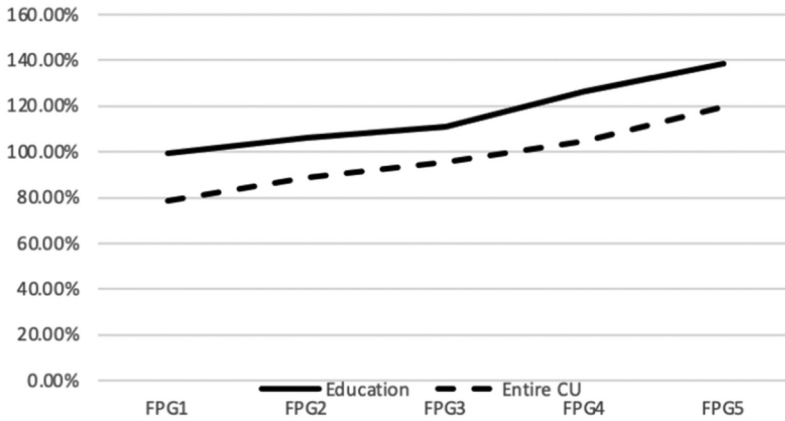


Figure 4. The change in mean income of CLs attaining a high level of education versus all CLs.

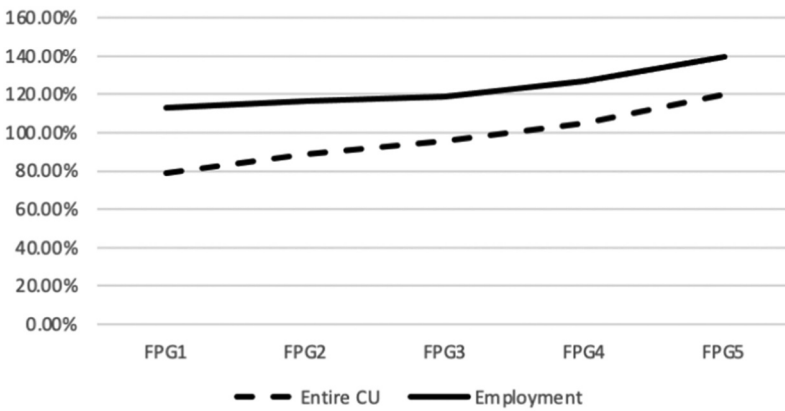


Figure 5. The change in mean income of CLs having stable employment versus all CLs.

having access to stable transportation and employment are the most impactful social determinants for CLs to increase their mean income from 18 months of program participation.

As Figure 6 shows, CL income grew more with those having their social determinants of health met such as access to stable housing, transportation, a higher level of education and stable employment in 18 months in the CUSA program.

Sub-group analysis of the improvement of CLs by reason for being inactive

We performed an analysis of reasons provided for why CLs became listed as “inactive.” We organized the reasons they provided for their responses into ten categories as shown in Table 4. The first common reason provided was for meeting their own goals or for completing the program. While the second most prevalent reason was for having failed

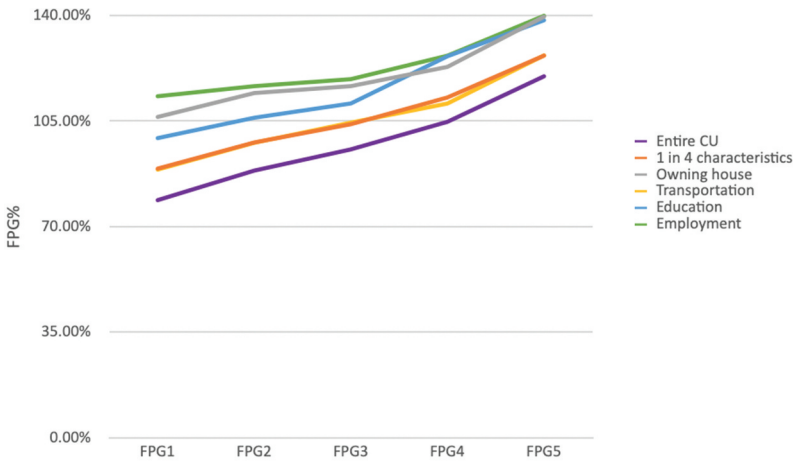


Figure 6. Mean income of CLs by risk factor at each intake period.

Table 4. Reasons provided by circle leaders for becoming inactive.

No.	Category	Description	Frequency
1		Completed Program or Met Goal	170
2		Failed to meet chapter requirements	154
3		Moved/Lost Transportation	105
4		Personal/Crisis	87
5		Work/School conflict	79
6		Unknown	76
7		Became an Ally/Staff/Volunteer	40
8		Other	39
9		Conflict with others/Matched issues	12
10		Chapter Closed	2
		Total	764

to meet chapter requirements, as one would expect, other reasons may prove to be helpful to understand the barriers which exist for helping CLs improve their incomes and complete the program over 18 months: They moved away or lost access to transportation, experienced a personal, work or school crisis.

We then conducted a sub-group analysis of the top five reasons provided for CLs becoming “inactive” and found statistically significant associations between failing to make income gains and experiencing a personal crisis or being unable to meet program requirements. Those who were able to complete the program, moved, lost access to transportation or developed a work conflict were still able to generate increases in their income as a result of participating in Circles USA (Figure 7). This may make a case for the importance of meeting minimum program requirements and identifying personal problems early on in the triage process so that those referred to a Circles USA program can benefit financially from program enrollment and engagement.

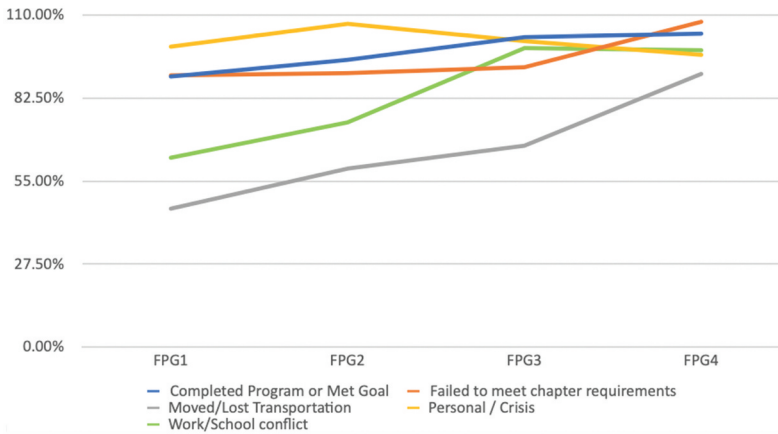


Figure 7. Income trends of circle leaders over time by reason for becoming “inactive”.

Discussion

Despite significant research efforts and focused interventions at the local, national and global scale, the reduction of poverty remains a critical challenge for societies. This study examined the effectiveness of a novel peer mentorship program (CUSA) in reducing poverty and promoting income gains among its participants. The findings in this study may provide valuable insights into the potential of peer mentoring as a means of poverty reduction as well as highlight important factors which may influence the success of such programs.

As detailed above, our research identified specific participant characteristics that were strong predictors of the benefits derived from peer mentorship program participation, including having experienced situational rather than generational poverty, having chosen an employment rather than education-based pathway, having fewer children in one’s household, having attained a higher education level, access to transportation and owning versus renting one’s home. Even for individuals who did not achieve 200% of the Federal Poverty Guidelines (FPG), those with these protective factors listed above generally demonstrated greater income gains overall. Given these findings, it is crucial for programs to consider these characteristics during participant selection, program design and program implementation in order to maximize the potential for income gains. The purpose, of course, would not be to exclude those without protective factors, but instead to consider precisely how these social determinants may be leveraged in the future to help accelerate gains and help program participants to reach 200% or more of the FPG threshold to promote wealth durability.

Interestingly, our study also revealed certain factors that negatively impacted the CLs’ ability to achieve significant income gains. Participants who experienced generational poverty, those with children, and those who

self-identify as Black/African American/African or male all faced greater challenges in attaining target income levels. This finding highlights the complexity of poverty, the enduring legacy of poverty and racism, and suggests that additional support and tailored interventions may be necessary for individuals facing multiple layers of disadvantage. More, external factors such as moving, losing access to transportation, or experiencing a personal or professional crises were found to hinder success during the program. Given the impact of factors on wealth attainment, future programmatic research should examine how to provide additional support services that may address demographic factors and external factors that impede income growth. Similarly, research should consider how the intersectionality of multiple impeding factors may further limit program success.

A final key finding of this study was the significant impact of program completion (i.e., reaching 18 months of continuous participation) on income growth and poverty reduction. The presence of this finding across multiple domains of interest raises the question as to whether there is a critical point of maturity of peer-based relationships, wherein benefits accrue in non-linear fashion, even for those with protective factors like stable housing and employment. While prior research studies have highlighted the positive impact of peer support programs, they have generally focused on the type of content delivered by peer mentors, along with mentoring approaches (Lorenzetti et al., 2019). Less focus, however, has been on the role of time as a variable, and given the findings of this study, future consideration of time and relationship quality on the impact of poverty reduction efforts merits further exploration.

While this study offers valuable insights, it is important to acknowledge its limitations. The research focused on a specific peer mentorship program, CUSA, and its findings may not be generalized to other programs with different structures or target populations. Additionally, the study relied on self-reported data, which introduces the possibility of social desirability or response bias. Finally, while our findings suggested possible associations with other factors beyond those detailed above, the sample size of the study limited the power to draw additional inferences from our results.

In conclusion, this study contributes to the small but growing body of literature on poverty reduction through peer mentorship programs. The findings demonstrate the positive impact of the CUSA program on income gains for CLs who remained in the program for an extended period or possessed a protective blend of social and demographic factors that allowed them to benefit most from program participation. The identification of participant characteristics associated with successful outcomes offers valuable insights for future program innovation and expansion, and allows program administrators to potentially cater support efforts according to each participant's individual needs. Furthermore, the study highlights the need to address the unique

challenges faced by individuals with generational poverty, those experiencing personal crises, and those that identify as Black/African American/African and/or male. Future research should explore strategies to enhance program effectiveness by targeting social determinants of health and addressing factors that negatively impact sustainable income gains.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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