Evaluating the Impact of Rental Assistance on Self-Reliance and Well-Being Among Displaced Populations: A Propensity Score–Matched Analysis

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Abstract

Background: Housing insecurity is a central but understudied determinant of self-reliance and psychosocial well-being among forcibly displaced populations. This study evaluates the causal impact of a nine-month rental assistance program on self-reliance and multiple dimensions of well-being among female-headed Venezuelan migrant households in Colombia.

Methods: Using data from 615 intervention households and 354 eligible non-participants, we applied propensity score matching to construct a balanced comparison group and estimated treatment effects at 2, 6, and 12 months after the intervention ended. Outcomes included overall self-reliance, peace of mind, life satisfaction, agency, self-efficacy, time availability, sense of community, acculturation, and per capita household income.

Results: Matched analyses showed that rental assistance yielded large and statistically significant improvements across nearly all outcomes at every follow-up point. At 2 months post-endline, treatment households scored 0.56–0.78 points higher (on 1–5 scales) than matched controls across core well-being measures; these gains were sustained through 12 months post-endline, with no evidence of convergence. Random-effects models confirmed that the intervention's early advantages persisted over time, with additional improvements observed in peace of mind and life satisfaction. While a few community-related outcomes attenuated modestly, treatment households consistently outperformed controls. Acculturation effects were short-lived.

Conclusions: Findings provide strong causal evidence that short-term rental assistance can meaningfully and durably improve self-reliance and psychosocial well-being among displaced households. By alleviating housing costs, stabilizing living conditions, and enhancing perceived safety, rental assistance appears to reduce scarcity-related stress and enable longer-term planning and economic recovery. Housing support may therefore represent an efficient and impactful intervention for highly vulnerable displaced populations.

Background

Housing insecurity, which may comprise instability, overcrowding, poor housing quality, unaffordability, or pending eviction, has been shown to significantly compromise mental health and psychosocial outcomes. A wide body of evidence demonstrates that individuals experiencing such insecurity are more likely to report elevated levels of stress, anxiety, depression, and lower life satisfaction than those living in stable housing conditions (Singh et al., 2019; Roberts et al., 2025) More recent evidence also highlights the measurable, biological impacts of insecure housing on allostatic load, with research linking housing insecurity to increased levels of cortisol and other stress-related biomarkers (Clair and Hughes, 2019; Blair et al., 2011). These findings underscore housing insecurity as more than a material challenge, but also as a central driver of psychosocial risk and health inequality.

The mechanisms linking housing insecurity to mental well-being have been increasingly grounded in behavioral and cognitive theory. According to the scarcity mindset framework, persistent poverty and material constraints such as unstable housing can deplete cognitive bandwidth and narrow attention toward immediate survival demands (Mani et al., 2013). This cognitive tunneling can undermine the capacity for future-oriented planning, job-seeking, and saving, impeding individuals' ability to reach economic stability, self-reliance, and well-being (Mullainathan and Shafir, 2013). As such, having access to secure, adequate, and affordable housing may not only alleviate the stress of not being able to meet a basic need, it may also free up the mental and emotional resources to support longer-term investments in health, education, and employment (Will Fischer et al., 2019). Given the robust evidence on the bi-directional relationship between financial and mental well-being (Hassan et al., 2021), housing interventions may feasibly impact self-reliance through improved mental well-being, bolster well-being through heightened self-reliance, and/or effect both outcomes simultaneously. Ample evidence demonstrates the impacts of housing interventions on these outcomes, though the majority of available research is limited to high-income, stable contexts (Denary et al., 2021; Jaramillo and Rohe, 2024).

In contexts of forced displacement, the urgency of housing as a determinant of well-being intensifies. Forcibly displaced households, especially those in urban settings, often live in informal or precarious housing arrangements and face affordability constraints, restricted access to formal rental markets, and elevated risk of eviction (Brown et al., 2024). These risks are even more pronounced for refugee populations, specifically, with evidence suggesting refugees exhibit the most compromised housing outcomes of all migration groups (Hiebert, 2009). At the same time, refugee populations experience disproportionately poor psychosocial and economic outcomes due to experiences before, during, and after migration (Gleeson et al., 2020). Elevated levels of depression, anxiety, posttraumatic stress and other mental illnesses are well-documented in refugee populations (Bogic et al., 2015).

As suggested above, these dual burdens create a bidirectional feedback loop for refugees: unstable housing undermines well-being and self-reliance, while weak self-reliance and mental well-being further erode housing stability. Despite this compounding risk—and evidence linking housing insecurity to depression and anxiety among refugees (Ziersch and Due, 2018; Seff et al., 2025)—rigorous evaluations of housing interventions for displaced populations remain scarce. Further, in low-income contexts, the majority of individual- and household-level interventions aimed at improving the economic well-being of refugee populations tend to focus on livelihoods, with little to no robust evidence on the impact of housing interventions for refugees in these contexts (Stark et al. 2025).

The current study addresses this gap by evaluating the causal effects of a nine-month rental assistance program on household self-reliance and well-being among female-headed Venezuelan migrant households in Colombia. By comparing outcomes among households that received the rental support and those matched on key characteristics who did not, this analysis seeks to assess whether alleviating housing costs and improving living conditions can enhance self-reliance and lead to sustained improvements in the scarcity mindset, agency, and other outcomes of well-being.

Methods

Setting

We conducted this study in 17 neighborhoods in nine cities in Colombia: Barranquilla, Soledad, Cartagena, Cúcuta, Villa del Rosario, Los Patios, Cali, Jamundí, and Medellín,. Colombia is home to approximately 5.8 million refugees and migrants from Venezuela, which is the largest population of Venezuelan migrants in Latin America (UNHCR, 2024; Wolf, 2021). These migrants and refugees have elevated levels of depression, anxiety and other mental health sequelae (Alarcon et al., 2022) and female-headed households are especially at risk due to limited financial security, heightened poverty, and gender-based violence exposure due to their employment in the informal sector (Jeronimo Kersh, 2021).

Intervention

Blumont's rental assistance program was designed to promote access to safe and adequate housing for Venezuelan migrant women and their families. Rather than being assigned housing, participants were responsible for locating a rental property that satisfied a set of minimum standards established by the program. These requirements stipulated that: (1) the landlord agree to a written lease lasting nine months; (2) no more than three people share a single sleeping space; and (3) the dwelling have reliable access to water, sanitation, and electricity. Once a household identified a potential unit, Blumont shelter officers conducted a verification visit using a structured checklist to confirm compliance with these conditions, assess privacy and safety, and ensure that the location was not exposed to significant environmental or disaster risks.

Following verification, Blumont assumed responsibility for rental payments over the nine-month period, transferring funds directly to landlords. The initial payment, which covered the first four months of rent, was made immediately after the rental agreement was signed. Subsequent payments were distributed at two-month intervals (at months four, six, and eight). On average, the program paid for monthly rents of COP $413,694 (approximately USD $103). Field teams maintained periodic contact with participant households throughout the nine months, conducting monitoring visits to ensure ongoing compliance with program standards and to identify any protection or service needs. While the intervention did not provide direct economic or psychosocial programming, staff offered referrals to local and international partners delivering social protection, livelihood, or case management support upon request.

Participants and procedures

Eligibility for the rental assistance program was ascertained using a standardized screening process carried out by Blumont's protection and monitoring and evaluation team. To be eligible for the housing program, participants needed to be female household heads who had migrated from

Venezuela and lived in substandard or insecure housing. In October 2023, field staff conducted visits across 17 neighborhoods in nine municipalities to identify potential participants. During these visits, staff completed a structured scorecard that recorded core inclusion criteria and captured additional indicators of vulnerability, such as being at-risk of gender-based violence, being pregnant or lactating, having a disability, and other protection-related risks. Households demonstrating multiple vulnerabilities or severe shelter inadequacy (e.g., residing in informal settlements, overcrowded dwellings, or structures lacking ventilation or facing imminent eviction) were assigned higher vulnerability scores.

The screening process was conducted with 1,998 households and 969 households met inclusion criteria. Resources were available to provide rental assistance for 615 households, divided approximately equally across the 17 neighborhoods. Households were ordered based on their vulnerability scores and invited to participate in the intervention beginning at the top of the list (those with higher vulnerability scores). The remaining 354 eligible households did not participate in the program.

Data for the treatment group were collected at the onset of the intervention, at endline, and two, six, and twelve months following endline. Data for those who did not receive the intervention were collected at the two-, six- and twelve-month marks only. A pre-post analysis of the treatment group data has been presented elsewhere (Stark et al., 2025). The present analysis draws on the three rounds of follow-up data and propensity score matching to compare outcomes for treatment and matched control households.

Outcomes of interest

The primary outcome of interest for this analysis was household-level self-reliance, measured using the Self-Reliance Index (SRI) (Seff et al., 2021). The SRI defines self-reliance as a household's ability to meet its essential economic and social needs in a stable and dignified manner, without relying on formal external assistance. The index evaluates twelve interrelated domains of self-reliance: housing quality and rent, food security, education, access to needed healthcare, health status, safety, employment, financial resources, assistance, debt, savings, and financial and informational social capital. Both domain scores and the overall score of self-reliance assume values between 1 and 5, with higher scores reflecting greater self-reliance. The SRI questions are designed as open-ended prompts rather than standardized survey designed to facilitate rapport and to enable a nuanced assessment of the household's situation. Female heads of household provided responses on behalf of all household members. The SRI has been applied widely in humanitarian and displacement contexts and has demonstrated validity among Venezuelan migrant populations in Colombia (Seff et al., 2025).

Several measures of various dimensions of well-being were also assessed. A full list of outcomes, along with their construction and scoring, can be found in Table 1.

Table 1. Outcomes of well-being

Outcome	Question(s)/Statements(s)	Scoring	Interpretation
Peace of mind (Lee et al., 2013)	1. My mind is calm, free, and peaceful 2. I feel good and comfortable with myself in everyday life 3. The way I am living makes me feel stable, calm, and peaceful	Each item rated on 5-point Likert scale (Never to All the time); Final score is mean of the seven items	1 to 5, higher signals greater peace of mind

	4. I feel that I have peace, calm, and harmony in my mind 5. I find it difficult to feel calm 6. The way I am living gives me feelings of comfort, peace, and calm 7. I feel anxious and mentally restless		
Agency	The current conditions of my life allow me to act and/or make decisions about important goals for my life and that of my family	5-point Likert scale representing level of agreement	1 to 5, higher signals greater agency
Life satisfaction	Understanding well-being as the satisfaction you have with your life as a whole, which step you are on today?	Five steps, higher is more satisfied	1 to 5, higher signals greater life satisfaction
Self-efficacy	When I have a problem, I am calm and know what I need to solve it	5-point Likert scale representing level of agreement	1 to 5, higher signals greater self-efficacy
Time availability	How would you rate the total amount of time you spend with your family, your friends, and yourself?	5-point Likert scale representing level of sufficiency	1 to 5, higher signals greater time availability
Sense of community (McMillan and Chavis, 1986)	Four subscales (Peterson, Speer, & McMillan, 2008): Needs fulfillment: 1. I can get everything I need in this neighborhood 2. This neighborhood helps me meet my needs Membership: 3. I feel like a member of this neighborhood 4. I feel like I belong in this neighborhood Influence: 5. My opinion is valued about what happens in this neighborhood 6. People in this neighborhood help and advise each other Emotional connection: 7. I feel emotionally connected to this neighborhood 8. I have a good emotional bond with the people in this neighborhood	5-point Likert scale representing level of agreement for each item; Final score for each subscale is mean of the two underlying items	1 to 5, higher signals greater needs fulfillment, membership, influence, and emotional connection
Acculturation	1. For me, as a migrant, it is important to preserve and share Venezuelan customs with the people of Colombia 2. For me, as a migrant, it is important to learn about and adopt Colombian customs	Scale from 1 to 10 indicating level of agreement with each statement	'1' if response of >=8 for both items; '0' otherwise
Income	Per capita household income in previous month (COP)	N/A	N/A

Analysis

Given that households were not randomized to receive the housing intervention, we employed propensity score matching to identify a comparison group that closely resembled the treatment group (Rosenbaum and Rubin, 1983). Propensity score matching involves calculating each participant's probability of receiving the intervention (i.e., the propensity score) based on a set of

observed baseline characteristics. Those who participated in the intervention are then matched to non-participants with similar propensity scores, thereby producing a balanced sample that minimizes bias due to observable differences between groups.

Propensity scores were estimated using logistic regression with psmatch2 in Stata. The covariates included in the model—which were found to be strongly associated with treatment status—were household income per person, household size, the respondent's age, and whether the household had delays in rent payment at the time of the screening process. Treated and untreated households were matched using nearest-neighbor matching on the estimated propensity scores and the matching procedure was conducted separately for each of the 17 neighborhoods, rather than once across the whole sample. The estimation strategy produced weights reflecting the number of times each control household was matched; as such, the reweighted matched control group represented the distribution of characteristics among treated households for our subsequent analyses.

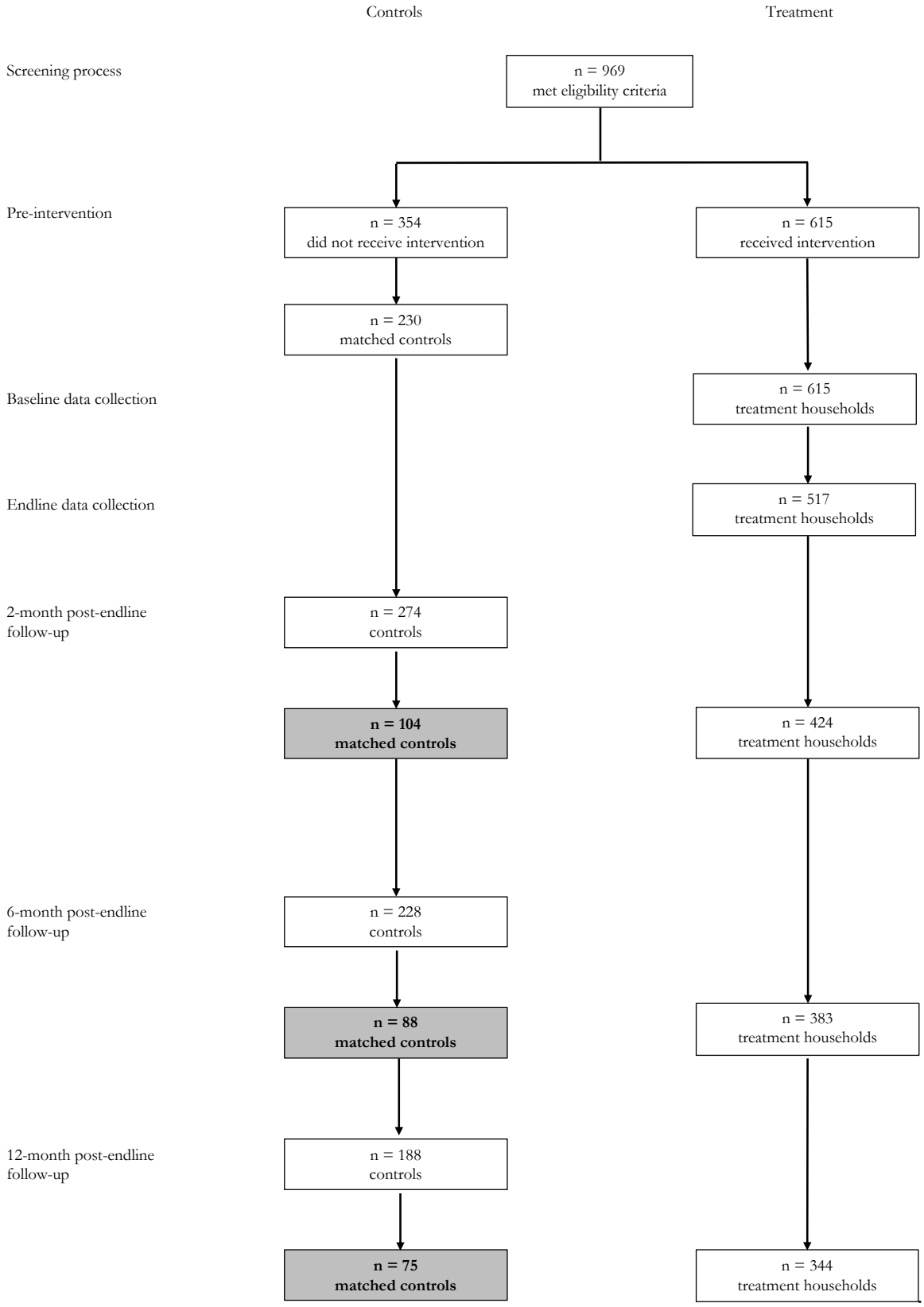
To assess differences in outcomes between the treatment and weighted matched control groups, we employed ordinary least squared regressions. Separate regression models were estimated for each outcome at each of the three rounds of follow up, with the outcome and treatment status (for the matched sample) serving as the dependent and independent variables, respectively. The matching weights were used to account for the fact that each control household may serve as a match for more than one treatment household.

To evaluate whether treatment effects varied over time—i.e., whether treatment effects were stronger, weaker, or stayed the same over time over time—we estimated panel regression models with random effects and treatment–time interactions. Random-effects models were selected because treatment status does not vary within households across survey rounds, rendering fixed-effects estimation inappropriate for estimating the intervention effect. The random-effects specification allows us to incorporate repeated observations for each household while accounting for unobserved, time-invariant heterogeneity across households. This approach provides a complementary assessment of the intervention's effects by examining whether treated households follow different trajectories than matched controls from 2- to 6- to 12-month follow-up.

Results

The propensity score matching identified 230 women and their households, among those who did not receive the intervention, to serve as matched controls to the treatment households (see Figure 1). Data were collected from 104 matched control and 424 treatment households at two months after endline, 88 matched control and 228 treatment households six months post-endline, and 75 matched control and 188 treatment households 12 months after endline. Loss-to-follow-up was likely lower for the treatment group as Blumont field staff maintained periodic contact with treatment households during the 9-month intervention period.

Figure 1. Participant flow chart



Flowchart of participants: treatment, nontreatment, and matched control households

Summary statistics for basic demographics at pre-baseline screening and for outcomes of interest at two months following endline can be found in Table 2. Respondents were 36.69 years of age at pre-baseline screening with an average household size of 3.98.

Table 2. Summary statistics

	Full sample		Treatment		Matched control	
At pre-baseline screening:	(n=845)		(n=615)		(n=230)	
Respondent's age	36.69	[12.21]	35.88	[11.03]	36.07	[11.70]
Household size	3.98	[1.55]	4.26	[1.44]	4.2	[1.55]
At two months after endline:	(n=528)		(n=424)		(n=104)	
SRI	3.15	[0.76]	3.41	[0.61]	2.70	[0.83]
Peace of mind	3.07	[0.82]	3.20	[0.81]	2.80	[0.71]
Life satisfaction	3.71	[1.02]	3.91	[0.88]	3.52	[1.07]
Agency	4.04	[0.90]	4.26	[0.72]	3.65	[0.96]
Self-efficacy	4.21	[0.96]	4.33	[0.87]	4.02	[1.02]
Time availability	3.66	[0.98]	3.74	[0.91]	3.33	[1.13]
Necessities met	4.19	[1.01]	4.42	[0.89]	3.76	[1.08]
Belonging	4.43	[0.88]	4.60	[0.70]	3.98	[1.11]
Influence	4.03	[0.96]	4.27	[0.76]	3.59	[1.16]
Connection	4.40	[0.91]	4.61	[0.62]	3.94	[1.28]
Acculturation	0.85	[0.35]	0.94	[0.23]	0.72	[0.45]
Per capita household income in previous month (COP)	226,248	[178,388]	248,131	[180,617]	204,007	[165,309]

Note: Statistics are mean[sd].

Table 3 presents the treatment effects at each point of data collection. Excluding acculturation, all outcomes of interest were greater in the treatment group as compared to the matched control group at two, six, and twelve months after endline. Effect sizes were also large, with treatment participants generally exhibiting scale scores that were 0.5-0.7 points higher on the 5-point scales. While acculturation was higher among treatment households two months post-endline (B=0.22; 95% CI [0.160,0.284]; P<0.001), this treatment effect was not sustained six months after endline and was only moderately significant one year after the end of the intervention. The treatment effect for per capita household income in the last month, while statistically significant at six months post-endline (B=104,076; 95% CI [49,065,159,087]; P<0.001), was no longer significant 12 months following endline.

Table 2. Treatment effects, as compared to matched controls (Beta)

Treatment effect:	SRI	Peace of mind	Life satisfaction	Agency	Self-efficacy	Time availability	Necessities met	Belonging	Influence	Connection	Acculturation	Per capita income
2-months after endline	0.70*** [0.559 - 0.844]	0.39*** [0.221 - 0.561]	0.39*** [0.196 - 0.591]	0.61*** [0.439 - 0.772]	0.31** [0.119 - 0.508]	0.42*** [0.210 - 0.622]	0.66*** [0.463 - 0.862]	0.62*** [0.452 - 0.796]	0.68*** [0.497 - 0.865]	0.67*** [0.500 - 0.841]	0.22*** [0.160 - 0.284]	44,124* [5,919 - 82,328]
6 months after endline	0.66*** [0.503 - 0.808]	0.70*** [0.551 - 0.842]	0.69*** [0.486 - 0.898]	0.78*** [0.593 - 0.967]	0.66*** [0.494 - 0.831]	0.49*** [0.334 - 0.655]	0.77*** [0.497 - 1.044]	0.58*** [0.409 - 0.753]	0.56*** [0.389 - 0.729]	0.43*** [0.287 - 0.578]	0.08 [-0.017 - 0.181]	104,076*** [49,065 - 159,087]
12 months after endline	0.56*** [0.425 - 0.701]	0.70*** [0.531 - 0.864]	0.76*** [0.525 - 0.988]	0.67*** [0.487 - 0.848]	0.66*** [0.504 - 0.808]	0.66*** [0.504 - 0.808]	0.36* [0.075 - 0.643]	0.37*** [0.199 - 0.540]	0.54*** [0.339 - 0.751]	0.38*** [0.205 - 0.552]	0.12* [0.015 - 0.234]	34,554 [-19,309 - 88,419]

Note: Statistics presented are Beta coefficient and 95% confidence intervals. Treatment effects are statistically significant at *p<0.05, **p<0.01, and ***p<0.001. All beta coefficients statistically significant at p<0.001 are also significant at p<0.0045, the alpha level after applying a Bonferroni correction to account for multiple comparisons.

To further examine whether treatment and matched-control households followed different trajectories over time, random-effects models with treatment–time interactions were estimated (see Table 4). Across outcomes, and as shown in Table 2, the main treatment coefficients indicate that intervention households scored substantially higher than matched controls at two-months post-endline. The time indicators show that control households also experienced improvements over time, with significant gains from two months after endline to both 6- and 12-month follow-ups for a few outcomes, including self-reliance, life satisfaction, agency, self-efficacy, time availability, and whether the respondent felt their necessities were met in their neighborhood. For example, self-reliance improved between 2- and 6-months post-endline in the matched-control group (B=0.67; 95% CI[0.513,0.826]; P<0.001), though overall levels of self-reliance were higher in the treatment group at both time points.

However, the interaction terms suggest that the rate of change between groups did not differ for most outcomes. Generally, treatment × time coefficients were small and not statistically significant, suggesting that the sizable initial treatment advantage was largely maintained rather than widening or diminishing over the follow-up period. A few exceptions were observed. For example, treatment households demonstrated modest but significant additional improvements in peace of mind at 6 months post-endline (B=0.31; 95% CI[0.089-0.523]) and at 12 months post-endline (B=0.31; 95% CI[0.082-0.535]) relative to controls; similar relative improvements were observed for life satisfaction at 6 months post-endline (B=0.31; 95% CI[0.057-0.573] and at 12 months post-endline (B=0.38; 95% CI[0.112-0.654]). In contrast, for a few of the sense of community sub-scales—specifically, necessities met, belonging, and connection—treatment effects

attenuated slightly over time, though treatment households continued to outperform controls at every time point. Overall, the longitudinal models indicate that the intervention produced immediate and meaningful gains that persisted through one year post-intervention, with no systematic convergence between groups on key indicators of well-being and self-reliance. Per capita household income in the last month proved the one exception, whereby treatment effects observed at six months post-endline had disappeared by the 12-month mark.

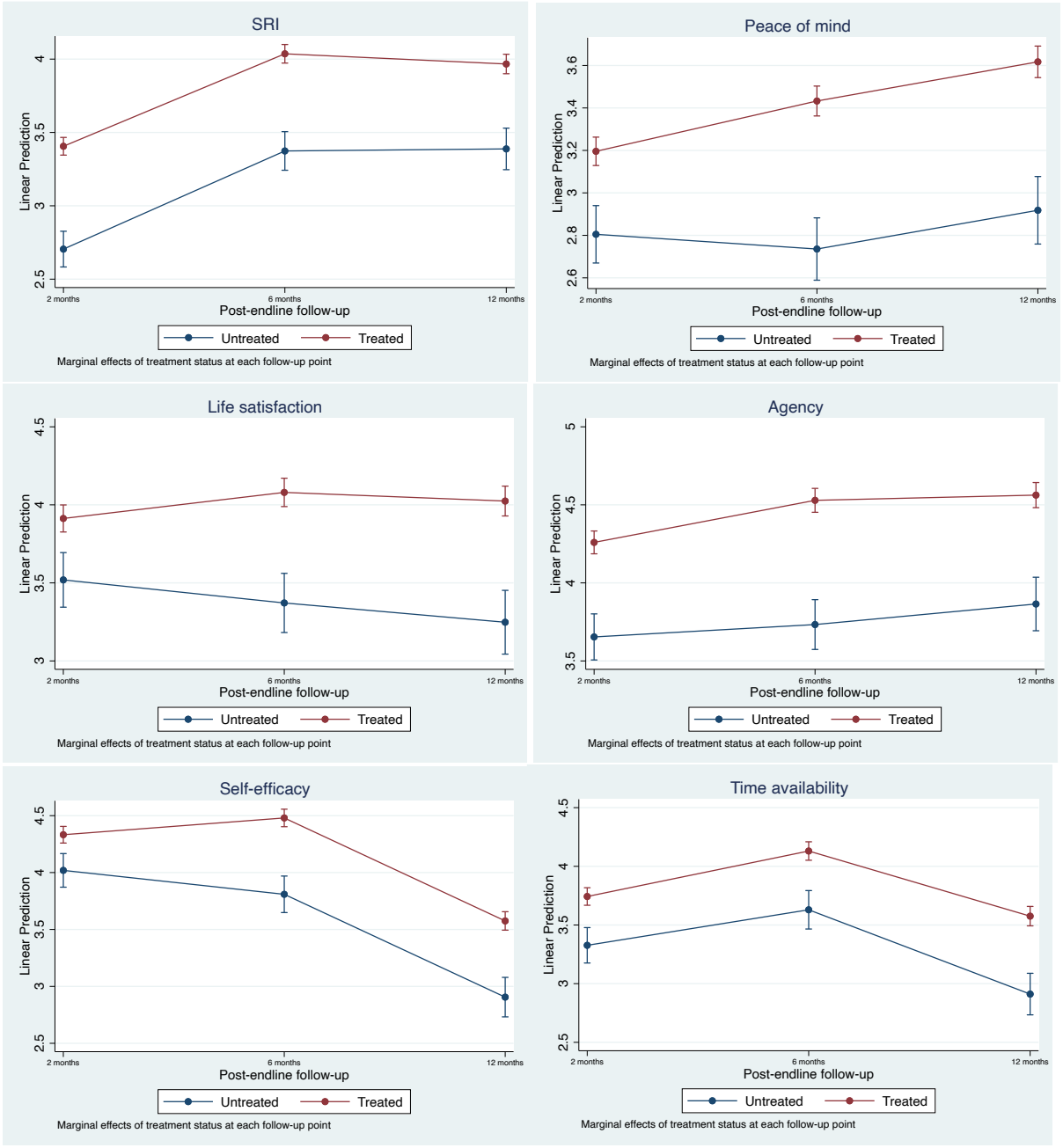
Marginal effects of the intervention at each follow-up point are shown in Figure 2 and highlight two outcomes that declined between 6 and 12 months post-endline: self-efficacy and time availability. However, decreases in these two outcomes were observed across both treatment and matched control groups, with the treatment group still exhibiting statistically greater values at both time points as compared to matched control. Additionally, the four sense of community sub-scales remain relatively stable across all three follow-ups, with treatment households scoring statistically greater than matched control households over time.

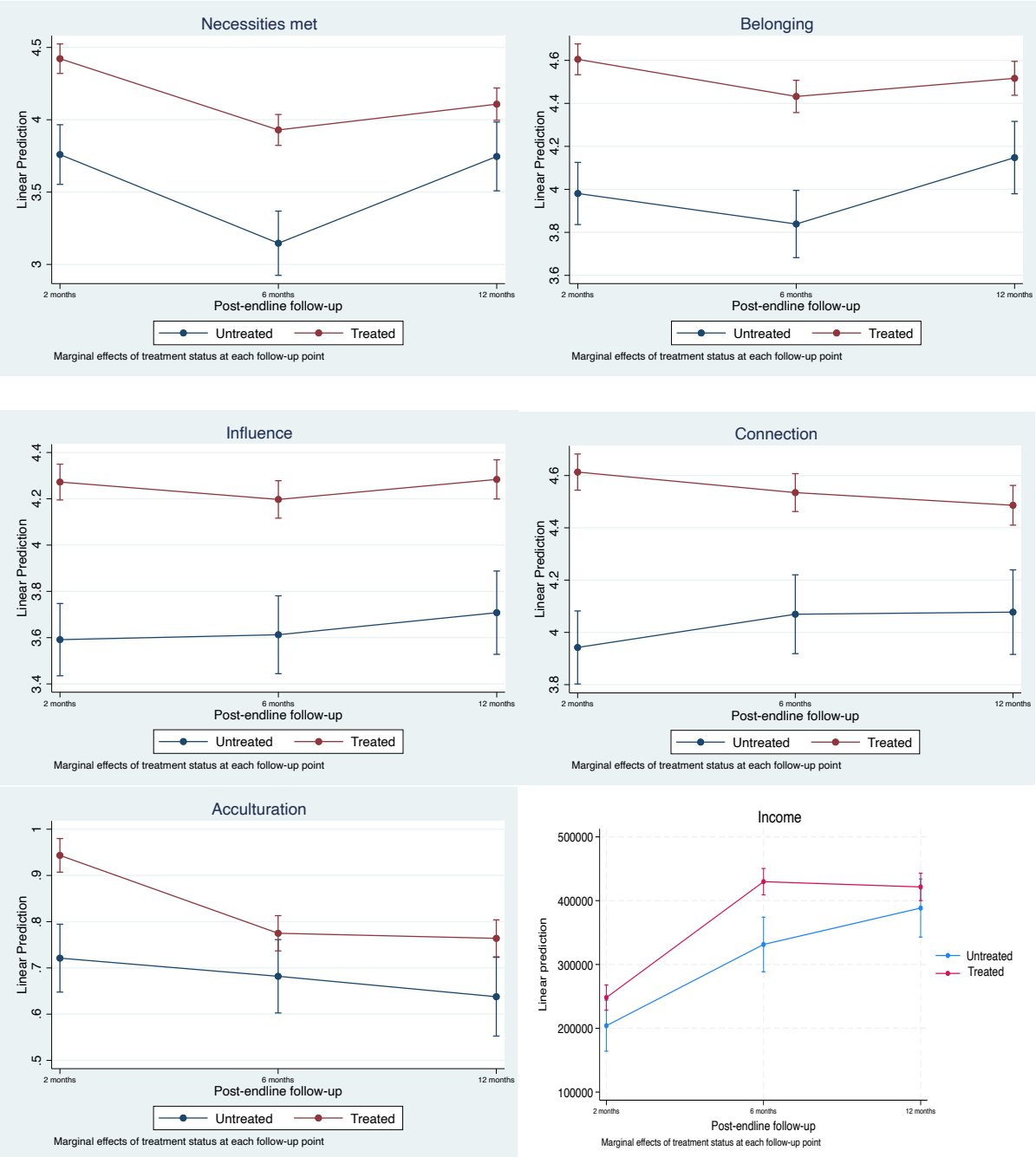
Table 4. Treatment and time effects

	SRI	Peace of mind	Life satisfaction	Agency	Self-efficacy	Time availability	Necessities met	Belonging	Influence	Connection	Acculturation	Per capita income
Treatment	0.70*** [0.565 - 0.837]	0.39*** [0.240 - 0.542]	0.39*** [0.198 - 0.589]	0.61*** [0.441 - 0.770]	0.31*** [0.149 - 0.478]	0.42*** [0.248 - 0.584]	0.66*** [0.432 - 0.893]	0.62*** [0.463 - 0.786]	0.68*** [0.507 - 0.855]	0.67*** [0.515 - 0.827]	0.22*** [0.140 - 0.304]	44,124 [-472 - 88,719]
6 months after endline	0.67*** [0.513 - 0.826]	-0.07 [-0.264 - 0.126]	-0.15 [-0.380 - 0.084]	0.08 [-0.109 - 0.267]	-0.21* [-0.417 - 0.003]	0.30** [0.095 - 0.510]	-0.61*** [-0.863 - 0.363]	-0.14 [-0.329 - 0.044]	0.02 [-0.168 - 0.210]	0.13 [-0.047 - 0.301]	-0.04 [-0.132 - 0.054]	127,340*** [82,256 - 172,424]
12 months after endline	0.68*** [0.518 - 0.848]	0.11 [-0.091 - 0.317]	-0.27* [-0.516 - 0.027]	0.21* [0.013 - 0.409]	-1.11*** [-1.331 - 0.896]	-0.42*** [-0.634 - 0.198]	-0.01 [-0.277 - 0.251]	0.17 [-0.030 - 0.363]	0.12 [-0.083 - 0.316]	0.14 [-0.048 - 0.319]	-0.08 [-0.181 - 0.015]	184,422*** [136,749 - 232,095]
Treatment * 6 months after endline	-0.04 [-0.213 - 0.135]	0.31** [0.089 - 0.523]	0.31* [0.057 - 0.573]	0.19 [-0.019 - 0.399]	0.36** [0.128 - 0.587]	0.08 [-0.146 - 0.316]	0.12 [-0.157 - 0.398]	-0.03 [-0.238 - 0.177]	-0.10 [-0.306 - 0.114]	-0.21* [-0.399 - 0.012]	-0.13* [-0.233 - 0.026]	54,303* [4,229 - 104,378]
Treatment * 12 months after endline	-0.12 [-0.305 - 0.060]	0.31** [0.082 - 0.535]	0.38** [0.112 - 0.654]	0.09 [-0.128 - 0.312]	0.36** [0.115 - 0.597]	0.25* [0.006 - 0.490]	-0.30* [-0.593 - - 0.009]	-0.26* [-0.473 - -0.038]	-0.11 [-0.326 - 0.116]	-0.26* [-0.465 - 0.059]	-0.10 [-0.205 - 0.013]	-11,016 [-63,777 - 41,744]

Note: Statistics presented are Beta coefficient and 95% confidence intervals. Treatment effects are statistically significant at *p<0.05, **p<0.01, and ***p<0.001. All beta coefficients statistically significant at p<0.001 are also significant at p<0.0045, the alpha level after applying a Bonferroni correction to account for multiple comparisons.

Figure 2. Marginal effects of treatment status at each follow-up point, random effects models





Discussion

This study provides causal evidence that short-term rental assistance can generate significant and sustained improvements in household-level self-reliance and multiple dimensions of well-being among forcibly displaced populations. Across nearly all outcomes assessed, treatment households outperformed matched controls at two, six, and twelve months post-endline, with large effect sizes persisting well beyond the end of rental coverage. In addition to improvements in self-reliance, we observed meaningful gains in peace of mind, life satisfaction, agency, and other indicators aligned with reduced scarcity mindset and increased psychological stability. Although the size of treatment

effects declined slightly over time for a few outcomes (particularly those tied to neighborhood-level connection and resources) and disappeared altogether by 12 months after endline for income, treatment effects for the majority of outcomes remained statistically significant through the twelve-month post-implementation follow-up. Random-effects models confirmed that these treatment–control gaps did not significantly narrow over time for most outcomes, suggesting that the intervention's early benefits were largely maintained. Taken together, these findings suggest that providing housing support to displaced households can meaningfully reduce psychosocial burden and create lasting conditions for economic and emotional recovery.

Venezuelan households in Colombia face profound and persistent depravation with respect to basic needs and consumption (Wirtz et al., 2024). Research integrating poverty and scarcity lenses suggests that such chronically insecure households—as compared to those facing incidental or conditional scarcity, for example—are often unable to restore resources without intervention (Blocker et al., 2023). The present housing intervention produced significant improvements in household self-reliance and in a range of well-being outcomes, including peace of mind, agency, and time availability, all of which may serve as a proxy for the scarcity mindset. Findings thus lend empirical support to existing conceptual models positing that secure and adequate housing can improve psychosocial outcomes by reducing stress and enabling individuals to engage in longer-term planning and resource-building (Swope and Hernández, 2019).

However, the precise mechanisms through which housing assistance promotes recovery remain unclear—particularly for displaced populations, who may continue to encounter structural and social barriers even when their housing and other basic needs are met. Future research should further investigate the pathways linking housing, cognitive scarcity, self-reliance, income, and well-being. Importantly, treatment effects for per capita household income were no longer observed at 12 months after endline, despite sustained treatment effects for other measures of well-being. This finding suggests that while housing support may partially impact psychosocial outcomes through increased capacity to invest in longer-term financial well-being, there are other mechanisms of change playing a role as well. Clarifying these mechanisms will be essential for designing future programs that integrate housing assistance with complementary interventions to accelerate recovery and build sustainable well-being in displacement-affected populations.

For example, future research should explore the role of perceived and actual safety as a mediating factor between housing support and well-being, as a key element of the rental-assistance intervention was the requirement that participants secure a *safe* housing option before receiving rental coverage. A prior evaluation of this housing intervention found substantial improvements in participants' perceptions of safety (Stark et al., 2025), suggesting that stability and protection may have played a critical role in altering psychosocial conditions. In the broader literature, perceptions of lower safety, whether at home or in one's neighborhood, have been linked with elevated stress, depressive symptoms, and reduced psychological functioning even after controlling for objective indicators of crime (Robinette et al., 2021; Holding et al., 2020). When individuals feel unsafe, cognitive and emotional resources may be consumed by vigilance, fear, and threat mitigation, reducing capacity for agency, self-efficacy and future-oriented investment. Conversely, improved safety can free mental bandwidth, strengthen self-regulation, and enable households to engage in behaviors aligned with longer-term goals. In displacement-affected contexts, where protection risks, unstable tenancy, and neighborhood insecurity are common, ensuring safe shelter may function not simply as a material benefit, but as a psychosocial stimulus for recovery and self-reliance (Ziersch et al., 2024). Evidence from this study suggests that housing assistance may serve as a valuable

intervention for especially vulnerable subgroups of displaced households, such as female-headed families, those with protection concerns, or those living in high-risk shelter conditions.

Not only do our findings suggest that housing is an impactful intervention to improve self-reliance and mental well-being among vulnerable subgroups of displaced households, they also provide evidence for what may be a cost-effective intervention. In this study, the nine-month rental assistance program led to substantial and durable gains across nearly all outcomes, with treatment households exhibiting significantly higher self-reliance even 12 months after the end of the intervention. This indicates a sustained return on investment and suggests that stabilized housing conditions may generate benefits long after support concludes. In contrast, the small number of studies that evaluate livelihoods and skills-training interventions for refugees — though widely implemented — show mixed impacts on sustained gains in income, employment, and mental health, while demonstrating expensive programmatic costs (Yan et al., 2025; Kaumba, 2024). Future research should compare the cost -effectiveness of housing assistance to these other commonly funded interventions in humanitarian contexts. Measurements may include the relative cost per unit increase in self-reliance and mental health scores, as well as long-term economic trajectories of study participants.

Limitations

This study has a few notable limitations. Loss to follow-up was higher in the control group than the intervention group; however, individuals who dropped out from the matched control group were more likely to be worse off at the screening stage, suggesting that we are underestimating, rather than overestimating, the effect size in our analysis. We used self-reported outcomes for our analysis which are subject to reporting bias. However, the use of validated mental health questionnaires protects against this possibility. Lastly, we collected pre-baseline data to assess study eligibility and match control households with treatment households in October 2023, but we did not collect baseline data on outcomes for control households in January 2024 when the study began. While we do not have comparative baseline data for the control and treatment households, our propensity score matching enable the creation of comparable study groups to reduce bias.

Conclusion

This study provides strong causal evidence that short-term rental assistance can generate impactful and sustained improvements in self-reliance and psychosocial well-being, as well as other indicators of success, for female-headed households among Venezuelan refugees in Colombia. By alleviating housing insecurity, the intervention reduces the scarcity mindset and enables households to stabilize, plan ahead, and invest in long-term goals. This is an especially notable contribution to the literature given the relatively few studies that examine housing as an intervention for displaced households, and many studies that find mixed results for livelihoods interventions. Rental assistance may offer a highly efficient pathway to economic independence, psychosocial wellbeing, and self-reliance. Taken together, the findings from this study may help to guide policy and program toward interventions that produce sustainable and equitable improvements for highly vulnerable displaced persons.

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