

Social Protection Access, Educational Stratification and Psychological Distress Among Rural Youth in Mysuru District, Karnataka: A Cross-Sectional Study

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Abstract

India operates a dense architecture of anti-poverty and employment programmes, yet little is known about how far these reach rural young people or whether reaching them relieves psychological distress. This study surveyed 300 rural youth aged 15 to 29 across three taluks of Mysuru district, Karnataka, tracing each respondent from scheme awareness through participation to realised benefit, and measuring distress with the PHQ-4. Attrition was observed at both transition points. Seventy-two per cent were aware of poverty-alleviation schemes, 51% had participated in one, and 34% reported an actual benefit, giving a delivery efficiency ratio of 0.47. This attrition was socially patterned. Scheme awareness is stratified by education at Cramér's $V = .63$, indicating that the least educated, who were also the most deprived on other measures, were the first to be excluded. Welfare engagement correlates with distress at $r = -.80$, and respondents reporting a realised benefit averaged 4.79 on the PHQ-4 against 7.20 for those reporting none, a difference that straddles the clinical threshold of 6. Twenty-eight per cent were fully excluded from the welfare system while 25% were fully engaged. Perceived effectiveness stood at 0.47 on a 0-to-1 scale, indicating that reach and impact diverge even among those served. The findings suggest that this attrition acts as a structural filter rather than as administrative inefficiency, and that closing it may carry mental health returns that current programme evaluation does not capture.

Keywords: social protection; welfare delivery; rural youth; mental health; India; health equity; information asymmetry; cross-sectional studies; Karnataka

Introduction

In statutory terms, young people in poor rural households in Karnataka are eligible for an extensive range of social protection programmes. The Union government guarantees wage employment through MGNREGS, rural housing through PMAY-G, skilling through DDU-GKY and PMKVY, financial inclusion through PMJDY and health coverage through Ayushman

Bharat. Karnataka adds an unemployment allowance for youth under Yuva Nidhi, food security under Anna Bhagya, an income transfer to women under Gruha Lakshmi and free bus travel under Shakti. The statutory provision available to this population is therefore substantial.

Whether this provision reaches its intended beneficiaries is less well established, and this question is the focus of the present study. Programme evaluation in India has conventionally measured coverage, counting how many people a scheme reaches. Coverage counts treat awareness, enrolment and benefit as though they were the same event. These are distinct stages, and entitlements may be lost at each transition between them.

A second gap concerns outcomes. Social protection programmes are assessed against their stated economic objectives, so mental health sits outside the evaluation frame almost entirely. International evidence indicates that this omission is consequential. Cash transfers produce small but reliable improvements in mental health and subjective well-being across low- and middle-income settings (McGuire et al., 2022; Wollburg et al., 2023), though the effect in young people specifically is weaker and less consistent (Zimmerman et al., 2021). To the authors' knowledge, no Indian programme reaching rural youth has been evaluated for these outcomes.

This study addresses both gaps in one rural youth population. It traces the welfare pipeline from awareness through participation to realised benefit, identifies where and against whom it narrows, and asks whether receiving a benefit is associated with lower psychological distress. The central proposition is that this attrition is structural rather than administrative: each junction functions as a filter that selects systematically against the least advantaged.

Theoretical Framing

The interpretation offered here rests on a distinction between an entitlement and a functioning. A scheme creates a legal claim; whether that claim becomes something a person actually has depends on conversion factors, among which information, literacy, documentation and the capacity to navigate administrative procedures are central. Poverty tends to constrain these capacities, so a delivery model that requires beneficiaries to supply them will reach the better-resourced first.

This framing yields a testable prediction: that attrition along the pipeline will not be random but socially patterned, and that the patterning will follow whichever capacity each stage demands. If the first stage demands information, attrition there should track education. The data reported below allow that prediction to be checked at the awareness stage, where it is measured directly, though not at the later stages, where it can only be inferred.

Method

Design and Setting

The analysis forms the intervention component of a larger mixed-methods study of poverty, unemployment and mental health among rural youth in Mysuru district, Karnataka. Roughly four in five district residents live in villages and agriculture dominates employment, which makes the district a reasonable setting in which to observe rural welfare delivery

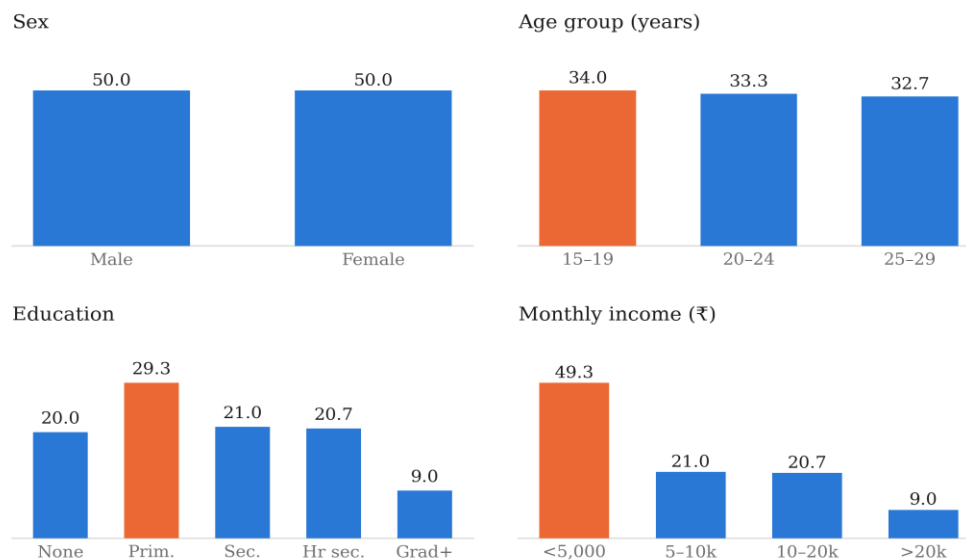
without the distortions of a metropolitan periphery. Fieldwork covered Hunsur, Heggadadevanakote and Nanjangud taluks. The design is cross-sectional, and every association reported below describes co-occurrence rather than sequence.

Participants

Three hundred young people aged 15 to 29 completed a structured questionnaire, allocated equally at 100 per taluk and balanced by sex at 150 each. Twenty respondents took part in narrative interviews selected for maximum variation. Equal allocation is a design choice and means the sample is not self-weighting for district-level estimation. Figure 1 reports sample characteristics, which show a population under substantial economic pressure: 49.3% report monthly income below ₹5,000, 64.7% carry an active loan, and 27.7% are rarely food secure.

Figure 1

Socio-Demographic Composition of the Sample (N = 300)



Note. Bars show the percentage of respondents in each category. The modal category is highlighted where one is unique. Sex and taluk were balanced by design. Caste, household size, indebtedness and food security are described in the text and enter the association tests in Table 2.

Measures

Welfare engagement was measured as a three-stage sequence. Respondents were asked whether they were aware of poverty-alleviation schemes, whether they had participated in any programme, and whether they had received an actual benefit. From these, three indices were constructed. The Welfare Engagement Index sums awareness, participation and realised benefit on a 0-to-3 scale. The Delivery Efficiency Ratio divides realised benefit by awareness, expressing pipeline throughput on a 0-to-1 scale. The Scheme Effectiveness Perception Index averages ordinal effectiveness ratings across programmes, also scaled 0 to 1.

Psychological distress was measured with the PHQ-4, a validated four-item ultra-brief screen for depression and anxiety scored 0 to 12 (Kroenke et al., 2009), with a score of 6 or

above taken as the threshold for probable clinical need. The instrument screens rather than diagnoses, and results should be read on that basis.

Socio-demographic associations were examined using chi-square tests with Cramér's V reported as the effect size measure, which is appropriate for the cross-tabulated categorical variables used here. Open-ended responses on programme experience and policy preference were analysed thematically following Braun and Clarke (2021).

Ethical Considerations

Because the study involved no intervention, no biological sampling and no identifiable personal data, formal ethics committee approval was not required for research of this type. Standard ethical practice for social research was followed regardless. Before data collection, every respondent was informed of the study's purpose, the nature of the questions and how the data would be used, and participation was voluntary. Those screening in the severe distress band received information on available services. Records were anonymised at entry.

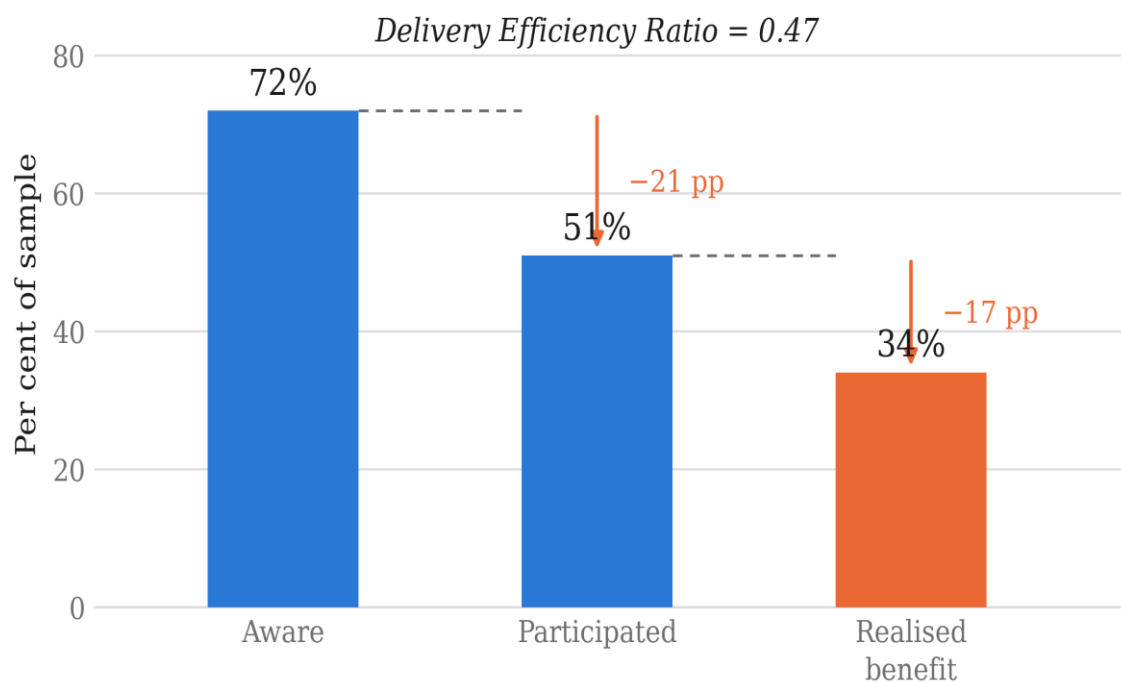
Results

Attrition Along the Pipeline

Figure 2 traces the welfare pipeline across its three stages. Seventy-two per cent of respondents were aware of poverty-alleviation schemes. Fifty-one per cent had participated in a programme, a loss of 21 percentage points. Thirty-four per cent reported an actual benefit, a further loss of 17 points. The Delivery Efficiency Ratio, benefit divided by awareness, stands at 0.47.

Figure 2

Welfare Pipeline From Scheme Awareness to Realised Benefit Among Rural Youth (N = 300)



Note. Percentages refer to the full sample at each stage rather than to conditional transition rates between stages. The Delivery Efficiency Ratio expresses realised benefit as a proportion of awareness.

Table 1 reports these stages with 95% confidence intervals. Awareness sits at 72.0% [66.7, 76.8], participation at 51.0% [45.4, 56.6] and realised benefit at 34.0% [28.9, 39.5]. The intervals do not overlap between the first and third stages, so the attrition across the pipeline is not an artefact of sampling variability.

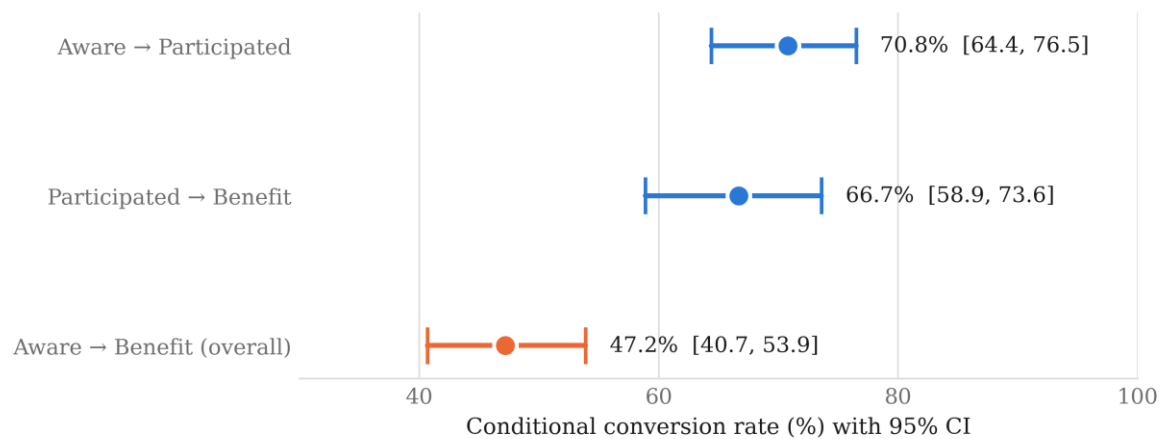
Table 1

Welfare Engagement Measures With 95% Confidence Intervals and Association With Distress (N = 300)

Measure	<i>n</i>	% or value	95% CI	<i>r</i> with PHQ-4
Pipeline stage				
Aware of schemes	216	72.0	66.7, 76.8	—
Participated in a programme	153	51.0	45.4, 56.6	—
Reported a realised benefit	102	34.0	28.9, 39.5	—
Welfare Engagement Index (0–3)				
Fully excluded (score 0)	84	28.0	23.2, 33.3	—
Partially engaged (score 1–2)	141	47.0	41.4, 52.7	—
Fully engaged (score 3)	75	25.0	20.4, 30.2	—
Index mean	—	1.57	—	-.80 [-.84, -.76]
Derived ratios				
Delivery Efficiency Ratio	—	0.47	—	—
Scheme Effectiveness Perception Index	—	0.47	—	—
Mean PHQ-4 by benefit status				
Reported a benefit	—	4.79	—	—
Reported no benefit	—	7.20	—	—

Note. Confidence intervals are Wilson score intervals for proportions and a Fisher *r*-to-*z* interval for the correlation, which is significant at $p < .001$, two-tailed, on 298 degrees of freedom. Group means for PHQ-4 are unadjusted and, given the stratification of scheme access reported in Table 2, are confounded; they are descriptive contrasts, not programme effects.

Unconditional percentages understate the attrition, because each stage draws only from the one before it. Figure 3 reports the conditional conversion rates. Among those aware of a scheme, 70.8% [64.4, 76.5] went on to participate; among participants, 66.7% [58.9, 73.6] reported a realised benefit; and the overall conversion from awareness to benefit is 47.2% [40.7, 53.9]. Expressed as an effect size, the gap between awareness and benefit gives Cohen's $h = 0.78$, a large difference by conventional standards.

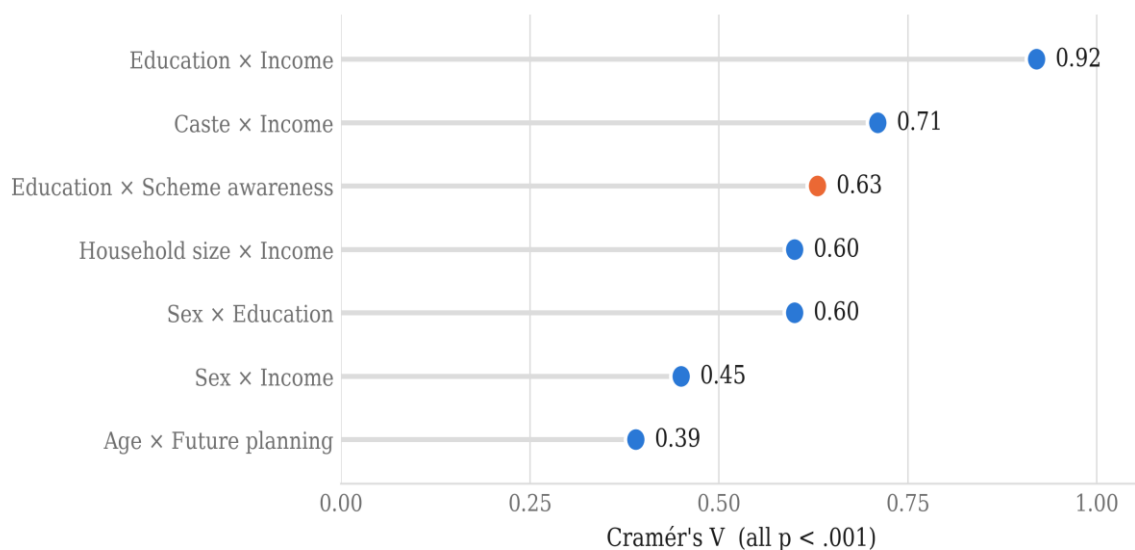
Figure 3*Conditional Conversion Rates Between Pipeline Stages, With 95% Confidence Intervals*

Note. Each rate is calculated on the denominator of the preceding stage rather than on the full sample: participation among those aware ($n = 216$) and benefit among those who participated ($n = 153$). Intervals are Wilson score intervals.

Conversion rates of this magnitude suggest that attrition is systematic rather than marginal. The composition of those lost at each stage provides an indication of the underlying mechanism.

Social Patterning of Exclusion

Scheme awareness was not evenly distributed. Scheme awareness is associated with education at Cramér's $V = .63$, $p < .001$, placing it among the strongest associations measured in this sample. Figure 4 sets that association alongside the others recorded, showing it exceeded only by the education-income and caste-income relationships.

Figure 4*Strength of Association Between Socio-Demographic Variables (Cramér's V)*

Note. All associations significant at $p < .001$ by chi-square test. The education-income association of .92 is unusually strong and in this dataset approaches a fixed mapping rather than a gradient, so it is reported descriptively rather than interpreted as a freely varying relationship.

Table 2 reports the full set of association tests with degrees of freedom and exact p values. The education-by-awareness association is significant at $\chi^2(4) = 118.1$, $p < .001$, $V = .63$, placing it in the upper range of the associations measured and well above the conventional threshold for a large effect.

Table 2

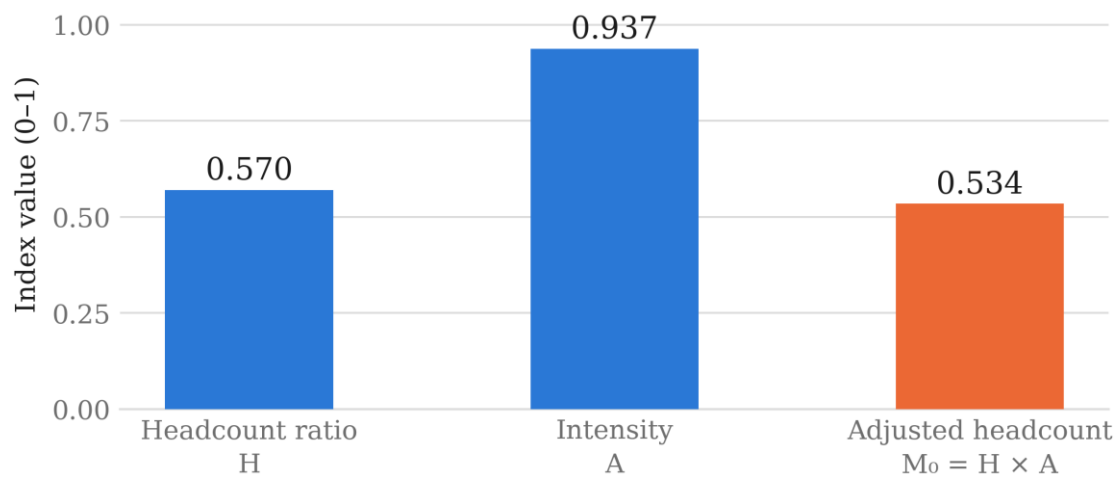
Chi-Square Tests of Association Between Socio-Demographic Variables (N = 300)

Association	χ^2	df	p	Cramér's V
Education × Income	754.7	12	< .001	.92
Caste × Income	454.7	9	< .001	.71
Household size × Income	213.2	6	< .001	.60
Education × Scheme awareness	118.1	4	< .001	.63
Sex × Education	108.1	4	< .001	.60
Age × Future planning	89.8	6	< .001	.39
Sex × Income	59.4	3	< .001	.45

Note. Pearson chi-square tests. Degrees of freedom follow from the category structure reported in Figure 1. All p values are below .001. The education-by-income value of $V = .92$ is unusually high and in this dataset approaches a fixed mapping rather than a gradient; it is reported descriptively and is not interpreted as a freely varying association.

This pattern indicates that welfare access is regressive at the first stage. Young people with the least education, who were also the most deprived on other measures in this sample, are also the least likely to know that support exists. Information functions here as what Sen's (1999) capability framework would identify as a conversion factor: an entitlement that exists in statute but not in the awareness of its intended beneficiary does not translate into a functioning. In effect, schemes reach better-informed young people before those in greatest need.

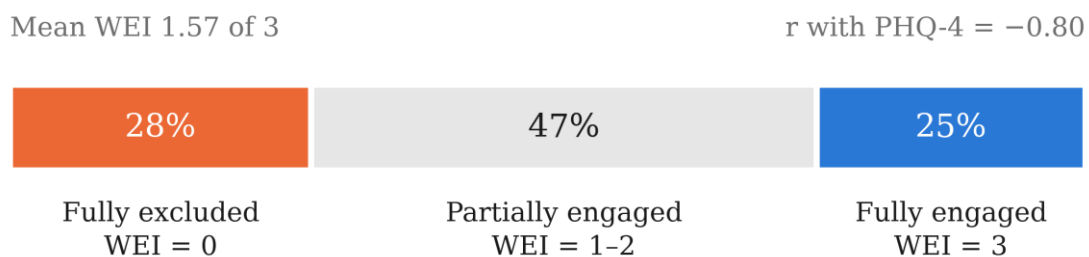
Deprivation in this population was both widespread and intense. Applying the Alkire-Foster counting approach across eight indicators (Figure 5) gives a headcount ratio of $H = 0.570$, so 57.0% [51.3, 62.5] are multidimensionally deprived, and an intensity of $A = 0.937$, meaning those identified as deprived lack almost every indicator measured. Their product gives an adjusted headcount of $M_0 = 0.534$.

Figure 5*Alkire-Foster Decomposition of Multidimensional Deprivation*

Note. H is the share of respondents deprived on at least the cut-off number of indicators; A is the mean share of indicators on which the deprived are deprived; M_0 is their product. Computed over eight equally weighted indicators following Alkire and Foster (2011).

The intensity value of 0.937 is the more notable component. Deprivation was concentrated rather than diffuse: respondents classified as deprived were deprived on nearly all indicators simultaneously.

Figure 6 shows the resulting distribution of welfare engagement. Twenty-eight per cent of respondents scored zero, meaning no awareness, no participation and no benefit, and were therefore fully excluded from the welfare system. Twenty-five per cent scored the maximum of three. The remaining 47% sit partially engaged, typically aware of provision that had not translated into participation or benefit.

Figure 6*Distribution of Welfare Engagement Among Rural Youth (N = 300)*

Note. The Welfare Engagement Index sums awareness, participation and realised benefit, each scored 0 or 1. The correlation with PHQ-4 distress is Pearson's r .

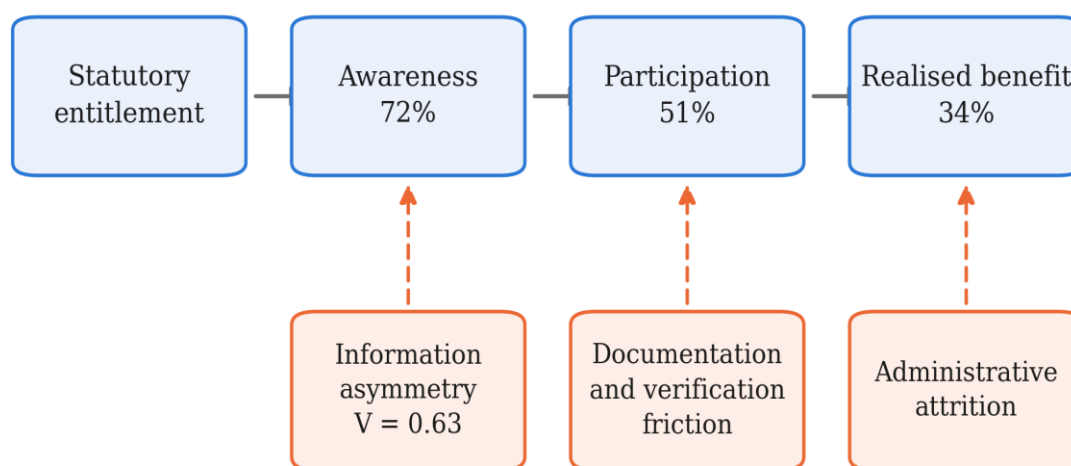
Figure 7 sets out the mechanism the pipeline data imply. Three filters operate in sequence, and each removes a share of the eligible population that is not randomly drawn. The first is measured here: information, which is distributed by education. The second and

third are inferred from the pattern of attrition and from what respondents described, namely the documentation and verification demands of enrolment and the administrative attrition that separates enrolment from an entitlement actually received.

Figure 7

Proposed Mechanism of Structural Filtering in the Welfare Pipeline

Each filter removes a non-random share of eligible youth



Note. The figure presents an interpretive model derived from the pipeline and association data reported in Figures 2 to 4. The filters at the participation and benefit stages are inferred from the observed attrition and from open-ended respondent accounts; they were not measured directly in this study.

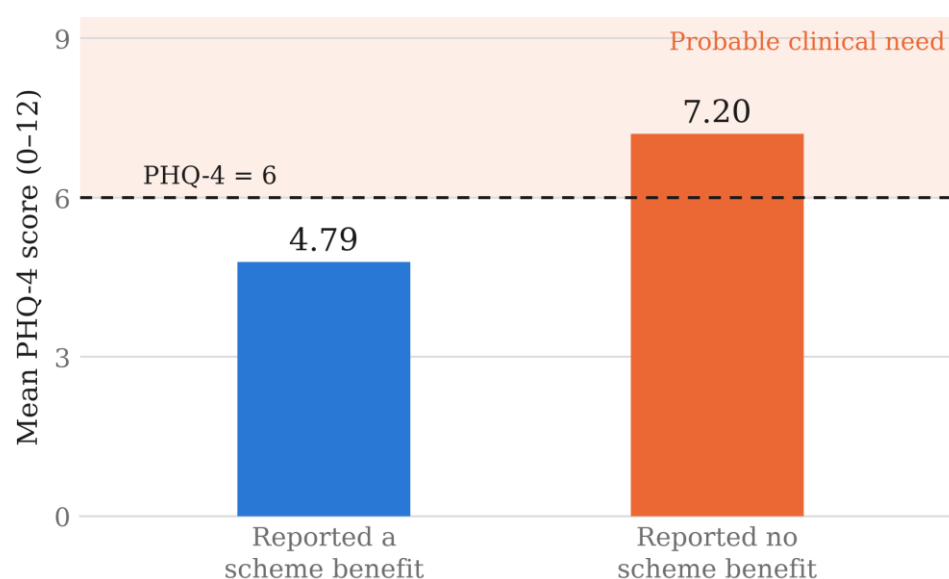
Coverage and Perceived Effectiveness

Among those the system does reach, delivery and perceived value diverge. As Table 1 reports, the Delivery Efficiency Ratio and the Scheme Effectiveness Perception Index both stand at 0.47, roughly half of what full delivery and full perceived effectiveness would represent. Respondents who received a benefit are, on average, only moderately positive about the programme's relevance to their situation.

This matters for how programme success is judged. A coverage statistic counts the 34% who received something and reports it as reach. It does not register that those recipients rate the help at approximately half its intended value, nor that these assessments come from respondents with direct experience of the programmes.

Welfare Engagement and Distress

The final analysis examined whether welfare engagement was associated with psychological distress. Welfare engagement correlates with PHQ-4 distress at $r = -.80$, among the strongest associations in the dataset: respondents with the lowest engagement reported the highest distress. Figure 8 shows the contrast directly. Respondents reporting a realised scheme benefit averaged 4.79 on the PHQ-4 against 7.20 for those reporting none.

Figure 8*Mean PHQ-4 Distress by Realised Scheme Benefit*

Note. Group means are unadjusted for income, education, caste, employment status or other potential confounders. Given the cross-sectional design and the stratification of scheme access documented in Figure 4, the contrast cannot be interpreted as a programme effect.

That contrast of 2.41 points straddles the clinical threshold. The group reporting no benefit sits above 6, in the range indicating probable clinical need, while the group reporting a benefit sits below it. Taken at face value, this pattern could be read as evidence that welfare delivery protects mental health.

Such an interpretation is not supported by the data. Scheme access is itself stratified by education, which is in turn strongly associated with income, so the young people who obtained a benefit differ systematically from those who did not on the variables that independently predict distress. The contrast in Figure 8 is therefore confounded. A more limited conclusion is warranted: exclusion from the welfare system co-occurs with clinically relevant distress, and the two are strongly associated in a population where both are common. Table 1 reports the welfare indices in full.

The open-ended responses point the same way while adding specificity. Asked what would help, respondents converged on local training provision, village-level employment, and the integration of mental health support into primary care. Asked whether better access to opportunities and services would improve their well-being, agreement was unanimous across the sample. Respondents thus identified the delivery gap themselves and proposed institutional rather than individual remedies.

Discussion

Attrition as a Structural Process

The central argument of this paper is that the losses documented in Figure 2 are not merely administrative inefficiencies amenable to managerial correction. They are better understood as a consequence of a delivery model that requires beneficiaries to supply

information, documentation and persistence, and that thereby favours those with capabilities that poverty constrains.

The evidence for this reading is the stratification at the first junction. If attrition were random, the population reaching benefit would resemble the population entitled to it. Instead awareness rises with education at $V = .63$, which means the filter disadvantages the least advantaged from the first stage and may compound at subsequent stages (Table 2).

This framing has a practical consequence. Improving the efficiency of an application process helps those already inside it. Reaching the 28% who are fully excluded is likely to require a different approach: proactive identification and enrolment through household outreach rather than reliance on self-initiated application.

Limitations of Coverage Statistics

A coverage statistic answers the question of how many people a programme touched. It cannot answer the question that matters for equity, which is who was touched and who was passed over. In these data, the two answers diverge considerably. Thirty-four per cent reported a benefit, which by conventional reporting is the headline figure. The same dataset shows that the 28% who received nothing at all are concentrated among the least educated and the most distressed, a pattern that the coverage figure does not reveal.

This has a methodological implication beyond the present study. Where access is stratified, any evaluation that compares recipients with non-recipients is comparing groups that differ systematically before the programme acts on either. That is the confound described above, and it is not a peculiarity of this sample. It is a structural feature of any programme whose take-up depends on beneficiary capability, which suggests that much of the observational literature on scheme effectiveness in India is vulnerable to the same problem.

Intensity of Deprivation

The Alkire-Foster decomposition has implications for interpreting the welfare findings. A headcount of 57% would, on its own, describe a population in which deprivation is common. The intensity term adds a further dimension: among those who are deprived, nearly every indicator is simultaneously unmet. That is a population for which single-instrument responses are structurally mismatched, since a housing scheme or a food guarantee each addresses one of eight deprivations that arrive as a bundle.

Considered alongside the conversion rates, this implication becomes clearer. The young people with the most to gain from a coordinated response are those least likely to convert awareness into benefit, and the overall conversion of 47.2% means that more than half of everyone who knows a scheme exists did not report receiving a benefit. This pattern suggests that the delivery system may be poorly configured for its target population, rather than simply under-resourced.

Relation to Existing Evidence

The distress gradients recorded here are consistent with the established literature on economic deprivation and common mental disorder (Kirkbride et al., 2024; Lund et al., 2010; Ridley et al., 2020). The specific finding on welfare exclusion adds to a smaller body of work,

and the international evidence on whether transfers improve mental health is informative because the reported effects are modest. McGuire and colleagues (2022) found small but significant effects across 45 studies, Wollburg and colleagues (2023) found benefits that faded after programmes ended, and Zimmerman and colleagues (2021) found no pooled effect on depressive symptoms in young people specifically.

Read against that literature, the present finding should not be taken as evidence that Indian welfare schemes improve youth mental health, and the confounding discussed above precludes such an interpretation. What it does support is a more limited proposition: welfare exclusion and psychological distress concentrate in the same young people, which makes the excluded group identifiable and therefore targetable.

Comparative evidence from other settings points in the same direction. Multidimensional poverty predicted adolescent mental health problems more strongly than monetary measures in Colombian national data (Díaz et al., 2022), young people across thirteen countries described poverty as a distinct source of distress rather than a background condition (Maina et al., 2025), and income inequality has been argued to mediate much of the poverty-distress relationship through social comparison (Burns, 2015). Lund and colleagues (2011) concluded over a decade ago that poverty-alleviation programmes showed inconclusive mental health effects while mental health interventions reliably improved economic outcomes, an asymmetry that remains relevant to the interpretation of the present results.

Delivery models capable of acting on both sides of that relationship have been demonstrated in Indian settings. Lay counsellors working in low-income Delhi schools improved common mental health problems in a randomised trial (Michelson et al., 2020); a Jharkhand cluster trial paired participatory adolescent groups with livelihood promotion (Bhatia et al., 2023); and Karnataka's own Yuva Spandana centres have recorded more than ten thousand youth contacts (Raghuvir et al., 2023). National survey evidence establishes the scale of unmet need these models would address (Gururaj et al., 2016).

The broader policy argument has been made before in general terms. Knifton and Inglis (2020) contended that poverty-focused mental health policy fails when confined to the health sector, and George and colleagues (2021) documented the absence of the multisectoral coordination adolescent health requires. The pipeline data here give that argument a measured local form.

Implications

Two comparative points bear on the intensity finding. Rural Indian adolescents show socioeconomic position and family environment among the leading determinants of distress (Rajkumar et al., 2022), and South Asian prevalence estimates vary so widely across settings that pooled figures conceal more than they reveal (Mudunna et al., 2025). Within India, state-level National Mental Health Survey analyses show the same divergence in burden and service coverage between Kerala (Jyrwa et al., 2023), Tamil Nadu (Dinakaran et al., 2023) and Madhya Pradesh (Kokane et al., 2019). National registry data indicate the potential mortality consequences, where youth suicide has risen with poverty and unemployment increasingly

recorded among contributory causes (Jena et al., 2024), a pattern the pandemic period intensified across low- and middle-income countries (Kola et al., 2021).

A helpline addressing social and economic need has been shown to reach suicidal ideation among Indian youth (Mathiyazhagan et al., 2024), which suggests that the economic pathway documented here may be modifiable within existing service architecture rather than requiring new institutions. Evidence on mental health literacy among economically marginalised young women points the same way, finding low disorder recognition alongside low help-seeking (Saraf et al., 2018). The instrument used here has been validated for this form of brief community screening (Kroenke et al., 2009), and the qualitative component followed established reflexive practice (Braun & Clarke, 2021).

For programme design, the first implication concerns information. Because awareness is the stage with the steepest social gradient, outreach targeted at the least educated may offer the largest potential gain at lower cost than expanding entitlements. Existing village-level workers already visit these households for other purposes and could carry scheme information as part of that contact.

The second implication concerns measurement. Large-scale programmes currently operate without routine assessment of psychological outcomes. Adding a brief validated screen to existing programme evaluations would entail modest cost and would establish, on designs capable of supporting causal inference, what this cross-sectional study cannot.

The third concerns integration. Respondents themselves proposed embedding mental health support within primary care and local training provision. That proposal aligns with evidence that task-shifted delivery by non-specialists works in comparable Indian settings (Michelson et al., 2020) and with community youth mental health programming already operating at scale within Karnataka (Raghuvir et al., 2023).

Limitations

The principal limitation is the cross-sectional design. Respondents were observed once, so the association between welfare engagement and distress cannot be assigned a direction, and the group contrast in Figure 8 is confounded by the stratification of scheme access documented in Figure 4. Accordingly, no causal claims about programme effects are made.

Measurement imposes further limits. Scheme participation and benefit were self-reported and not verified against administrative records, so recall error and social desirability may affect both. Distress was screened with a four-item instrument rather than assessed clinically. The indices are purpose-built for this study and, while validated against PHQ-4 distress, have not been used elsewhere.

The mechanism proposed in Figure 7 is also partly inferential. The information filter at the awareness stage is measured directly, but the filters at participation and benefit are inferred from observed attrition and from respondent accounts rather than measured as separate constructs. Testing them would require administrative data this study did not access.

Finally, three taluks of one southern district cannot represent rural India or the whole of Karnataka, whose northern districts differ materially in agro-economy, scheme

implementation and service provision. The findings describe one setting in depth rather than many in outline.

Conclusion

Rural young people in Mysuru district are entitled to a dense array of state support, yet only about one third reported receiving any benefit. The pipeline from awareness to benefit loses more than half its intended beneficiaries, and it loses them in a patterned way, filtering first against those with the least education and therefore the greatest need. Twenty-eight per cent were entirely excluded from the welfare system.

Those same excluded young people reported the highest levels of psychological distress, an association this study can document but cannot causally attribute. Its policy relevance is primarily descriptive: young people excluded from the welfare system form an identifiable and concentrated group with elevated distress. Delivery models that rely on self-initiated application are likely to continue to miss this group, whereas proactive outreach could target it directly.

Declarations

Funding. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflicts of interest. The authors declare no conflicts of interest.

Ethical considerations. Formal ethics committee approval was not required for this study, which involved no intervention, no biological sampling and no identifiable personal data. All participants were informed of the purpose of the study before taking part, and all records were anonymised.

Data availability. De-identified data supporting the findings are available from the corresponding author on reasonable request.

Author contributions. Both authors contributed to the study conception and design. Data collection and analysis were performed by the first author under the supervision of the second author.

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