

Journal of Epidemiology and Global Health

ISSN (Online): 2210-6014

ISSN (Print): 2210-6006

Journal Home Page: <https://www.atlantis-press.com/journals/jegh>

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To cite this article: Ankit Jain, Selva Swetha, Zeena Johar, Ramesh Raghavan (2013) Acceptability of, and willingness to pay for, community health insurance in rural India, Journal of Epidemiology and Global Health 4:3, 159–167, DOI:

<https://doi.org/10.1016/j.jegh.2013.12.004>

To link to this article: <https://doi.org/10.1016/j.jegh.2013.12.004>

Published online: 23 April 2019



Acceptability of, and willingness to pay for, community health insurance in rural India

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Received 28 August 2013; received in revised form 2 December 2013; accepted 8 December 2013
Available online 25 January 2014

KEYWORDS

India;
Community health insurance;
Health insurance;
Acceptability;
Rural health

Abstract Objectives: To understand the acceptability of, and willingness to pay for, community health insurance coverage among residents of rural India.

Methods: We conducted a mixed methods study of 33 respondents located in 8 villages in southern India. Interview domains focused on health-seeking behaviors of the family for primary healthcare, household expenditures on primary healthcare, interest in pre-paid health insurance, and willingness to pay for such a product.

Results: Most respondents reported that they would seek care only when symptoms were manifest; only 6 respondents recognized the importance of preventative services. None reported impoverishment due to health expenditures. Few viewed health insurance as necessary either because they did not wish to be early adopters, because they had alternate sources of financial support, or because of concerns with the design of insurance coverage or the provider. Those who were interested reported being willing to pay Rs. 1500 (\$27) as the modal annual insurance premium.

Conclusions: Penetration of community health insurance programs in rural India will require education of the consumer base, careful attention to premium rate setting, and deeper understanding of social networks that may act as financial substitutes for health insurance.

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1. Introduction

Residents of India in general, and residents of rural India in particular, face several challenges in access to, and quality of health services. India spends

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4.2% of its gross domestic product (GDP) on health, but only a third of it comes from public funds, a proportion that is lower than that of other developing countries [1]. Low public spending leads to poor quality of public health centers and hospitals even in States considered leaders in health provisioning [2], and a shift in utilization from public to private providers. This shift forces individuals to predominantly rely on out-of-pocket spending in order to meet health care needs [3], which results in most Indians receiving services that have been described as "...expensive, unaffordable, unreliable, and impoverishing" [4].

One approach to protecting individuals from this risk of impoverishment is to enroll them within an insurance umbrella. In fact, India has a long history of employer-sponsored health insurance coverage. The Employees' State Insurance Scheme (established in 1948) provides health, disability, and unemployment benefits for employees of factories and other production facilities employing organized labor [5]. The Central Government Health Scheme (established in 1954) provides health services for employees and retirees of India's federal government and their dependents in 17 cities [6]. But these programs only serve approximately 7% of India's workforce that is in the organized sector [4], leaving agriculturists and other rural residents without insurance coverage.

Recognizing this, India has launched a series of insurance programs, the largest of which is the *Rashtriya Swasthya Bima Yojana* (or RSBY), established in 2008 by the government of India [7]. At least four State governments have launched their own insurance programs as well [4]. While most of these programs impose little or no deductibles or premiums, they only cover hospitalization expenses for secondary and tertiary care, not ambulatory care and out-patient department (OPD) expenses. The literature, however, suggests that expenses incurred on ambulatory care and medications – smaller outlays spread out over longer periods of time – are the principal reason for impoverishment among India's poor [8,9]. Focusing only on tertiary care also increases demand for the most expensive services within a health system, a documented phenomenon in some Indian States like Kerala [10]. Finally, eligibility for these programs is based on India's controversial poverty line, which has reduced caloric norms and disregarded housing and education-related expenses to arrive at an unrealistically low threshold for poverty [11].

Community health insurance (CHI), or micro-insurance, has recently emerged as a way to insure many Indians from impoverishment due to health

expenditures, and to supplement such national and regional insurance efforts. CHI programs are regionally based, offer enrollment to a defined participant pool, and rely on local sources of health services provision. Participation in CHI programs such as *Yeshasvini*, operating in the Indian State of Karnataka, has been shown to reduce out-of-pocket spending and increase the use of health services [12]. Other programs have shown an increased use of services by the most vulnerable beneficiaries – children, pregnant women [13], and those with the lowest incomes [14] – and have lowered income inequality among beneficiaries [15].

One of the risks to the success of CHI in India today is enrollee satisfaction with the product. Insured hospitalized patients in two CHI programs did not report greater satisfaction than uninsured hospitalized patients, and scholars have suggested a need for better design of such CHI products [16]. CHI programs have also experienced declining renewals [17], a phenomenon particularly observed within CHI programs targeted at rural residents [18]. Although willingness to pay for health insurance coverage has been estimated using contingent evaluation methods [19] and bidding games [20], mixed methods studies that could uncover the reasons behind such declining renewals have not, as yet, been conducted.

In an attempt to better understand and inform the design of successful CHI programs in rural India, this study undertook a mixed methods study in 8 villages in the State of Tamil Nadu. Through quantitative questionnaires and qualitative interviews, an attempt was made to understand current health-seeking behaviors of rural Indian populations, the nature and pattern of their health expenditures, their awareness and perceived need for insurance coverage, and their willingness to pay for health insurance. The overall goal in this study was to identify factors that could increase acceptance of a CHI program to residents of the catchment area, and thereby enhance the sustainability of such a micro-insurance program.

2. Methods

2.1. Setting

IKP Centre for Technologies in Public Health (ICTPH) [21] is a non-governmental organization based in Thanjavur, a low-income rural district in the southern Indian State of Tamil Nadu. ICTPH and its partners operate 7 primary health care clinics in villages within the district of Thanjavur [22,23]. One of ICTPH's clinics located in the

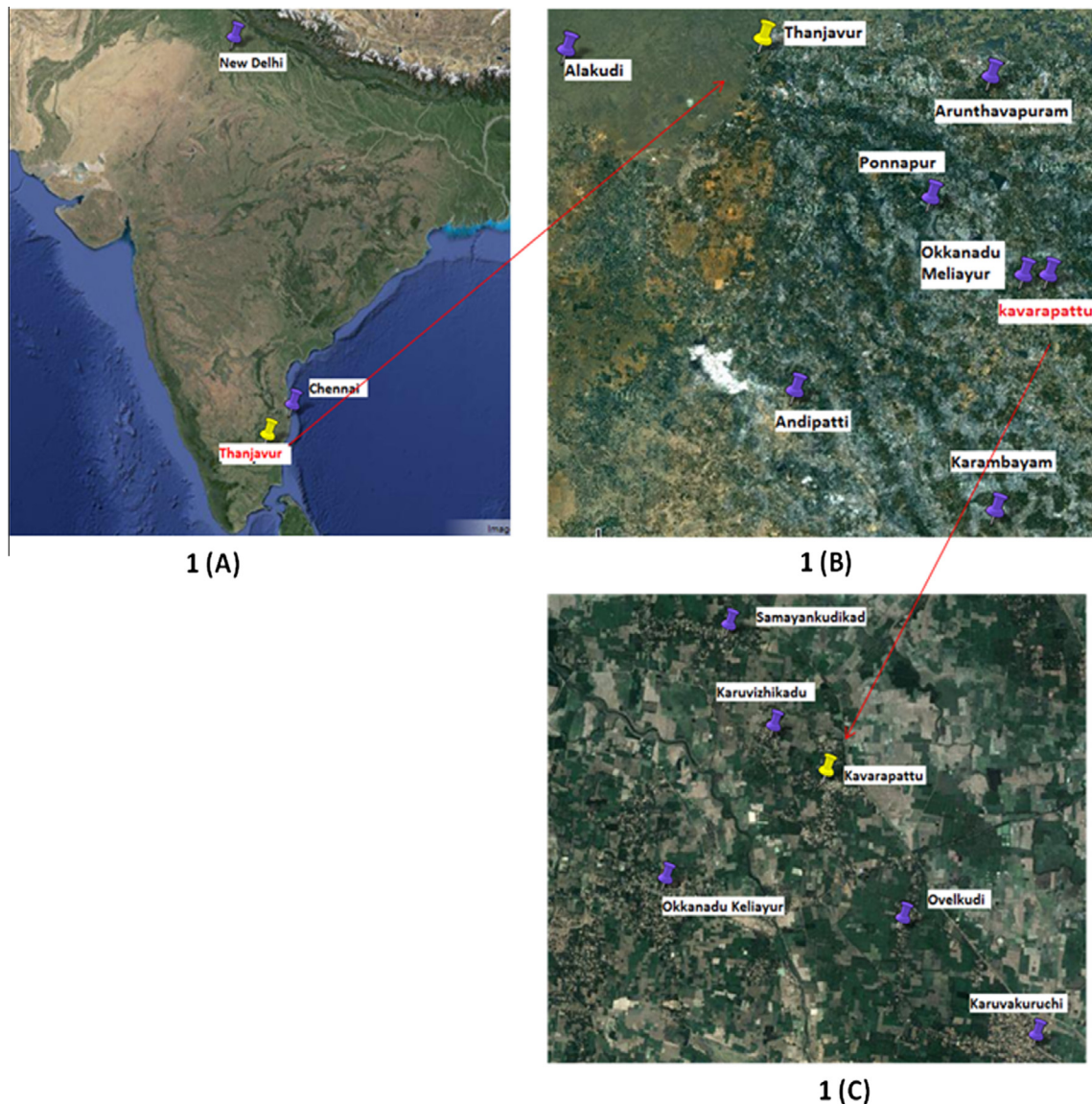


Fig. 1 Location of interview sites.

village of Kavarapattu was purposely chosen as the model site for this study (please see Fig. 1). The clinic serves a catchment area consisting of approximately 10,890 individuals in 3162 households located within the village of Kavarapattu and its 7 surrounding villages.

2.2. Interview design

A semi-structured, mixed methods interview protocol guided by the extant literature on the topic was developed [24,25]. In consultation with ICTPH's village-based staff and research personnel, four interview domains were identified (health-seeking behaviors of the family for primary healthcare, household expenditures on primary healthcare,

interest in pre-paid health insurance for availing services at ICTPH's clinics, and willingness to pay for such a product).

For each of these domains, open-ended questions and probes were developed in order to explore experiences qualitatively (questions are available from the authors upon request). Items that sought quantitative data were also developed. In some instances, the quantitative and qualitative aspects of the interviews were integrative, and in other instances were complementary. Questions were designed to be comprehensible by residents of villages with varying levels of formal schooling, which meant that, for example, willingness to pay could only be assessed by stated preference (open-ended

contingent valuation) rather than a more sophisticated approach [26].

Questions were cognitively tested in Tamil with health extension workers, and refined based on feedback. The interview protocol was then revised in order to ensure that the entire interview could be completed within 45 min to an hour per household. Questions were back-translated for the purpose of this manuscript.

2.3. Participant recruitment

A sample of households in Kavarapattu and adjoining villages were purposely identified. Households distributed across different villages were chosen in order to obtain a wide representation of participants. The seasonal and opportunistic nature of income sources of households make estimation of income difficult to elicit quantitatively. Hence, an economically diverse sample was recruited based on variability in their housing stock as determined by visual inspection of the house (with roughly equal number of residents living in dwellings with thatched roofs, and living in dwellings with cement roofs).

Health extension workers identified a primary respondent who played a role in the household's decision-making (usually the male head of household), following which his participation was invited. Verbal informed consent was obtained prior to beginning the interview; by the time saturation on the qualitative interviews was reached, 33 participants had been interviewed.

2.4. Interview methodology

All interviews were conducted by the health extension workers attached to the Kavarapattu clinic. Research team members conducted a 2-day training session for the health extension workers at the clinic and accompanied them during the first 2 household visits. The interviews were conducted in Tamil, within the houses of the respondents, over several weeks in May 2012. While most of the interviews were conducted with the primary respondent, in some of the interviews other family members also joined the conversation. In case of discrepancy, the facts reported by the primary respondent were given priority.

Respondents were asked for demographic characteristics of individual residents within the household. Questions about health-seeking behaviors, attitudes toward service use for each individual within the household, and locations and experiences with such use were also asked. Information on annual health spending was difficult to elicit

reliably for two reasons. First, few households were accustomed to tracking their health expenditures, and second, it seemed hard for them to relate to the time horizon of a year. Multiple probes that aggregated episode-based payments into a calendar year were used.

Because existing services in rural Thanjavur district are only delivered using a fee-for-service payment model, many respondents were unfamiliar with the concept of health insurance. A pictorial chart was developed to educate respondents about what a prepaid health insurance product might contain, and elicited their preferences for three groups of services — a comprehensive annual screening, management of acute conditions, and ongoing care of chronic conditions. Health extension workers discussed with respondents the medical importance of each of these groups of services, and potential adverse effects if existing health conditions were left untreated.

The interviews then moved to elicitation of premiums that the respondent was willing to pay for such a health insurance product. Various anchors and pricing plans were presented, including, for example, a price point of Rs. 1500 per year (approximately \$28) for a family of 4 members, with add-ons priced at Rs. 200 per year (approximately \$4) per additional member. Respondents indicated their willingness to pay various amounts for the insurance product. Respondents continued to be interviewed until no further details could be elicited, and saturation was attained.

At the culmination of the interview, participant responses were transcribed. These transcripts were disaggregated based on responses to the defined questions, and qualitative responses were separated from quantitative data. Because the interview focused on a set of *a priori* thematic areas, the use of a formal, qualitative analytic software was eschewed. Instead, the team developed a coding template, and axial coding of themes was manually performed by two researchers independently, arriving at consensus following discussion. A third researcher extracted themes from these codes, and developed illustrative quotes.

All activities were reviewed by the Washington University Human Research Protection Office.

3. Results

3.1. Sample characteristics

A total of 33 households were recruited in the study, with information being provided by the male head of household. Of all the households, 4 were residents of Kavarapattu, 11 of Karuvakurchi, 9 of

Ovelkudi, 4 of Okkanadu Keezhaiyur, 3 of Karuvizhikadu and 2 of Samyankudikadu villages (please see Fig. 1). Ten households (30%) contained at least one child (of whom 5 were infants), while 16 (48%) contained an individual of age greater than 60 years. Six households (18%) were single-roomed thatched-roof dwellings with primary income source being daily wage from field work (agriculture or government-sponsored programs), 12 lived in slightly larger cement homes with their own small land-holdings and provisions for housing livestock, and 13 were comparably larger homes.

3.2. Health-seeking behavior

A qualitative set of probes asked about experiences in seeking care from various health sources, and yielded three themes, two of which focused around when they would seek care in the event of an illness, and delays in seeking such care. One group of respondents, with experiences of acute illness, reported delaying health-seeking, while another group, with experiences of chronic illness, underscored the importance of preventative services and of seeking care regularly.

Respondents in the first group reported that they viewed illness as something very incidental and episodic, and would prefer to wait until the manifestation of an acute condition before they would seek care. The illnesses that they had experienced hitherto were described as self-limiting, and respondents preferred to wait until its resolution. Taking the time to obtain care meant that respondents would no longer be able to engage in daily livelihood activities, which would reduce their earnings while the person sought treatment:

“Minor conditions take care of themselves, we don't bother much. First, we will wait and watch. Why waste time and money immediately? Only when pain becomes unbearable will we go see a doctor” – Elderly woman living in a hut.

Respondents in the other group, however, reported that they appreciated the importance of prevention and proactive health-seeking; these were usually families who had been affected by a chronic ailment, or containing someone who was on a medication for some period of time:

“Both my father and mother are diabetic. Healthy diet and regular exercise are very important. My wife takes care of their medications and diet very well. We see a doctor in Thanjavur every month for regular blood tests. If we maintain a healthy lifestyle, these conditions will take care by themselves” – Man living in a house with a cement roof.

The third theme, irrespective of prior experience with illness or attitudes to personal health-seeking, was that of preferential treatment of children. In all households containing infants or children, respondents reported seeking care promptly for children even as they deferred their own healthcare needs. This was reported by respondents living in different types of houses, and pursuing different occupations:

“Nothing is more important to me than my daughter's health. Money does not matter, quality is important. If she is not well, I will see the best 'kids' doctor' in Thanjavur. Health is wealth” – Mother of a 3-year old girl.

The quantitative set of questions around health-seeking behaviors focused on whether respondents had a regular source of care and, if so, what that source of care was. Few of these households had a regular source of care. Twenty-two households reported visiting a variety of private providers – this includes individuals in the catchment area without formal training or licensure in medicine, physicians at the ICTPH facility in Kavarapattu, and licensed physicians in private practice in nearby towns, the closest of which was 15 km (9 miles) away. Six households sought care at the free primary healthcare (PHC) facility run by the Government of Tamil Nadu's State health service. These latter respondents lived in thatched houses, or were individuals with chronic illnesses requiring ongoing medications. There was also a set of 5 households who self-medicated by procuring medicine without a prescription from local pharmacies.

3.3. Health expenditures

The magnitude of health expenditures was elicited quantitatively, as described above. Three households reported incurring no out-of-pocket health expenditures in the past year. These households either had no health issues, or had sought all of their care from the government PHC facility at no monetary cost to them. Ten households spent under Rs. 1000 (\$18) in the past year on health care services. These households tended to procure medications at the pharmacy without a prescription, or sought care at the PHC. One respondent reported an episode of illness that required seeking care from a private provider.

Ten respondents reported spending between Rs. 1000 and 3000 (\$18–54) per year. Another ten respondents reported spending more than Rs. 3000 (\$54) in the past year; these were households containing individuals with one or more chronic diseases that were being managed outside the PHC by

private providers, or containing small children who had multiple episodes of illness needing care.

3.4. Acceptability of health insurance

A total of five themes emerged from quantitative and qualitative interviews designed to uncover attitudes toward health insurance, and its acceptability to respondents. Overall, few of the respondents saw health insurance as a desirable product at any price. The concept of insurance was seen as beneficial only by families who had one or more individuals who took medications to manage a chronic illness, who sought care from private providers instead of the PHC, were aware of the need for preventative services, and appreciated the predictability that insurance coverage provided for their out-of-pocket expenditures.

Secondly, respondents saw the benefits of reduced out-of-pocket expenditures in the event of an unanticipated health crisis, but were worried about other individuals within the plan using more or less services under an insurance umbrella. They seemed to have misgivings about how such a product would actually work in their particular ecosystem, and seemed to prefer a "wait-and-watch" approach instead of being an early adopter:

"No need to worry for full year once I pay you – the concept is good. Let others buy and experience your product. I will keep a close eye. In a village you get to know what people think about something new very quickly. If they are using your services, I will also buy for my family" – Male respondent.

Thirdly, the need to pay upfront was questioned. Respondents seemed to prefer to pay as and when health services are utilized, and did not think that they would need to visit a healthcare provider with enough frequency in the coming year that it merited pre-payment. Irrespective of type of dwelling in which they lived, respondents seemed unwilling to consider the possibility of health and economic shocks. Even when they did so, financial relief from unanticipated expenses was not of great appeal to them because they had ready access to money to cover health expenses from friends and neighbors:

"It is all about positive thinking. Why should we think we will contract a disease? And even if someone is ill, we will take care at that time. If we don't have money, people are generous in this village, we can borrow from anyone. We have also helped so many people in their times of need, if we need help, people will not hesitate. We are a closely knit community" – Woman living in a dwelling with a thatched roof.

Concerns with how premiums would be set across households with different levels of health-care utilization emerged as a fourth theme. Respondents worried that their premiums would cover the costs for those with greater levels of use than their own. Respondents felt that different families would have – and do have – different health needs and, correspondingly, utilization patterns. Hence they felt it unfair for all to be charged a single price as a premium. Some sort of experience rating of premiums seemed to make more sense to these respondents:

"Why are you charging the same amount from non-chronic families as well? We should pay for what we shall use. Our family is healthy, very few health episodes. Why should we pay the same price as other families who need to see a doctor regularly?" – Male respondent with no family history of health service use.

Finally, respondents were concerned about whether they would get enough services to justify the premium amount. Respondents seemed to view the premium as an entitlement if they were to enroll, and wondered if in fact they would be using services equivalent to the premium amount during the course of the year. Most respondents asked if they would receive a refund at the end of the year in case of no utilization. Respondents who were concerned about such "value-for-money" were also concerned about the stability of the insurer:

"What if you shut up shop and leave with our money? No one I know has ever visited your clinic. And what if I don't utilize health services worth the amount that I have paid for? Will you refund to me the money?" – Male respondent.

In the quantitative phase, respondents who reported that they were disinterested in purchasing health insurance were asked to pick from a list of reasons for their disinterest, with multiple choices allowable by a single respondent. A total of 13 respondents said they were disinterested in purchasing insurance. Among the reasons for disinterest was a lack of perceived value in insuring themselves against health risks (4 respondents), concerns about how the premium amount would be set across households with different levels of health care utilization (4 respondents), concerns about the stability of the insurer (2 respondents), and no perceived need for insurance because respondents did not have, and did not anticipate having, any health care needs (2 respondents). Two respondents did not supply a specific reason for their disinterest.

3.5. Willingness-to-pay

Respondents expressing an interest in health insurance were first asked to quantitatively state their preference for how much they would be willing to pay for such a product. The average annual premium that respondents reported as being willing to pay was Rs. 1500 (\$28).

In qualitative interviews, respondents with high health expenditures reported being willing to pay more than this premium amount, which was offset by other respondents with lower predicted health expenditures. Respondents seemed to be estimating their health expenditures, and arriving at a premium amount that seemed lower than these expenditures. Consequently, respondents with the highest reported health expenditures were the ones who reported as being willing to pay a greater amount as a premium.

Respondents also estimated a household-level present value for their premiums, and requested a discount for upfront premiums. The magnitude of the discount seemed to vary depending upon extant health expenditures, with respondents with the greatest expenditures being willing to pay the greatest premiums, but at the highest discounted rate:

“I currently spend about Rs. 4000 on my current needs for my father and mother. If you are charging me upfront, I can pay Rs. 2500” – Male respondent living in a house with a cement roof.

While our primary focus was on the willingness to pay, a theme of ability to pay also emerged. Respondents who worked for daily wages did not possess sufficient savings to pay an annual premium at the time of enrollment. These respondents wished to pay insurance premiums in installments:

“The product is very attractive. We are daily wage workers. Paying a huge amount upfront is a concern. Can we pay in two installments? That way we can plan things much better. If you make the product flexible, people like us will also be able to buy” – Male respondent.

4. Discussion

This mixed methods study of 33 residents of a cluster of villages in southern India uncovered several implications for the design of community health insurance (CHI) products. A number of the respondents reported spending upwards of Rs. 3000 annually on health expenses for primary care, with the highest reported health expenditures being Rs. 6500 (approx. \$109). Few felt the need for health

insurance, expressing concerns relating to its utility, fairness, stability of the insurance provider, and alternate sources of money to meet unanticipated health expenses.

So can CHI programs be successfully adopted by these respondents in rural Tamil Nadu? If the principal purpose of health insurance is to protect against catastrophic health expenditures, then it is unclear if the program will find widespread acceptance on the basis of costs alone. First, the magnitude of health expenditures incurred by these rural residents seemed manageable to them. Secondly, respondents in this sample with higher health expenditures were the ones most receptive to the idea of health insurance. Such adverse selection is likely to increase premiums to beyond what most residents may be willing to pay, and affect the economic feasibility of an insurance product. Thirdly, residents of rural Tamil Nadu live within social networks of caste and kin [27], a point a respondent made to this team in describing the closeness of members of the village, which shelters respondents from catastrophic health expenses by allowing them to borrow money from members of such networks. There may also be potential sources of borrowing through formal networks. While this study did not directly query about alternative sources of borrowings, the State of Tamil Nadu fosters collective decision-making and self-governance through its encouragement of self-help groups [28], which are composed of a dozen or so women, collectively engaged in some economic activity. Self-help groups are one reason why micro-lending is reportedly successful in Tamil Nadu [29], and it is likely that at least some of these funds may be utilized in the purchase of health-care goods and services.

In addition to these demand-side factors, several characteristics of the supply of health services in rural Tamil Nadu pose problems for the program. Although the government of Tamil Nadu spends only about 1% of its GDP on health, half of all of its health spending is directed toward primary care [30]. The resulting widespread availability of primary healthcare services, including the free Primary Health Center in the village of Kavarapattu, acts as a powerful buffer of unanticipated – and catastrophic – primary healthcare expenditure shocks among these residents. This is perhaps why in Tamil Nadu, where institutional protections to health impoverishment exist, CHI does not seem to be seen as a critical means of financial protection as compared with other States such as Gujarat [31].

In more developed States like Tamil Nadu, then, community health insurance programs may need to compete on the basis of benefit design, quality, and amenities. The respondents who reported as being willing to purchase insurance coverage were ones who recognized the value of preventative care, sought services outside the public system, and had greater contact with healthcare providers for chronic ambulatory conditions. While this study's interviews did not uncover why village residents might wish to seek alternatives to the PHC for the care of such conditions, it is likely that non-monetary factors such as patient-sharing and wait times for services play a role in these individuals' accessing private sources of care [32].

Acceptability of insurance can also be enhanced by targeting benefits toward children's health and well-being; a population group whose health needs were privileged across income levels within this sample. Such a narrowly focused insurance product for such a well-defined population group resourcing use of a set of high-quality preventative and curative services is likely the optimal insurance design strategy for the rural community in Tamil Nadu. Other ways to enhance acceptability of CHI is to educate potential enrollees about the importance of, and coverage for, preventative services and regular treatment and follow-up. Finally, involving key opinion leaders like elected officials in the village as early adopters of the product may be a strategy to overcome the "wait and watch" orientation of some of the village residents.

Uptake of CHI can also be enhanced by careful attention to the average premium amount. Insurance products for purely ambulatory coverage are not yet available in India. Instead, most CHI programs include hospitalization costs. Hybrid programs like SEWA charge enrollees a premium of between Rs. 80 and 95 for a capped benefit of Rs. 2000 [33]. Hospital-based CHI programs such as Krupa in Anand, Gujarat, charge annual premiums of between Rs. 90 and 2325 for a capped benefit of up to Rs. 100,000, while commercial insurance products such as Medclaim have premium rates between Rs. 175 and 2825 for capped benefits of up to Rs. 300,000 [34]. The participants of this study who were willing to purchase insurance were willing to pay amounts within this range as a premium, suggesting that CHI programs can be financially viable in rural Tamil Nadu if preceded by an educational program and instituted by a provider perceived as trustworthy in the community.

This study has a few limitations. As a mixed methods study conducted on a small sample ($N = 33$) of

rural residents within a single relatively developed State in India, its findings are not generalizable to India as a whole, nor to CHI programs in their entirety. Given the realities of collecting data in rural Tamil Nadu, elicitation of a willingness to pay was done using stated preference rather than more sophisticated approaches. At least some of these results may be weakened in their validity due to the poor desirability of health insurance *per se*, which may have adversely affected the validity of questions asking about a respondent's willingness to pay for it. Out-of-pocket expenditures do not capture all costs (such as indirect costs, or opportunity costs) incurred by respondents as a consequence of seeking health care. Lastly, this study was conducted specifically for a CHI program that covers primary healthcare, and the inferences of the study cannot be generalized directly for CHI programs providing coverage for hospitalization expenses.

Despite these limitations, it is believed that this study sheds new light on the acceptability and design of micro-insurance products for ambulatory health conditions within this rural sample. These findings regarding the demand for insurance, health expenditures, possible premium amounts, and benefit structure can inform planners designing new CHI programs in local communities in rural Tamil Nadu.

Conflict of interest

None declared.

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