

Schess Jaclyn (Orcid ID: 0000-0002-9609-6822)  
Nadkarni Abhijit (Orcid ID: 0000-0001-5832-5236)

**Title: “He was trapped in his own web” – Dependent drinking as a poverty trap: a qualitative study from Goa, India**

**Authors:**

**Jaclyn Schess<sup>1</sup>, Sonali Kumar<sup>2</sup>, Richard Velleman<sup>2,3</sup>, Achyuta Adhvaryu<sup>1</sup>, Abhijit Nadkarni<sup>2,4</sup>**

<sup>1</sup>Ross School of Business, University of Michigan, Ann Arbor, USA

<sup>2</sup>Addictions Research Group, Sangath Community Health NGO, Porvorim, India

<sup>3</sup>Department of Psychology, University of Bath, Bath, UK

<sup>4</sup>Centre for Global Mental Health, Department of Population Health, London School of Hygiene and Tropical Medicine, London, UK

Jaclyn Schess BA, Pre-doctoral Research Fellow, Sonali Kumar BA, Research Intern, Richard Velleman PhD, Co-Director, Addictions Research Group and Emeritus Professor, Department of Psychology, Achyuta Adhvaryu PhD, Assistant Professor, Abhijit Nadkarni PhD, Co-Director, Addictions Research Group and Associate Professor, Centre for Global Mental Health.

**Running title:** Dependent drinking as a poverty trap

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as doi: [10.1111/dar.13082](https://doi.org/10.1111/dar.13082)

## **Abstract**

**Introduction and Aims:** 2.7% of the Indian population have alcohol dependence, the most severe of the alcohol use disorders. Alcohol use disorders have previously been found to be correlated with a range of negative economic outcomes, but dependent drinking has yet to be causally identified as a poverty trap. We use qualitative data as the first step towards identifying the mechanisms that may underlie a dependent drinking driven poverty trap in India. **Design and Methods:** Thirty-six in-depth interviews were conducted and analysed using inductive thematic analysis. Participants were men having probable alcohol dependence (n=11), doctors (n=13) who come into contact with patients presenting with alcohol dependence at government hospitals and clinics, and family members of men with probable alcohol dependence (n=12) in Goa, India. **Results:** Our key findings showed that families of those who have alcohol dependence have less opportunity for saving, more job instability and poor treatment opportunity to aid recovery and allow escaping from the trap. **Discussion and Conclusions:** Households in Goa, India with a member with alcohol dependence display patterns consistent with a poverty trap, though the mechanisms derived from these qualitative data need to be further demonstrated by longitudinal quantitative data to corroborate a causal relationship between alcohol use disorders and poverty.

**Keywords:** alcohol use disorder, alcohol dependence, poverty trap, qualitative

## **Introduction**

Alcohol consumption is rising significantly in low- and middle-income countries in the context of economic liberalisation. Those who drink in low- and middle-income countries are more likely to be drinking hazardously, with greater “harm per litre” for both poorer consumers and lower-income countries [1]. In India, 5.2% of the population exhibit problem drinking and 2.7% have alcohol dependence [2]. Importantly, although abstinence is high, almost one in five current drinkers in India have alcohol dependence [2]. In India, alcohol use disorders (AUD) have been associated with poor economic wellbeing: lower individual and family income [3], unemployment [4], higher debt [5] and workplace problems [6]. However, there is little research investigating the potential of a ‘poverty trap’ – self-reinforcing dynamics that cause poverty to persist [7] - due to AUDs.

There is a need to better understand the dynamics of poverty traps caused by addiction and mental illness [8-10] in the developing world, as it has significant policy consequences as interventions can be doubly effective by improving health as well as alleviating poverty [11]. The identification of a possible addiction poverty trap should therefore be a priority given the rising global burden of substance use disorders [12] and the focus on eradication of poverty in the Sustainable Development Goals [13].

Some research has pointed to the ways in which alcohol consumption decreases with exogenous shocks to income. Analysis from randomised cash transfers [14] as well as the consequences of mass layoffs [15] demonstrates this causal link. Our study takes the opposite approach. New literature has begun to underline the causal relationship leading from alcohol consumption to economic outcomes, for example one study shows a demand for commitments to sobriety among rickshaw drivers in India who consume alcohol, and other studies demonstrate the effects of changes in alcohol availability in labour supply and general wellbeing. We provide what we see as a complementary approach of analysing the economic outcomes due to alcohol dependence, not just alcohol consumption, and choose to do so with a qualitative approach on a sample from Goa, India.

The objective of our study is therefore to demonstrate whether there is a, and what contributes to the, relationship between alcohol dependence and economic outcomes, as part of a poverty trap. The data for this study is derived from the formative research in a program that aimed to develop a contextually relevant community detoxification and relapse prevention program for people with alcohol dependence, described elsewhere [16].

## **Methods**

### **Setting and Sample**

Goa (population 1.4 million) has a more liberal drinking culture than most Indian states [17]: risky drinking patterns are common among men, with high prevalence of hazardous and dependent drinking [18].

Participants were recruited through purposive sampling to achieve maximum variability. These comprised: (i) men with probable dependent drinking based on an Alcohol Use Disorders Identification Test (AUDIT) score of  $\geq 20$  (Note: only men were selected as the prevalence of alcohol dependence in women is extremely low in India [2]); (ii) doctors in government hospitals and clinics who come into contact with men having dependent drinking; and (iii) family members of men with dependent drinking. The AUDIT [19] has previously been validated and used in India [20], and a vernacular version has been used extensively in the study settings [21]. Men with probable dependence were selected based on universal screening with AUDIT in primary care clinics. Doctors were selected using convenience sampling in clinics in which the CONTAD (home detoxification program) was running.

### **Data Collection**

Individual in-depth interviews were conducted as they allow for detailed in-depth probing of subject matter and provide information on context [22]. Socio-demographic data was collected, and the interview guides were designed to explore domains such as explanatory models of AUDs.

Trained field researchers conducted the in-depth interviews in the vernacular (Konkani, Marathi, Hindi) or English as appropriate. The field researchers were supervised regularly to assure data quality. Interviews were audio-recorded and transcribed verbatim, with vernacular language interviews translated into English.

### **Data analysis**

JS and SK conducted data analysis. Data was analysed using thematic analysis, a method for identifying, analysing and reporting patterns (themes) within data [23]. The analysis approach was inductive, with no *a priori* constructs or frameworks applied [24]. These methods were used given the wide content areas of the interview guides to allow for the authentic voice of the data to be followed and flexibility of coding.

JS and SK first conducted an immersion read of raw data transcripts to develop an overall understanding of the data and develop a mutually agreed upon codebook. This codebook was then piloted on five transcripts and reviewed by JS and SK for inter-coder reliability, with discrepancies discussed for future coding and the codebook revised where necessary. All

transcripts were then coded individually by JS and SK with the final codebook, and the same codes were used for all three participant groups. Coding of transcripts was done using NVivo 11 software [25]. Codes were analysed together by JS and SK to identify common themes. This included relations of ideas across all three participant groups. Themes were inductively developed and all supported by quotes taken directly from transcripts.

### **Ethics**

The Institutional Review Board of the implementing organisation reviewed and approved the study from which this data is derived. Written informed consent was obtained individually from all participants.

### **Results**

Interviews were conducted with 11 men with dependence (MWD), 12 family members (FM) and 13 doctors (DOC). The mean age of the MWD was 43 years (range 31-55) and the majority (n=6) had a high school education, were in paid employment (n=7) and were married (n=6). The mean age of the FMs was 45 years (range 30-70) and they were all female. Their relationship to the MWDs was either wife (n=9) or mother (n=3), and they were either married and living with their spouse (n=10) or widowed (n=2). The majority of FMs did not work outside the home or were unemployed (n=7), with a few owning their own business (n=2) or doing seasonal work (n=3), and few (n=3) having high school education or more. The mean age for doctors in the sample was 34 years (range 24-61 years) and approximately two-thirds of them were male (n=8). All had a MBBS degree with average 9 years of experience (range 1-35 years).

Four broad themes emerged as key elements of the poverty trap for households with a member with alcohol dependence: excessive spending, need to borrow, fewer opportunities for earning, and a treatment context consisting of subpar conditions, cost barriers and high relapse.

#### *1. Excessive spending*

Throughout the development of alcohol dependence, men with dependence demonstrated excessive spending on alcohol. Men with dependence (n=9), family members (n=9) and one doctor all described this spending to be beyond people's means. MWDs and FMs also emphasised that spending on alcohol severely interfered with their households' saving ability.

*"I know that I have to save for my future, my home, my marriage...but I spend all of my money on alcohol. I am unable to save even a penny." (MWD1, 43)*

*"We don't even get a Rupee (Indian currency). He doesn't bring anything home. He spends it on his liquor." (FM6, Wife, 30)*

*"So it actually is a sad situation because the mother can't do anything, they are earning for the patient, and the patient is just drinking." (DOC1, Female, 29)*

This problem was made worse by a demonstrated lack of inhibition while inebriated, which led to further excessive spending on others.

*"The other times, he was drinking alcohol and being too generous with his money. That means more problems with money, it was a vicious cycle. He was trapped in his own web. It was his own fault" (FM7, Mother, 70)*

Lack of inhibition also exacerbated already existing gambling problems, leading to further loss of financial resources.

*"I gambled with lakhs [a unit in the Indian numbering system equal to one hundred thousand, notated as 1,00,000] of Rupees. I didn't realise how bad it was. I always thought I would win one day. My debt kept increasing and I kept gambling." (MWD3, 43)*

Through all of these, MWDs made it difficult for their households to save, all the while accumulating debt, and sending themselves and their families on a downward economic trajectory.

## 2. Need to borrow

Participants (n=6) described a need to borrow, both for their household's needs and for treatment costs. These further increased the inability of the households to save and perpetuated loss of income.

*"But I had to repay the amount...One problem is his drinking, the other problem is that I have to borrow money from people to buy medicines in order to get rid of his addiction." (FM11, Wife, 35)*

*"I borrow money from my friends... But I return the money as soon as I can...I constantly feel that I need to return the money back to him as soon as possible... sometimes I end up feeling that I borrowed the money without a good reason." (MWD7, 34)*

Participants (n=3) also described significant stress resulting from the debts, and that this stressor may exacerbate drinking, though this was not expressed directly by those with dependent drinking.

*“He had taken a loan. He tried to borrow money from people to pay off the loan. He was pretty stressed about it. And that probably led to his drinking as well.” (FM7, Mother, 70)*

### 3. Fewer opportunities for earning

MWDs and FMs (n=11) described how drinking interfered with their work performance and ability to sustain employment. This not only affected the household’s prospects for income generation, but also in many cases situated MWDs in environments that triggered more alcohol intake.

One participant suggested that he felt ‘left behind’: that others had managed to develop more financially advantageous jobs whereas, due to their drinking, they had not managed to progress and find greater financial opportunity.

*“What I mean is, when I was young, I used to roam around with these friends. They have now done things for themselves and are well off... Somehow they managed to find jobs in the private sector... Some of us who didn’t try at that time were left behind. We thought it would never work out. They did really well in the private sector and we were left behind.... They were free. They were busy in their own world. I got stuck with this habit... We went on drinking in the friend circle for the fun of it. And then my drinking increased” (MWD10, 31)*

There is a contradictory and complex relationship displayed between alcohol and work capacity. On the one hand, MWDs and FMs described that alcohol consumption interfered with work performance, and the ability to obtain or maintain employment; and the unemployment in turn exacerbated their drinking.

*“Even when I mix the drinks, I feel tired the next day. I am unable to get up, let alone go to work. Then the job is gone” (MWD8, 35)*

*“Each time he promises the customers that he will get the work done the next day, but he keeps postponing for days.” (FM11, Wife, 45)*

*“If I had a job then I would have focused on my job.... Nowadays what do I have to do? The whole day, I am idle at home, the consequences (drinking) of which are becoming worse day by day.” (MWD4, 44)*

On the other hand, some participants had a difficult time functioning without alcohol, and reported that they could not complete their work without it or were in work environments where their peers drink which exacerbated their drinking.

*“And most of the people (patients) I have seen .... who drink are mostly night duty workers. Labourers, doing heavy work. They think that alcohol will help them work more... By reducing their tiredness.” (DOC7, Female, 27)*

*“I don’t know. I think it’s the atmosphere working in the restaurant that a lot of work is generated. So to keep working they will sit and drink beers. Then it goes on and on and on and on ....” (FM3, Wife, 42)*

This impacted the household earning opportunities through the family members as well. Family members had to forgo work for caregiving when MWDs continue their drinking, therefore bringing in less income to the household.

*“Suppose if he is not well, then I have to take him to the doctor. This means that I have to stay at home to look after him.” (FM12, Wife, 45)*

Overall, alcohol dependence decreased work productivity and employment while reinforcing drinking, creating a vicious cycle of lowered economic outcomes.

#### *4. Treatment context*

Even when our participants want to change their drinking patterns, they struggle significantly and lack the treatment options to assist in this effort.

For dependent individuals to make major changes in their drinking behaviour, they need at least some modicum of motivation to make those changes or to seek help. Some MWDs (n=5) did



describe that they had some motivation to quit, recognising the harm that alcohol was creating in their life.

*“I want to stop drinking...I want my diabetes controlled. I want my health to improve. But in spite of trying my level best, I am unable to quit the habit all by myself.” (MWD1, 43)*

However, even for those who showed a motivation to quit, participants described many barriers with the treatment context undermined by sub-par treatment conditions, cost as a barrier to treatment and frustrations around relapse, all of which contributed to keeping them on their downward economic trajectory.

*a) Sub-par treatment conditions*

In public facilities, primarily the primary health centre (PHC) where most people of low socioeconomic status would present for care, there was a lack of appropriate staff, little time for patient contact and no psychosocial interventions for AUDs being made available.

*“Symptomatically we can treat. We cannot treat them for alcohol dependence. That is very difficult to treat. Because it requires ... counselling plus certain de-addiction programme, all those things. Doing it here (primary care) is quite difficult.” (DOC3, Male, 26)*

*“We don’t have that much time to talk to the patient. But in that time whatever we can tell, we tell quickly. But alcoholics need more time, so counselling sessions should be increased according to my viewpoint...” (DOC7, Female, 27)*

The pharmacological treatments that are offered in this setting are described as dangerous and needing consistent monitoring.

*“Later we use the Disulfiram, we need to take consent of the patient, consent of the wife, relatives and patient needs to be hospitalised because sometimes patient can collapse, he can go in respiratory arrest, he might need ICU ventilation. So all things will be needed in such a set up. So better it is done in hospital setting.” (DOC8, Male, 32)*

Still, lack of staff meant that monitoring is left to the family, and some families decide against this option because of the risks.

*“He explained that the tablets can have adverse effect on the body including the kidneys. That’s the reason why he wasn’t very keen on prescribing the tablets. The best option for my husband, he said, was to quit drinking on his own. Because one may get side effects if one tries to quit with the help of medicines. We decided then not to use the tablets.” (FM7, Mother, 70)*

In PHCs, family members are relied on where there is a lack of medical staff, and sometimes required to apply physical restraint to those with alcohol dependence.

*“We make sure he (relative) is around because we have very few staff. So someone has to keep a check every time the sister (nurse) cannot do so because she has to be here with us (doctors).” (DOC1, Female, 29)*

*“When they go in withdrawal, ...patients do come to PHCs ... they help us also to tie the patient ... to bring medicines ... The relatives, neighbours or anyone like that...” (DOC5, Female 29)*

One participant had a particularly harrowing story about his experience with physical restraint after he voluntarily sought treatment at a psychiatric inpatient facility.

*“The moment I was admitted in the [hospital], I was tied up due to alcohol. They tied me up and instantly gave me a sleeping injection. Yes, they gave me sleeping injection. Then I started to scream and yell. Later I woke up. I was able to see clearly. I started seeing some people, some sleeping, some calling out. Then I told the Security officer on duty to release me. I was unable to do anything, I was just sitting near the fan. I was not listening to anyone due to which they came to assault me...”*

Stigma from both doctors and patients also contributed to those with alcohol dependence getting inadequate care, which was expressed both by doctors themselves (n=3) in their opinions of patients, as well as through patients and family experiences (n=2).

*“There is so much burden of disease around us... So sometimes we tend to ignore alcoholism because it is lifestyle disorder... whatever problem he has he chose it for himself... so most of times the doctor tends to stigmatize the person [...] and there they might not really care. So that can cause a problem. That can be change only with change*

*of point of view of doctor. See once there is social stigma it can it always remain a social stigma unless you talk it out. ” (DOC4, Female, 24)*

*“They kept him only for one day. They do not admit alcoholics there. It is because other people at the hospital get disturbed.” (FM12, Wife, 45)*

The options presented to these patients are to take Disulfiram – a medication that can cause extreme discomfort and, under some conditions, have life-threatening consequences – or to quit without any help, as psychological therapies are not available. Medication to alleviate the extreme symptoms of alcohol withdrawal appears not to be routinely available or prescribed. Physical dependency will make stopping with no pharmacological or psychological help nearly impossible. Patients with alcohol dependence are therefore not able to move out of their downward economic trajectory through treatment.

*b) Cost as a barrier to treatment*

To compound this issue, cost of treatment and of medication, and of transportation to that treatment, was a barrier to many (n=6) of the participants interviewed.

*“That’s the reason why we went to Belgaum [city outside the state of Goa]. But that started to prove a little expensive. Because we needed to bear the travelling cost, also he needed to take an off [time off from work] for travel to Belgaum. Then I consulted Dr. [Name of physician].” (FM7, Mother, 70)*

This participant expressed that the travel costs, as well as lost income from time off for treatment, caused a change in the treatment plans.

Participants mentioned financing of medication as a concern in a variety of other contexts.

*“Now, it won’t work if you purchase half the medicines and then wait a while for finances. There will be no improvement. It shouldn’t be that way. There should be help in paying for treatment.” (MWD3, 43)*

*“After he starts the medication, it should not adversely affect his health in any way. Because as it is he is thin. I can’t watch him lose more weight. If the medication makes him sick in any way it will mean more expenses too. Then it would mean I spend on this medication and then another set of medication! We need to work for our living too!” (FM1, Wife, 35)*

*“If we are to go somewhere, we need to have enough resources, like property or something. If the two of us are to go somewhere, we should have at least a thousand rupees (approximately 12 USD), right? In that case, we can step out for treatment. In case there is no money, how can we go out somewhere?” (FM2, Wife, 50)*

Participants highlighted the amount of out-of-pocket expenditure they are responsible for in the context of treatment for AUDs, and that these expenditures are prohibitive, especially for the poor or those on low incomes.

c) *Frustration over relapse*

Relapse is common with alcohol dependence. Many participants (n=8) mentioned that they would try to quit, on their own or through some interaction with treatment, but soon start drinking again.

*“It did benefit a lot. This stopped all his tremors. He started drinking again. He recovered in about 10-15 days. He started drinking again once he felt better.” (FM5, Mother, 62)*

*“But still they go home, they are good for 1 month but there is some precipitating factor for it. Either social factor or there is poverty, there is social pressure or peer pressure... friends which will again force them to start again.” (DOC7, Female 27)*

This relapse cycle means that these households continue to experience excessive spending on alcohol, and have trouble saving and bringing in further income due to their alcohol dependence. They also spent much of their income on treatments, and many family members experienced frustration when these treatments do not lead to remission.

*“He took it for a few days and then threw it away. All my money was wasted” (FM10, Wife, 46)*

These experiences drove participants to lose hope in moving out of their downward economic trajectory and decreased their likelihood of seeking out services in the future.

*“There was no benefit from that. It was actually a loss. It was a loss. Whatever was earned from work was all spent. So it was a loss and there was no benefit from that. No benefit*

*at all. It would have been useful if he would have gotten rid of alcohol. Therefore, I do not take him there now.” (FM12, Wife, 45)*

*“Sometimes the relatives also refuse to go there. They say what we are supposed to do going there. He will start drinking again; we will have to come back again with the same thing here.” (DOC3, Male 26)*

## **Discussion**

Our paper presents qualitative data that demonstrates that households with a member with probable alcohol dependence are in a poverty trap characterised by excessive spending, low income, low saving, debt and poor opportunities for breaking the cycle through treatment. Specifically, we see a pattern of three central phenomena: (i) continuous spending on alcohol significantly decreases available capital and increases the need to borrow – this decreases savings and increases debt; (ii) alcohol dependence makes employment more difficult to obtain or sustain, decreasing opportunities for income or future savings – these two phenomena move households into a lower wealth state; and (iii) lack of appropriate, affordable and effective treatment provision means individuals continue to live with alcohol dependence and stay in the cycle, continuing on their downward economic trajectory.

The identification of these phenomena adds significantly to our understanding of the mechanisms underpinning the relationship between poverty and AUDs. Economic studies have shown a causal link from exogenous economic shocks to changes in alcohol consumption, as well as the causal relationship between alcohol consumption and economic status, but these studies have not specifically looked at the economic consequences of alcohol dependence. Particularly in the Indian context, many observational studies have shown an association between lower socioeconomic status and AUDs [3, 5, 6, 17]. This body of literature, though, does not tell us the mechanisms through which socioeconomic status and dependent drinking are related. Without this understanding, we cannot know which interventions would be most effective at treating dependent drinking and consequently poverty. Do interventions aimed at treating AUDs also alleviate poverty? Do poverty alleviation interventions also help to prevent or treat AUDs? Or are the two correlated due to other, unobserved features of individuals’ lives? The evidence presented here is a first attempt at understanding the potential direct influence of alcohol dependence on poverty and how the *status quo* of treatments is not adequate to allow for this direction to change course. We present preliminary evidence that improvements to the treatment environment may improve both health as well as the financial lives of households with an individual with alcohol dependence. Recommended AUD treatment includes interventions to

promote abstinence and prevent relapse as part of an intensive structured community-based intervention, usually involving both psychosocial and pharmacological support[26].

This research also underlines distressing details about the current treatment environment for alcohol dependence in India. There is a significant lack of both human and physical resources for treatment of alcohol dependence. Those who present at primary care do not get adequate care for dependence and even those who seek care at specialty hospitals face inadequacies in resources. Out-of-pocket expenditure was a constant concern no matter the site of care. It is imperative to provide effective, affordable and accessible care for those with alcohol dependence both to improve their health and financial wellbeing but also to live up to the right to health as a fundamental human right [27].

Two further findings, which emerged from these qualitative data, are worthy of note. The first is the disproportionate pressure on family members when someone in the close family develops alcohol dependence. There is significant research demonstrating the emotional stress that this places on these 'affected family members' [28]. Data from India shows this specifically: of a sample of individuals with a heavy drinker in their life, 83% reported at least one alcohol-related harm [29]. In addition, partner alcohol use is associated with increased risk of common mental disorder and experience of violence [30]. The data examined here suggests that there is major financial stress as well, with these family members more frequently being the ones who have to take on loans to handle the household/treatment finances.

In addition, the intersection of gambling and the financial impact of alcohol dependence was pernicious in this sample. Many men with dependent drinking were also gambling while under the influence and this was the time where they did much of their excessive spending. This is consistent with studies indicating that 26.6% of people with pathological gambling have comorbid alcohol use disorder [31]. Further research on the intersection of alcohol and gambling addiction is therefore crucial to assess the impact of interventions for these addictions, both for health but also for poverty alleviation consequences.

Our study is limited by its cross-sectional nature. We cannot make strong claims about the specific length of time for which this trap may last. Still, it appears that only those who achieve remission would be able to escape this trap in the current scenario. According to a 6-year follow up study in India, only 21.8% of those who had AUDs at baseline no longer did at follow up [18]. The implication is that, in the current treatment environment, the large majority of those with alcohol dependence will not be able to escape this poverty trap without significant intervention. It is also worth mentioning that the effects of alcohol dependence on poverty may be in addition

to other possible poverty traps including scarcity [32] and malnutrition [33], but we do not attempt to investigate these phenomena here.

Our sample size is small, but it is also consistent with qualitative studies where data saturation is used to determine sample size, instead of statistical power. In addition, while our sample is from one region in India, these stories are likely to be similar to those living in other regions of India, as the availability of effective treatment for AUDs is similarly low throughout India, with 86% of people with AUDs in India reporting having not received any treatment [34]. However, Goa has better public health facilities than most of India, so treatment may be even worse in other areas of India [35]. In addition, Goa is socioeconomically better off than other states in India and hence it is possible that men with dependence in other parts of India might be socio-economically different from our sample. The availability of alcohol and drinking practices may not be applicable to all areas of India, as Goa has a younger legal drinking age and more liberal drinking culture [36], compared to other states of India where selective or full prohibition is still policy [37, 38]. Enforcement of policy relating to alcohol is very haphazard, though, and alcohol is generally available throughout the country either as foreign-made imported liquor or country made liquor [37, 39]. Therefore, the data represented here is still likely to be representative of many families in India.

Our research suggests important future directions. Given the qualitative nature of the current data, it is important to test the suggested mechanisms presented in this paper by undertaking longitudinal studies aimed at determining causal relationships between alcohol dependence specifically, instead of just consumption, and poverty. This points to the importance of testing alcohol dependence interventions empirically and evaluating the economic impacts of these interventions over longer time horizons. Interventions which are accessible and economically viable include integration with primary care, intervention delivered in communities and delivery of intervention by non-specialist health workers including peers. At present, these interventions at most evaluate cost-effectiveness over relatively short periods, but do not evaluate longer-term economic wellbeing indicators. It is critical that changes in AUD status be evaluated through the lens of the poverty trap, to understand the true effect of these interventions as our findings suggest that remission or recovery from alcohol dependence may have poverty alleviation consequences.

#### *Conflicts of Interest*

The authors have no conflicts of interest to declare.

#### *Funding*

This work was supported by Grand Challenges Canada [Grant number 0595-04].

*Acknowledgements*

We would like to acknowledge the contribution of Dr Rajesh Dhume, from Asilo Hospital, Goa; the Directorate of Health Services, Goa; staff of the PHCs and the private general practitioners (Drs Amshekar, Bhatikar, Hede, Naik and Vaze) who participated in the case series.



## References

1. World Health Organization. Global status report on alcohol and health 2018. Geneva: 2018.
2. Ambekar A, Chadda RK, Khandelwal SK, Rao R, Mishra AK, Agrawal A. Magnitude of Substance Use in India. Ministry of Social Justice and Empowerment, Government of India, 2019.
3. Gaunekar G, Patel V, Rane A. The impact and patterns of hazardous drinking amongst male industrial workers in Goa, India. *Soc Psychiatry Psychiatr Epidemiol* 2005;40:267-75.
4. Sau M, Mukherjee A, Manna N, Sanyal S. Sociodemographic and substance use correlates of repeated relapse among patients presenting for relapse treatment at an addiction treatment center in Kolkata, India. *Afr Health Sci* 2013;13:791-9.
5. Saxena S, Sharma RAJ, Maulik PK. Impact of alcohol use on poor families: a study from North India. *Journal of Substance Use*. 2003;8:78-84.
6. Nadkarni A, Weiss HA, Bhat B, Patel V. Trajectories of alcohol use disorders and their differential impact: A population-based cohort study in Goa, India. *Alcohol Alcohol* 2017;52:557-63.
7. Azariadis C, Stachurski J. Poverty Traps. In: Aghion P, Durlauf S, editors. *Handbook of Economic Growth*. 1, Part A: Elsevier; 2005.
8. Lund C, De Silva M, Plagerson S, Cooper S, Chisholm D, Das J, et al. Poverty and mental disorders: breaking the cycle in low-income and middle-income countries. *Lancet* 2011;378:1502-14.
9. de Quidt J, Haushofer J. Depression through the Lens of Economics: A Research Agenda. In: Barrett CB, Carter MR, Chavas J-P, editors. *The Economics of Poverty Traps*. National Bureau of Economic Research conference reports. Chicago: The University of Chicago Press; 2018.
10. Dean EB, Schilbach F, Schofield H. Poverty and Cognitive Function. In: Barrett CB, Carter MR, Chavas J-P, editors. *The Economics of Poverty Traps*. National Bureau of Economic Research conference reports. London: The University of Chicago Press; 2018.
11. Barrett CB, Carter MR, Chavas J-P. Introduction. In: Barrett CB, Carter MR, Chavas J-P, editors. *The Economics of Poverty Traps*. National Bureau of Economic Research conference reports. London: The University of Chicago Press; 2018.
12. Vos T, Abajobir AA, Abate KH, Abbafati C, Abbas KM, Abd-Allah F, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet*. 2017;390:1211-59.
13. United Nations. Sustainable Development Goals New York 2019 [Available from: <https://sustainabledevelopment.un.org/?menu=1300>].

14. David K. Evans, Anna Popova. Cash Transfers and Temptation Goods: A Review of Global Evidence. 2014.
15. Deb P, Gallo WT, Ayyagari P, Fletcher JM, Sindelar JL. The effect of job loss on overweight and drinking. *J Health Econ* 2011;30:317-27.
16. Sangath Community NGO. CONTAD: Community Oriented Non-Speciality Treatment for Alcohol Dependence India 2019 [Available from: <https://www.sangath.in/contad/>].
17. Pillai A, Nayak MB, Greenfield TK, Bond JC, Nadkarni A, Patel V. Patterns of alcohol use, their correlates, and impact in male drinkers: a population-based survey from Goa, India. *Soc Psychiatry Psychiatr Epidemiol* 2013;48:275-82.
18. Nadkarni A, Weiss HA, Naik A, Bhat B, Patel V. The six-year outcome of alcohol use disorders in men: A population based study from India. *Drug Alcohol Depend* 2016;162:107-15.
19. Saunders JB, Aasland OG, Babor TF, Fuente JR, Grant M. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction* 1993;88:791-804.
20. Pal HR, Jena R, Yadav D. Validation of the Alcohol Use Disorders Identification Test (AUDIT) in urban community outreach and de-addiction center samples in north India. *J Stud Alcohol* 2004;65:794-800.
21. Nadkarni A, Weobong B, Weiss HA, McCambridge J, Bhat B, Katti B, et al. Counselling for Alcohol Problems (CAP), a lay counsellor-delivered brief psychological treatment for harmful drinking in men, in primary care in India: a randomised controlled trial. *Lancet* 2017;389:186-95.
22. Legard R, Keegan J, Ward K. In depth interviews. In: Ritchie J, Lewis J, Nicholls CM, Ormston R, editors. *Qualitative research practice: A guide for social science students and researchers*. London: Sage; 2003.
23. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3:77-101.
24. Bradley EH, Curry LA, Devers KJ. Qualitative data analysis for health services research: developing taxonomy, themes, and theory. *Health Serv Res* 2007;42:1758-72.
25. QSR International Pty Ltd. NVivo qualitative data analysis Software. 2010.
26. National Collaborating Centre for Mental H. National Institute for Health and Clinical Excellence: Guidance. *Alcohol-Use Disorders: Diagnosis, Assessment and Management of Harmful Drinking and Alcohol Dependence*. Leicester (UK): British Psychological Society The British Psychological Society & The Royal College of Psychiatrists.; 2011.
27. World Health Organization. *Creating mental health and related services free from coercion, violence and abuse - WHO QualityRights training to act, unite and empower for mental health (pilot version)*. Geneva: 2017.
28. Orford J, Velleman R, Natera G, Templeton L, Copello A. Addiction in the family is a major but neglected contributor to the global burden of adult ill-health. *Soc Sci Med* 2013;78:70-7.

29. Esser MB, Gururaj G, Rao GN, Jernigan DH, Murthy P, Jayarajan D, et al. Harms to adults from others' heavy drinking in five Indian States. *Alcohol Alcohol* 2015;51:177-85.
30. Nayak MB, Patel V, Bond JC, Greenfield TK. Partner alcohol use, violence and women's mental health: population-based survey in India. *Br J Psychiatry* 2010;196:192-9.
31. Lorains FK, Cowlishaw S, Thomas SA. Prevalence of comorbid disorders in problem and pathological gambling: systematic review and meta-analysis of population surveys. *Addiction* 2011;106:490-8.
32. Mullainathan S, Shafir E. Scarcity: Why having too little means so much. New York, NY, US: Times Books/Henry Holt and Co; 2013. 289- p.
33. Schofield H. The Economic Costs of Low Caloric Intake: Evidence from India. 2017.
34. National Institute of Mental Health and Neurosciences. National Mental Health Survey of India 2015-16: Summary. Bengaluru: 2016 Contract No.: 128.
35. Central Bureau of Health Intelligence. National Health Profile. Ministry of Health & Family Welfare, Government of India, 2018.
36. Silva MC, Gaunekar G, Patel V, Kukalekar DS, Fernandes J. The prevalence and correlates of hazardous drinking in industrial workers: A study from Goa, India. *Alcohol Alcohol* 2003;38:79-83.
37. Benegal V. India: Alcohol and public health. *Addiction* 2005;100:1051-4.
38. Kumar S. Price elasticity of alcohol demand in India. *Alcohol Alcohol* 2017;52:390-5.
39. Rehm J, Kailasapillai S, Larsen E, Rehm MX, Samokhvalov AV, Shield KD, et al. A systematic review of the epidemiology of unrecorded alcohol consumption and the chemical composition of unrecorded alcohol. *Addiction* 2014;109:880-93.