Father's alcohol incidence and its effects on behavioral health of children: Evidence from Attappady, India

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List of Acronyms

WHO – World Health Organization
DALY- Disability-adjusted life year
NFHS – National Family Health Survey
AUDIT – Alcohol Use Disorder Identification Test
DHS – Demographic and Health Surveys
ADS – Alcohol Dependence Scale
ABS – Addiction Belief Scale
GPA – Grade Point Average
HUNT-2 - The Nord-Trøndelag Health Study
DSM – Diagnostic and Statistical Manual of Mental Disorders
CBCL -Child Behaviour checklist
NHIS – National Health Interview Survey
US – United States
OLS- Ordinary Least Square
TSLS – Two-Stage Least Squares
SI -Sample Interval
RS – Random Start
BPI – Behavioural Problem Index
PSID - Panel Study Income Dynamics
CDS - Child Development Supplement
NLSY - National Longitudinal Survey of Youth
TASMAC - The Tamil Nadu State Marketing Corporation
CPIM - Communist Party of India (Marxist)
LPM- Linear Probability model
SEC- Socio-economic Characteristics
MNREGS - Mahatma Gandhi National Rural Employment Guarantee scheme
BPL – Below Poverty Line
SE – Standard Error
ST- Scheduled Tribe
APC- Alcohol Per capita Consumption
ABV- Alcohol by Volume

Abstract

This paper studies about the incidence and intensity of alcohol consumption among the Scheduled Tribe men belonging to the Attappady block and analyses whether the prevalence of alcohol consumption affects the behavioural health of their children. A clustered survey was adopted across 37 hamlets of 192 in Attappady for the period of July 2019 to September 2019. A sample of 492 men were obtained in studying the alcohol prevalence issue and from this sample, men who had children within the age of 3-12 were chosen for examining the second research question. From 298 households, 474 children were considered for analyzing the second research objective. An alcohol supplement and a Child behaviour supplement: Behavioural Problem Index, was used for the household survey. Qualitative information through Key Informant Interviews and Focus Group Discussion was gathered to get more clarity on the issue. The main results indicates that the incidence of alcohol consumption in Attappady is higher (75%) compared to the incidence rate all over the state of Kerala. However, the factors predicting the incidence come from outside the model. The magnitude of pure alcohol consumption was above the State average and was within the range of 4.9 litres to 7.4 litres. The results on paternal alcohol use and its effect on child behaviour health show that an increase in alcohol use by the father has resulted in an increased behavioural health issues among their children by 0.63 points. In addition, the regression results show that with increased paternal alcohol incidence, the internalizing score which speaks of a withdrawn behaviour of the child increased by 0.56 points. For other input variables, when physical violence endured by the mother was brought to picture, this variable captured the effects of alcohol consumption by the father. Results on physical violence show that, when the mother of the child was physically abused, the child behavioural health issues increased by 0.62 points. Witnessing these kinds of events made them vulnerable to internalizing behaviour. The overall results indicates that there is alcohol prevalence in Attappady and father's alcohol consumption affects the child behavioural health.

Relevance to Development Studies

There are a growing body of literature which shows the association between paternal alcohol use and its effect on children among the main stream population. However, there is a lack of literature which analysis this issue among marginalised Scheduled Tribe groups. The current study focused on this section of the society. To set any policies for the people, first it is required to identify the issue.

The results obtained from the study shows the issue of prevalence of alcohol consumption among men/ fathers and its effect on the behavioural health of the children holistically. These results can be used as a base to frame suitable policies such as psychological counselling through Primary Health Centres and Government hospitals to help the affected.

Keywords

Alcohol prevalence, family conflicts, child behavioural health, Externalizing behaviour, Internalizing behaviour, drinking pattern among aboriginals-natives-tribal

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1 Introduction

Alcohol is a psychoactive drug widely used around the globe to cope up with stress (Huffine et al. 1989). The increased demand and per capita consumption of this substance remains a major health concern. Highlighting the consequences of excessive alcohol consumption, the report on alcohol and health by World Health Organization (WHO) (2014) described that around 3.3 million deaths happens globally every year due to alcohol consumption. The report also adds that alcohol consumption results in various diseases and the global disease burden due to alcohol consumption is 5.1% of the total disease burden (ibid). In addition to this, the Global Burden of Disease Study (2016) also reported that alcohol stands 7th in terms of the disease risk it holds and its consumption results in premature mortality and disability (Griswold et al 2018). On the basis of per capita alcohol consumption, European regions, especially the higher income countries rank first. Countries in Asia tend to have lower per capita consumption of liquor. The global average per capita consumption of alcohol is 6.2 litres (pure alcohol), indicating that on an average, a person drinks 13.5 grams of pure alcohol per day. However, this figure varies across countries (World Health Organization 2014).

In India, the total average per capita consumption of alcohol is 4.3 litres (average 2008-2010). Although, the per capita alcohol consumption in India is less than the global average, as far as India is concerned, the latest available figures are an increase in average per capita alcohol consumption as compared to the previous consumption rate of 3.6 litres (average 2003- 2005) (World Health Organization 2014). The National Family Health Survey 2015 points out that 29% of men and 1% of women in India consume alcohol. The results also show that out of those who drink, 12 % consume alcohol frequently, i.e. almost every day. Drinking patterns in the country are changing tremendously from occasional use to social use (Dasgupta et al. 2006) and the consequences associated with drinking are becoming more severe. The report published by WHO on total alcohol disability-adjusted life year (DALY) shows that, around 2 - 4.9 percentage of deaths in India are alcohol attributable deaths as against the total deaths (World Health Organization 2014). While analyzing alcohol consumption in Kerala, the south Indian state, which is the focus of this study, it is estimated that about 37% of men and 1.6% of women in Kerala consume alcohol (International Institute for Population Sciences (IIPS) and ICF (2017). In terms of the extent of consumption, it was reported that Kerala has the highest per capita per annum alcohol consumption in India – 8.3 litres (Rajeev, A et al. 2017). Increasing issues of domestic violence, issues with the children of the alcoholics, morbidity among the alcoholic men are few of the negative consequences identified by various studies (U.S. Congress, Office of Technology Assessment, 1986) (Unicef 2006). The National Family Health Survey 2015-16 (NFHS-4) reports that, in Kerala, 49% of the wives of frequent alcohol consumers suffers from emotional and physical abuse (International Institute for Population Sciences (IIPS) and ICF (2017). In terms of its consequences on adolescents, Jaisoorya et al. (2018) reported that a "substantial proportion of adolescents in India suffer from alcohol consumption by the people around them".

There is a universal belief that this trend is even worse in the case of tribal populations, one of the socially marginalized group in the country. Existing evidences suggest that there is a disproportionately higher drinking and its associated consequences among scheduled tribes (Neufeld et al 2005). Based on the survey information, 41.3% of men and 6.5% of women belonging to the scheduled tribes consume alcohol (International Institute for Population Sciences (IIPS) and ICF (2017).

In the case of tribal population in Kerala, there is a shortage of substantial amount of information among researchers on where they stand in terms of alcohol use and associated consequences. Researchers such as Mohindra et al. (2011) and N.C et al. (2018) have conducted their research on tribes of the Paniya community and tribes in Pozhuthana Panchayat in Wayanad district of Kerala respectively, to learn the role of alcohol in the lives of tribal people and the consequences of alcohol use. They were able to discover the history of alcohol consumption and the socio-economic consequences of alcoholism. However, Mohindra et al. (2011), used a qualitative approach and did not explicitly enquire about the alcohol consumption and instead focused on the well-being of Paniyas. In the case of N.C et al. (2018), they limited their study only to the alcoholism consequences. However, neither of these papers collected quantitative information on the incidence or intensity of drinking among men and related consequences on children.

Given the limited information on alcohol consumption amongst tribal people and the popular concern that it is very high, this paper focuses on specific indigenous tribal groups in Attappady, Kerala. In 1996, alcohol sale was banned in Attappady due to increased alcohol related problems in the area. Furthermore, in November 2002, former President of India Dr. APJ Abdul Kalam visited Attappady and insisted that the people of Attappady take an oath "Let us take a pledge today to abolish use of liquor and abolish Ganja cultivation that is rampant in this most-backward tribal belt" (The News Minute 2015). As a consequence of this Presidential attention, many awareness programs have been conducted in the area by several private organizations and the government to address the issue. Prohibition still continues but the problems of alcohol still persist (Iqbal 2013 and M 2007). There is a lack of research work in this region that explicitly investigates the alcohol abuse prevalence among men and the secondary effects on their children. This research aims at filling these existing gaps in the literature and hopes to place discussions – both academic and policy wise- on a firmer empirical footing. To be precise, based on primary data collected in Attappady region, this paper (i) provides an assessment of the incidence and intensity of alcohol consumption amongst men in Attappady region and (ii) investigates the effects of alcohol consumption by the father on the behavioral health of their children.

The analysis is organized into 10 chapters which includes this introduction. Chapter 2 provides the literature review. Chapter 3 presents the conceptual framework which outlines the channels through which father's alcohol incidence affects the child behavioral health. Chapter 4 provides a background on the area and the issues they are facing. Chapter 5 details the methodology and research questions. Chapter 6 presents the descriptive statistics of the data obtained for the research. Chapter 7 presents the main results. Chapter 8 provides discussion and conclusions of the study. Chapter 9 and 10 presents referencing and appendices, respectively.

Current paper uses terms tribal people, natives, adivasis etc. interchangeable for aboriginal population.

2 Literature review

Consistent with the objectives of the paper, this chapter aims to review two types of literature (i) papers which have investigated alcohol prevalence amongst tribal people and (ii) effects of alcohol consumption on behavioral health among children. The first section reviews the existing literature in the area of tribal alcohol consumption and associated covariates. The second section reviews the resultant behavioral health issues among children of alcoholics. Both the sections will try to examine the gaps in the existing literature and explain how the current research tries to fill some of these gaps.

2.1. Alcohol Prevalence among tribal population

From times to times, researchers around the globe were interested in knowing various other socio-economic and demographic factors and their association with alcohol. Most of the discovered showed a common trend that men consume more alcohol than women (Rehm et al. 2009) and this trend remains the same all over the world and across communities. In terms of demographic factors, work by Bowden et al. (2017) on Australian school students identified age as a relevant marker on alcohol prevalence.

Bowden et al. carried out a cross-sectional study with drinking status as the primary dependent variable. The results of Bowden's work showed that the probability of alcohol prevalence increases with age (Bowden et al. 2017). Higuchi et al. (1994) came up with a contrasting opinion about the above claim on age-alcohol prevalence relationship and argued that younger people are more prone to alcohol drinking problems in comparison to other age categories. However, they had also stated that the result is not universal and the age relationship cannot be generalized for any region. When it comes to socio-economic factors, a study by Jukkala et al. (2008) discovered that binge drinking has a negative relationship with education level and a positive relationship with economic problems. These results were obtained by interviewing 1190 Muscovites. Another work by Hu and Stowe (2013) also stresses on the association of alcohol and economic factors. For instance, a prevalence study conducted by them in Sri Lanka revealed that lowest of the low income categories used alcohol often and they spent over 40 % of their total income on buying alcohol.

When it comes to the tribal population, earlier works reveal that the alcohol usage of tribal population under certain situations displays unsystematic pattern as compared to the main stream population. In this context, one needs to consider not only their alcohol usage or alcoholism issue, but also numerous additional factors such as cultural differences, area-specific features, the effect of colonialism and many other that shaped this pattern. Some previous conducted studies have revealed several such factors. For instance, Caetano and Kaskutas (1985) discovered that the heavy drinking pattern among Hispanics and blacks does not decrease with increase in age and this result contradicts with few of the main stream researches. Another study on American Indians observed social factors such as college enrollment, occupation as the predictors of alcohol consumption. The results showed that having a job increased the likelihood of drinking whereas higher education declined the alcohol consumption (Greene et al. 2014). These patterns are mostly observed to be heterogeneous between and within the communities.

To understand the magnitude of alcohol use among the tribal people, Sievers (1968) conducted a research among non-southwestern American Indians from Arizona and discovered that alcohol

consumption by natives was more severe (52.6%) than the whites (14.0%). Clough et al. (2002) studied about the remote aboriginal tribes in Arnhem Land, Australia, about their substance abuse and the results showed that 53% of the 689 respondents drink alcohol daily. They pointed out that although there is an indication of prevalence in half of the samples, this is still considered less as compared to the magnitude prevailing in the other major tribal areas. Either way it can be argued that there is an increased alcohol consumption among tribal people compared to the main stream population and this difference is attributed to several factors.

It is believed that alcohol consumption was adopted by the tribal people to cope with social stress, economic stress and minority stress arising out of the socio-cultural displacement (Kelm 1999), marginalization and poverty (Reading and Wien 2013) (Brown et al. 2012) (Caetano et al. 1995) situations. For instance, Torres Strait Islanders are one of the aboriginal groups in Australia with a high alcohol prevalence. The context of colonization, land grabbing and the resultant alcoholism among these natives was studied by Gray et al. (2018) and they discovered that Islanders were 1.3% more likely to resort to alcohol abuse as compared to the non- indigenous population and their drinking pattern was observed to be risky. Their extreme alcohol use habit exposed them to different kinds of diseases. The survey conducted by Australian Institute of Health and Welfare (AIHW) (2016) confirms that alcohol attributed to an 8.3% burden among the Islanders and they suffer from Alcohol use disorder (ibid).

In the case of India, the country specific research works suggest concoction of prevalence and its association with socio-demographic and economic factors similar to the global findings. Kumar et al. (2018) conducted a study in five Indian states and examined the prevalence by putting alcohol consumers in different categories based on the frequency of consumption and studied how socio-demographic covariates correlate to these different frequencies. A household survey using Alcohol Use Disorder Identification Test (AUDIT) devised by the WHO was used to collect information on alcohol use (Babor et al. 1992). This research also discovered that alcohol consumption is negatively associated with education.

As far as the tribal population in Indian is concerned, alcohol prevalence and its association with socio-economic and cultural factors are very similar to that of the western literature. The papers by Mohindra et al. (2011) and Saikia and Debbarama (2019) provides a trend about the alcohol consumption patterns. They focused on alcohol usage among marginalized Scheduled Tribe (ST) community in India and reported an increased drinking pattern among them. The survey by Demographic and Health Survey (DHS) also confirms this notion (IIPS; 2008). In terms of the determinants, Saikia and Debbarama (2019) also found that economic factor such as poverty is negatively associated with increasing alcohol usage among male adults in North Eastern states.

Prevalence among tribal people cannot be studied without looking into the historical oppressions and discriminations they have suffered (Rose et al. 2015) (Lata Ho and Mishra 2017). Paper by Sreeraj et al. (2012) look into these cultural aspects and reasons for the alcoholism. They chose a de-addiction centre located in the Central Institute of Psychiatry, Ranchi for their study and the respondents were the patients admitted to this institute. Twenty people from tribal population and twenty from non-tribal population were equally chosen for the study and they were asked questions based on Alcohol Dependence Scale (ADS), Addiction Belief Scale (ABS) and Reason for Substance Use Scale. The study

discovered that social acceptance factor, social enhancement and emotional distress due to low-self-esteem were the main factors which drove them to addiction.

Upon examining the prevalence rate in Kerala, one could realize that there is a paucity of information. There are only a handful of researches conducted on alcohol incidence on tribal people in Kerala. Paper by Mohindra et al. (2011) on alcohol use talks about three sections namely consumption pattern, sources of alcohol and socio-economic consequences of alcohol consumption in the Paniya tribal community in Kerala. The qualitative study concluded that there is an increased use of alcohol use among men. Major source of alcohol is the toddy shops and alcohol outlets owned by the State government. Some respondents reported the presence of unrecorded-illicit liquor brewing within and outside the tribal hamlets. Poorer households in the hamlets consumed more alcohol. Respondents reported that workers were given alcohol to incentivize workspace. This is one of the ways they are being exploited by the employers. Increased mortality of men at an early age, domestic violence, and broken relationships are few of the issues reported due to men's alcoholism. This paper's analysis is based on participatory poverty and health assessments and uses a sample size of 393 households for the study.

Similarly, an analysis was carried out on tribal population in Pozhuthana Panchayat in Wayanad district of Kerala. The study examined the historical connection of the Scheduled Tribes with alcohol and the negative consequences arising out of their lack of awareness on harmful drinking habits and identified alcoholics were engaged in criminality. The study focused only on the issues and provided no details about the prevalence (N.C el al. 2018). When the research area, Attappady, is considered, there are no studies conducted so far focusing on the alcohol issue. Research work by Dr. Iqbal (2013) on infant mortality indicated alcohol use among the tribal population and resultant consequence on children. Sachana and Anilkumar (2015) also listed alcoholism as a livelihood issue affecting the tribal groups. However, they did not go in depth in examining the reason for the alcohol usage. Hence, it is pertinent to conduct a study by keeping alcohol usage of tribal people in Attappady as the main focus. There is clearly a dearth of pattern which combines both qualitative and quantitative measurement to study alcohol incidence. This research paper identifies the above mentioned gap and adapts a mixed method approach for studying the prevalence of alcohol and determinants associated with it.

2.2 Effects of father's alcohol consumption on child behavioral health

It is important to study the effects of this incidence on self and on others. Researchers and policy makers often end up giving more importance to the former and ignore the latter. This fallacy drove the researcher to bring the second hand effect under spotlight i.e., effect of father's excessive alcohol consumption on their children. Troubles in the family system affect children the most. Hence, it is important to see the connection between parent-child relationship and how issues with the parent directly and indirectly affect the child. Research work by Egeland et al. (1988) highlights this connection and underlying issues in the case of weak bonding.

Egeland et al. 1988, identified the importance of interpersonal relationships on behavioural transformation. His study explains how any disturbances in the relationship, be it minor or major, affects the behaviour of the children, especially infants. Bowlby's attachment theory was used to explain the impact of positive relation on child's early development. If the caregiver comforts the child and

maintains a warm relationship with the child, this can have a positive impact on the child in terms of forming positive emotions and organised behaviour (Jogdand et al. 2014). Whereas if the child faces any kind of disturbance within the family environment or from the care taker, it can affect the child's behaviour development. They also explained the interpersonal relationship in terms of Attachment Disorder and Separation Anxiety Disorder. The former talks about child having a weak emotional bond with the parent and its effects on the behavioural health and the latter explains how separation and the resulting anxiety affect the child.

Their findings establish the connection between good family environment and resultant child behaviour. In support of this claim, Hinshaw and Lee (2003) and Mahato et al. (2009) talks about how continuous monitoring by parents and parental care influence a child positively. Both the authors discussed the role of family in child upbringing. Lohmann's study (2015) provides supporting evidence to the above claim. According to Lohmann, families with an alcoholic father or mother face many issues such as domestic violence, broken relationship, financial hardship, and health issues which affects children the most. Lohmann identified severe emotional problems such as low self-esteem, neglect, and stress among the children of alcoholic parents.

Ellis et al. (1997), Black (1982) in their research works also discuss what happens to the child when the parent is an alcoholic. As per Ellis, the negligence in fulfilling the parental responsibilities by the parents affects the child in several ways. For instance, certain situations force the elder children of the house to become caretakers for younger siblings. This, in some cases, leads to school absenteeism among the elder ones (Tunnard, J 2002). According to Ellis et al. (1997), alcohol abuse in the family by the parents or other close relatives affects children mainly in two ways: alcohol specific influence and influence that is non-specific to the alcohol use. Parents' alcoholism, ethnic background, early alcohol use offspring are alcohol specific. Whereas influence of socio-economic situations, psychiatric disorders in family members are some of the non- alcoholic specific influences. The outcome of alcohol-specific influences are categorized into two: long term and short term effects.

Some of the existing literature in this area points out these long term and short term effects. Researcher conducted by Haber et al. (2015) , Valkov (2018) and Cranford et al. (2010) showed that alcohol consumption among the father leads to early substance abuse among their children. Few others like Poon et al. (2000) , Torvik, F.A et al. (2011), KAMAU (2017) and Pinto et al. (2012) discovered that children from alcoholic families faces cognitive impairment leading to poor academic achievements and increased dropouts. Waldron et al (2009) and Hameed (2019) discovered more severe effects of alcohol abuse on children. They discovered that harmful drinking pattern among parents can even result in child abuse and that the behavioural issues arising from it, leave a negative mark in child's life. Often, these issues will not come to light until the father seeks treatment for alcohol use disorder (Rossow et al. 2016).

Present study, utilizes the concept of incidence of father's alcohol consumption on the child behavioural health. Rossow (2016) carried out the research within this genre. However, he did not limit his study only to effect on behavioural outcome. Instead he also tried to see the link parental alcoholism has with substance abuse among children and other health related outcomes. In the cohort study, he discovered 130 cases, where there is a connection between alcohol exposure and outcome variables. Out

of 130 cases, 12 percent of the cased exhibited a positive relationship between alcohol abuse and child behaviour.

Results discovered by Waldron et al. (2009) match with the above results that there exists a link between alcohol abuse among parents and child behaviour. The paper categorizes behaviour into two categories, namely externalizing behaviour, of child showing an aggressive behaviour and internalizing behaviour, of withdrawn nature of the child. The results showed that there is a transmission risk from parent to child and it creates externalizing or more aggressive behaviour in the child. The study found no significant effects of risk on internalizing behaviour. Family History assessment module, questions on Alcohol disorder based on Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV symptoms and Child Behaviour Checklist (CBCL) for children between the age 6-18 were used for collecting information on family, parental alcohol consumption and child behavioural health.

Many of the above mentioned research works in this area are limited in terms of generalizability. However, by obtaining the data set from National Health Interview Survey (NHIS), with 40,000 United States (US) households, Jones et al. (1999) studied the effects of hazardous drinking and non-hazardous drinking by parents on child behaviour. Researchers used NHIS for assessing the issue with Beker's Household Production Model as the framework for the study. Necessary information for the research was collected from a supplementary survey on alcohol consumption and a child health supplement by NHIS. Child health supplement had child behaviour checklist with two subscales used for studying the externalizing and internalizing behaviour. Initially they used the Ordinary Least Squares (OLS) to analyse the relationship. Due to the endogenous relationship between household consumption and production decision, the researchers included few instrumental variables and adopted the Two-Stage Least Square (TSLS) estimation technique. The results showed that with an increased number of drinks by the father, the child's internalizing and externalizing behavioural issues increased by 0.0001 points and 0.0002 points, respectively. The study also discovered that during the child's lifespan, if mother consumed at least 12 drinks per year, the internalizing behaviour and externalizing behaviour of the child increases by 0.22 points and 0.74 points. With TSLS, this magnitude increases by 0.51 points and 1.4 points, respectively.

While considering the Indian context, there are not many studies carried out to investigate the effect of alcohol on women and children. Most of the existing studies are limited to issues such as early alcohol consumption by the children of alcoholic parents (Chopra et al. 2008) (Kartikeyan et al 1992), increased school dropouts (Jose 2016) (Pinto and Kulkarni 2012). Very few studies gave adequate importance to the behavioural health aspect. For instance, Ravindran et al. (2018) evaluated increased risk of externalizing and internalizing behaviour and social competency of the children of alcoholics. Research was conducted in the de-addiction clinic of SRM medical college, Chennai using a case control designed by selecting 30 children of alcoholic parents and 30 children of non-alcoholic parents. In analysing the issue, they made use of instruments such as Child Behaviour Checklist, Malhothra's Treatment Schedule and Aggression Questionnaire. The study results indicated that there is a high risk of externalizing and internalizing problem among children of alcoholics as compared to the children of non-alcoholics. One of their finding identified the role of genetic factors in transmitting behavioural disorders among the children of alcoholics. Sidhu et al. (2016) also carried out a similar research work to study the impact of alcohol addiction among parents on the behavioural outcomes of the children. The study was conducted in a territory care hospital and study results showed that children of alcoholics

had high internalizing and externalizing behavioural score as compared to the control group of children who does not belong to alcoholic families. Results further indicated that girls had more internalizing behavioural score and boys had more externalizing behavioural scores. The primary issues with both the papers are their small sample size and their validity in only the specified settings. Both the results cannot be generalized to a larger population.

Majority of the works on similar issues focus on the mainstream society and often neglect the minorities. Studies conducted in the area mostly focused on how parental alcoholism affect other aspects of children except their behaviour. For example, Pati et al. (2018) engaged in a qualitative exploration of how the alcohol use issue among pregnant tribal mothers resulted in miscarriage and other birth defects in their children.

In relevance to the Kerala tribal context, study by Jose and Shanuga (2018) addressed the factors that shape social interactions and school participation. The study was conducted among the tribal, non-tribal children, their parents and teachers (sample size of 50) from Wayanad district, Kerala through methods such as participant observation, key informant interview. A part of the study discusses on how familial factors influence in shaping social development in children. The study output on this section indicated that alcohol abuse of the parents, resulting in alcohol dependence on children. One of the respondents of the research - a schoolteacher - explained that if parents are alcoholic, their children imitate them by consuming alcohol at an early age. Another area of the research also mentioned that alcohol consumption by parents affected the child's school participation. Although the study mentions about the troubles faced by the children of alcoholics, it neither provides an in-depth picture of the alcohol issue of the parents nor studies the other outcomes associated with parental alcoholism.

The lack of substantial amount of research on the children of tribal alcoholics, especially on the behavioural health area has motivated me to undertake this topic. For analysing the causal relation of paternal alcohol use on child behavioural health, I chose the work by Jones et al. (1999) as the base. They have used the child behavioural checklist to study the behavioural issues among children and parental drinking was measured using the total drinks and the fraction of child's life parents had at least 12 drinks. However, I intend to measure alcohol prevalence using the incidence of drinking (father) in the last 12 months. In addition, research by Jones et al. (1999) focused on the mainstream economy and I intend to study how the above mentioned problems in the children work within the natives/ tribal setting. Through this paper I aim to examine the prevalence of alcohol use among husbands/ fathers in Attappady and the determinants of this pattern. Followeing this, the second hand effect of paternal alcohol consumption on child behavioural health will be examined.

3 Conceptual framework

This section lays out a framework to connect parental alcohol consumption and its behavioral effect on children. There are numerous research works done in this area to study the parental alcohol consumption on externalizing and internalizing problems among children. Puttler et al. (1998) from their research on parental alcoholism and the effect on early school age children, preschoolers discovered that parental depression or aggressive behavior along with alcohol abuse increases the risk of internalizing risk through two channels: directly by creating intergenerational drinking issue and inflicting psychological stress on the child, or indirectly by means of negative caregiving or parental rejection environment. In additional to this, study conducted by Hussong et al. (2008) also indicates that these behavioral issues are mostly seen in children of alcoholics who have depression issues or who express offensive behavior. Due to these reasons, it is pertinent to see the psychopathology of parent in order to study the behavioral issues among their children.

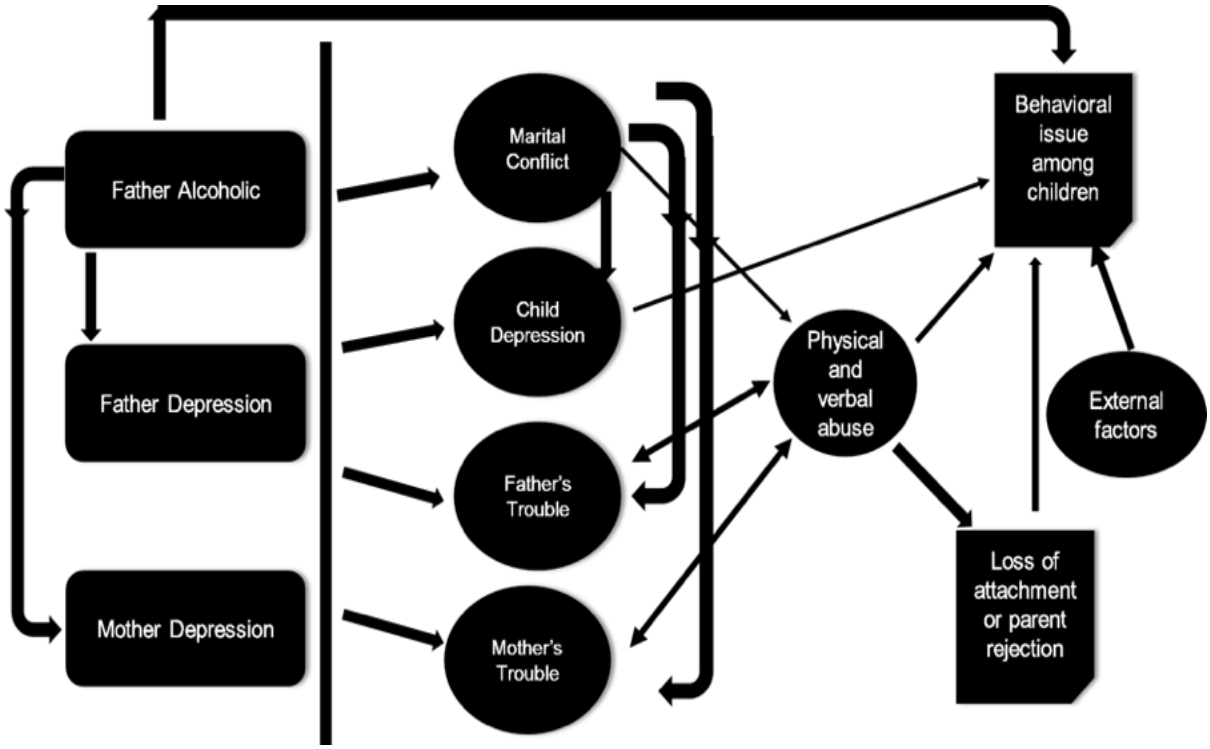
In the case of parental alcohol abuse, numerous existing works carried out in the area indicate the co-existence of different psychiatric disorders among alcohol abusers. Leonard and Eiden (2007) talk about the nature of these psychiatric disorders and comorbidity in their work. A study conducted by Cork, a psychiatric social worker, talks about certain common characteristics she had observed in alcoholic men. Based on her study she identified a set of characteristics commonly seen among alcoholics. Unwillingness to take up any kind of responsibility, lack of self-control, dependency towards family members, giving less importance to family related issues, shallow bond with the family members etc. are few of the factors that Cord observed in the alcohol dependents and that she believes have an effect on their disruptive or failed marriage (Cork 1969). She identified these proximal characteristics that play a role in triggering family issues. Hostility among the family members and distortion in traditional gender roles such as wife taking over husband's role as bread bearer of the family and child taking over role of parent (Kühn and Slabbert 2017) are few of the issues she believes to be arising out of alcoholism of men or the head of the household.

Marital aggression is a critical problem observed in the houses of alcoholics. This issue is identified regionally as well as globally (Berg et al. 2010) (Stanley 2008) (Dasgupta et al. 2018) (Leonard and Eiden, 2007). Berg et al. (2010) recognised from their qualitative analysis several reasons which could possibly trigger intimate partner violence. Denial by spouse to give money to the husband for drinking and for other purposes, spouse complaining or asking about the drinking behaviour of the husband, issues related to cooking are few of their findings which are believed to have caused domestic or marital violence. Wilson et al. (2014) added to the existing flow that the husband being frustrated or easily irritated due to the influence of alcohol also results in marital aggression. Whereas Sayette et al.(1993) talked about how alcohol consumption is meddling with the problem-solving skills of the individual and ultimately creating conflicts within the family environment. In general, alcoholic husband's insecurities and changing gender stereotypes in the society were observed to be the key reasons fuelling the inter partner violence. The research works mentioned above agrees to the idea of alcohol abuse creating familial issues.

Discussing the effect on children, different research works talk about the channels which leads to these effects. Kerr et al. (2012) , Jose and Shanuga (2018), Haber et al. (2015) , Valkov (2018) and

Cranford et al. (2010) stressed on the intergenerational transmission channel and its negative consequences on alcohol usage by adolescents, whereas Puttler et al. (1998) talks about the alcoholism inflicting psychological stress on the child (direct). Other channels identifies paternal violence episodes against mother and antisocial behaviour (Puttler et al. 1998) affecting the child's adjustment (indirect). Hence, placing these issues and channels study seeks to analyse, the following framework is built.

Figure 1: Conceptual Framework



Source and elaboration: Author

The framework used in this paper is an adaptation of framework by Eiden et al. (2009). It uses Attachment Theory, Parental Acceptance- Rejection Theory and Family System Theory to establish a connection on how parental alcohol usage affects the child. Attachment theory by Bowlby (1979) and Parental Acceptance-Rejection theory by Rohner et al. (2005) discuss the importance of building a healthy relationship between the child and his/her care taker. Both the theories suggest that the absence of an attachment or weakening of bond between the children and caretaker can result in "psychological maladjustment" among children. They identified that the bond becomes weak under the circumstances of financial issues and family conflicts.

Family System Theory (Minuchin 1985) on the other hand talks about the interrelationship between family members and how the change in functioning of one person in the family affects others. The theory posits that when an individual in the family gets anxious, its effect will spread to other familial members as well. The triangle concept and the nuclear family emotional process of the theory explains

the complexity of family relationship. Based on the theory one can derive the idea of how the interrelationship pattern works.

It can be derived from these three theories - Attachment Theory, Parental Acceptance-Rejection Theory and Family System Theory - that if alcohol usage affects the father, child being a family member will also be affected emotionally and behaviourally through this action. The alcohol addict father resorting to violence against the mother, and the child witnessing this act will affect the child's behaviour. Hence, apart from the direct channel, issues related to the mother also affect child's behaviour. Both the direct as well as indirect channels are included in the framework. A finding by El-Sheikh and Buckhalt (2003) also confirms that drinking by the father affects the child behavioural outcome though family functioning. Here the family functioning serves as the mediator.

These three theories gives a clarity on the channels that influences the child. Based on the previous literature (Jones et al. 1999) (Waldron et al. 2009), the current study focuses on how these channels, especially the direct channel of father's alcoholism leading to behavioural health issues among children.

4 Context of the study

This chapter provides a background on Attappady and the tribes of Attappady. The section also contains information on qualitative observations on alcohol prevalence. The discussion carried out in this section focuses only on issues that are relevant for the paper.

Attappady or Attapadi is a tribal development block situated along the Western Ghats in the state of Kerala. The overall block extends over a land area of 745 sq.km. The region is subdivided into three revenue villages namely, Agali, Pudur, Sholayur of Mannarkkad taluk. There are several stories about how the place got its name. One of the stories narrates that Attappady received its name because of the presence of leeches in the area. The term *Atta* means leech and *Pady* means valley. Some other stories suggest that the place received the name because of its high terrain (Manikandan 2016). Over the years, it has been home to historically marginalized groups - tribes. These tribal groups, similar to the other tribal groups in the country, live in remote areas, and this spatial difference makes them detached from mainstream population (Kamat and Sangeeta, 2008; Bagai and Nundy, 2009). Currently, the place is inhabited by three main tribal groups- *Irula, Muduga* and *Kurumba*. *Irulars* comprise 84% of the total tribal population in Attappady and *Mudugars* and *Kurumbars* comprise 10% and 6% of the total tribal population, respectively (State Goods & Service tax Department 2018).

4.1 Features of the tribal groups

Figure 2: Features of the tribal population

	Tribal Groups		
	Irula	Kurumba	Muduga
Features	• Largest tribal community in the area with nearly 95 tribal hamlets • Build their settlements facing the divine hill, Mallehswaram Mudi • Thurston (1909), in his book "Castes and Tribes of Southern India", argued that this tribal group received the name Irulars because of the dark complexion of its members. • Occupation: By tradition, they are small-scale cultivators • Languages: A comination of Malayalam and Tamil	• One of the protected tribal groups, living inside the reserve forest area • Build their settlements facing the divine hill, Mallehswaram Mudi • There are nearly 16 Kurumba hamlets, which are mostly situated at higher altitudes • Languages: A comination of Malayalam, Tamil and Kannada	• Build their settlements facing the divine hill, Mallehswaram Mudi • Languages: A combination Malayalam, Tamil and Kannada

Source: Based on research papers by Remesh (2007) & Thurston (1909)

4.2 Socio-cultural aspects of the tribes

The tribal people live in hamlets, the small settlements, known as *Ooru*. In each hamlet, there are small individual huts owned by the families. These huts are traditionally known by the name *Kurai* (Remesh

2007). In terms of their social system, every *Ooru* has an *Ooru head,* known as *Oorumooppan.* He has the authority and power to sets rules and regulations within the *Ooru* which have to be followed by the other inhabitants in the *Ooru*. In the past, he was even powerful enough to instruct people on how they should live their lives, to provide guidance and to punish in case of offences. Currently *Oorumooppan* does not have any power and lost the importance which was given to them earlier. Second powerful person in the *Ooru* was *Vandari*, the tribal minister. The Ooru also has a cashier and peon who are called by the name *Kuruthalai* and *Bhandari*. Each *Ooru* also comprised of *Mannokaran* (agriculture minister) who used to decide about all the agriculture harvesting activities within the hamlet. In older days *Mannokaran* also used to conduct rituals and festival related to harvesting (ibid).

4.3 Traditional to Modern system

Tribal people, prior to intrusion by the settlers, followed cultivation practices like slash and burn cultivation and shifting cultivation pattern. During this period, they were self-sufficient and grew vegetables and grains for their family requirements. In terms of cultivation, they always followed joint cultivation practices and the crop yield was equally shared within the group. Another specialty of them was that they cultivated only what was enough for them and careful consideration was given in not exploiting the nature and resources. Singing and dancing were the quintessential parts of their life (Kalathil 2006). Lack of gender and class discrimination, sexual freedom of choosing their own partner were a part of the society (ibid). The tribal people followed an eco-centric state of living. Land for them was a public or common property and they were unaware of the title deeds (*pattayam*). For this reason, they did not hold any legal ownership of the land. Since the tribal community was detached from the outside world, they were unaware of the changes happening around them (Manikandan 2016).

In the first half of 19th century, there was an influx of settlers or outsiders from other parts of the state or other states to Attappady. These settlers included *Gowdas*, *Tamilians*, and Keralites (Manikandan 2016). Till 18th century, traditional tribal groups (*Adivasis*) were the major inhabitants of these areas with a population comprising of 90 % of the total inhabitants (Kudumbashree (n.d.)). Of the total land area, 75 % were covered by forest. Post 1960s, with the arrival of the settlers, these characteristic features slowly began to change, and the indigenous people lost their land to settlers. During those days most of the tribal people were illiterate and lacked knowledge in monetary transactions. This exposed them to land grabbing. Settlers began cultivating on these lands which they captured from the tribal people, triggering deforestation in the area. Tribal people were sidelined in their own homeland and were confronted with problems of resource deprivation (Manikandan 2016). Before 1960s, *adivasis* in the area were unaware of practices such as brewing illicit alcohol (Edison and Devi 2019). Settlers identified this as a weak spot and tricked the tribal men and women into consuming alcohol, *beedi* and *ganja* (Kalathil 2006). This marked the beginning of alcohol use practice among *adivasis* in Attappady area. For instance, the *Oorumooppan* from a hamlet located in Agali responded:

> *"Earlier we used to cultivate Chama, Cholam, Ragi and other kinds of millet, and cultivation was a collective responsibility. Currently, cultivation is considered less important by the new generation. During those old days, people used to drink toddy*[1]*, a drink made from palm leaves. Once the ban was*

1 Toddy, also known as *Kallu* is an alcoholic beverage prepared from the sap of palm tree.

implemented, it was difficult for our people to stay away from alcohol and hence they began to brew it on their own. Since doing so was illegal, police were taking measures against those who were brewing illicit arrack[2], people started to buy liquor from outside. Adivasis in this area were familiarized to alcoholism by the settlers. In order to increase the productivity and as a substitute for regular wage, alcohol was given to tribal workers by settlers. This ultimately made them addicts" (Discussions on alcohol prevalence issue 2019).

Another elderly man in his early 70s from *Irula* tribe described his plight. He leased his 10 *acres* of land to a settler in the 1970s. Before sorting out the lease agreement, the settler offered alcohol to the former and when he became intoxicated, the settler acquired the owner's signature. When elderly man regained his consciousness, he realized that he had lost his land. (Discussions on alcohol prevalence issue 2019)

One of the village head who belong to a tribal hamlet in Agali panchayat also had a similar story about exploitation. He argued:

"*During the early phase of migration, settlers even tricked the local people into mortgaging their property for buying food items that were new to tribal population*"

When the encroachment and resultant dispossession of land reached saturation, tribal people in the area began to take loans from banks to make ends meet. A policy recommendation of Dhebar commission (1960) suggested that the lost land should be given back to the *adivasis*. Upon serious discussions and debates on the issue, in 1975, the government of Kerala passed a resolution to prevent land encroachment and restoration of lost land. The act restricted transfer of tribal land to third parties and declared such moves punishable with imprisonment of up to one year. The rules became operationalized from January 1982 (Kalathil 2006). Through this movement, the government was able to protect the lands of *adivasis* and their practices to a certain extent. However, the alcohol abuse continued at the same pace. Alcohol related issues and alcoholism in the area began to hurt the tribal population. To regulate alcohol consumption in the region, the state government of Kerala in April 1996 imposed prohibition on arrack and toddy shops operating in Attappady (M 2015). A study report by Thomas (2018) opinionated that this move exacerbated the situation. When the liquor became unavailable, the local population began to brew and distil illicit alcohol *Vattuchaaraayam*[3] in their tribal hamlets (Ottapura Prabhakaran et al. (2016)) (M 2007). As this practice was illicit, Police and Excise began to seize the production of this illegal beverage and arrested the people responsible (Kerala Excise Department 2019). Due to the fear of punishment by the legal authorities, men in the area began to buy alcohol from Tamil Nadu Beverages Cooperation outlets situated in Thadagam (Edison and Devi 2019) (Kalathil 2006) or the Kerala Government Beverages outlet located in Mannarkkad[4].

There is still an increased use of alcohol beverages in the hamlets in Attappady. Study conducted by Edison and Devi (2019) claimed that few of their respondents complained about the consumption of alcohol by tribal men and women in the tribal areas. While consuming alcohol, they forget the

2 Arrack is a clear and colorless alcoholic drink made of sugarcane or from fermented sap of coconut flower.

3 Same as arrack

4 A municipal town in Palakkad district

necessity of consuming food. They also reported that their respondents described about the incidence of domestic violence in Cheerakkadavu[5], where the drunk husbands beating their spouses.

Magnitude of this problem became more evident as the men in the area died of rampant alcoholism (M 2007). As a measure to put an end to alcohol related issues in the area, *Thaikulasangham*[6] was formed. They conducted a strike in 2016 demanding the closure of liquor shops located in Anaikatti, a village in Tamil Nadu, and as a result of the strike, beverages shops located on the border were shut down (Kudumbashree 2017). A recent study by Krishnanunni and Mathews (2019), they discovered that early death of men in the area due to alcoholism is still prevalent and this is putting pressure on women in the family to work and look after their children.

In this context, the effect of alcohol use by the male head of the family on wives and children is a relevant issue to be discussed. Domestic violence and abuse by the male head of the family has contributed to either their children drop out from schools or they are sent to far away hostels. A 23 - year old man from one of the hamlets in Agali, talks about how he lost his school life due to the actions of his father, who was a chronic alcoholic:

> "My *father used to drink every day. And every evening, he will come home drunk and beat my mother badly. At the age of 8, my mother sent me to stay at a hostel away from home and asked me to study there. But back at home situation was very bad. My father's physical abuse made my mother's health condition very weak. And one day, when I was 12 years old, my father died of liver failure. I had to stop my studies in order to take care of my mother. For the last 10 years, I have been helping my mother in her work and I go for any work people offer me". When asked about his mother, he said she still goes to work with a broken back, which was as a result of a domestic violence episode took place years back and she is 56 years old now. He pointed towards a rusty broken window and said, "That window was broken by our neighbor. He broke it with a heavy rod because we could not return him the money we had borrowed. It's been 8 years now, and we are still unable to repair it."*
>
> (Discussions on alcohol prevalence issue 2019)

Since there is a paucity of information on this area, the current study tries to look into the alcohol incidence-intensity issue, the factors determining incidence and the second hand effect of alcohol on children, to obtain more clarity on the issues discussed above.

5 A tribal hamlet located in Agali village, Attappady

6 Tribal women's group

5. Methods

5.1 Study Design and Procedure

This section of the paper describes the research methodology used in analyzing the research questions. Few of the existing studies have carried out experiments, assessment tests and surveys with children as the primary unit of observation to analyze the prevalence of alcohol consumption among parents and its negative consequences on the child behavior (Waldron et al 2009). Majority of them used schools where the child studies or the hospital where the parent is treated for alcohol related illnesses, as the sampling frame. However, this was not logistically feasible for the area I chose to focus on. Due to the geographical and economic reasons, many children in this locality are sent to hostels at an early age. These hostels are spread across the state of Kerala and hence, it hinders conducting a child-behavioral driven study with school as the sampling frame. Few others have used children or spouse of the alcoholic as the sampling unit and treatment places such as de-addiction centers as the sampling frame. As far as Attappady is considered, there are four de-addiction centers in this "alcohol free zone". However, few of these centers or hospitals mentioned specifically that the percentage of patients enrolled there with substance abuse issues is very low. This limitation ruled out the option of considering these centers as the sampling frame. Since the study also includes the prevalence of alcohol use, an experimental approach will not be adequate to get an overall picture of the pattern of alcohol use among the tribal population. Considering these factors, the best solution was to carry out a survey-based study in different hamlets of different villages by keeping the households as the sampling unit and tribal hamlet as the sampling frame. Research works by Kumar et al. (2018) and Jones et al. (1999) adopted similar procedures to investigate the issues of prevalence and child behavior, respectively. The survey strategy was adopted by considering these as the foundation. The researcher also used key informant interviews and focus group discussions to study other factors which may affect the prevalence of alcohol consumption with respect to the context being studied.

5.1.1 Survey Details

The survey took place in the tribal development block, Attappady, a habitat of three tribal communities scattered across 734.62 square km radius, with 64,318 inhabitants (Census of India 2011). In the current study, I have employed clustered randomized sampling to gather the data. The first step was to obtain a list of tribal hamlets and population in each hamlet. This information was obtained from the Tribal Extension Office (ITDP (n.d)). With 73 tribal hamlets and 4,279 families, Agali had more tribal population as compared to the other two villages. In order to have proportional allocation, the total sample size was divided between three villages. The estimated sample size derived from power calculation to find and effect between the variables[7] was 464. Since the context of the study is different, it was decided to collect around 504 samples. Two percent of the total population from each village was chosen for consistency. Total population of Agali was 11,854 and the sample size was 183. In the case of Sholayur, the total tribal population is 9,809. Two percent of 9,809 attributed to 152 samples. For Pudur, the total tribal population constituted of 10,934 people (ITDP (n.d)) and two percent of that total is 169. Next step carried out by the researcher was to make clusters in each village proportionately. For Agali, 19% of the total hamlets was chosen, a number that comes up to 14 clusters. For Sholayur, 19% of the 52 hamlets amounted to 10 hamlets and in the case of Pudur, 19% of the 67 hamlets gave a

[7] Puttler et al. (1998)-mean based on CBCL of boys -means 58.64 and 54.40

total of 13 hamlets. In total, 37 hamlets were chosen for the study based on the probability proportional to size.

For Agali, the total population was divided by the number of clusters to obtain the sample interval (SI) of 846.7. A random number was chosen between 1 and 847. The chosen number is the random start (RS) number which was 500 in this case. Thus, the village having a cumulative population in which the random start fell became the first cluster. The clusters were selected by RS+SI (2_{nd} cluster), RS+2SI (3_{rd} cluster)…… RS+13SI (14_{th} cluster). The same steps were followed for Pudur and Sholayur villages.

Post tribal hamlet selection, a group of 4 enumerators visited each hamlet within the selected list. On arriving at a particular hamlet, the researchers decided to choose the community halls located in each hamlet as the center point. Each enumerator started the survey from this particular point. Enumerators chose four different routes and a door-to-door survey was carried out in a random fashion. If the houses were locked, nearest neighboring houses were chosen for the survey. In total, data was collected on 539 sample households from 37 tribal hamlets.

5.1.2 Research Instrument

A questionnaire was prepared based on the literature review, which was divided in to two sections – alcohol prevalence and child behavior. The preferred respondent for the former section was the head of the household and latter section, parents. However, in the absence of the preferred respondents, the wives (first section) and other family members/caretakers (second section) were interviewed. The questionnaire consisted of nine sections – first three sections focused on demographics and socio-economic factors. The next two sections - one dedicated to the male respondents and the other exclusively for female respondents- had questions pertaining to domestic violence, marital relationship, income contribution, financial assets & liabilities. The frequency of domestic abuse was measured using Likert scale. Health related questions were included in the sixth section. Followed by this, the next two sections were the alcohol supplement sections and had questions from the AUDIT, alcohol related issues, purchase behavior and consumption patterns. AUDIT was tested across different cultural groups, across genders and the tool was found valid for all settings (Drugabuse.gov n.d.). These questions required husbands/ wives to respond in terms of the standard drink consumed. The standard drink is different for different alcohol beverages and also differs from country to country. Hence, it was important to find out the standard drink for different alcohol beverages in the Indian context to adapt AUDIT to Indian setting (World Health Organization 2001). The last section of the questionnaire, also known as the Parent Report Supplement, contained questions related to children and their behavior, such as family structure, maternal & paternal health and child education. Only caretakers were instructed to respond to these questions.

The main part of the supplement included questions from child behavioral problem Index (BPI), which was developed by James Peterson and Nicholas Zill. This is one of the widely used behavioral problem measuring instrument in surveys to study the severity of child behavioral health issues (Peterson and Zill, 1986). The index is mainly used by Panel Study Income Dynamics (PSID) Child Development Supplement (CDS) and National Longitudinal Survey of Youth (NLSY) for their research on children. The researcher is using the modified version of the score with 27 behavioral questions. As per the criteria

set by PSID-CDS, children within the age group of 3 to 12 can be included in the sample (Hofferth et al. 1997). Following the same pattern as PSID-CDS, this paper also sets this as the inclusion criteria.

5.1.3 Pilot study

Before conducting the actual survey, to test the questions and people's response rate, a pre-test was carried out in Kakkuppadi, a hamlet in Attappady. Twelve interviewees (husbands and wives) and three enumerators participated in the session. Questions were asked to the participants to check the clarity and consistency of the questionnaire. This hamlet and the samples taken were not included in the original sample. Questions were finalized after one more round of discussion with the *Kudumbashree*[8] animators from different tribal hamlets.

Discussion with enumerators

5.1.4 Alcohol measurement, pour size, Types of alcohol varieties

To begin the survey there was a need to get clarity on alcohol-beverage specific drink size information, common drinks used in the area, quantity of ethanol contained in different beverages. For this purpose, the researcher adopted the following steps:

First step involved in identifying the standard drink size and the commonly used beverage. For this propose, the researcher visited Beverages Corporation outlets in Kerala, The Tamil Nadu State Marketing Corporation (TASMAC) in Tamil Nadu and two private bars. At first, the researcher observed the customers and the kind of liquor they carry with them. Followed by this, the researcher carried out brief interviews with the outlet staff and gathered information on the common pour sizes, alcohol contained in each liquor bottle, the common beverage bought by the people. The staff responded that 60 milliliter also known as "large peg" is the standard drink size for hard liquor and 330 milliliter for beer. They also responded that hard liquor such as brandy and rum in quarter size (180 mL) is commonly purchased by the people. The questions were repeated to few residents of the local community and received the same response. In addition, they also reported that locally distilled *arrack* is available in certain hamlets.

8 Kerala State Poverty Eradication Mission launched in 1998

Second step involved a visit to the tribal development specialty hospital located in Attappady and discussed the research questions and approach with the Medical Officer, Dr. Prabhu Das and the medical practitioner Dr. Naveen, who are in charge of de-addiction cell of the hospital and gathered information on the consumption pattern.

Third step was to figure out the ethanol concentration in different beverages. This was necessary to calculate the intensity of alcohol consumption. The concentration of alcohol in the common beverages were obtained from the reports by Chemical Examiner's Office, Kerala, (crime No.8/08, [2019])as obtained by the Judicial First Class Magistrate, Karunagapally, in crime No.8/08. Report contained detailed information on different varieties of drinks in different batches of alcohol, the tests used, physical appearance of the liquor, and percentage by volume of ethyl alcohol. Test results indicated that foreign liquor such as brandy and rum contained on 36.34 % by volume of ethyl alcohol. In the case of arrack and toddy, 36.16 and 3.86 % by volume of ethyl alcohol was identified, respectively. Although, ethanol concentration was also discussed with the Beverages Corporation outlets employees, I believe the results from the Chemical Examiner's laboratory is more reliable. Hence, this ethyl alcohol concentration result was used in further calculation.

5.1.5 Data Gathering procedure

A formal request letter was sent to the Tribal Development Office, Attappady and the Sub-Collector / Revenue Division Officer, Ottappalam to obtain permission to visit and gather data from the tribal hamlets. Since *Kurumbars* belong to the category of most vulnerable primitive tribes, they are protected legally and hence it was required to obtain special permission from the Forest Office, Agali for visiting *Kurumba* tribal hamlets. These stringent measures were adopted by the government to prevent outsider intrusion. Survey was initiated only after receiving written consent from the responsible authorities.

To ensure privacy for the respondents and to avoid possible outside interference, enumerators were instructed to conduct the interview in a private space. Verbal consent was obtained from the participants before commencing the interview. To enhance confidentiality, external staff /enumerators who had no connection with the village were hired. Before commencing the survey, enumerators introduced themselves to the participants. Since the participants were hit by a natural calamity just before the survey took place, their verbal consent was considered very important. The participants were explained thoroughly about the research questions, sections involved, the nature of the questions and the interview process. If there was any hesitation or unwillingness from any respondent to participate in the survey, that particular respondent or the household was skipped. Each interview session took approximately 45 to 50 minutes to complete. Enumerators also made sure that the respondent is over the age 15 years.

In certain cases, if the participant was confused about the type of the beverage, a picture of the beverage was shown. An empty quarter bottle was carried by the researcher to clarify the doubts arise in terms of quantity. However, most of the respondents knew about the beverage and they had a clear idea about the quantity. Hence, there was no need to use the empty liquor bottle.

Filling out child supplement

Respondents for key informant interview were selected based on their knowledge about the community and life experiences. Respondents included two *Oorumooppans* and four residents from different Ooru. The researcher also carried out a focus group discussion in community hall in one of the tribal hamlets which were not part of the sample size. All the respondents were of age above 15. Researcher used a recorder and field work diary to store information. The data was then further translated to English and stored confidentially in the system. Main theme was about the alcohol consumption in the hamlets and the participants responded to various reasons for alcohol consumption. Alcohol specific questions included the following:

What is the factor that triggered alcohol consumption in the hamlets? What were the consequences? Who were the affected ones? Is there an illicit brewing site in the hamlet? Where do men buy the alcohol from? How much money do they spend?

This analysis was restricted to the objective of knowing the reasons behind the alcohol prevalence and the second hand effects.

5.1.6 Study period

Research work preparation commenced in the month of July and the area selected for the study was visited by the researcher. The topic was discussed with the *Kudumbashree* mission coordinators who were working in this area on poverty eradication and women empowerment, and with the local Communist Party of India (Marxist) unit (CPIM). With their help, few of the tribal hamlets in the area were visited and detailed discussions were carried out with the *Kudumbashree* animators and tribal promoters on the research questions, and various sections to be included in the questionnaire. They gave very sensible comments and suggestions to modify a questionnaire for their local setting. The survey was completed in September.

5.1.7 Challenges

The researcher and enumerators faced numerous challenges during, before and after the survey. Before the survey, due to heavy rain, Attappady was struck with floods and several landslides. Because of this, the research team had to postpone the field work for nearly 20 days. Most of the tribal hamlets located on the top terrain were isolated and there were no means to travel to those places. During the field work, enumerators and I had encounters with some drunkards in few of the villages and we were unable to continue the survey in those villages. Hence, we had to choose an alternate date to visit these villages again.

Photo: Twitter@NDRF

5.1.8 Data processing

Transcribing the questionnaires was done using Microsoft Excel and for analysis the data was carried out using STATA/MP 15.0.

5.1.9 Test for reliability

The questions were tested for reliability. Internal consistency reliability was tested using Cronbach's alpha. In the case of behavioral questions, Cronbach's alpha provided a scale reliability coefficient of 0.7432. In the case of AUDIT, it is already a tool tested for its validity and reliability. However, up on double checking using STATA/MP, the researcher received a test result of 0.8348 as the scale reliability coefficient. A Cronbach's alpha of at least 0.7 is the recommended value in various tests (Nunnally 1994).

5.2 Research Questions and Empirical framework

On the basis of literature review and survey, this research paper intend to examine the following research questions. There is lack of study evaluating the incidence and intensity of alcohol consumption among the tribal men in Attappady. Hence my first research question is:

What are the factors predicting the incidence and intensity of alcohol consumption amongst men in Attappady region?

The above question is divided into two parts. The first part focuses on looking into the incidence aspect and its determinants. For this purpose, the binary variable of incidence is chosen. Respondents were asked if they have or their husbands have consumed alcohol in the last 12 months. Since my specification had many dummy or indicator variables on the right hand side which makes the probit very unstable, to analyze the incidence, I chose a Linear Probability Model (LPM) model. LPM gives more robust results in this case.

The first part of the question is: *What are the factors responsible for the incidence of alcohol consumption?*

The following empirical specification is used to analyze the part on incidence.

$$Y_i = \beta_0 + \beta_1 Age_i + \beta_2 Education_i + \beta_3 Income_i + \beta_4 Employment_i + \gamma X_i + \epsilon_i \rightarrow (1a)$$

Through the above mentioned specification, I would like to see if the incidence of alcohol consumption is associated to any of the socio-economic or demographic covariates.

The outcome variable incidence of alcohol consumption by **i** individual. The main socio-demographic covariates includes age, education, employment status and yearly income. These are obtained based on the previous research works conducted around the globe. Most of the studies identified the association of these covariates with alcohol consumption (Greene et al. 2014) (Caetano and Kaskutas1985) (Kumar et al. 2018) Age is a continuous variable. Education is a categorical variable with categories illiterate, pre-primary, primary education, middle, secondary, senior secondary and graduation (Council 2014). Within the category, each level is a dummy which takes the value of 'zero', if does not belong to that level and takes value 'one' if belongs to that level. Similarly, variables on income are dummy and the interpretation is same as in the case of education. Employment status is a binary variable which takes the value of 'zero' if there is no employment and take the value 'one' if person is employed. Vector X_i includes the controls such as village categories, ethnic status, family size, the total land owned in acres (indicator of wealth), health status of the family, ownership status of house, knowledge on alcohol prohibition and drug usage by the husband. Finally, ϵ_i is the idiosyncratic error term.

The second part is: *What are the factors responsible for the intensity of alcohol consumption?*

The second part intends to examine the magnitude of the alcohol consumption using the yearly gram equivalent of pure alcohol. For analyzing this variable, I apply simple OLS (Ordinary Least Square method).

The following empirical specification is used for the analysis.

$$Y_{h,li} = \beta_0 + \beta_1 Age_i + \beta_2 Education_i + \beta_3 Income_i + \beta_4 Employment_i + \gamma X_i + \theta hamletFE_i + \epsilon_i \rightarrow (1b)$$

$Y_{h,li}$ is a continuous outcome variable of yearly pure alcohol consumption in gram equivalent. Covariates used in (1a) is also included to (1b). Subscript "h" is the higher-limit ethanol consumed by the tribal and subscript "l" indicates the lower limit. The "number of drinks" variable which was used in the question

is expressed within a range. Hence, the lower-limit and upper-limit. First part of the analysis focuses on how higher-limit ethanol consumption is predicted by various factors. Followed by this, hamlet fixed effect variable is added to the specification to check the sensitivity of whether the covariates remain the same or not. In the second part, the analysis focuses on the lower limit ethanol consumption. To this lower limit specification, the hamlet fixed effect is added to see if it affect the covariates. Variable "hamletFE" is the hamlet fixed effect here.

The second research question aims to examine if father's alcohol consumption affects the child behavioural health. The second research question is: *What is the effect of paternal alcohol use on the behavioural health of the child?*

To find the effect of alcohol incidence on child behavioral health, again simple OLS techniques were used. The yearly ethanol/ ethyl alcohol consumption measurement results shows that there exist a measurement error. Hence, I have decided to go with a clean variable i.e., the incidence of alcohol usage which clearly says whether the individual drinks or not. Hence, alcohol incidence variable is used as the explanatory variable in examining if it affects the dependent variable - child behavioural health.

The empirical specifications used in analysing the second questions is given below

$$CB_i = \beta_0 + \beta_1 Alcohol_i + \beta_2 violence_i + \beta_3\, SEC\&D_i + \beta_4\, PTI_i + \beta_5\, PHC_i + \beta_6\, CHE_i + \beta_7\, Village_i + \gamma X_i + \epsilon_i \rightarrow (3)$$

Dependent variable CB_i indicates the behavioral problem score of children which is treated as a continuous variable. Alcohol incidence is the explanatory variable, coded as 'one' if the father consumed alcohol at least once in 12 months and 'zero' otherwise. The observables parental, household, child characteristics which determines the analysis are clustered into different categories, such as PTI, Violence, SEC & D, PHC, CHE, Village and X_i are controlled for.

The PTI (maternal and paternal time inputs) variable was controlled for, proxied with variables such as mother's occupation, father's occupation, family size, father being the caretaker, mother being the caretaker, attendance on parents - teachers meeting. Existing literature points out that the lack of time spend with children can cause emotional and behavioral problems in children (Jones et al. 1999). Family size indicated that as the family becomes big, the time inputs by the parents decreases.
$Violence_i$ includes the physical and verbal violence experienced by the mother of the child is controlled for (UNICEF, 2006). The literature suggests that physical and psychological attacks on mother results in severe and lasting effects on children.

The SEC & D (socio-economic characteristics and demographic) are controlled for. It included variables such as ethnic status, income of the family (Kaiser et al. 2017), family type (Sonuga-Barke and Mistry 2000), family health, and total acres of land owned by the family and ownership status of the house. Total land owned and ownership of house are two factors which can be used to access the financial stability with income. These variables control for any risk the child faced that can have an effect on child behavioral health.

PHC is the parental human capital and this includes variables such as father's self-reported health status, mother's self-reported health status, age of the father, age of the mother, education of father, education of mother which are also controlled for (Jones et al. 1999). The researcher acknowledges the limitations of the self-accessed health inputs of father and mother.

CHE indicates the child health endowment variables. This includes variables such as child's age, child's gender, birth status of the child, mother's age at the time of child birth, child's education which are controlled for. This was done to take into account the risk the child was exposed to (Jones et al. 1999). Village is included as a geographical identifier comprises of dummy variables coded for Agali, Pudur and Sholayur, respectively.

X includes the other control variables such as grandmother being the caretaker and usage of drugs by the father (Rossow 2016) and the schemes availed by the child. Finally, ϵ_1 is the idiosyncratic error term.

6 Data and Descriptive Analysis

6.1 Main outcome variables and their measurement

The main outcome variables in the first research question were alcohol incidence and yearly pure alcohol consumption (in gram equivalence). Incidence is obtained by enquiring the men if they consumed alcohol at least once in the last 12 months. Yearly pure alcohol consumption (in gram equivalence) which measures the intensity of alcohol consumption was derived the following way

$$Gram\ equivalent\ of\ pure\ alcohol = ethyl\ alcohol\ concentration\ of\ the\ beverage * metric\ volume * relative\ weight\ of\ alcohol\ 0.794$$

The questionnaire offered a range of options for the respondents to choose from. The range varied as per the context of the question or according to the parameter being tracked by the question. The options provided to the respondents for alcohol drinking frequency were - Never, less than monthly, monthly, weekly, daily or almost daily. Options for quantity were: 1 or 2 drinks, 3 or 4 drinks, 5 or 6 drinks, 7 or 8 or 9 drinks, 10 or more drinks and zero drinks. In many cases, people responded in terms of options such as 60 mL peg, 180 mL bottle, 360 mL bottle, 750 mL bottle, 1 L bottle, 330 mL bottle etc. On the basis of their response, these measures except for 330 mL beer bottle, was converted into a standard pour size i.e., 60 mL. Using frequency of drinking, quantity was converted to yearly basis for analysis purpose (Kumar et al. 2018). Since the quantity was expressed with in a limit, an upper limit and a lower limit of alcohol consumption was obtained. For instance, the first quantity option was 1 to 2 glasses. So it was required to calculate both responses which will fall within a range. To obtain yearly pure alcohol consumption in gram equivalent, the total drink yearly was multiplied with the gram equivalent of pure alcohol. For comparing the quantity with the existing research works, alcohol per capita consumption (APC) was obtained. This was done the following way;

$$APC = (Alcohol\ volume\ (ABV^{9})\% * Standard\ Pour\ Size * total\ number\ of\ drinks\ in\ a\ year\ )/1000$$

(World Health Organization 2014)

The main output variable in the second research question is the Behavioral Problem Index score. The index contains 27 questions in total which included behavioural problems such as anxiety, unpredictable mood changes, and obsessiveness. The index is further divided into two subscales, namely Externalizing Behaviour Scale and Internalizing Behaviour Scale. Externalizing Behaviour measures the aggressive nature expressed by the child and Internalizing Behaviour measures the sad/ withdrawn nature of the child (The institute for Social Research 2010). Initially there were 30 questions in the index. Due to instability of three questions, the scale was limited to 27 questions. Externalizing scale comprises of 15 questions and internalizing scale comprises of 13 questions. One question from the main index is included in both sub-scales (The institute for Social Research 2010).

9 ABV : In the study I have applied 4.4%for beer , 36.16 % for arrack, 36.34% for hard liquor such as brandy, rum and 3.16% for toddy

For each question, the caretakers were asked to respond by "Often true", "sometimes true" or "not true". As per the scale, three points are assigned to "often true" responses, two points for "sometimes true" responses and one point for the "not true" responses. To compute the scores, the information gathered in this fashion needs to be dichotomised. For recording the points, those responses answered "often" and "sometimes true" has to be given a value 'one' and item with "not true" responses are given a 'zero'. Finally, the sum of scores are used for the analysis. Based on the analysis, the score indicates high behavioural health problem. (The institute for Social Research 2010). The instrument is a well-tested and widely applied behavioural problem measurement instrument and the scoring pattern is internationally accepted.

6.2 Sample characteristics for men, Attappady, India 2019

Table 1 provides the sample characteristics with respect to men (husband). Initially the sample had 539 observations. However, it was noted that some women respondents gave the alcohol consumption history of their expired husbands. I believe including the response of women whose husbands who are alive can only give a better sense of the recent drinking habits. Due to this restriction, the sample size was reduced by 47 observations to 492.

Table 1 Sample Characteristics of men, Attappady, India 2019 (n=492)

Background Characteristics	Categories	Number	Percentage
Ethnic Status	Kurumba	27	5.51
	Muduga	26	5.31
	Irula	431	87.96
	Others	6	1.22
Education Status	Illiterate	130	26.86
	Primary	52	10.74
	Middle school	95	19.63
	Secondary	131	27.07
	Senior-Secondary	55	11.36
	College level or diploma	21	4.34
Employment Status	Not employed	23	4.74
	Employed	462	95.26
Type of occupation	Self-employed in non-agriculture	11	2.38
	Self-employed in agriculture	6	1.3
	Other labour	288	62.34
	MNREGS	85	18.4
	Others	72	15.58
Family income	up to 1 lakh INR	208	42.54
	1 lakh to 2 lakh INR	186	38.04
	2 lakh to 3 lakh INR	61	12.47
	Above 3 lakh INR	34	6.95
Village	Agali	193	39.23
	Pudur	183	37.2
	Sholayur	116	23.58
Health	No health issues	322	66
	Health issues	160	33.2

*Family income on a yearly basis **variables such as Knowledge of alcohol ban, uasage of drugs, rooms in the house, husband's age, ownsership ststaus of house, land owned, family size are also included in the regression *** types of occupation not included in regression

Source: Data collected by author

The sample is spread over three revenue villages in Attappady, namely Agali, Pudur and Sholayur. The response rate based on the villages showed that 39.23 % of the response were recorded

from Agali. The average age of men included in the sample was 39.10 years. In terms of education qualification, the data says that one-fourth (26.86 %) of the men were illiterates. Data also discovered that only 27.07 % of the men from the sample attended till secondary school and only 4.34% of them opted for higher education. In terms of income, nearly half (42.54 %) of the men had a family annual income of up to one lakh INR (1,389.80 USD) (XE Currency Convertor 2019).

Employment status shows that, 95.26 % of the men were employed. Out of those who employed, 62.34 % were daily wage employees. It is also interesting to note that only 18.4 % of the men received job as part of Mahatma Gandhi National Rural Employment Guarantee scheme (MNREGS). Main focus of the program is to provide employment to those below poverty line. In the sample data collected, 95.73 % of the respondents owns a Below Poverty Line (BPL) card. However, only 18.4 % of them were employed in the program. This may be because of the program's preference towards women (U, K.C. and Mathews 2019)

Data further revealed that, *Irula* tribal group dominated the survey with 87.96 % of men in the sample coming from *Irula* community. Data showed that households on an average, owned 6.86 acres of land. With respect to the family size, the data assumed that on an average there were nearly four people in the household.

The full descriptive table with all the variables used for regression are attached in the appendices.

6.2.1 Incidence of alcohol consumption and determinants

Table 2 gives the incidence of alcohol consumption among men on the basis of various socio-economic and demographic features. Data shows that 75.41 % of the men in the sample consume alcohol. On the basis of age category, high prevalence was found in those who belong to age category of 30-49 years. 73.02 % of the alcohol consumers belonged to this age category which indicates that middle aged tribal men tend to consume more alcohol. Of the 117 abstainers, the mean age was 40.72 %. In terms of ethnic status, most of the alcohol consumers (87.84 %) belonged to *Irula* community. This indicates that being in *Irula* community increases the incidence of alcohol consumption. When analyzing education, 32.48 % of the abstainers and 25.07 % of the alcohol drinkers were illiterates. However, it can be noted that more than two-third of the current alcohol consumers had education up to secondary level. Another trend which can be seen from the data is that with increase in education, alcohol use among men decreases.

In terms of employment status it is observed that more than 95 % of the current alcohol consumers had employment. The trend shows that employment triggered alcohol consumption among men. Families with lower per capita income of up to 1 lakh INR (1,389.80 USD) (XE Currency Convertor 2019) on a yearly basis had a higher alcohol prevalence. It can also be noted that with increase in income, the incidence of alcohol use decreases. On the basis of region, Agali panchayat had more alcohol prevalence as compared to the other two villages. The interesting fact about alcohol prohibition knowledge is that those who know about the ban still continued to consume alcohol. 86.03% of the drinkers knew there is a prohibition for alcohol consumption. This shows that prohibition in the area is not successful in controlling the alcohol issue. In the case of drug usage by men, it also shows that 46.15 % of those who drink also use drugs.

Results of education, income and employment is in similar lines with the existing literature findings. The full descriptive table with all the variables used for regression are attached to the appendices.

Table 2 Incidence of alcohol consumption among men, Attappady, India 2019

Variables	Categories	Non-drinker (n=121)	Drinker (n=371)
		Percentage	Percentage
Ethnic Status	Kurumba	5	5.68
	Muduga	5	5.41
	Irula	88.33	87.84
	Others	1.67	1.08
Education Status	Illiterate	32.48	25.07
	Primary	8.55	11.44
	Middle school	15.38	20.98
	Secondary	20.51	29.16
	Senior-Secondary	14.53	10.35
	College level or diploma	8.55	3
Employment Status	Not employed	5.04	4.64
	Employed	94.96	95.36
Family income	up to 1 lakh INR	46.22	41.35
	1 lakh to 2 lakh INR	36.13	38.65
	2 lakh to 3 lakh INR	11.76	12.7
	Above 3 lakh INR	5.88	7.3
Village	Agali	38.02	39.62
	Pudur	34.71	38.01
	Sholayur	27.27	22.37
Ownership Status of the house	Men	50	48.38
	Women	47	48.65
Rooms	Less than 2	5	7.82
	2 to 4	90	81.13
	4 to 6 rooms	4.17	9.97
	More than 6 rooms	0.83	1.08
Health	No health issues	66.39	66.94
	Health issues	33.61	33.06
Knowledge of alcohol ban	No	100	13.97
	Yes		86.03
Using Drugs	No	100	53.85
	Yes		46.15

*Family income on a yearly basis **variables such as land owned, family size, age of husband are also included in the regression

Source: Data collected by author

6.2.2 Intensity of alcohol consumption and determinants

The study estimates showed that yearly pure alcohol consumption (gram equivalent) was 4129 gram on a lower limit and 6199 gram on an upper limit. In terms of average alcohol per capita consumption (APC) in liter, men in the community consumed alcohol approximately between 4.9 litres and 7.4 litres on a yearly basis (World Health Organization 2014).

To conclude, the initial results show that alcohol incidence among men in Attappady is as higher as 75.41% whereas the alcohol prevalence of Kerala is nearly 37% (International Institute for Population Sciences (IIPS) and ICF 2017). This shows that more men in Attappady consumed alcohol at least once in 12 months. With respect to intensity, the data shows that men from Attappady had a per capita alcohol consumption ranging from 4.9 litres and 7.4 litres yearly. The World Health Organization (2019) depicted that the average yearly per capita consumption in India was 5.7 litres in 2016. A study conducted by Kumar et al. (2018) also indicates that the average per capita alcohol consumption in Kerala was 5.73 litres. This indicates that the intensity of alcohol consumption among tribal population in Attappady is slightly higher than Kerala and India estimates.

6.3 Sample characteristics for child dataset, Attappady, India 2019

Table 3 provides the information in terms of children. In total, 474 children who fell within the age categories of 3 to 12 from 298 households were included in the study. It was either the mother or father responded to the child supplement. Information on all children in the family within this age group was obtained for the study. It was also identified that in the case of 363 children, their parents reported that the father of the child consume alcohol.

Table 3 Sample Characteristics of child dataset, Attappady, India 2019

Variables	Categories	Number	Percentage
Father's drinking input	No	111	23.42
	Yes	363	76.58
Abuse on mother			
Verbal Abuse	No	190	40.43
	Yes	280	59.57
Physical Abuse	No	306	65.52
	Yes	161	34.48
Maternal , Paternal time input			
Father's Occupation	No	13	2.76
	Yes	458	97.24
Mother's Occupation	No	80	17.02
	Yes	390	82.98
Father as caretaker	No	147	31.01
	Yes	327	68.99
Mother as caretaker	No	72	15.19
	Yes	402	84.81
Child Health Endowment			
Gender	Male	249	52.53
	Female	225	47.47
Education	Illiterate	16	3.38
	Pre-primary	126	26.64
	Primary	193	40.8
	Middle	138	29.18
Child's birth status	Normal	70	14.77
	After 10 months	44	9.28
	Pre-mature	358	75.53
Socio-economic and Demographic			
Family income	up to 1 lakh INR	190	40.17
	1 lakh to 2 lakh INR	200	42.28
	2 lakh to 3 lakh INR	59	12.47
	Above 3 lakh INR	24	5.07
Family Type	Nuclear	341	71.94
	Joint	133	28.06
Villages	Agali	171	36.08
	Pudur	207	43.67
	Sholayur	96	20.25

* family income for a period of 1 year

Source: Data collected by author

The village level response rate showed that 36.08 % of the children were from Agali. Nearly half (43.67 %) of the children in the sample were from Pudur Village. The average age of the children in the sample was 7.4 years. In terms of gender of the children, 52. 53% of the sample included males and the rest comprised of female. As far as the education is concerned, majority of the children (40.8 %) were pursuing primary education and 3.38 % of the children in the sample are yet to start basic education. Family income statistics showed that around 80 % of the children belonged to the family with income category up to INR 1 lakh (1,389.80 USD) or between INR 1 to 2 lakh (2,783.42 USD) (XE Currency Convertor 2019). It was observed that 34.48 % of the mothers of the children faced some kind of

physical abuse and 59.57 % of the mothers faced verbal abuse over the period of one year. Of the total children, three-fourth (71.94 %) of the children lived in a nuclear family and only 28.06 % of the children lived in a joint family. In terms of alcohol abuse statistics, 76.58 % of the child had their father consuming alcohol in its pure form during the last 12 months. The full descriptive table with all the variables used for the sample characteristics are attached to the appendices.

6.3.1 Descriptive statistics of total behavioral issue score of the child

Table 4 shows total behavioral issue score based on various factors. The data reveals that 78% of the children with behavioral problems come from families where father has alcohol incidence and 68 % of the children who don't have behavioral problems comes from families where father has alcohol incidence. This shows that alcohol consumption is a factor which has an effect on child behavior. According to the data, 62 % of the children with behavioral issues are from families where the father verbally abuses mother, whereas, only 49 % of children without behavioral issues experience this problem. This trend is a clear testimony to the fact that behavioral issues among children increases in those families where the mother faces verbal abuse. The pattern is no different in the case of physical abuse. Parental time is another factor that contributes to the behavioral issues among children. The data shows that 85 % of children with behavioral issues had a working mother, whereas only 71 % of children without behavioral issues had a working mother. The main variables are discussed in the table. The full descriptive table with all the variables used for the descriptive statistics can be found on the Appendix

Table 4 Total behavioral score, explanatory variables and controls, Attappady, India 2019

	Total Behavioural problem score >0 (n=394)	**Total Behavioural Problem score=0 (n=80)**
Variable	**Mean**	**Mean**
Alcohol Incidence	0.78	0.68
Verbal Abuse	0.62	0.49
Physcial Abuse	0.36	0.26
Paternal and Maternal Time input		
Husband occupation	0.98	0.95
Wife occupation	0.85	0.71
Family Size	5.19	4.99
Caretaker-Father	0.71	0.58
Caretaker-mother	0.90	0.58
Attending PTA	0.78	0.48

*regression controls for Parental Human Capital, Child Endowmwnt, Socio-Economic and Demographic variables, schemes availed by childre, drug usage by parent, caretaker-

Source: Data collected by the author

7 Results

7.1 Empirical results for the alcohol incidence and determinants

The mean of alcohol incidence obtained from the data indicates that 75.41 % of the men in the sample consumed alcohol at least once in past 12 months. Hence, there exists incidence of alcohol consumption. The below result shows which all predictors were responsible for this prevalence.

The results on the association of alcohol use incidence and various socio-economic - demographic factors and other controls are reported in Table 5. From the results it can be seen that in this area socio-economic or demographic characteristics are not significant in explaining the prevalence of alcohol consumption. Contrary to many of the research outcomes on the relationship between age and prevalence, the results shows that age is not statistically significant. Same goes on with the education status as education became insignificant. Key covariates and controls such as employment, land, income, family size, and health are insignificant and hence has no role in predicting the incidence pattern. It is observed that factors like knowledge about alcohol prohibition and drug use by men are the only significant variables in the models.

In the case of prohibition knowledge, those who were aware of it did not take any effort to cut down the consumption and instead they increased the consumption. The results shows that an increase in one percentage points of prohibition knowledge increased the alcohol consumption by 0.64 percentage points as compared to those who were unaware of the ban. The result matches with the output obtained from descriptive statistics. In the case of drugs, the result shows that drug consumption and alcohol use goes hand in hand. In the regression, an increase in one percentage point of drugs consumption led to an increased alcohol incidence by 0.04 percentage points.

The large and significant coefficient of the constant variable indicates that there are unobserved determinants that comes from outside the model that influence the alcohol incidence. Based on the key informant interview, this can additionally be linked to two reasons: One of the respondents described that toddy was a part of their culture since ages and drinking is an acceptable norm. Another respondent pointed out that people in the hamlet are habituated to modern drinking on the back of the land-dispossession and resultant alcoholism issue they have been facing since 1960s. Factors like these also determine the incidence.

The full table with all the variables used for regression are attached to the appendices.

Table 5 OLS regression of Socio-economic and demographic factors associated on alcohol incidence among men, Attappady, India, 2019

Variables	Categories	Coefficient (SE)
Age group		**-0.00211**
		(0.00156)
Education Status	Primary	**0.0844**
		(0.0553)
	Middle	**0.0257**
		(0.0391)
	Secondary	**0.0294**
		(0.0374)
	Senior-Secondary	**-0.022**
		(0.0532)
	College/Diploma	**-0.0888**
		(0.0834)
Employment	Employed	**0.0211**
		(0.0582)
Ethnic Status	Muduga	**-0.031**
		(0.103)
	Irula	**-0.106**
		(0.0795)
	Others	**-0.0987**
		(0.177)
Family size		**-0.0025**
		(0.00968)
Family income	1 to 2 lakh rupee	**0.0187**
		(0.0304)
	2 to 3 lakh rupee	**0.0602**
		(0.0494)
	Above 3 lakh rupee	**0.0329**
		(0.0499)
Knoweldge of ban		**0.639*** **
		(0.0383)
Drug uasge		**0.0380***
		(0.0183)
Constant		**0.509*** **
		(0.147)
N		**467**
R-squared		**0.6736**

Standard errors in parentheses * p<0.05, ** p<0.01, *** p<0.001

*Family income expressed in lakh rupee *following set of controls such as acres of land owned, Ownership of the house, Village, Number of rooms, health are controlled for

Source: Data collected by the author

7.2 Empirical results for Intensity of pure alcohol consumption-yearly (gram equivalent)[10]

The results on the association of alcohol use intensity and various socio-economic - demographic factors and other controls are reported in Table 6. In the case of yearly pure alcohol consumption- lower range, it can be seen that R^2, the coefficient of determination, is 0.281 indicating the model's explanatory power

10 Grams mentioned in the results is gram equivalent

and 28.1% of the variation in dependent variables is explained by the independent variables. Since gram equivalent is used as the unit of measurement, Standard Error (SE) is very high. Similar to the incidence outcome, the research result could not find statistically significant age, education, employment, income gradients associated to yearly pure alcohol consumption. However, the research was able to obtain a significant family size-gradient in the association with yearly pure alcohol consumption. It was noted that with each additional member in the household, yearly pure alcohol consumption increased by 552 grams. This may be due to the fact that as family size increased, social support within the system increased, which might have eventually unburdened the responsibility of the husband and eventually motivated him to drink more.

The study found that, with knowledge about the ban situation in Attappady, the husbands over the period of one year increased the yearly pure alcohol intake by 2929.4 grams in comparison to those who were ignorant about the ban. The association is statistically significant at 99% confidence interval. This result is slightly related to the result by Miron and Zwiebel (1991) and Warburton (1932) who also argued that alcohol consumption during the prohibition remained almost the same as before the prohibition. This can also be explained with the help of Iron Law of Prohibition by Ricard Cowen which suggests that when there is a ban for a substance, it will become more powerful (Cowan 1986). In terms of drugs usage, it was observed that with increase in drugs usage, husbands also increased the pure alcohol consumption by 4090.1 grams. The results are highly significant. Existing works in this area also suggests there exist a concurrent consumption pattern in the case of alcohol consumption and drug usage (US Department of Health and Human Services, National institute of Alcohol abuse and alcoholism 2008). The number of rooms in the house, a wealth indicator suggests that with more rooms in the house, the pure alcohol consumption increases 9328.6 grams.

In addition, hamlet fixed effects were added to the yearly pure alcohol consumption-lower range to see if this has any effect on the result. An increase in the standard error across covariates and an increase in R square by 36.2% with the inclusion of an additional covariate was observed. All variables which were significant earlier was significant in the model with fixed effect also. In addition to those variables, one of the categories in ethnic status also depicted a significant gradient. It can be also noted that even after adding the fixed effects, the direction of change remains the same.

Higher range- yearly pure alcohol consumption without the fixed effects had a coefficient of determination of 35.2% indicating that 64.8% of the variation comes from outside the model. It was noted that for both specifications with and without fixed effects, the college/ diploma variable was significant. This shows that adding fixed effect has not made any significant impact on the variable. The results demonstrated that having college level education by the husbands decreased their alcohol consumption by 3200 and 3469 grams, respectively. The result is similar to the previous studies (de Looze et al. 2014) (Greene et al. 2014) indicating that higher education level has a transformational effect on people. For both the specifications, the result showed a significant gradient for family size, knowledge of alcohol prohibition in the area, usage of drugs, health and number of rooms.

The common data exhibits a trend that increase in family size, knowledge of alcohol ban, drug usage results in an increased consumption of yearly pure alcohol among the Scheduled Tribe men of Attappady. The full table with all the variables used for regression are attached to the appendices.

Table 6. OLS regression of Socio-demographic and economic factors on yearly pure alcohol consumption (lower range and higher range) among men, Attappady, India, 2019

		Lower Ethanol Consumption		Higher Ethanol Conumption	
Variables	**Categories**	**Yearly Ethanol Consumption** Coefficient (SE)	**Yearly Ethanol Consumption with hamlet FE** Coefficient (SE)	**Yearly Ethanol Consumption** Coefficient (SE)	**Yearly Ethanol Consumption with hamlet FE** Coefficient (SE)
Age group		**42.37**	**15.96**	**33.01**	**8.553**
		(28.81)	(29.02)	(34.42)	(35.34)
Education Statu	Primary	**307.2**	**236.5**	**357.8**	**280.4**
		(1084.1)	(1119.1)	(1324.7)	(1345.6)
	Middle	**526.8**	**-145.9**	**1010.9**	**342.2**
		(764.7)	(826.5)	(923.1)	(969.2)
	Secondary	**702.4**	**-299.7**	**286.1**	**-801.3**
		(843.2)	(869.1)	**(974)**	(1009.6)
	Senior-Secondary	**-178.4**	**-953.7**	**-409.6**	**-1236.2**
		(1023)	(1004.2)	(1188.8)	(1217.3)
	College/Diploma	**-1985.9**	**-1998.9**	**-3200.1***	**-3469.1***
		(1033)	(1254.9)	**(1313.2)**	(1591.2)
Employment	Employed	**1148.3**	**697.2**	**1658.1**	**1034.6**
		(1166.3)	(1242)	(1456.3)	(1520.8)
Family income	1 to 2 lakh rupee	**210**	**51.51**	**189.3**	**26.84**
		(654.9)	(675.6)	(750.3)	(791)
	2 to 3 lakh rupee	**573.2**	**641.4**	**1060.6**	**1276.9**
		(1033)	(1070.5)	(1182.9)	(1253)
	Above 3 lakh rupe	**-366.6**	**-356.3**	**120.2**	**241.6**
		(933.2)	(1075.1)	(1140.3)	(1277.3)
Family size		**552.5***	**588.3***	**580.0***	**600.7***
		(246)	(253.1)	(254.3)	(267.8)
Knoweldge of ban		**2929.4*****	**2528.0*****	**4448.2*****	**4090.7*****
		(598.2)	(578.1)	(696.1)	(690.2)
Drug uasge		**4090.1*****	**4305.9*****	**5296.8*****	**5491.3*****
		(947.7)	(908.1)	(1024.6)	(1005.6)
Roms	2 to 4	**-108.9**	**569.3**	**176.2**	**999.8**
		(1204)	(1246.4)	(1422.4)	(1479.6)
	4 to 6	**88.68**	**932.1**	**712.4**	**1851.2**
		(1641)	(1697.8)	(1904.7)	(1976)
	more than 6	**9328.6***	**10903.3***	**14029.3****	**15672.0****
		(4448)	(4556.7)	(5396.3)	(5491.3)
Health		**1544.6***	**1418.3***	**1768.7***	**1705.3***
		(698.1)	(637.1)	(762.9)	(727.2)
Constant		**-4044.1**	**-3057.1**	**-3687.6**	**-2181.1**
		(3043.2)	(3377.1)	(3410.2)	(3791.1)
N		**442**	**442**	**442**	**442**
R-squared		0.2814	0.3618	0.3518	0.4159

Standard errors in parenthesis *p<0.05, **p<0.01, ***p<0.001

*Family income expressed in lakh rupee *Regression contains hamlet fixed effect and the following set of controls such as acres of land owned, Ownership of the house, Village

Source: Data collected by the author

7.3 Empirical results for father's alcohol consumption on child behavior

Table 7 reports the OLS regression result of association between explanatory variable-incidence of alcohol consumption, co-variates, controls with the dependent variable- child behavioural issues.

The regression results demonstrates that an increase in alcohol consumption of the father by 1 % increased the likelihood of behavioural issues among their children by 0.63 points as compared to children whose fathers does not drink. The alcohol consumption gradient is significant at 10 % level. This result reveals that, consumption of alcohol by the fathers from the tribal area affects the children. The results are similar to existing work on mainstream population by Jones et al. (1999), which identifies a positive relationship between father's alcohol consumption and behavioural health issues on children. A child's behaviour is formed by observing how their parents are carrying out themselves in their family. Children witnessing their father being drunk and abusing their mother verbally and physically and the negative acceptance their father get from the society due to his alcohol incidence pushes them to a state of trauma and form negative behavioural characteristics such as anxiety, depression, and lack of self-esteem within them. There was a significant pattern of this aspect across all the hamlets where the study was carried out.

With the inclusion of verbal and physical violence against the mother to the equation, the coefficient for father's incidence became insignificant. When mother is being abused by the father physically and mentally, this action tends to create more behavioural issues in the children than the issues arising directly from father's alcohol consumption. In the event of an increased physical abuse against mother, the child behavioural issues increased by 0.62 points as compared to children whose mother does not encounter any physical abuse in their families. This showed that an effect of drinking on child is mediated through the mother. This result is similar to a study conducted by Sutton (2013) who predicts that there is an increased rate of violence against the aboriginal women due to alcoholism. The results clearly indicates that in the families with alcohol history, the negligence towards the child, arising out of the negative family environment and the lack of family cohesion, ultimately leads to child behavioural issues.

Results obtained from the paternal and maternal time input proxies are not significant uniformly, except for mother being occupied and father being the caretaker. With the mother of the child being employed, the overall child behavioural problem increased by 0.50 points as against the children whose mothers are not employed. This is consistent with the literature which suggests that as the mother is employed, the time she spent with the child reduces and this in fact affect the behaviour of the child and child behavioural health is higher when the mother does not work (Hope et al. 2014). The mother's occupation gradient is significant at 5 % level. When father assumed the role of care taker, there was a positive effect on the child and behavioural issues faced by the child reduced by 0.76 points. The result reveals the importance of paternal time input on child. This input remained significant even when abuse on mother was included to the regression. The results are consistent even after controlling for physical and verbal violence.

In the case of parental human capital, proxies are not significant except for mother's higher education variable. Mother's education shows that if mother has college education or higher, it reduces the child behaviour issues by 1.2 points as compared to mother having no education and the result is

significant at 5% level. However, this variable becomes insignificant when domestic violence is introduced to the equation. Results for the child health endowment proxy are not significant. Results for socio-economic and demographic proxies show that the results are inconsistent except for higher income category and for the house ownership by mother. In terms of geographical identifier village, the result shows that children belonging to Pudur village, there is an increase in their behavioural problems by 0.56 points as compared to those children belongs to Agali village. Pudur panchayat is known for its issues related to child mortality (ShajiPalakkad 2017) and child malnourishment. It is mostly likely that behavioural problems arise due to some village specific influence. The results for other controls are insignificant.

The outcome based on externalizing scale showed no significant results in terms of alcohol incidence of the parents. Even when introducing the violence, the result remains insignificant. The score is significant for one of the human capital variable, father's good health status. The result shows that father having a good health reduces the externalizing behavioural issues of the children by 1.4 points as compared having bad health. However, when domestic violence was introduced, the variable became insignificant. In terms of child health endowment, when domestic violence was controlled for, the girl children faced decrease in externalizing issues by 0.53 points as compared to the boy children. This again hints that boy child faces externalizing problems more when father is a current alcohol consumer (Ravindran et al. 2018). In the socio-economic and demographic, proxy variables except for ownership status of the house and ethnic status are insignificant. In terms of geographical indicator, village, for specification with and without violence, for children belongs to Sholayur village, externalizing behavioural issues showed a decline by 1.04 and 0.98 points as compared to those children from Agali village. Overall research output shows that the father's alcohol incidence does not lead to externalizing behavioural issue among children.

While analysing the internalizing score, it can be seen that father's alcohol consumption induced internalizing behaviour such as inferiority, withdrawal, sadness, and fear among children. Previous research have suggested that alcohol abuse in parents is more associated with internalizing behaviour (Eiden et al. 2009) among children. With a 1% increase in alcohol consumption by the father of the child, this resulted in increased internalizing behavioural issue by 0.56 point as compared to the children whose father does not drink. Similar to the total behavioural score, when physical violence on the mother was controlled in the specification, the relationship between alcohol usage and internalizing behaviour became insignificant. Results on physical abuse showed that when the mother was abused the father, this increased the internalizing issues by 0.55-point. Both the results are significant at 5 % level.

In the case of maternal and paternal time input, the father assumed care taker responsibility, similar to the total behavioural score, this has resulted in a remarkable decline in internalizing problem score by 0.62 points. However, up on introducing the abuse factor, the internalizing score became insignificant which indicates that rather than a direct channel, mother's abuse affects the child's behaviour. Results of parental human capital shows that proxies are not significant except for mother's higher education variable. A college degree or higher by the mother of the child decreased the internalizing issue among the children by 1.4 points and 1.2 points for specification without abuse and with abuse, respectively. This is in comparison to the mothers who are illiterates. This indicates that mother's education helped in character and behaviour formation in child. Both the results were significant at 5 % level. With and without controlling the effect of abuse on mother, the children from

Pudur expressed more withdrawal issues by 0.531points and 0.57 points, respectively in comparison to children from Agali village. These were significant at 5% level. This indicates that there might be other factors a child belong to this village go through, which affects his/her behaviour. This result goes along with the responses from the key informant interviews and focus group sessions.

The full table with all the variables for regression are attached to the appendices.

Table 7 OLS regression of alcohol incidence on child behavioral health, Attappady, India 2019

Dependent Variable	Total behaviour score		Externalizing behaviour score		Internalizing behaviour score	
	Coefficient (S.E)	Coefficient (S.E)	Coefficient (S.E)	Coefficient (S.E)	Coefficient (S.E	Coefficient (S.E)
Father's drinking input						
Incidence of alcohol use	**0.629****	**0.375**	**0.689**	**0.444**	**0.563***	**0.321**
	(0.24)	(0.246)	(0.361)	(0.384)	(0.223)	(0.234)
Abuse on mother						
Verbal Abuse		**0.363**		**0.549**		**0.381**
		(0.217)		(0.341)		(0.211)
Physical Abuse		**0.624***		**0.55**		**0.548***
		(0.267)		(0.35)		(0.249)
Maternal , Paternal time input						
Father's Occupation	**-0.154**	**-0.159**	**0.577**	**0.599**	**-0.433**	**-0.428**
	(0.627)	(0.656)	(1.077)	(1.08)	(0.629)	(0.648)
Mother's Occupation	**0.500***	**0.448***	**0.192**	**0.163**	**0.402**	**0.342**
	(0.228)	(0.228)	(0.374)	(0.378)	(0.208)	(0.208)
Family Size	**-0.0601**	**-0.0368**	**-0.168**	**-0.138**	**-0.0385**	**-0.0164**
	(0.102)	(0.101)	(0.15)	(0.15)	(0.096)	(0.0941)
Father as caretaker	**-0.757****	**-0.616***	**-0.63**	**-0.451**	**-0.619***	**-0.486**
	(0.286)	(0.287)	(0.394)	(0.394)	(0.278)	(0.279)
Mother as caretaker	**-0.0665**	**-0.211**	**-0.179**	**-0.325**	**0.184**	**0.0515**
	(0.468)	(0.48)	(0.642)	(0.66)	(0.428)	(0.437)
Grandparents as caretakers	**1.478**	**1.116**	**0.00391**	**-0.364**	**1.409**	**1.06**
	(0.768)	(0.768)	(1.259)	(1.241)	(0.734)	(0.732)
PTA	**0.125**	**0.0297**	**0.482**	**0.398**	**0.0244**	**-0.0487**
	(0.237)	(0.245)	(0.38)	(0.39)	(0.221)	(0.228)
Parental human capital						
Father's age	**-0.0251**	**-0.0206**	**-0.0088**	**-0.00356**	**-0.0306**	**-0.0275**
	(0.0261)	(0.0255)	(0.0349)	(0.0354)	(0.0244)	(0.0239)
Mother's age	**-0.00246**	**-0.0157**	**0.00627**	**-0.0104**	**-0.000694**	**-0.0114**
	(0.034)	(0.0333)	(0.0445)	(0.0442)	(0.0334)	(0.0328)
Father's education- Primary	**-0.34**	**-0.153**	**-0.691**	**-0.559**	**-0.491**	**-0.345**
	(0.418)	(0.434)	(0.573)	(0.622)	(0.388)	(0.405)
Middle	**0.318**	**0.242**	**0.225**	**0.0878**	**0.168**	**0.096**
	(0.374)	(0.372)	(0.485)	(0.491)	(0.344)	(0.345)
Secondary	**-0.259**	**-0.15**	**0.451**	**0.545**	**-0.298**	**-0.21**
	(0.317)	(0.324)	(0.428)	(0.432)	(0.291)	(0.299)
Senior Secondary	**-0.182**	**-0.0466**	**0.8**	**0.961**	**-0.288**	**-0.186**
	(0.396)	(0.403)	(0.502)	(0.506)	(0.355)	(0.364)
College or Diploma	**-0.0382**	**-0.116**	**0.578**	**0.495**	**0.124**	**0.0209**
	(0.681)	(0.674)	(0.842)	(0.864)	(0.634)	(0.632)
Mother's education- Primary	**-0.0664**	**-0.269**	**0.183**	**-0.0328**	**0.0649**	**-0.114**
	(0.421)	(0.417)	(0.575)	(0.608)	(0.392)	(0.393)
Middle	**0.229**	**0.221**	**0.767**	**0.72**	**0.207**	**0.184**
	(0.405)	(0.404)	(0.517)	(0.517)	(0.376)	(0.377)
Secondary	**0.196**	**0.0862**	**0.719**	**0.563**	**0.126**	**0.0156**
	(0.364)	(0.365)	(0.516)	(0.524)	(0.336)	(0.34)
Senior Secondary	**0.246**	**0.0575**	**0.717**	**0.466**	**0.253**	**0.0958**
	(0.462)	(0.456)	(0.6)	(0.601)	(0.417)	(0.413)
College or Diploma	**-1.239***	**-1.057**	**-1.466**	**-1.312**	**-1.418***	**-1.239***
	(0.611)	(0.599)	(0.854)	(0.844)	(0.608)	(0.597)
Health Status-Mother -Fair	**-0.00557**	**-0.0283**	**0.816**	**0.743**	**-0.153**	**-0.17**
	(0.597)	(0.577)	(0.956)	(0.951)	(0.603)	(0.591)
Good	**-0.115**	**-0.0693**	**-0.189**	**-0.192**	**0.058**	**0.109**
	(0.574)	(0.548)	(0.952)	(0.927)	(0.576)	(0.561)
Very Good	**0.386**	**0.287**	**1.217**	**0.959**	**-0.021**	**-0.13**
	(0.822)	(0.852)	(1.39)	(1.42)	(0.792)	(0.829)
Health Status-Father -Fair	**-0.301**	**-0.0668**	**-1.109**	**-0.842**	**-0.16**	**0.0656**
	(0.495)	(0.483)	(0.714)	(0.727)	(0.487)	(0.481)
Good	**-0.569**	**-0.286**	**-1.353***	**-1.051**	**-0.304**	**-0.0414**
	(0.43)	(0.423)	(0.619)	(0.635)	(0.423)	(0.421)
Very Good	**-1.199**	**-0.588**	**-1.681**	**-0.949**	**-0.58**	**0.00732**
	(0.81)	(0.848)	(1.107)	(1.192)	(0.778)	(0.817)
Constant	**2.128**	**0.825**	**6.366****	**5.114***	**1.592**	**0.541**
	(1.875)	(1.717)	(2.222)	(2.186)	(1.715)	(1.632)
N	420	414	420	414	420	414
R-squard	**0.2583**	**0.2845**	**0.2335**	**0.2476**	**0.232**	**0.2565**

Standard errors in parentheses * p<0.05, ** p<0.01, *** p<0.001 *The result includes controls such as child health endowment, socio-economic and demographic features, drug usage by father, scheme availed by the children etc are controlled for. *income is expressed in lakh rupee

Source: Data collected by the author

8 Discussion and Conclusion

This chapter will shed light on the result of the study. This chapter has been divided into five sections. The first section reviews the paper and the second section serves as the synopsis of the results. The third section compares the results obtained from the study with those of other papers. The fourth section discusses the limitations encountered and the scope of future research. Finally, the last section focuses on the relevance of the topic and its implication on the society.

8.1 Review

The results of the study contribute to the literature on alcohol incidence, intensity of pure alcohol use and the effect of father's alcohol incidence has on their children. The paper establishes that there is alcohol abuse incidence in Attappady and it also correlates variables such as knowledge on alcohol ban, drug usage. The results show that socio-economic or demographic characteristics of the tribal people in Attappady area are not significant parameters in explaining their alcohol use incidence. The higher constant coefficient indicates that there are unobserved variables that come from outside the model specification but are instrumental in determining incidence of alcohol abuse. In terms of intensity, men in Attappady, on an average, consume 4.9 litres to 7.4 litres of pure alcohol yearly. Additionally, the result for the second research question indicates that in Attappady, the drinking by fathers has a negative effect on the child behaviour health. The research adopted a survey method, key informant interviews, and a focus group discussion and gathered information from the area. In the survey, the research made use of alcohol supplement and child health supplement as a means to obtain data. The paper and results obtained are first of their kind, taking into account the tribal population of Attappady.

8.2 Recap of the Results

In the case of incidence of alcohol, the study showed that 75.41% of the husbands in the sample have consumed alcohol at least once in last 12 months. OLS estimates revealed that only knowledge of alcohol prohibition and drug usage by the men play a significant role in determining the drinking pattern in the tribal block. These variables are statistically significant and lead to an increases in alcohol incidence by 0.64 percentage points and 0.03 percentage points, respectively. It is seen that unobserved variables outside the model play a role in determining the concerned incidence in a more accurate way. The direct correlation between incidence of alcohol abuse and knowledge of the ban accentuates the ineffectiveness of the current prohibition policy towards tackling alcohol consumption in the area. In terms of the alcohol consumption intensity, it can be seen that on an average, tribal men consumes pure alcohol, whose quantity varies from 4129 grams and 6199 grams. This approximates to 4.9 litres to 7.4 litres, respectively. There is no previous work which has analysed the per capita consumption in Attappady. The research work by Kumar et al. (2018) discovered that on an average, a Keralite consumes 5.73 litres of pure alcohol a year. A comparison between the two studies indicates that men in Attappady consume alcohol at a slightly higher rate than the people from other areas do.

For analysing the magnitude of intensity of alcohol consumption, the researcher used two questions from the AUDIT test, which were related to quantity and frequency of alcohol consumption. These questions were construed such that they segregate the results into different buckets representing

different ranges, inclusive of the upper and lower limit. These questions were necessary to derive the pure alcohol consumption data (in gram equivalent), and the result obtained also fall within this range. A simple OLS regression was used to analyse the consumption of pure alcohol (in gram equivalent) and the determinants of this consumption pattern. The results indicated that alcohol ban, drug usage , family size , number of rooms in the house (a wealth indicator) are the determinants of lower range, higher range alcohol consumption and these factors positively associated with the intensity of consumption. Family health is also a relevant control which increases the alcohol consumption magnitude. The results indicate that if any of the members in the family encounter a health issue, then this situation can trigger increased alcohol consumption among husbands/men. When the higher range alone is considered, the results show that higher education by the men acted as a predicting factor and exhibited inverse relationship with the degree of alcohol abuse.

In terms of the second research question on the effects on child behaviour, the paper finds evidence that father's drinking habit affects the child's behaviour negatively. An increase in alcohol consumption incidence by the father results in an increase in child behavioural problem by 0.63 points. Upon introducing the violence factor, it unravels the effect of paternal alcohol usage on child behavioural problem. The result also shows that factors that govern the amount of time a parent spends with the child such as mother's occupation and father being the caretaker of the child, also influence the child's behaviour. This implies that when the mother of the child is employed, the time she get to spend with the child decreases to a certain extent and this give rise to behavioural health issue by 0.50 points. Father taking up the caretaker responsibility is observed to have declined the behavioural problems among the children by 0.76 points. Both the inputs are significant at 5% level and 10% level, respectively. The results are coherent with the directly and indirect effects mentioned in the conceptual framework. The direct link through father's alcohol consumption and the indirect link through violence against mother is evident from the results.

8.3 Similarities with other papers

The paper findings align with the previous evidence that shows the prevalence of alcohol consumption. Survey conducted in India by the Kumar et al. (2018) showed an alcohol incidence between 9 % and 70 % among the people. Similarly, NFHS-4 2015-16 also depicted an increased incidence among 29.2% for men in India. They further indicated that 37% of the men belonging to Kerala also consumed alcohol (International Institute for Population Sciences (IIPS) and ICF 2017) at least once in 12 months. However, the results generated from the survey show a higher rate of incidence in comparison to the above mentioned results. Contrary to the existing research work results, socio-economic and demographic covariates couldn't predict the incidence in the current paper. In similar lines with the research output by Miron and Zwiebel (1991), the current paper also indicates that the alcohol ban could not reduce the alcohol consumption. Although the people were aware of the prohibition, they continued their drinking habit. However, Miron and Zwiebel (1991) calculated the alcohol consumption on the basis of death due to alcoholism which makes it less comparable to the present results. In the case of drug usage, results indicated that alcohol consumption and drug usage go hand in hand. This result is similar to the study reports on alcohol consumption by National Institute of Alcohol Abuse (US Department of Health and Human Services, National institute of Alcohol abuse and alcoholism 2008). When intensity is considered, the works by de Looze et al. (2014) and Greene et al. 2014 point out that

higher education has an effect in decreasing the magnitude of pure alcohol consumption. My research findings project a similar result.

Similar to the study by Jones et al. (1999), present study used a survey approach to evaluate the effect of father's drinking on child behavioural health. Jones et al.'s result showed that alcohol use by parents negatively affects the child behavioural health. Their result is based on externalizing and internalizing scores obtained. While the present study finds evidence that father's drinking habit affects the child's behaviour negatively and is it the internalizing score that is responsible for this result. Another point of difference from the Jones et al.'s study is that this paper introduced the risk factor in the family-physical and emotional violence -to the specification to see their effect. It was discovered that with the inclusion of violence factor, especially the physical violence against the mother, the effect of father's alcohol use on children disappeared. This shows that effect of drinking is mediated through the mother. Unlike Jones et al. (1999) who had focused only on the maternal time inputs, I have focused on the effect of both maternal and paternal time inputs in child behaviour. The results showed that two time input proxies affects the child behaviour.

8.4 Limitations and Scope for future research

The results observed in the paper could differ from the previous papers on externalizing and internalizing behaviour as this paper adopted a cross-sectional analysis rather than a longitudinal survey for studying the child behavioural health. This is one of the limitations of the study, and adopting a long term analysis would help to look into this issue in detail and in framing suitable policies to address the issue. Exclusion of mother's alcohol consumption is another limitation of the paper. This angle was not studied due to the lack of time and resources. In future, conducting a study with both men and women would be useful in knowing the overall alcohol use trend in the area. Additionally, one third of the survey respondents were women and hence there are chances of over-reporting. This can be rectified in the future research by taking equal number of women and men respondents as the sample. The study limits to knowing only the incidence and intensity of alcohol use. It has not considered the first hand effect on alcohol consumer such as Alcohol Use Disorder. In the future it would be interesting to consider that factor also for getting a better picture of alcohol pattern in the area and the risk level associated with it. For future research, adopting a stratified sampling technique with increased sample size would also be fruitful.

8.5 Implications of the study

The findings of the study will have the following implications. The data provides evidence to the Government of Kerala about the alcohol issues in Attappady. Since this is one of the first quantitative studies conducted in Attappady with a sample size of 492 respondents, the results will be useful in designing campaigns, conducting awareness programs through Primary Health Centres and schools.

Secondly, the results indicate that it is peak time to review the alcohol sales prohibition order imposed in 1996 and modifying/framing suitable policies, which will bypass the fallacies of the already existing policies. Hence, this research can be of paramount importance as it will help in introspection and in devising more effective methods to curb this social evil, which has a deep seated presence in the current society of Attappady.

Thirdly, as the research has identified the internalizing behaviour issues among children in Attappady area, by seeking the help of each ST promoters form 192 hamlets local self-government bodies can identify the children affected by alcohol issues. Up on identifying the affected , government can look into the issue and help the children by providing school level counselling sessions and counselling sessions via Primary Health Centres, respectively. The results also provide a reminder to the authorities to look into the problem of domestic violence in all its depth and breadth and implement laws which ensure that the incidence of such issues reduced to a bare minimum.

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10 Appendices

10.1 Appendix 1

Table 1 Sample Characteristics of men, Attappady, India 2019 (n=492) -With all variables

Variables	Categories	Number	Percentage
Ethnic Status	Kurumba	27	5.51
	Muduga	26	5.31
	Irula	431	87.96
	Others	6	1.22
Education Status	Illiterate	130	26.86
	Primary	52	10.74
	Middle school	95	19.63
	Secondary	131	27.07
	Senior-Secondary	55	11.36
	College level or diploma	21	4.34
Employment Status	Not employed	23	4.74
	Employed	462	95.26
Family income on a yearly basis	up to 1 lakh	208	42.54
	1 lakh to 2 lakh	186	38.04
	2 lakh to 3 lakh	61	12.47
	Above 3 lakh	34	6.95
	Others	1	0.2
Village	Agali	193	39.23
	Pudur	183	37.2
	Sholayur	116	23.58
Ownership Status of the house	Husband	239	48.78
	Wife	237	48.37
	Others	14	2.86
Rooms	Less than 2	35	7.13
	2 to 4	409	83.3
	4 to 6 rooms	42	8.55
	6 or more	5	1.02
Health	No health issues	322	66
	Health issues	160	33.2
Knowledge of ban	no	169	35.43
	Yes	308	64.57
Drug usage	No	309	65.61
	Yes	162	34.39

* age of men, family size are also included in regression

Table 2 Incidence of alcohol consumption among men (Full table)

Variables	Categories	Non-drinker (n=121)	Drinker (n=371)
		Percentage	Percentage
Ethnic Status	Kurumba	5	5.68
	Muduga	5	5.41
	Irula	88.33	87.84
	Others	1.67	1.08
Education Status	Illiterate	32.48	25.07
	Primary	8.55	11.44
	Middle school	15.38	20.98
	Secondary	20.51	29.16
	Senior-Secondary	14.53	10.35
	College level or diploma	8.55	3
Employment Status	Not employed	5.04	4.64
	Employed	94.96	95.36
Family income	up to 1 lakh INR	46.22	41.35
	1 lakh to 2 lakh INR	36.13	38.65
	2 lakh to 3 lakh INR	11.76	12.7
	Above 3 lakh INR	5.88	7.3
Village	Agali	38.02	39.62
	Pudur	34.71	38.01
	Sholayur	27.27	22.37
Ownership Status of the house	Men	50	48.38
	Women	47	48.65
Rooms	Less than 2	5	7.82
	2 to 4	90	81.13
	4 to 6 rooms	4.17	9.97
	More than 6 rooms	0.83	1.08
Health	No health issues	66.39	66.94
	Health issues	33.61	33.06
Knowledge of alcohol ban	No	100	13.97
	Yes		86.03
Using Drugs	No	100	53.85
	Yes		46.15

*Family income on a yearly basis **variables such as land owned, family size, age of husband are also included in the regression

Table 3 Sample Characteristics of child dataset, Attappady, India 2019 (n=474) – Full Sample

Variables	Categories	Number	Percentage
Father's drinking input	No	111	23.42
	Yes	363	76.58
Abuse on mother			
Verbal Abuse	No	190	40.43
	Yes	280	59.57
Physical Abuse	No	306	65.52
	Yes	161	34.48
Maternal , Paternal time input			
Father's Occupation	No	13	2.76
	Yes	458	97.24
Mother's Occupation	No	80	17.02
	Yes	390	82.98
Father as caretaker	No	147	31.01
	Yes	327	68.99
Mother as caretaker	No	72	15.19
	Yes	402	84.81
Parent teacher meeting	No	126	27.21
	Yes	337	72.79
Parental human capital			
Health Status-Mother	Poor	18	4.04
	Fair	39	8.74
	Good	371	83.18
	Very Good	18	4.04
Health Status-Father	Poor	42	8.88
	Fair	50	10.57
	Good	357	75.48
	Very Good	24	5.07
Education-Father	Illiterate	86	18.16
	Primary	62	13.25
	Middle	89	19.02
	Secondary	138	29.49
	Senior Secondary	75	16.03
	College/ diploma	19	4.06
Education - Mother	Illiterate	82	17.56
	Primary	57	12.21
	Middle	85	18.2
	Secondary	144	30.84
	Senior Secondary	81	17.34
	College/ diploma	18	3.85
Child Health Endowment			
Gender	Male	249	52.53
	Female	225	47.47
Education	Illiterate	16	3.38
	Pre-primary	126	26.64
	Primary	193	40.8
	Middle	138	29.18
Child's birth status	Normal	70	14.77
	After 10 months	44	9.28
	Pre-mature	358	75.53
	Don't know	2	0.42
Socio-economic and Demographic			
Family income	up to 1 lakh INR	190	40.17
	1 lakh to 2 lakh INR	200	42.28
	2 lakh to 3 lakh INR	59	12.47
	Above 3 lakh INR	24	5.07
Family Health	No health issue	325	69.44
	Health issue	143	30.56

Ownership status-House	Father	228	48.31
	Mother	222	47.03
	Others	22	4.66
Ethnic Group	Kurumba	30	6.34
	Muduga	34	7.19
	Irula	400	84.57
	Others	9	1.9
Family Type	Nuclear	341	71.94
	Joint	133	28.06
Villages	Agali	171	36.08
	Pudur	207	43.67
	Sholayur	96	20.25
Grandparenst as caretakers	No	460	97.05
	Yes	14	2.95
Any schemes child availed	No	48	10.13
	Yes	426	89.87
Drugs used by parent	No	331	64.56
	yes	143	69.83

* age of the child , age of mother dueing child birth, age of father and mother, family size, acres of land are also included in regression ** family income for a period of 1 year

Table 4 Total behavioural score , explanatory variables and controls

Variable	Categories	Total Behavioural problem score >0 (n=394) Mean	Total Behavioural Problem score=0 (n=80) Mean
Alcohol Incidence		0.78	0.68
Verbal Abuse		0.62	0.49
Physcial Abuse		0.36	0.26
Paternal and Maternal Time input			
Husband occupation		0.98	0.95
Wife occupation		0.85	0.71
Family Size		5.19	4.99
Caretaker-Father		0.71	0.58
Caretaker-mother		0.90	0.58
Attending PTA		0.78	0.48
Parental Human Capital			
Father's age		35.63	35.94
Mother's age		30.93	31.63
Education - Father	Primary	0.13	0.14
	Middle school	0.21	0.11
	Secondary	0.30	0.28
	Senior secondary	0.16	0.18
	College	0.04	0.05
Education-mother	Primary	0.12	0.11
	Middle school	0.19	0.15
	Secondary	0.32	0.26
	Senior secondary	0.18	0.16
	College	0.03	0.06
Health staus- Mother	Fair	0.09	
	Good	0.82	0.92
	Very Good	0.04	0.02
Health status Father	Fair	0.12	0.03
	Good	0.79	0.60
	Very Good	0.05	0.04
	Very Good	0.05	0.04
Child Health Endowments			
Age		7.54	6.97
Gender of child		0.47	0.49
Education of child	Pre-primary	0.26	0.30
	Primary	0.42	0.34
	Midde	0.30	0.26
Mother's age at the time of childbirth		23.64	23.86
childbirth status	Post date	0.09	
	Pre mature	0.15	0.10
	Don't know	0.01	0.11
Village	Pudur	0.44	0.44
	Sholayur	0.19	0.29
Socio-economic and demographic			
Ethnic status-child	Muduga	0.06	0.11
	Irula	0.85	0.80
	Others	0.02	0.03
Family Type	Joint	0.31	0.15
Acres of land owned		6.77	7.73
Income Category	from 1 to 2 lakh	0.45	0.30
	2 lakh to 3 lakh	0.13	0.10
	above 3 lakh	0.06	0.01
Family health		0.32	0.25
Schemes to children		0.95	0.63
Who owns house	Mother	0.45	0.56
	others	0.05	0.05
Usage of drugs	Yes	0.33	0.15
caretake-Grand parents		0.04	0.00

Table 5 Socio-demographic and economic factors associated with the incidence of alcohol consumption among men, Attappady, India, 2019 – Full Table

Variables	Categories	Coefficient (SE)
Age group		**-0.00211**
		(0.00156)
Education Status	Primary	**0.0844**
		(0.0553)
	Middle	**0.0257**
		(0.0391)
	Secondary	**0.0294**
		(0.0374)
	Senior-Secondary	**-0.022**
		(0.0532)
	College/Diploma	**-0.0888**
		(0.0834)
Employment	Employed	**0.0211**
		(0.0582)
Ethnic Status	Muduga	**-0.031**
		(0.103)
	Irula	**-0.106**
		(0.0795)
	Others	**-0.0987**
		(0.177)
Family size		**-0.0025**
		(0.00968)
Family income	1 to 2 lakh rupee	**0.0187**
		(0.0304)
	2 to 3 lakh rupee	**0.0602**
		(0.0494)
	Above 3 lakh rupee	**0.0329**
		(0.0499)
Knoweldge of ban		**0.639*** **
		(0.0383)
Drug uasge		**0.0380***
		(0.0183)
Land owned		-0.000986
		(0.002)
Ownership-House	Wife	0.0293
		(0.0282)
	Others	0.0413
		(0.0885)
Rooms in House	2 to 4	-0.0566
		(0.0573)
	4 to 6	-0.0103
		(0.0692)
	More than 6	0.173
		(0.201)
Family Health		-0.0297
		(0.0293)
Constant		**0.509*** **
		(0.147)
N		**467**
R-squared		**0.6736**

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Table 6. Socio-demographic and economic factors associated with the yearly pure alcohol consumption (lower range and higher range) among men, Attappady, India, 2019

		Lower Ethanol Consumption		Higher Ethanol Consumption	
Variables	**Categories**	**Yearly Ethanol Consumption Coefficient**	**Yearly Ethanol Consumption with hamlet FE Coefficient**	**Yearly Ethanol Consumption Coefficient**	**Yearly Ethanol Consumption with hamlet FE Coefficient**
Age group		**42.37**	**15.96**	**33.01**	**8.553**
		(28.81)	(29.02)	(34.42)	(35.34)
Education Status	Primary	**307.2**	**236.5**	**357.8**	**280.4**
		(1084.1)	(1119.1)	(1324.7)	(1345.6)
	Middle	**526.8**	**-145.9**	**1010.9**	**342.2**
		(764.7)	(826.5)	(923.1)	(969.2)
	Secondary	**702.4**	**-299.7**	**286.1**	**-801.3**
		(843.2)	(869.1)	**(974)**	(1009.6)
	Senior-Secondary	**-178.4**	**-953.7**	**-409.6**	**-1236.2**
		(1023)	(1004.2)	(1188.8)	(1217.3)
	College/Diploma	**-1985.9**	**-1998.9**	**-3200.1***	**-3469.1***
		(1033)	(1254.9)	**(1313.2)**	(1591.2)
Employment	Employed	**1148.3**	**697.2**	**1658.1**	**1034.6**
		(1166.3)	(1242)	(1456.3)	(1520.8)
Ethnic Status	Muduga	**-2058.6**	**-1346.8**	**-1872.4**	**-1502.5**
		(1772.6)	(1902.1)	(2122.2)	(2305.6)
	Irula	**-1135.4**	**-1494.7**	**-1370.4**	**-2100.7**
		(1435)	(1430)	(1639.8)	(1632.4)
	Others	**-4291.4**	**-6459.0***	**-5303.2**	**-7590.5**
		(2592)	(3254.6)	(3316.2)	(3972.8)
Family size		**552.5***	**588.3***	**580.0***	**600.7***
		(246)	(253.1)	(254.3)	(267.8)
Family income	1 to 2 lakh rupee	**210**	**51.51**	**189.3**	**26.84**
		(654.9)	(675.6)	(750.3)	(791)
	2 to 3 lakh rupee	**573.2**	**641.4**	**1060.6**	**1276.9**
		(1033)	(1070.5)	(1182.9)	(1253)
	Above 3 lakh	**-366.6**	**-356.3**	**120.2**	**241.6**
		(933.2)	(1075.1)	(1140.3)	(1277.3)
Knoweldge of ban	Yes	**2929.4*****	**2528.0*****	**4448.2*****	**4090.7*****
		(598.2)	(578.1)	(696.1)	(690.2)
Drug uasge	Yes	**4090.1*****	**4305.9*****	**5296.8*****	**5491.3*****
		(947.7)	(908.1)	(1024.6)	(1005.6)
Village	Pudur	**95.9**	**-2913**	**163.5**	**-2648.5**
		(754)	(2042)	(837.9)	(2670.5)
	Sholayur	**-917.8**	**-274.9**	**-1060.1**	**712.6**
		(637)	(1163)	(767.4)	(1725.9)
Land owned		**-22.28**	**-7.441**	**-24.14**	**-1.851**
		(39.47)	(40.29)	(45.61)	(47.34)
Ownership status	Wife	**843.2**	**1001.7**	**749.8**	**874.7**
		(581.1)	(634.1)	(663)	(724.6)
	Others	**-2489.7***	**-2562.5**	**-3159.9**	**-3498**
		(1247)	(1436.2)	(1718.9)	(1799.3)
Roms	2 to 4	**-108.9**	**569.3**	**176.2**	**999.8**
		(1204)	(1246.4)	(1422.4)	(1479.6)
	4 to 6	**88.68**	**932.1**	**712.4**	**1851.2**
		(1641)	(1697.8)	(1904.7)	(1976)
	more than 6	**9328.6***	**10903.3***	**14029.3****	**15672.0****
		(4448)	(4556.7)	(5396.3)	(5491.3)
Health		**1544.6***	**1418.3***	**1768.7***	**1705.3***
		(698.1)	(637.1)	(762.9)	(727.2)
Constant		**-4044.1**	**-3057.1**	**-3687.6**	**-2181.1**
		(3043.2)	(3377.1)	(3410.2)	(3791.1)
N		**442**	**442**	**442**	**442**
R-squared		0.2814	0.3618	0.3518	0.4159

Standard errors in parentheses * p<0.05, ** p<0.01, *** p<0.001

* regression contains the following set of controls such as land owned , ownership of the house, village etc

Table 7 Regression results— association between explanatory variable-incidence of alcohol consumption, co-variates, controls with the dependent variable- child behavioural health issues- Full table

Dependent Variable	Total behaviour score		Externalizing behaviour score		Internalizing behaviour score	
	Coefficient (S.E)	Coefficient (S.E)	Coefficient (S.E)	Coefficient (S.E)	Coefficient (S.E)	Coefficient (S.E)
Father's drinking input						
Incidence of alcohol use	**0.629****	**0.375**	**0.689**	**0.444**	**0.563***	**0.321**
	(0.24)	(0.246)	(0.361)	(0.384)	(0.223)	(0.234)
Abuse on mother						
Verbal Abuse		**0.363**		**0.549**		**0.381**
		(0.217)		(0.341)		(0.211)
Physical Abuse		**0.624***		**0.55**		**0.548***
		(0.267)		(0.35)		(0.249)
Maternal , Paternal time input						
Father's Occupation	**-0.154**	**-0.159**	**0.577**	**0.599**	**-0.433**	**-0.428**
	(0.627)	(0.656)	(1.077)	(1.08)	(0.629)	(0.648)
Mother's Occupation	**0.500***	**0.448***	**0.192**	**0.163**	**0.402**	**0.342**
	(0.228)	(0.228)	(0.374)	(0.378)	(0.208)	(0.208)
Family Size	**-0.0601**	**-0.0368**	**-0.168**	**-0.138**	**-0.0385**	**-0.0164**
	(0.102)	(0.101)	(0.15)	(0.15)	(0.096)	(0.0941)
Father as caretaker	**-0.757****	**-0.616***	**-0.63**	**-0.451**	**-0.619***	**-0.486**
	(0.286)	(0.287)	(0.394)	(0.394)	(0.278)	(0.279)
Mother as caretaker	**-0.0665**	**-0.211**	**-0.179**	**-0.325**	**0.184**	**0.0515**
	(0.468)	(0.48)	(0.642)	(0.66)	(0.428)	(0.437)
Grandparents as caretakers	**1.478**	**1.116**	**0.00391**	**-0.364**	**1.409**	**1.06**
	(0.768)	(0.768)	(1.259)	(1.241)	(0.734)	(0.732)
PTA	**0.125**	**0.0297**	**0.482**	**0.398**	**0.0244**	**-0.0487**
	(0.237)	(0.245)	(0.38)	(0.39)	(0.221)	(0.228)
Parental human capital						
Father's age	**-0.0251**	**-0.0206**	**-0.0088**	**-0.00356**	**-0.0306**	**-0.0275**
	(0.0261)	(0.0255)	(0.0349)	(0.0354)	(0.0244)	(0.0239)
Mother's age	**-0.00246**	**-0.0157**	**0.00627**	**-0.0104**	**-0.000694**	**-0.0114**
	(0.034)	(0.0333)	(0.0445)	(0.0442)	(0.0334)	(0.0328)
Father's education-Primary	**-0.34**	**-0.153**	**-0.691**	**-0.559**	**-0.491**	**-0.345**
	(0.418)	(0.434)	(0.573)	(0.622)	(0.388)	(0.405)
Middle	**0.318**	**0.242**	**0.225**	**0.0878**	**0.168**	**0.096**
	(0.374)	(0.372)	(0.485)	(0.491)	(0.344)	(0.345)
Secondary	**-0.259**	**-0.15**	**0.451**	**0.545**	**-0.298**	**-0.21**
	(0.317)	(0.324)	(0.428)	(0.432)	(0.291)	(0.299)
Senior Secondary	**-0.182**	**-0.0466**	**0.8**	**0.961**	**-0.288**	**-0.186**
	(0.396)	(0.403)	(0.502)	(0.506)	(0.355)	(0.364)
College or Diploma	**-0.0382**	**-0.116**	**0.578**	**0.495**	**0.124**	**0.0209**
	(0.681)	(0.674)	(0.842)	(0.864)	(0.634)	(0.632)
Mother's education-Primary	**-0.0664**	**-0.269**	**0.183**	**-0.0328**	**0.0649**	**-0.114**
	(0.421)	(0.417)	(0.575)	(0.608)	(0.392)	(0.393)

Middle	**0.229**	**0.221**	**0.767**	**0.72**	**0.207**	**0.184**
	(0.405)	(0.404)	(0.517)	(0.517)	(0.376)	(0.377)
Secondary	**0.196**	**0.0862**	**0.719**	**0.563**	**0.126**	**0.0156**
	(0.364)	(0.365)	(0.516)	(0.524)	(0.336)	(0.34)
Senior Secondary	**0.246**	**0.0575**	**0.717**	**0.466**	**0.253**	**0.0958**
	(0.462)	(0.456)	(0.6)	(0.601)	(0.417)	(0.413)
College or Diploma	**-1.239***	**-1.057**	**-1.466**	**-1.312**	**-1.418***	**-1.239***
	(0.611)	(0.599)	(0.854)	(0.844)	(0.608)	(0.597)
Health Status-Mother - Fair	**-0.00557**	**-0.0283**	**0.816**	**0.743**	**-0.153**	**-0.17**
	(0.597)	(0.577)	(0.956)	(0.951)	(0.603)	(0.591)
Good	**-0.115**	**-0.0693**	**-0.189**	**-0.192**	**0.058**	**0.109**
	(0.574)	(0.548)	(0.952)	(0.927)	(0.576)	(0.561)
Very Good	**0.386**	**0.287**	**1.217**	**0.959**	**-0.021**	**-0.13**
	(0.822)	(0.852)	(1.39)	(1.42)	(0.792)	(0.829)
Health Status-Father - Fair	**-0.301**	**-0.0668**	**-1.109**	**-0.842**	**-0.16**	**0.0656**
	(0.495)	(0.483)	(0.714)	(0.727)	(0.487)	(0.481)
Good	**-0.569**	**-0.286**	**-1.353***	**-1.051**	**-0.304**	**-0.0414**
	(0.43)	(0.423)	(0.619)	(0.635)	(0.423)	(0.421)
Very Good	**-1.199**	**-0.588**	**-1.681**	**-0.949**	**-0.58**	**0.00732**
	(0.81)	(0.848)	(1.107)	(1.192)	(0.778)	(0.817)
Child Health Endowment						
Age	**0.0901**	**0.122**	**-0.0725**	**-0.0296**	**0.108**	**0.137***
	(0.0678)	(0.0683)	(0.1)	(0.1)	(0.0654)	(0.0653)
Gender	**-0.098**	**-0.116**	**-0.491**	**-0.530***	**-0.013**	**-0.0307**
	(0.179)	(0.177)	(0.266)	(0.265)	(0.171)	(0.169)
Education-Pre primary	**-0.402**	**0.626**	**0.0399**	**0.815**	**-0.312**	**0.443**
	(0.965)	(0.528)	(0.771)	(0.532)	(0.838)	(0.551)
Primary	**-0.25**	**0.641**	**-0.197**	**0.378**	**-0.17**	**0.469**
	(0.99)	(0.562)	(0.845)	(0.627)	(0.864)	(0.581)
Middle	**-0.66**	**0.151**	**-0.471**	**0.0236**	**-0.687**	**-0.118**
	(1.075)	(0.686)	(1.077)	(0.882)	(0.959)	(0.695)
Mother's age at the time of child birth	**0.0316**	**0.0437**	**-0.00745**	**0.00655**	**0.0246**	**0.0359**
	(0.0332)	(0.0322)	(0.0438)	(0.0432)	(0.0331)	(0.0321)
Child's birth status- Post date	**0.274**	**0.343**	**0.0894**	**0.185**	**0.198**	**0.254**
	(0.404)	(0.411)	(0.449)	(0.459)	(0.362)	(0.374)
Premature	**0.119**	**0.137**	**0.076**	**0.123**	**0.0302**	**0.0626**
	(0.261)	(0.267)	(0.384)	(0.399)	(0.253)	(0.259)
Don't know	**-0.679**	**-1.595***	**0.237**	**-0.756**	**-0.0288**	**-0.879**
	(0.67)	(0.761)	(1.246)	(1.315)	(0.643)	(0.727)
Socio-Economic and Demographic and regional						
Mother owning the house	**-0.642****	**-0.603****	**-1.128*****	**-1.085*****	**-0.567****	**-0.537****
	(0.197)	(0.197)	(0.289)	(0.291)	(0.186)	(0.186)
Family Income 1-2 lakhs INR	**0.406**	**0.373**	**0.172**	**0.126**	**0.343**	**0.316**
	(0.225)	(0.222)	(0.33)	(0.336)	(0.212)	(0.211)
2-4 INR	**-0.211**	**-0.233**	**-0.428**	**-0.461**	**-0.159**	**-0.187**

	(0.324)	(0.325)	(0.473)	(0.476)	(0.298)	(0.3)
More than 4 INR	**0.832***	**0.619**	**-0.158**	**-0.424**	**0.802***	**0.606**
	(0.344)	(0.372)	(0.533)	(0.572)	(0.329)	(0.354)
Family Health	**-0.163**	**-0.155**	**-0.184**	**-0.173**	**-0.0124**	**-0.00669**
	(0.246)	(0.247)	(0.381)	(0.378)	(0.233)	(0.234)
Family Type	**0.321**	**0.345**	**0.321**	**0.362**	**0.21**	**0.234**
	(0.254)	(0.253)	(0.415)	(0.418)	(0.24)	(0.237)
Acres of land	**-0.000911**	**0.00706**	**-0.00613**	**0.00527**	**-0.00953**	**-0.00243**
	(0.0156)	(0.0164)	(0.0204)	(0.0215)	(0.0146)	(0.0155)
Grandparents being the caretakers	**1.478**	**1.116**	**0.00391**	**-0.364**	**1.409**	**1.06**
	(0.768)	(0.768)	(1.259)	(1.241)	(0.734)	(0.732)
Drug Usage by Father	**0.0844**	**-0.019**	**0.413**	**0.335**	**0.113**	**0.0159**
	(0.245)	(0.264)	(0.376)	(0.376)	(0.234)	(0.254)
Pudur	**0.556***	**0.525***	**-0.0885**	**-0.12**	**0.567***	**0.531***
	(0.237)	(0.237)	(0.351)	(0.355)	(0.227)	(0.226)
Sholayur	**-0.185**	**-0.15**	**-1.044***	**-0.977***	**-0.0681**	**-0.0286**
	(0.275)	(0.277)	(0.423)	(0.418)	(0.26)	(0.263)
Muduga	**0.307**	**0.114**	**-0.953**	**-1.173**	**0.442**	**0.305**
	(0.627)	(0.607)	(0.762)	(0.746)	(0.562)	(0.544)
Irula	**0.885**	**0.61**	**1.384***	**1.121**	**0.958***	**0.709**
	(0.541)	(0.521)	(0.669)	(0.66)	(0.483)	(0.46)
Constant	**2.128**	**0.825**	**6.366****	**5.114***	**1.592**	**0.541**
	(1.875)	(1.717)	(2.222)	(2.186)	(1.715)	(1.632)
N	420	414	420	414	420	414
R-squared	**0.2583**	**0.2845**	**0.2335**	**0.2476**	**0.232**	**0.2565**

10.2 Appendix 2

Pattern of drinking

As per the data, 75.41 percent of the sample have consumed alcohol. However, of the 371 men who consume alcohol, 14.82% are currently abstaining from the consumption.

In terms of drinking frequency, the drinking frequency displays that 20.54 percent of the current consumers drink alcohol on a daily basis. 29.73 %of the current drinkers drank alcohol on a less than monthly basis. In terms of frequency, it was shown that 21.62 percent of the respondents consumed alcohol on a monthly basis and 28.11 percent of them consumed on a weekly basis.

As far as quantity of drink is concerned, on a typical drinking day, more than half (51.62 %)of the men reported that they drink three to four pegs of alcoholic drinks. While taking an estimation of those who drank five to six glasses it can be seen that 22.43 percent of the sample consumed these many drinks. Very few men (5.14% and 4.32%) in the sample consumed more than 7 drinks. Information on when they began drinking or for how many years they have been drinking were obtained through the survey. Finding showed that 38.14% of the men who belonged to the survey had been consuming it for five to ten years.

Types of alcoholic beverage

The data revealed that 89.67% of the men preferred hard liquor such as rum , brandy and whisky as compare do other alcoholic drinks. Among the commonly consumed liquor, brandy was the most preferred beverage with 89.67% consuming it and Toddy(1.90%) was the least preferred beverage. Locally brewed arrack was consumed by 10.33 % of the men from different tribal hamlet. This comes under the category of unrecorded consumption. Some of the respondents reported that they drink other varieties as well. However, they had answered that the above listed are the most favored and commonly consumed beverages.

Based on the audit score, it was discovered that 62.16% of the men those who drink fell under the category of hazardous or harmful drinking and 37.84% of the men those who drink had normal, non-risky drinking practices.

Table 2 shows this drinkers problem status and their beverages preference in terms of men in the sample.

Table Percentage of drinking pattern by men

Commonly consumed liquor		
Rum	56	15.22
Brandy	236	64.13
Local drink	38	10.33
Beer	8	2.17
Toddy	7	1.90
Others	2	0.54

Source: Data collected by the author

About the questionnaire sections

Based on the literature review in the related fields, a questionnaire was set up for the study. The study areas were divided into two parts with the first section containing questions on alcohol prevalence. For this section, husband or the head of the household was preferred. However, there were situations where men had gone out for work or were busy with other activities. Under such circumstances, questions were asked to their wives. The second area of focus was on child behavior. Existing literature reviews preferred mother or father as the main care takers who should be responding to the child health supplement. This study also preferred getting the response from the mother or the father of the child. However, under certain circumstances, this wasn't feasible. In the absence of both mother and father, questions were asked to other family members including their kinsman, kinswomen, grandparents, and in rare cases, elder children above the age 15.

The questionnaire contained nine blocks/sections. The first three sections of the questionnaire included a household family history profile with questions on demographic and socio-economic features. Followed by this, a male specific section for husbands with questions on domestic violence, relationship with the wife were included. For measuring the frequency of occurrence of domestic violence, Likert scale was used. Fifth section of the questionnaire contained questions to the wives in the absence of husbands. Majority of the questions were similar as the male specific section. On questions related to domestic abuse, wife was asked if she experienced any of these issues. It also included questions about the marriage, income contribution by both the partners to the household, their financial positions in terms of having a bank account, existence of any kind of liability, and savings habit etc. Sixth section was used exclusively for reporting health issues.

Ten main questions from the AUDIT, few sub questions on alcohol related issues, and alcohol purchase behavior by the husbands, were included in the seventh and eighth sections. Since the research focuses on a survey strategy, the self-reported version of AUDIT was convenient. AUDIT was tested across different cultural groups, across genders and the tool was found valid for all settings (Drugabuse.gov (n.d.)). These questions required husbands/ wives to respond in terms of the standard drink consumed. The standard drink is different for different alcohol beverages and the very meaning of standard drink differs from country to country. Hence, it was important to find out the standard drink for different beverages in the Indian context to adapt AUDIT to Indian setting (World Health Organization 2001).

The last section of the questionnaire, also known as the parent report supplement, contained questions related to children and their behavior. Only caretakers were instructed to respond to these questions. The section began by asking questions on family structure, maternal and paternal health related questions and other family related aspects. Followed by this, questions related to education, parental care and child health endowments (age, birth status of the child, and mother's age at time of child's birth) were also included in the section.

10.3 Appendix 3
Pictures from the field work

The field work phase was extremely difficult. I used to travel for around 25- 30 kms every day to reach each hamlet. Visiting each one of them was an experience.
The pictures given were taken after or before the field interviews after obtaining verbal consent from people in the picture.

Source: Author

10.4 Appendix 4
Questionnaire

Survey 2019

Household and child questionnaire

Hello, my name is Karthika B S , and I am doing this research as part of the my academic curriculum. The research is on "Alcohol consumption and its effect on children and family". Your participation in this survey is voluntary, and the information you share will be treated confidentially. I would like to ask some questions about you and your household, and then some specific questions related to alcoholism and child behaviour.
You can choose not to answer a question, or stop the interview at any time during the course of the interview. I will record your responses in this questionnaire with your permission. The information you share will be kept fully confidential. No one but myself will have access to this data. All your personal information (such as your name and age) will be removed from the data before it is analysed. Do you want to ask me anything about the survey (Answer any questions and address respondent's concerns) in case you need more information about the survey you may contact these persons (Give contact information).

Identification

Name of State and District:	
Name of Mandal/Taluk/Block:	
Name of Village/City:	
Name of Tribal Hamlet	
Name of Respondent:	
Mobile/Landline no :	
Household code (to be given by us) 4 digits ☐☐☐☐	

Investigator's name:			Code ☐☐
Signature:			
Date of visit:	DD	MM:	YYYY:
Interview time	Start time: HH/MM:	End time: HH/MM:	
Result Codes	1. Completed 2. No Household member at home or no competent member at home at the time of visit 3. Entire Household absent 4. Postponed		
Respondent's Mother Tongue			
Language of interview	Malayalam		
Translator used?(Yes=1, No=2)			

Household Indicators – Block 1

1. What is your ethnic group? (Code)
2. What is your family type? (Code)

Household demographics & education – Block 2

Please give me the names of the persons who usually live in your household and guests of the household who stayed here last night, starting with the head of the household.

Member code	Name	Sex (male -1, female - 2)	Age (completed years)	What is the relation to the head of the household ? (code)	What is the current Marital status ?(code)	Number of people in the household	What is the status of attending educational institution? (code)	If illiterate, what is the reason for not attending school?
Item	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1								

***Household assets, employment, Income* – Block 3**

1. Ownership status of the house? (Code)
2. If yes, who owns the house? (Code)
3. How many rooms are there in the house?
4. Does your household own land? 1) Yes 2) No 98)Don't know

5. If yes, Details of land ownership

Name/ S.No. of owner	Total land owned

6. What is the primary source of energy used for cooking? (Code)
7. What is the primary source of energy for lighting? (Code)
8. What is the primary source of water? (Code)
9. Details of livestock ownership

Livestock	Total number
Cattle	
Poultry	
Goats	
Any other	

10. Occupation and income

Member Code	Employment Status	Main Occupation (List exact occupation)	Monthly/ annual income	No. of days of employment in a year	If unemployed, regular or seasonal, why?

11. Whether receiving or received any training? (Code)
12. Field of Training (Code)
13. Does this household have a BPL card? 1) Yes 2) No
98)Don't know

Questions to Husband – Block 4 (If husband is the respondent, ignore block 5)

1. How much of your earnings contribute to the total household income?(and spouse's too)
2. What was the type of marriage?
3. Do you retain a part of your income? 1) Yes 2) No
   98)Don't know

4. In the last 12 months have you abused your wife emotionally/ verbally? 1) Yes 2) No
   98)Don't know

5. In the last 12 months have you

i) Said or done something to humiliate her in front of others?	a) Often b) Sometimes c) Not at all
ii) Threatened to hurt or harm her or someone close to her or yourself?	a) Often b) Sometimes c) Not at all
iii) Insulted her or made her feel bad about herself?	a) Often b) Sometimes c) Not at all
iv) Ignored/ been indifferent	a) Often b) Sometimes c) Not at all
v) Been finding fault with her	a) Often b) Sometimes c) Not at all
vi) Any other, specify	a) Often b) Sometimes c) Not at all

6. In the last 12 months have you abused your wife physically? 1) Yes 2) No 98) Don't know

7. If yes, how frequently does this happen?

Frequency	Emotional/verbal abuse	Physical abuse
a) Every day b) At least once in a week (but not every day) c) At least once in a month d) Occasionally e) Cannot tell		

8 What was the reason for the abuse? (Tick all relevant options)

Reason	Emotional/verbal abuse	Physical abuse
a) Not cooking properly/food not ready on time b) Not attending to household chores properly c) Not looking after children d) Not looking after in-laws e) Talking to neighbours f) Talking to other men g) I do not like her h) Dowry issues i) Frustration due to economic problems j) Doubts of being unfaithful k) Any other, specify		

9. What does she do when she is abused?

Response	Emotional/verbal abuse	Physical abuse
a) Keeps quiet b) Retaliates with abuses c) Screams and shouts back d) Hits back physically e) Leaves the room/ house f) Scolds, shouts or hits children g) Any other, specify		

10. Do you drink alcohol? 1) Yes 2) No
    98) Don't know
11. Do you use savings/ loan for buying alcohol? 1) Yes 2) No
    98) Don't know
12. Alcohol consumption status?
13 If yes, do you ever get drunk?(code)
14. Commonly consumed liquor
15. Does your household have a bank account? 1) Yes 2) No
    98)Don't know
16. If yes, in whose name?
17. Do you save? 1) Yes 2) No
    98)Don't know

18. Have you married within your kin group? 1) Yes 2) No
98) Don't know

Questions to Wife –Block 5 (If wife is the respondent, ignore block 4)

1. Have you married within your kin group? 1) Yes 2) No
98) Don't know
2. What was the type of marriage?
3. How much of your earnings contribute to the total household income?
4 Do you retain a part of your income? 1) Yes 2) No
98)Don't know
8. If your husband were unable to support you, would you be able to support yourself and your children?
1) Yes 2) No
98)Don't know
10. Does your household have a bank account? 1) Yes 2) No
98)Don't know
11. If yes, in whose name?
12. Do you save? 1) Yes 2) No
98)Don't know
13. If yes, is that
a) With your husband's knowledge?
b) Without your husband's knowledge?
14. Have you *yourself* ever taken a loan—cash/ kind—from any programme to start or to expand a business? 1) Yes 2) No
98)Don't know
15. If yes, please provide details.
16. Does your husband drink alcohol? 1) Yes 2) No
98)Don't know
17. Do you consume alcohol?
19. Commonly consumed liquor
20. In the last 12 months has your husband abused you emotionally/verbally? 1)At least once 2) Not a single
21. In the last 12 months has he,

1) Said or done something to humiliate you in front of others?	d) Often e) Sometimes f) Not at all
2) Threatened to hurt or harm you or someone close to you or himself?	d) Often e) Sometimes f) Not at all
3) Made you feel bad about yourself?	d) Often e) Sometimes f) Not at all
4) Ignored/ been indifferent	d) Often e) Sometimes f) Not at all
5) Been finding fault with you	d) Often e) Sometimes f) Not at all
6) Any other, specify.	

22. In the last 12 months has your husband abused you physically? 1) At least once 2) Not a single

23. If at least once, how frequently does this happen?

Frequency	Emotional/verbal abuse	Physical abuse
1) Every day 2) At least once in a week (but not every day) 3) At least once in a month 4) Occasionally 5) Cannot tell		

24. What was the reason for the abuse? (Tick all relevant options) (asked to both husband and wife)

Reason	Emotional/verbal abuse	Physical abuse
1) Not cooking properly/food not ready on time 2) Not attending to household chores properly 3) Not looking after children 4) Not looking after in-laws 5) Talking to neighbours 6) Talking to other men 7) Husband does not like me 8) Dowry issues 9) Frustration due to economic problems 10) Because he was drunk Any other, specify		

25. Does your husband ever do the following things to you. (used for husband also)

Act	Ever	Often	Some times	Not in the last 12 months
1) Push you , shake you or throw something at you	Yes→ No			

2) Twist your arm or pull your hair	Yes→ No			
3) Slap you?	Yes→ No			
4) Punch you with his fist or something that could hurt you?	Yes→ No			
5) Kick you, drag you or beat you?	Yes→ No			
6)Try to choke you or burn you on purpose?	Yes→ No			
7) Threaten or attack you with a knife? Or any other weapon	Yes→ No			
8) Physically force you to have sexual intercourse with him even when you did not want to?	Yes→ No			

26. What do you do when you are abused?

Response	Emotional/verbal abuse	Physical abuse
a) Keep quiet b) Retaliate with abuses c) Scream and shout back d) Hit back physically e) Leave the room/house f) Scold, shout or hit children g) Any other, specify		

Health – Block 6

1. Does anyone in your house has any serious disability / Injury that hampers participation in activities /Job 1) Yes 2) No

2. Which member has the disability/ Injury ?

Member Code:	Nature of Illness(Multiple answers) -b	Medication taken by the person -c	If no treatment, state reason? -d

Personal Drinking Behaviour – AUDIT Test - Block 7 (to be asked to Husband)

1. How often you have a drink containing alcohol (code)
2. How many drinks containing alcohol do you have on a typical day when you are drinking (code?)
3. How often do you have 6 or more drinks on one occasion (code?)
4. How often during the last year have you found that you were not able to stop drinking once you have started? (Code)
5. How often during the last year have you found that you failed to do what was normally expected from you because of drinking? (Code)
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?(code)
7. How often during the last year have you had a feeling of guilt or remorse after drinking? (Code)
8. How often during the last year have you been unable to remember what happened the night before because you had been drinking (code)
9. Have you or someone else been injured as a result of your drinking (code)
10. Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you to cut down ? (Code)
11. Where do you buy alcohol from?(code)
12. How much money do you spend in a month for buying alcohol?(code)
13. Where do you get money to buy alcohol?(code)
14. Do you know if there is any liquor prohibition in the state? 1) Yes 2) No
15. Do you/ your partner use any drugs such as tobacco ? 1) Yes 2) No
16. If you/ your spouse consume alcohol, do you beat children after consuming alcohol? 1) Yes 2) No
17. Is your child afraid of your alcohol consumption? 1) Yes 2) No
18. Is there any changes in rituals and routines in the house due to alcohol abuse by members? 1) Yes 2) No
19. When did you start this habit of consuming alcohol? (code)

Personal Drinking Behaviour – AUDIT Test - Block 8 (to be asked to women if block 7 is not answered) (Same code from the above question)

1. How often does your husband have a drink containing alcohol (code)
2. How many drinks containing alcohol does he drink on a typical day when he is drinking (code)
3. How often does he have 6 or more drinks on one occasion (code)
4. How often during the last year has he found that he is not able to stop drinking once started? (code)
5. How often during the last year has he found that he failed to do what was normally expected from him because of drinking? (code)
6. How often during the last year he needed a first drink in the morning to get himself going after a heavy drinking session?(code)
7. How often during the last year has he had a feeling of guilt or remorse after drinking? (Code)
8. How often during the last year has he been unable to remember what happened the night before because he had been drinking (code)
9. Has he or someone else been injured as a result of his drinking (code)
10. Has a relative or friend or a doctor or another health worker been concerned about his drinking or suggested him to cut down? (Code)
11. Where does he buy alcohol from?
12. How much money does he spend in a month for buying alcohol?(code)
13. Where does he get money to buy alcohol?(code)
14. Has he ever felt you needed to cut down on your drinking? 1) Yes 2) No
15. Have people annoyed your husband by criticizing his drinking? 1) Yes 2) No

Questions Related to Children – Block 9 (For children within 3-12 age group)

1.Number of children living with respondent
2. How is the health status of mother?(code)
3. How is the health status of father?(code)
4. Does your child avail of any government schemes? (Code)
5.What is the family structure?
6.Does the child goes to school? 1) Yes 2) No
7. If yes, mention the school and class

Parental views on child's education/behaviour- 9B

1. What was the birth status?
2. What was mother's age at the time of child's birth?
3. Does your child like to go to school? (code)
4. Who takes care of children in the family?
5. Do you help your child with school work (homework/preparing for tests)? 1) Yes 2) No 3) Sometimes
6. Does any other family member, besides you, help your child with school work? (use code 11, multiple responses possible)
7. How would you rate your child's performance in school? (code) -weak, fair, good , very good, excellent
8. Does your child do homework regularly? 1) Yes 2) No
9. Do you send your child to tuition? 1) Yes 2) No
10. If yes, why do you send her/him to tuition? (code 12, multiple responses possible)
11. Is your child unorganized (e.g. throws school bag, other items or stores them carefully)? 1) Yes 2) No
12. Do you attend PTA meeting? 1) Yes 2) No
13. Has your child ever dropped out of school in the last three years? 1) Yes 2) No
14. If yes to item 32, why did the child drop out?(code)
15. If the child is still not attending school, does he/ she attend any supplementary education program? 1) Yes 2) No

Child Behaviour Scale- Block 9C

For the next set of statements, decide whether they are *often true(3), sometimes true(2), or not true*,(1) [3-point scale] according to (CHILD)'s behaviour.
I is internalising and E is Externalising

Mainly used for children between age of 3-12

Question	External(aggressive)	Internal(depressive, withdrawn)	Total
a (He/She) has sudden changes in mood or feeling.	X		
b (He/She) feels or complains that no one loves him/her.		X	
c (He/She) is rather high strung and nervous.	X		
d (He/She) cheats or tells lies.	X		
e (He/She) is too fearful or anxious.		X	
f (He/She) argues too much	X		
g (He/She) has difficulty concentrating, cannot pay attention for long.	X		
h (He/She) is easily confused, seems to be in a fog.		X	
i (He/She) bullies or is cruel or mean to others.	X		
j (He/She) is disobedient.	X		
k (He/She)does not seem to feel sorry after (he/she)misbehaves.	X		
l (He/She) has trouble getting along with other children	X	X	
m (He/She) is impulsive, or acts without thinking.	X		
n (He/She) feels worthless or inferior.		X	
o (He/She) is not liked by other children.		X	
p (He/She) has difficulty getting (his/her) mind off certain thoughts.		X	
q (He/She) is restless or overly active, cannot sit still	X		
r (He/She) is stubborn, sullen, or irritable.	X		
s (He/She) has a very strong temper and loses it easily.	X		
t (He/She) is unhappy, sad or depressed.		X	
u (He/She) is withdrawn, does not get involved with others.		X	
v (He/She) breaks things on purpose or deliberately destroys (his/her)own or another's things.	X		
w (He/She) clings to adults.	*	*	
x (He/She) cries too much.	X		
y (He/She) demands a lot of attention.	X		
z (He/She) is too dependent on others.		X	
aa (He/She) feels others are out to get (him/her).		X	
bb (He/She) hangs around with kids who get into trouble.	*	*	
cc (He/She)is secretive, keeps things to (himself/herself).		X	
dd (He/She)worries too much.		X	
Number of items			
Cronbach's Alpha			
Un-weighted N			

For children in school:
Please tell me whether the next two statements about (CHILD) are often true, sometimes true, or not true.
a. (He/She) is disobedient at school.
b. (He/She) has trouble getting along with teachers