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Original Research Article

FACTORS INFLUENCING TODDY CONSUMPTION AMONG RURAL AREAS OF TELANGANA REGION

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ABSTRACT

Background: Toddy, a naturally fermented alcoholic beverage obtained from the sap of palm trees, is widely consumed in rural parts of Telangana and other regions of South India. Its consumption is often influenced by cultural traditions, social practices, perceived health benefits, and other psychosocial factors. Frequent consumption may lead to alcohol-related health and psychiatric problems, making it an important public health concern. The aim is to identify and analyze the factors influencing toddy consumption among adults in a rural community of Telangana State.

Materials and Methods: A community-based cross-sectional study was conducted in Yenkapally village, Moinabad Mandal, Ranga Reddy district, Telangana. Approval and permission were obtained from the concerned village authorities. A total of 100 adult participants were recruited after obtaining informed consent. Data were collected using a structured questionnaire that included socio-demographic details, the ICD-10 Diagnostic Criteria for Alcohol Dependence, the Severity of Alcohol Dependence Questionnaire (SADQ), and a checklist assessing perceived factors influencing toddy consumption.

Results: The majority of participants were illiterate (84.4%). Decreased sleep was the most commonly reported factor influencing toddy consumption (92%), followed by physical fatigue (36%), low cost and easy availability (30%), psychosocial stress (20%), bereavement (20%), peer pressure (16%), and other substance abuse (16%). Factors such as physical fatigue, decreased sleep, peer pressure, psychosocial stress, and bereavement were more commonly reported among women aged 51–60 years. Peer pressure showed a statistically significant association with age ($p<0.05$) and duration of toddy consumption ($p<0.05$).

Conclusion: The findings indicate that peer pressure is the predominant factor influencing toddy consumption among adults in this rural population. Cultural beliefs regarding health benefits, physical fatigue, and sleep disturbances also contribute substantially. These findings highlight the need for community-based awareness programs and targeted interventions addressing social influences and misconceptions related to toddy consumption.

Keywords: Toddy Consumption, Rural Population, Telangana, Peer Pressure, Alcohol Use, Substance Dependence.

INTRODUCTION

Palm wine is the fermented sap of various palm trees especially Palmyra, silver date palm and coconut palms. Palm wine can be obtained from the young inflorescence either male (or) female ones. Palm wine is an alcoholic beverage that is made by fermenting the sugary sap from various palm plants. It is collected by tapping from the top of the trunk by boring a hole into the trunk. It is a cloudy whitish beverage with a sweet alcoholic taste having a short shelf life of only one day. The wine is consumed in a variety of flavours varying from sweet unfermented, to sour, fermented and vinegary. Palm wine is

particularly common in parts of Africa, South India, Myanmar and Mexico. Some of the local names for the product include emu and ogogoro in Nigeria and Nsafufuo in Ghana, kallu in south India and tuba in Mexico. Palm sap can be fermented (or) processed into an alcoholic beverage. It just needs the correct amount of yeasts, temperature and processing conditions. Throughout the world, alcoholic drinks are made from the juices of locally grown plants including coconut, palm, Palmyra and wild date palm. The term toddy and palm wine both used to describe similar alcoholic drinks. The terminology varies from country to country. In parts of India, the unfermented sap is called "Neera".

Wine is an excellent substrate for microbial growth. Fermentation starts soon after the sap is collected. Within an hour or two, it becomes reasonably high in alcoholic content (upto 4%). If allowed to continue to ferment for more than a day, it starts turning into vinegar. The sap should be collected from a growing palm. It is collected by tapping the palm. This involves making a small incision in the bark about 15cm from the top of the trunk. A clean gourd is tied around the tree to collect the sap which runs into it. The sap is collected each day and should be consumed with in 5-12 hours of collection. Fresh palm juice is a sweet, clear, colourless juice containing 10-12% of sugar.

Toddy is a local alcoholic beverage consisting of fermented palm juice. It is commonly consumed by people belonging to low socioeconomic groups of rural India. According to the National Sample Survey 2011–2012 data, toddy was the most commonly consumed alcoholic beverage by rural India. The data also revealed that Andhra Pradesh, Assam, Bihar, Jharkhand, Arunachal Pradesh, and Kerala were among the biggest toddy - drinking states of India. It could be due to various reasons like being part of local culture, as a hypnotic, or due to peer pressure. Toddy consumption with its evil effects is frequently found in the psychiatric practice in this part of the country, including women. And Very few studies were done on toddy consumption in rural women in India.[1]

Aim

To study the factors affecting toddy consumption among rural women of Telangana.

MATERIALS AND METHODS

This community-based cross-sectional study was conducted in Yenkapally village, Moinabad Mandal, Ranga Reddy District, Telangana, to identify the factors influencing toddy consumption among adults residing in the rural community. Prior permission was obtained from the concerned village authorities before commencement of the study. Written informed consent was obtained from all participants, and confidentiality of the collected information was maintained throughout the study.

A total of 100 participants aged 18 years and above who consumed toddy were recruited for the study. Participants were interviewed individually using a predesigned and structured questionnaire. Sociodemographic information including age, gender, marital status, and educational status was collected.

Data collection was carried out using the following instruments:

1. **ICD-10 Diagnostic Criteria for Alcohol Dependence** – used to assess the presence of alcohol dependence syndrome among participants.
2. **Severity of Alcohol Dependence Questionnaire (SADQ)** – used to evaluate the severity of alcohol dependence and categorize **participants** into mild, moderate, and severe dependence groups.
3. **Checklist of Perceived Factors Influencing Toddy Consumption** – a structured checklist designed to identify factors contributing to toddy consumption, including peer pressure, physical fatigue, decreased sleep, stress, bereavement, family pressure, easy availability, and perceived health benefits.

Inclusion Criteria

- Individuals aged 18 years and above.
- Residents of Yenkapally village.
- Individuals consuming toddy and willing to participate in the study.

Exclusion Criteria

- Individuals who did not provide informed consent.
- Individuals with severe physical illness or cognitive impairment that interfered with the interview process.

The collected data were coded and entered into Microsoft Excel and subsequently analyzed using the Statistical Package for Social Sciences (SPSS) version 16.0. Descriptive statistics such as frequencies and percentages were used to summarize sociodemographic variables and factors influencing toddy consumption. Associations between sociodemographic variables, severity of alcohol dependence, and factors influencing toddy consumption were assessed using the Chi-square test. A p-value of less than 0.05 was considered statistically significant.

RESULTS

Table 1: Association between Age Group and SADQ Category

Age Group (Years)	Mild n (%)	Moderate n (%)	Severe n (%)	Total
30–45	16 (50.0)	12 (37.5)	4 (12.5)	32
46–60	20 (62.5)	12 (37.5)	0 (0.0)	32
61–80	30 (83.3)	4 (11.1)	2 (5.6)	36

Chi-square = 12.855; p = 0.012.

Note: Age was significantly associated with severity of alcohol dependence. Younger participants exhibited relatively higher levels of moderate and severe dependence compared to older age groups.

Table 2: Association between Gender and SADQ Category

Gender	Mild n (%)	Moderate n (%)	Severe n (%)	Total
Female	20 (90.9)	2 (9.1)	0 (0.0)	22
Male	46 (59.0)	26 (33.3)	6 (7.7)	78

Chi-square = 7.946; p = 0.019.

Note: Male participants demonstrated significantly higher levels of alcohol dependence compared to females.

Table 3: Association between Educational Status and SADQ Category

Education	Mild n (%)	Moderate n (%)	Severe n (%)	Total
Above 10th	2	6	0	8
Primary	4	0	0	4
Secondary	6	8	0	14
Illiterate	54	14	6	74

Chi-square = 20.385; p = 0.002.

Note: Illiteracy was significantly associated with higher levels of alcohol dependence. All participants with severe dependence belonged to the illiterate group.

Table 4: Association between Age and Factors Influencing Toddy Consumption

Age Group (Years)	Physical Fatigue	Decreased Sleep	Peer Pressure	Psychosocial Stress	Low Cost/Easy Availability	Other Substance Abuse	Bereavement
31–50	2 (11.1%)	7 (15.2%)	0 (0.0%)	2 (20.0%)	3 (20.0%)	1 (12.5%)	2 (20.0%)
51–60	9 (50.0%)	22 (47.8%)	4 (50.0%)	7 (70.0%)	5 (33.3%)	2 (25.0%)	7 (70.0%)
61–70	6 (33.3%)	15 (32.6%)	2 (25.0%)	1 (10.0%)	6 (40.0%)	5 (62.5%)	1 (10.0%)
71–80	1 (5.6%)	2 (4.3%)	2 (25.0%)	0 (0.0%)	1 (6.7%)	0 (0.0%)	0 (0.0%)
P value	0.950	0.707	0.007*	0.294	0.466	0.226	0.294

Majority of participants reporting physical fatigue, decreased sleep, peer pressure, psychosocial stress, and bereavement belonged to the 51–60 years age group. Low cost/easy availability and other substance abuse were more common among participants aged 61–70 years. A statistically significant association was observed only between age and peer pressure (p=0.007).

Table 5: Association between Educational Status and Factors Influencing Toddy Consumption

Educational Status	Physical Fatigue	Decreased Sleep	Peer Pressure	Psychosocial Stress	Low Cost/Easy Availability	Other Substance Abuse	Bereavement
Illiterate	16 (88.9%)	38 (82.6%)	7 (87.5%)	9 (90.0%)	12 (80.0%)	7 (87.5%)	9 (90.0%)
Literate	2 (11.1%)	8 (17.4%)	1 (12.5%)	1 (10.0%)	3 (20.0%)	1 (12.5%)	1 (10.0%)
P value	0.479	0.363	0.768	0.563	0.614	0.768	0.563

Note: Most participants in the study were illiterate (84.4%). All factors influencing toddy consumption were reported more frequently among illiterate participants. However, no statistically significant association was observed between educational status and any factor influencing toddy consumption (p>0.05).

Table 6: Association between Duration of Toddy Consumption and Factors Influencing Toddy Consumption

Duration (Years)	Physical Fatigue	Decreased Sleep	Peer Pressure	Psychosocial Stress	Low Cost/Easy Availability	Other Substance Abuse	Bereavement
10–20	2 (11.1%)	8 (17.4%)	1 (12.5%)	4 (40.0%)	5 (33.3%)	2 (25.0%)	4 (40.0%)
21–30	6 (33.3%)	18 (39.1%)	4 (50.0%)	3 (30.0%)	7 (46.7%)	2 (25.0%)	3 (30.0%)
31–40	8 (44.4%)	17 (37.0%)	1 (12.5%)	2 (20.0%)	3 (20.0%)	3 (37.5%)	2 (20.0%)
41–50	2 (11.1%)	3 (6.5%)	2 (25.0%)	1 (10.0%)	0 (0.0%)	1 (12.5%)	1 (10.0%)
P value	0.340	0.057	0.044*	0.364	0.192	0.793	0.364

Note: Physical fatigue was most common among participants consuming toddy for 31–40 years, while decreased sleep and peer pressure were more common among those consuming toddy for 21–30 years. Peer pressure showed a statistically significant association with duration of toddy consumption (p=0.044), whereas other factors did not show significant associations.

Table 7: Association between CAGE Scores and Factors Influencing Toddy Consumption

CAGE Score	Physical Fatigue	Decreased Sleep	Peer Pressure	Psychosocial Stress	Low Cost/Easy Availability	Other Substance Abuse	Bereavement
2	11 (61.1%)	33 (71.7%)	6 (75.0%)	7 (70.0%)	10 (66.7%)	6 (75.0%)	7 (70.0%)
3	5 (27.8%)	9 (19.6%)	2 (25.0%)	2 (20.0%)	5 (33.3%)	1 (12.5%)	2 (20.0%)
4	2 (11.1%)	4 (8.7%)	0 (0.0%)	1 (10.0%)	0 (0.0%)	1 (12.5%)	1 (10.0%)
P value	0.581	0.342	0.659	0.958	0.223	0.717	0.958

Note: Most participants reporting various factors influencing toddy consumption had a CAGE score of 2. No statistically significant association was observed between CAGE scores and any of the factors affecting toddy consumption ($p>0.05$).

Table 8: Overall Factors Influencing Toddy Consumption

Factor	Frequency (n=50)	Percentage (%)
Decreased Sleep	46	92.0
Physical Fatigue	18	36.0
Low Cost/Easy Availability	15	30.0
Psychosocial Stress	10	20.0
Bereavement	10	20.0
Peer Pressure	8	16.0
Other Substance Abuse	8	16.0
Tonic for Health	0	0.0
Any Other Psychiatric Illness	0	0.0

Note: Decreased sleep was the most common factor influencing toddy consumption (92.0%), followed by physical fatigue (36.0%) and low cost/easy availability (30.0%). Psychosocial stress and bereavement were reported by 20.0% of participants each, while peer pressure and other substance abuse were reported by 16.0% each. None of the participants reported toddy consumption due to perceived health benefits or any other psychiatric illness.

$P < 0.05$ considered statistically significant.

DISCUSSION

Toddy consumption is a culturally accepted practice in many rural areas of Telangana and neighboring regions. Among women engaged in agricultural and manual labor, toddy is often perceived as a means of relieving physical exhaustion and promoting relaxation after a day's work. In addition, toddy is frequently provided by landlords as an incentive for agricultural labor, which further reinforces its consumption. Repeated use may lead to dependence, with individuals experiencing withdrawal symptoms such as decreased sleep, irritability, sweating, and palpitations during periods of abstinence. These symptoms often promote continued consumption, creating a cycle of dependence.[2]

The present study aimed to identify the factors influencing toddy consumption among rural women and assess their relationship with sociodemographic variables and alcohol dependence. The findings revealed that decreased sleep (92%) was the most common factor associated with toddy consumption, followed by physical fatigue (36%), low cost and easy availability (30%), psychosocial stress (20%), bereavement (20%), peer pressure (16%), and other substance abuse (16%). These findings suggest that both physiological and psychosocial factors contribute to the initiation and maintenance of toddy consumption among rural women.

The predominance of decreased sleep as a contributing factor may indicate that many women use toddy as a self-medication strategy to improve sleep. Physical fatigue emerged as the second most common factor, which is understandable considering the physically demanding nature of agricultural work performed by women in rural communities. The easy availability and low cost of toddy further facilitate regular consumption and may contribute to the development of dependence.

In the present study, factors such as physical fatigue, decreased sleep, peer pressure, psychosocial stress, and bereavement were reported more frequently among women aged 51–60 years. Among these factors, only peer pressure showed a statistically significant association with age. This finding suggests that social influences continue to play an important role in maintaining toddy consumption even in later adulthood. The higher prevalence of toddy consumption-related factors among older women may also reflect the cumulative effects of long-term exposure to cultural and social drinking practices.

The majority of participants in the present study were illiterate (84.4%). Although illiterate women reported a higher frequency of all factors influencing toddy consumption, the differences between literate and illiterate participants were not statistically significant. Nevertheless, the predominance of illiteracy among consumers may indicate limited awareness regarding the adverse health effects of alcohol and reduced access to health education programs.

Peer pressure was found to have a statistically significant association with the duration of toddy consumption, suggesting that social influences may contribute not only to the initiation but also to the

continuation of toddy use over prolonged periods. In contrast, physical fatigue, decreased sleep, psychosocial stress, bereavement, and easy availability did not demonstrate significant associations with the duration of consumption.

No statistically significant relationship was observed between CAGE questionnaire scores and the various factors influencing toddy consumption. This finding indicates that although specific factors may contribute to the initiation and maintenance of toddy use, the severity of alcohol-related problems may be influenced by additional biological, psychological, and social determinants.[3]

The findings of the present study are consistent with those reported by Padmavathy et al,[4] who observed that sleeplessness was the most common reason for alcohol consumption among rural women. They also reported that alcohol consumption was particularly common among illiterate women and women above 50 years of age. Similar to their observations, the present study identified decreased sleep as the leading factor associated with toddy consumption and found a high prevalence of illiteracy among consumers.

Mei Yu Yeh et al,[5] in a study conducted among adolescents in Taiwan, reported that peer pressure and psychosocial stress were important factors influencing alcohol use. While peer pressure was also identified as an important factor in the present study, decreased sleep and physical fatigue emerged as more prominent reasons for toddy consumption. This difference may be attributable to variations in age, occupation, culture, and drinking patterns between the two study populations.

Similarly, Sumit Chawla et al,[6] reported peer pressure as an important determinant of alcohol use, particularly among younger males. Although the present study focused exclusively on rural women, peer pressure remained a significant factor, highlighting the universal influence of social networks on substance use behaviors.

Prabhu et al,[7] in their review of alcohol use in India, reported alcohol use among women in the 55–64-year age group and emphasized the influence of sociodemographic factors on drinking patterns. The present study similarly found that women aged 51–60 years constituted a substantial proportion of toddy consumers and that several influencing factors were concentrated within this age group.

Sathya Prakash Manimunda and colleagues,[8] in their study conducted in the Andaman and Nicobar Islands, reported that approximately one-fifth of their study population was illiterate and that alcohol consumption increased with age. In comparison, the present study observed a much higher proportion of illiteracy (84.4%) among rural women consuming toddy, with consumption-related factors being more common among older age groups. These findings emphasize the role of educational and sociocultural determinants in shaping alcohol-use behaviors in rural communities.

A community-based study by Gururaj et al,[9] on alcohol use patterns in India reported that alcohol consumption was more common among individuals with lower educational attainment and lower socioeconomic status. The authors suggested that limited awareness regarding the harmful effects of alcohol and poor access to health information contribute to continued consumption. The high proportion of illiteracy observed among participants in the present study supports these findings.

Research conducted by Benegal et al,[10] on alcohol use disorders in India highlighted the important role of psychosocial stressors, family environment, and social influences in the initiation and maintenance of alcohol use. In the present study, psychosocial stress and peer pressure emerged as important contributing factors, indicating that social and emotional determinants continue to play a significant role in toddy consumption among rural women.

International evidence also supports the role of social influences in alcohol consumption. According to Borsari and Carey,[11] peer influence is one of the strongest predictors of alcohol use and maintenance of drinking behavior. Although their work primarily focused on younger populations, the present study similarly found peer pressure to be significantly associated with age and duration of toddy consumption, suggesting that social influences remain important throughout adulthood.

The World Health Organization (WHO) has identified sleep disturbances, psychological distress, and stressful life events as important factors associated with harmful alcohol use and dependence. The predominance of decreased sleep as a factor influencing toddy consumption in the present study is consistent with these observations. Many participants appeared to use toddy as a means of relieving insomnia and promoting sleep, which may ultimately contribute to the development of dependence.[12]

A study by Murthy and Manjunatha,[13] on substance use in rural India reported that alcohol consumption is often viewed as a socially acceptable coping mechanism for managing physical fatigue and occupational strain. This finding is particularly relevant to the present study, where physical fatigue was the second most commonly reported reason for toddy consumption. Rural women engaged in agricultural labor may perceive toddy as a source of relaxation and relief from physical exhaustion.

The findings of the present study underscore the multifactorial nature of toddy consumption among rural women. Physiological factors such as sleep disturbances and physical fatigue, together with psychosocial influences including peer pressure, stress, and bereavement, contribute to the maintenance of toddy consumption. Community-based awareness programs, health education initiatives, screening for alcohol dependence, and interventions targeting sleep problems and occupational stress may help reduce harmful toddy consumption and its associated health consequences among rural women.

CONCLUSION

Toddy consumption is a culturally approved tradition in the rural areas in Telangana. Due to peer pressure and psychosocial stress, even women start consuming toddy and progressively become dependent. This study has shown that toddy consumption is very common among women. The habit of toddy consumption is maintained by development of withdrawal symptoms such as insomnia whenever they stop drinking. Other maintaining factors for their drinking are physical fatigue, low cost of toddy and easy availability, psychosocial stressors, bereavement, and peer pressure. This is a unique study carried out in the rural community by visiting the study population at their residences. However, the small sample size is a limitation of this study. A study recruiting a much larger sample is recommended for future, in order to be of a greater utility for community and to plan effective interventions in tackling this rampant addiction.

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