

Research Article

Model to Reduce Alcohol Consumption of Working-Age Women in the Agricultural Sector in the Rural Of Thailand

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Abstract

Background: Globally, drinking alcohol is a potential public health problem and in Thailand the scenario is the same. The study aimed was to find out the factors which are associated with the alcohol drinking behavior of female farmer and developed a model to Reduce Alcohol Consumption of the rural areas of Thailand.

Methods: A descriptive study was conducted in Uthai Thani Province, Thailand in the year 2017. Secondary data had been acquired from the Health Data Center of the seven community hospitals in Uthai Thani province and a total number of 375 samples had been selected through systematic random sampling. A close ended questionnaire comprising several segments including demographic, AUDIT Test (Thai Version) and, factors that influenced the female farmer's alcohol drinking behavior were used for data collection. Descriptive statistics were used to describe basic socio demographic characteristics. The Structural Equation Model (SEM) was used to determine the relationship between the underlying latent variable or the exogenous variable and the resulting latent variable or the endogenous variable.

Result: The study found five factors directly and indirectly associated with female farmer's alcohol drinking behavior. The study explained personal characteristics and self-efficacy had directly associated with alcohol drinking behavior whereas, social influence had an indirect association with alcohol drinking behavior through the mediating variable self-efficacy. However, health belief and self-regulation had both direct and indirect associations with alcohol drinking behavior. The model to reduce alcohol consumption of working age women in the agricultural sector can be divided into 3 steps: (1) Survey Step, (2) Modification Step, This step included five components, as follows Assessment, Health Education, Improving Family Relationships, Mitigating Social Influence and Enhancement of Self-Efficacy, (3) Evaluation and Follow-up Step

Conclusion: An intervention model can be implemented further for effectively reduce alcohol drinking among female farmers thus the female population of Thailand.

Keywords: Alcohol; Female; Farmer; Rural area; Thailand

Introduction

Alcohol drinking is a potential public health problem and contributes to 3 million deaths worldwide every year, which signify 5.3% of all deaths as well as it is the fifth leading risk factor for the global burden of disease [1,2]. Different cardiovascular diseases, gastrointestinal diseases,

cancer, and mental and social problems are related to drinking alcohol [3]. In New Zealand, alcohol is accounted for more than 5.4% of all deaths, and in Finland, a similar trend also observed [4,5].

Global adult per capita consumption of alcohol increased from 5.9 liters to 6.5 liters between 1990 and 2017, and by 2030, it is forecasted to reach 7.6 liters [6]. Worldwide, Belarus drinks more alcohol than any other country, with an average of 17.50 liters consumed annually per capita, followed by Moldova and Lithuania [7]. However, due to many young people in Asia, alcohol companies are now targeting developing countries in Asia [8]. In 2017, per capita alcohol consumption in Laos, South Korea, and Vietnam were 10.6 liters, 9.8 liters and, 8.9 liters, respectively [9].

In Thailand, per capita alcohol consumption among 15 years and above is 8.3 liters, 6.6 liters are recorded, and 1.7 liters are unrecorded [10]. The consumption among females is also high [11]. The prevalence of female regular and heavy drinkers is 12.7% and 4.9%, respectively [10,12]. Additionally, total alcohol consumption per capita among males is 26.2 liters and among females 9.2 liters [10]. This results from an increasing number of establishments on alcohol production around Thailand, especially in the northern and northeastern regions [12].

Diverse factors were found associated with alcohol drinking behavior. Globally, being male, parents and peer groups, social norms, higher and lower income, smoking, unemployment were found potential factors in different settings for drinking alcohol [13-16]. The common reason for drinking alcohol among Thai is to socialize with one's peers and cope with daily life difficulties [17]. Besides, it was found that being single, male, age between 24 to 44 years, living in the capital, urbanization, permanent employment, anti-social personality, and occupied in agricultural occupation were also potential factors associated with

alcohol [12,18-20].

More than 30% of the Thai population were in the agricultural sector, which contributed 12% GDP of Thailand, and 39.5% consumed alcohol [21,22]. There was an estimated 156 billion Thai baht considered as the social cost of alcohol drinking [23]. Among the total agriculture workforce, 46% are female [24]. Additionally, the previous survey reported that Thai females in rural areas drink more alcohol than in urban areas [25]. However, despite many female agricultural workers, the pattern of alcohol consumption among them is still unexplored though alcohol is a significant public health problem in Thailand. This study aimed to develop a model to reduce alcohol consumption of working age women in the agricultural sector in the rural area of Thailand.

Method and Materials

Study design and sampling

The study was carried out in Uthai Thani Province, Thailand. In the first phase, the data was acquired from the Health Data Center (HDC) of all the seven community hospitals in Uthai Thani Province in 2017. A total number of 6,156 data (Population) had been found through the HDC. By applying the Cochran formula, a total number of 375 samples had been selected considering the inclusion criteria [26]. The inclusion criteria include female farmers aged 15 to 59 years who drink alcohol at least once a week and are listed in the seven community hospital database. However, we had considered the Alcohol Use Disorder Identification Test (AUDIT Score), and if the AUDIT score found less than 8 points (low risk drinking), we were excluded from the sample.

In the second phase, a draft behavior modification model was formed to reduce alcohol consumption of working age women in the agricultural sector by studying the needs and suggestions of the stakeholders in the behavior modification process for reducing alcohol consumption in Uthai Thani Province, Thailand. The main informants of the study were the local stakeholders according to their knowledge, perspectives, and experience. A purposive sampling technique was implemented to identify appropriate informants to provide useful data. The focus group discussion was used in the study by dividing the main informants. This technique was used to obtain the quantitative data (i.e. opinions) to answer ambiguous or uncertain questions concerning the issues in question. In addition, mind mapping was also applied by searching for keywords that formed patterns concerning the stakeholders' suggestions about how behavior modification could reduce alcohol consumption of the working age women in the agricultural sector. At the beginning of the focus group discussion, the researcher informed and returned the information from the study about the informants' health conditions and any other problems and related factors in their behavior modification to reduce alcohol consumption of working age women in the agricultural sector. Then, the focus group discussion began. In the study, 53 informants were divided into seven groups, each

group have seven to eight people from each district. The informants in each group included registered nurses, psychologists, public health technical officers, village health volunteers, relatives or family members of the women who consume excessive amounts of alcohol, and the women themselves.

The study was approved by the Institutional Review Board of Naresuan University, Thailand (IRB Certificate No. 1059/60), and all subjects provided informed consent before participation.

Data collection

In the first phase, a close ended questionnaire containing several sections including demographic (age, education level, religion, status, income, family characteristics), AUDIT Test (Thai Version) and, factors that influenced the female agriculture worker's alcohol drinking behavior were used. To select the factors related to alcohol drinking behavior, we took the guidelines from previous literates and the concepts of the health belief model, self-regulation, social influence, and self-efficacy. Personal characteristics, health belief model, self-regulation, and social influence are used as exogenous variables, whereas self-efficacy and alcohol drinking behavior are used as endogenous variables.

Regarding the quality of the research tool, content validity by item objective congruence (IOC) and Cronbach's alpha coefficient were calculated for validity and reliability. For content validity, five alcohol field experts were selected, and the score was calculated as 0.85. The Cronbach's alpha coefficient of health beliefs model, self-efficacy, self-regulation, and social influence was calculated as 0.83, 0.81, 0.80, and 0.84, respectively. IOC and all the Cronbach's alpha coefficient qualified the acceptable criteria [27,28]. The questionnaire was translated into the native language (Thai) for an easy understanding of the respondents and, on average, 45 minutes took by the respondents to complete the survey. The questionnaire was distributed and collected by the principal researcher with the help of four research assistants.

In the second phase, the focus group discussion was used by dividing the main informants into seven groups, with each group being comprised of 7 to 8 informants per district. This technique was used in order to obtain the quantitative data (i.e. opinions).

Statistical analysis

The data were analyzed using SPSS version 20 for Windows (IBM Corp., Armonk, NY).

Descriptive statistics were used to describe basic socio-demographic characteristics. The analysis statistic was Binary logistic. focus group discussion analyzed by content analysis.

Result

Sample characteristics

Of the 375 respondents, the study showed the majority of the respondents were 46 to 59 years old (69.6%), and

the mean age of the respondents was 47.80 ± 9.67 years. Moreover, 74.2% of the total responders were married, and 18.6% were widow or divorced. The study also found that most of the respondents completed primary education (66.9%), and only 0.2% had completed a bachelor's degree. Additionally, the majority of them had their agricultural farm (56.6%), and 43.5% of personal income was within 5001-10000 Thai baht, mean personal income was 4516.37 ± 3524.29 Thai baht. As Thailand is a Buddhist country, it was observed that 100% of the respondents were Buddhist and 84.3% had stayed in their own house (Table 1). Additionally, the AUDIT test results showed that most of the respondents had hazardous drinking behavior (63.75%) and harmful drinking behavior was found 36.25% with the lowest AUDIT score at 8 points with a maximum of 19 averaging 14.06 ± 3.05 points.

Table 1: Socio-demographic characteristics of the sample.

Characteristics	Sample (n=375)	
	n	%
Age (Years)		
15-29	23	6.1
30-45	91	24.3
46-59	261	69.6
Marital Status		
Single	27	7.2
Married	278	74.2
Widow or Divorced	70	18.6
Education		
No formal education	72	19.3
Primary	251	66.9
Secondary school	32	8.6
High school	19	5
Bachelor degree	1	0.2
Personal income (Thai Baht)		
1,500-5,000	124	33.1
5,001-10,000	163	43.5
10,001-20,000	71	18.9
20,001-40,000	16	4.3
>40,000	1	0.3
Occupation		
Agriculture farm owner	212	56.6
Agriculture Worker	40	10.6
Agriculture trading	123	32.8
Religion		
Buddhism	375	100
Islam	0	0
Christian	0	0
Hindu	0	0
Number of family members		
<2	92	24.5
2-4	193	51.5
4-8	90	24
Permanent place of residence		
Own home	316	84.3
Relative's house	9	2.4
House for rent	20	5.3
Public places	30	8

Alcohol drinking behavior

The majority of the respondents started drinking alcohol within 13 to 20 years of age (45.1%) to socialize themselves (25.87%) and pressure from friends (25.53%). Additionally, 33.1% drink alcohol for 11 to 20 years (33.1%) and spend 100 to 1000 Thai baht per month (60.8%). The preferable time for drinking alcohol was 18.00 hours to midnight (83.47%), and 31.73% took alcohol every day. White liquor was found most popular drink (52.53%), and half a

bottle of White Whiskey was the most common amount of alcohol taken by the responders (28.30%). The majority of the responders bought alcohol by themselves (81.07%) and bought it from the village grocery store (90.67%). Moreover, 37.87% drink alcohol as a stress reliever and 28.53% believe that drinking alcohol helped to socialize (Tables 2 and 3).

Table 2: Alcohol drinking, behavior, Sample (n=375), n %

Alcohol drinking behavior	Sample (n=375)	
	n	%
Starting age of drinking (Year)		
13-20	169	45.1
21-30	139	37.1
31-40	48	12.8
>40	19	5.1
Duration of drinking alcohol (Year)		
1-10	56	14.9
11-20	124	33.1
21-30	119	31.7
31-40	65	17.3
41-50	11	2.9
Expenditure of drinking alcohol (Thai baht/month)		
100-1,000	228	60.8
1,001-2,000	102	27.2
2,001-3,000	32	8.5
3,001-4,000	8	2.1
4,001-5,000	5	1.3
Cause of start drinking alcohol		
Friend	95	25.33
Socializing	97	25.87
For fun	93	24.8
New Experience	12	3.2
Act as a Stress Reliever	10	2.67
Family problems	26	6.93
Drink along with family members	18	4.8
Coping Strategy	24	6.4
Drinking time (hours)		
06.00-12.00	6	1.6
12.00-18.00	4	1.07
18.00-00.00	313	83.47
After midnight	17	4.53
No specific time	35	9.33
Drinking frequency		
Every day	119	31.73
Every other day	42	11.2
3-4 times a week	100	26.67
1-2 times a week	51	13.6
Less than 1 time per week	21	5.6
1-2 times per month	20	5.33
Infrequently	22	5.87
The most popular alcoholic drink		
White liquor	197	52.53
Red liqueur	67	17.87
Beer	111	29.6
Amount of drinking each time		
1-2 glasses of Red Wine	15	4
More than 2 glasses Red Wine	35	9.3
1-2 glasses or 1 can of Beer	30	8
2 cans of Beer or more	93	24.8
1 glass White Whiskey	81	21.6
Half a bottle of White Whiskey or more	106	28.3
Any kinds of drink until drunk	15	4
Getting alcohol		
Buy by myself	304	81.07
Someone brought it	60	16
Various ceremonies	11	2.93

Buying place		
Village grocery store	340	90.67
Convenience Store	14	3.73
Restaurant	7	1.87
Wholesale shop	14	3.73
Favorite location		
Own home	229	61.07
Other people's home	78	20.8
Grocery store	26	6.93
A restaurant	6	1.6
In the fields	18	4.8
Various parties	18	4.8
Reasons to drink alcohol		
Have stress from work	142	37.87

Social drinking	120	32
Persuade friends	35	9.33
Helps to eat and sleep	78	20.8
Beliefs about drinking alcohol		
Socialize	107	28.53
Have many friends	41	10.93
Helps to work more	23	6.13
Helps relieve stress	76	20.27
Relieve aches	72	19.2
Helps to sleep well	41	10.93

The model to reduce alcohol consumption of working-age women in the agricultural sector can be showed, as follows (Figure 1).

Table 3: Factors affecting alcohol drinking behaviour of female farmer.

Factors	N=375 (%)	N=375 (%)		OR (95% C.I.)	P-Value
		sometime	everyday		
Education					
Primary school and under	323 (86.1)	209 (64.7)	114 (35.3)	.204 (.07-.55)	0.002
Secondary school and over	52 (13.9)	47 (90.4)	5 (9.6)		
Occupation					
Agriculture farm owner	200 (53.3)	149 (74.5)	51 (25.5)	2.513 (1.53-4.12)	<.001
Agriculture Worker and trading	175 (46.7)	107 (61.1)	68 (38.9)		
Personal income (Thai Baht)					
≤ 5000	281 (74.9)	177 (63.0)	104 (37.0)	.426 (.22-.81)	0.009
≥ 5001	94 (25.1)	79 (84.0)	15 (16.0)		
Self-efficacy					
Low	358 (95.5)	241 (67.3)	117 (32.7)	5.178 (1.07-24.85)	0.04
High	17 (4.5)	15 (88.2)	2 (11.8)		
Alcohol stores in residential areas					
No	95 (25.3)	77 (81.1)	18 (18.9)	2.023 (1.08-3.77)	0.027
Yes	280 (74.7)	179 (63.9)	101 (36.1)		
Farm owners buy alcohol to feed guests before or after work each day					
No	158 (42.1)	122 (77.2)	36 (22.8)	2.306 (1.30-4.08)	0.004
Yes	217 (57.9)	134 (61.8)	83 (38.2)		
Having a worshipping ceremony or party at With alcoholic beverages as offerings					
No	92 (24.5)	64 (69.6)	28 (30.4)	.357 (.14-.85)	0.021
Yes	283 (75.5)	192 (67.8)	91 (32.2)		
A traditional festival in the countryside requires alcoholic beverages to keep the fun going					
No	95 (25.3)	73 (76.8)	22 (23.2)	3.148 (1.26-7.81)	0.014
Yes	280 (74.7)	183 (65.4)	97 (34.6)		



Figure 1: Model to reduce alcohol consumption of working-age women in the agricultural sector.

The model to reduce alcohol consumption of working-age women in the agricultural sector can be divided into 3 steps, as follows.

Survey step

1. Survey to find females who consume alcohol at the age of

15 years-old in the communities/service units by carrying out the following sub-steps.

1.1. Inquire about the historical records of the female service users in the health service units at community hospitals and the district health promoting hospitals in outpatient units, antenatal care units, family planning units, and after-delivery units.

1.2. The cases with excessive drinking behaviour were assessed by using the Alcohol Use Disorder Identification Test (AUDIT). Cases with assessment scores of between 9 to 19 were selected for the study.

Modification step

This step included 5 components, as follows:

Assessment: The assessment considered problems, risks and severity of drinking behaviour by examining vital signs, inquiring about health history, and assessing the drinking level by using AUDIT. Then, the assessment results were interpreted and provided to the respective women. In addition, an explanation was given about the associated risks and danger with AUDIT scores of between 8-10, as well as the process and benefits of participating in behaviour mod-

ification activities to reduce alcohol consumption in order to obtain their consents.

Health education: The officer gave them information to improve knowledge, understanding and awareness of the dangers and effects of alcohol consumption on the mind and body. Moreover, motivational interviewing (MI) was used with individuals or in group sessions and looked at 2 issues: (1) perception of drinkers' risk of developing diseases or suffering injuries, the effects on body and mind, effects on the economy and society, and the chance of miscarriage; and (2) perception of drinking severity, such as how too much alcohol consumption can lead to the development of diseases. In addition, another health education technique, brief intervention (BI), was adopted and used for certain individuals; this considered the effects of alcohol consumption on the body and mind by using brochures, leaflets, and/or handbooks for behaviour modification to reduce alcohol drinking of working-age women in the agricultural sector. Furthermore, brief advice (BA) was another method applied in order to improve self-regulation to reduce alcohol consumption; this is achieved through self-observation and self-reflection in consideration of how alcohol consumption can cause physical and mental issues such as aches after work, stress, anxiety, restlessness and/or loneliness. Some triggers of excessive alcohol consumption may be as a result of receiving gifts, monthly or weekly wages or rewards; or joining parties, traditional activities or festivals. Understanding these triggers enables drinkers to make better-informed decisions and subsequently self-regulate in order to stop drinking or decrease consumption; avoid visiting sources of alcohol consumption; refuse to drink when invited; avoid imitating other people's drinking behavior; and avoid drinking to self-medicate issues such as aches, stress, anxiety, or loneliness. Drinkers are strongly encouraged to reduce or stop alcohol consumption.

Improving family relationships: Relationship, love, and understanding among family members also plays a role in behaviour modification by providing family counseling; this may be from the women's husband, children, or parents.

Mitigating social influence: Encouraging or influential factors should be mitigated by avoiding alcohol consumption when celebrating, such as when an individual receives wages or rewards; arranging parties without alcohol; running campaigns to reduce alcohol consumption in the event of festivals or ceremonies; supporting social measures to reduce alcohol consumption; inviting people to participate in projects related to reducing, avoiding and stopping alcohol consumption; and enforcing The Alcohol Beverage Control Act B.E. 2551 (2008).

Enhancement of self-efficacy: Self-efficacy should be enhanced for reducing alcohol consumption by using conversations to encourage drinkers to realise their own self-efficacy in reducing their alcohol consumption. Self-efficacy should be encouraged so that subjects have the power to refuse alcohol when invited; choose other drinks instead of alcohol when entering a place with various drinks avail-

able; avoid alcohol even when experiencing aches, stress, or loneliness; and refuse to drink when someone gives alcohol in the form of a gift, reward, or payment. Drinkers should be made aware of the results and benefits of reducing alcohol consumption such as better overall health, better family relationships, and reduced chance of developing diseases or illness.

Evaluation and follow-up step

The evaluation and follow-up could be carried out through conducting house visits, telephone inquiries, or other channels of communication in order to assess drinking behaviour as well as to give suggestions and counseling. Integrated cooperation should be performed among public health officers in primary healthcare of the service units, public health volunteers responsible for such households, and relatives or family members.

Discussion

Our research has explored the factors associated with the alcohol drinking behavior of rural female farmers and to our knowledge; this is the first study in Thailand regarding this issue. The study found five factors that were, directly and indirectly, associated with female farmer's alcohol drinking behavior. The study explained personal characteristics and self-efficacy had directly associated with alcohol drinking behavior whereas, social influence had an indirect association with alcohol drinking behavior through the mediating variable self-efficacy. However, health belief and self-regulation had both direct and indirect associations with alcohol drinking behavior.

In the respondent's personal characteristics, education, and duration of drinking had direct association showed in our study. A very recent study conducted in Japan also described that lower education had associated with drinking alcohol [13]. Also, another Danish study showed the same result [29]. However, responders who had a long history of drinking may start drinking alcohol at early age and long duration of drinking had association with the drinking behavior found by our study which is also validated by other studies conducted before [12,30].

Our study also explained different models and theories had an association with alcohol drinking behavior. The health belief model is one of the widely used models to predict different risk behavior [31,32]. Our study described, recognizing risk opportunities while drinking alcohol, perception of the severity of alcohol drinking, and perceived benefits of reducing alcohol intake as well as recognizing barriers to reduce alcohol intake had an association with alcohol drinking behavior. Previous studies also indicated the usefulness of the health belief model in association with alcohol intake [33-36]. Self-efficacy is another theory popular to change behavior [37]. Our study clarified, despite the presence of alcoholic beverages in various Thai ceremonies as well as the availability of alcohol near homes, self-efficacy towards alcohol drinking has a significant association to reduce alcohol intake. Former studies in different sections on alcohol also showed the influence of self-efficacy

to change the behavior [38,39]. Self-regulation and social influence are other two well-known behavior change theories concerning adopt healthy behavior [40-42]. This study enlightened that regardless of work stress, wages, having alcohol as a gift, or getting alcohol on different occasions and, a strong self-judgment process can help to reduce the intake of alcohol.

Besides, our study found that most of the respondents had hazardous drinking behavior which is in the same line with another study conducted in Thailand [12]. Moreover, our study explained most of the respondents started drinking at a young age and work pressure was found the key factor for starting drinking. The result also reflected partially the same as in another study conducted in Thailand found young age and family problems were related to drinking alcohol [18].

The study has some limitations as it was cross sectional in nature and the survey was conducted in a specific time and region of Thailand. Thus, the findings may not necessarily reflect the situation of female farmers in other regions of the country. Despite having limitations, the study result explained the factors related to female farmer's alcohol drinking behavior which may help to reduce the drinking behavior around the rural areas of Thailand.

The model to reduce alcohol consumption included activities which were arranged for people with excessive drinking behaviour. These people were primarily screened by using the Alcohol Use Disorder Identification Test (AUDIT) to identify their level of risk or danger, as well as their readiness to join the behaviour modification process. The responsible officers included healthcare officers, including registered nurses, psychologists, and public health technical officers. The assessment was performed to estimate problems, risks and severity of alcohol consumption. To provide knowledge, suggestions, and counselling, the techniques of brief intervention (BI) and brief advice (BA) were used with select individuals in order to gain and improve knowledge, understanding and awareness. This technique is consistent with Sikosai's (2010) systematic literature review on the prevention and management of women's alcohol consumption and associated problems. Sikosai found that brief intervention (BI) in primary care units and emergency units could increase drinking frequency with low risks, reduce average alcohol consumption per day/week, and reduce negative effects of excessive consumption. Accordingly, it was clearly seen that women treated with brief intervention were able to reduce their alcohol consumption. The screening and brief intervention for female service users in primary care units worked effectively in terms of reducing alcohol consumption with results being statistically significant.

This study is an applied research study to solve problems with systematic and rigid research methods. In the study, the results from each of the steps were combined together in order to investigate the facts about excessive alcohol drinking behaviour, related factors, and casual factors to obtain contextual data with in depth quality. Such data were

used for developing the behaviour modification model to reduce alcohol consumption of working age women in the agricultural section, and can be used in practice for treating health problems in the context of the real areas. The model was examined by the network parties in the studied area to ascertain the possibility and appropriateness to increase effectiveness of problem solution in public health.

Conclusion

From the researcher's point of view, the SME Uthai Thani model is deemed appropriate and can be applied in practice due to the following two reasons: (1) The model activities can be integrated with primary healthcare services at the health service units whereas the drinking behavior of working age women is regarded as a high risk factor that causes diseases and illness. The treatment of such factors should be the main aim of such primary care service officers. (2) The main officers possess knowledge, skills, and experience in taking care of people with health issues associated with alcohol consumption. They are familiar with local people and experience good cooperation amongst the network of members, allowing them to operate and carry out their work well.

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