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Analysis of Rural Women's Role in Paddy Cultivation Practices (Case Study: Tonekabon Township)

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Abstract

The aim of the research was analysis of rural women's role in paddy cultivation practices in Tonekabon Township. Research population was consisted of paddy farmers women in Tonekabon Township (N=14539), whose 130 ones were selected using Cochran's formula. Data were gathered by cluster random sampling method. The instrument for data collection was a questionnaire which its validity was confirmed by a panel of experts. Its reliability was confirmed by Cronbach's alpha coefficients. Results of descriptive statistics showed that the rural women are involved in planting to rice harvesting practices whit a relatively high role. The results of the correlation coefficient also showed that there is significant positive relationship between age, work experience, head of household, number of children, and access to educational - extensional services with role of rural women in Paddy cultivation practices. Also, there was a negative and significant relationship between rural women's education and their role in paddy cultivation practices. Stepwise regression analysis showed that education, age and access to educational - extensional services can explain 32.3% of the changes in the dependent variable (role of rural women in paddy cultivation practices).

Keywords: Role, Women, Rural women, Paddy cultivation practices

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1. Introduction

Food security is always a big challenge due to the continuously increasing population and limited land, especially given that the global population expected to reach around 9 billion in 2050 from 7 billion in 2010. As a major staple, rice feeds almost half of the world's population and provides 19% of the daily human energy supply as the first-ranked cereal type (Elert, 2014).

Due to importance of rice paddy in food security, the *labor force* in this area is one of the most important production indicators and propellant to its durability. Meanwhile, the rural women as a half of the village population play an undeniable role in productive activities. In Iran, about eight million rural women (10 and 10 years old up) work in agricultural and natural resources area and participate in various rural activities. Therefore, they are playing an important role in agricultural production and society economic, so that it can be said that they are the key elements to achieve to food security (Mirtorabi et al., 2012). In addition, women in rural area not only participate in agricultural activities but also engage in family decision-making process and it can be help to solving different social and economical problems.

Women in poor households, who are at greater risk of being food-insecure, are more likely to be involved in the agricultural sector, particularly as wage laborers, because women's earnings are important to their families' subsistence (Sraboni et al., 2014). Also, according to Gill et al. (2007), women are involved in planting, protection, and harvesting activities, and as long as they belong to a lower class base, they pay more for agriculture.

Barghi et al. (2014) in their research showed that there is a positive and significantly relationship between participation of rural women and their ages. In addition, Alibeygi et al. (2013) showed economic motivations (include of income and livelihood, financing and acquire land ownership, providing family needs and demands), and self-expression motivations (include of meeting with other people, demonstrate their merit and competences, participating in co-operant with other, and relationship with other women) have strong effect on women participation in farm activities.

Ahmadvand and sharifzadeh (2012) showed that there are significant and meaningful relationships between women's age and degree of education with their social participation behaviors. Moreover, Lahsaeizadeh et al. (2005) concluded that there are meaningful relationships between women's age, degree of education, and marital status with their participation in agricultural activities. This finding confirmed with Nourouzi and Bakhtiari's (2010) study.

Mirtorabi et al. (2011) in a study on "effecting communicative factors on women's participant in post-harvest agricultural activities in Asara district, Karaj" showed that there is a significant relationship between level of use of organizational and mass Communicative resources with women's participation in post-harvest activities and these factors have important role in predicting women participation in agricultural activities. Moreover, findings of explanatory factor analysis showed that the most important factor affecting on women's participation in post-harvest activities was local communicative resources and then, was organizational communicative resources and mass communication. In the other study, Hejazi et al. (2011) showed that there are positive and significant relationships between women's participation in post-harvest activities and variables such as family members, income level, membership in productive cooperatives, internal motivations, use of communicative channels, and participant in extension courses. Moreover, findings of multiple regressions showed that participant in extension and education courses and use of communicational channels have an important role in explaining women's participation in post-harvest activities.

Studies in this field used word "participation" for women's activities in agriculture, while what women do, in fact are their duty. Women of paddy farmers in North of Iran have considerable role in the rice production stages. Therefore, identify factors that affecting on women participant in paddy cultivation practices is so essential to future planning, especially for agricultural extension and education change agents. According to the above, the aim of this research was analysis of rural women's role in paddy cultivation practices. For meeting this aim following objectives were addressed:

- Examining the women's role in the paddy cultivation practices;
- Examining the relationship between rural women's role in paddy cultivation practices and research variables;
- Determine the role of each variable to rural women's role in paddy cultivation practices.

2. Methodology

Design of the study was a descriptive survey that was done between years 2016-2017. Research population was consisted of women of paddy farmers in Tonekabon Township (N=14539), whose 130 ones were selected by cluster random sampling method and using Cochran's formula and considering standard deviation of total score of the role of rural women in paddy practices. The survey for data collection was a questionnaire. To measure the role of rural women in paddy cultivation practices, 17 questions were asked with a six-choice Likert scale which ranged from 0 (Not at all) to 5 (Too Much). At the end, the total score for each respondent were considered as the level of rural women's role in paddy cultivation practices. After conducting a pre-test, reliability of the questionnaire was measured by computing Cronbach's alpha coefficient ($\alpha \geq 0.7$). Face and content validity of the questionnaire was obtained using a panel of experts after carrying out the necessary reforms. Four categories including (Low, Relatively low, Relatively high and High) was made based on the minimum, mean, standard deviation and maximum using Algebraic Sum of items related to level of rural women's role in paddy cultivation practices (Sadighi and Mohamadzadeh cited in Razzaghi et al., 2012). Mode of conversion of the achieved scores is as follows:

A= Low: Min<A<Mean-Sd
B= Relatively low: Mean-Sd<B<Mean
C= Relatively high: Mean<C<Mean+Sd
D= High: Mean+Sd<D

3. Results

Based on the results of descriptive statistics mean age of respondents is 48.85 years with SD 13.265. The youngest woman has 21 years old and the oldest one has 74. 36.2% of respondents are illiterate, 11.5% reading and writing, 15.4% have primary degree, 18.5% have Guidance degree, 4.6% have secondary degree and 13.8% are diploma and academic degrees. The mean number of children is 3.85. Mean of work experience is 33.91 years with SD 16.768. In terms of marital status 100% of respondents were married. Most of the respondents (84.6%) were head of household and other people (15.4%) were not household heads. The average amount of respondents' area of land under rice cultivation for rural households was 7480.23 square meters. The smallest area of land was 0 and largest area of land was 60000 square meters.

Some questions are asked as described in Table 1 on a six-point likert scale in order to investigate the access of educational - extensional services by women of paddy farmers. The highest average was awarded to the local skilled women and the lowest one to the demonstration farms.

Table 1
Access of educational - extensional services by women of paddy farmers.

Access of educational - extensional services	Mean	SD
Local skilled women	2.82	0.46
TV	2.58	0.16
Radio	1.83	0.16
Agricultural experts	0.15	0.06
Training classes	0.9	0.06
Visiting from demonstration paddy farms	0.5	0.30

Not at all = 0; Very little = 1; Little = 2; Medium = 3; Much = 4; Too much = 5

In order to investigate the role of rural women in paddy cultivation practices, are asked in terms of the Likert spectrum (Table 2) which is divided three steps planting, protection, harvesting.

The result shown rural women did about 50.17% of planting practices, 23.27% of protection practices, and 47.12% of harvesting practices. In total, they did about 43.12% in defferent stages of paddy cultivation practices from planting to harvesting.

Table 2
Percentage of rural women's role in paddy cultivation practices.

Stages	Item	%
Planting	Plowing	0
	Puddling of rice paddy	0
	Preparing of rice nursery	80.8
	Germinating of rice seed	85.4
	Planting of rice seedling in nursery	66.9
	Rice nursery irrigation	59.2
	Pulling of grown rice seedlings	56.2
	Transferring of rice seedlings' boxes into puddled field	20.8
	Transplanting of rice	82.3
	The average role of women in planting: 50.17%	
Protection	Weeding	82.3
	Irrigation	10.8
	Usage of the pesticides and Fungicides	0
	Usage of the fertilizers	0
	The average role of women in protection: 23.27%	
Harvest	Cutting paddy	8.5
	Closing the cut paddy	11.5
	Gathering the cut paddy	96.2
	Threshing	72.3
	The average role of women in harvest: 47.12%	

Not at all = 0; Very little = 1; Little = 2; Medium = 3; Much = 4; Too much = 5

Respondents were divided into four categories including: Low, Relatively low, Relatively high and High in order to assess the level of rural women's role in paddy cultivation practices based on respondents' scores. Accordingly, it is seen that the highest frequency is related to the category of "Relatively high" (Table 3). This means that more rural women (44.6 percent) play a Relatively high role in rice cultivation operations.

Table 3
Frequency distribution of rural women's role in paddy cultivation practices.

Usage rate of IPM	Frequency	Percent	Valid percent	Cumulative percent
Low	25	19.2	19.2	19.2
Relatively low	32	24.6	24.6	24.6
Relatively high	58	44.6	44.6	44.6
High	15	11.5	11.5	11.5
Total	130	100	100	100

Mean=33.37; SD=13.31; Min=2; Max=59

The correlation coefficient was used to investigate the relationship between research variables and rural women's role in paddy cultivation practices. Results (Table 4) showed that there was significant positive relationship among age, work experience, head of household, number of children and access to educational-extensional services with rural women's role in paddy cultivation practices. Also, there was a negative and significant relationship between rural women's education and their role in paddy cultivation practices. These findings confirm the researches' results of Lahsaeizadeh et al. (2005), Nourouzi and Bakhtiari (2010), Ahmadvand and Sharifzade (2012) and Barghi et al. (2014) bases on relationship between age and rural women's role in agricultural practices; Lahsaeizadeh et al. (2005), Nourouzi and Bakhtiari (2010) and Ahmadvand and Sharifzade (2012) bases on relationship between education and rural women's role in agricultural practices; Gill et al. (2007) and Sraboni et al. (2014) bases on relationship between being the head of household and rural women's role in agricultural practices; Hejazi et al. (2011) bases on relationship between number of children and rural women's

role in agricultural practices; Mirtorabi et al. (2011) and Hejazi et al. (2011) bases on relationship between access of educational - extensional services and rural women's role in agricultural practices.

Table 4
Correlation coefficient between research variables and rural women's role in paddy cultivation practices.

Variable	Correlation coefficient	Test type
Age	0.530**	Pearson
Work experience	0.460**	Pearson
Marital status	0.154	Cramer's V
Being the head of household	0.205**	Cramer's V
Women education	-0.550**	Spearman
Number of children	0.438**	Pearson
Area of land under rice cultivation	0.210	Pearson
Access to educational - extensional services	0.196**	Spearman

**Significant at 0.01; *Significant at 0.05

Stepwise regression analysis was used to identify explanatory variables. According to the results (Table 5), three factors: Education, Age and Access to educational - extensional services were entered into the regression equation respectively. Factor of age with Beta 0.277 has most direct and positive effect on the role of rural women in paddy cultivation practices. The results of Mirtorabi et al. (2011), hejazi et al. (2011) and Alibeygi et al. (2013) studies also showed the positive role of participation in training classes, use of communicative channels, extensional contacts and communication on the role of rural women in agricultural practices. At the same time, the greatest negative effect on the dependent variable is the education variable.

Table 5
Stepwise regression analysis.

Variable	B	Beta/β	t
Constant coefficient b_0	23.199	----------	3.389
Education x_1	-2.156	-0.337	-3.373
Age x_2	0.278	0.277	2.769
Access to educational - extensional services x_3	0.590	0.154	2.119

**21.546 = F 0.323 = 0.339 $R^2_{Ad} = R^2$

Multiple correlation coefficient (R) is 0.582 and the adjusted coefficient of determination (R^2_{Ad}) is 0.323. Thus, the three variables in the regression analysis can explain 32.3% of the change in the depended variable. The results are shown in Table 6.

Table 6
Determination coefficients of rural women's role in paddy cultivation practices.

Step	Variable	R	R^2	R^2_{Ad}
1	Education x_1	0.529	0.280	0.274
2	Age x_2	0.569	0.316	0.305
3	Access to educational - extensional services x_3	0.582	0.339	0.323

Therefore, the regression line equation will be:

$$Y= 23.199 - 2.516 (X_1) + 0.278 (X_2) + 0.590 (X_3)$$

4. Conclusion

Finding showed that the rural women have strong role in paddy cultivation practices and about 44.6% of them were in high-level participant. They played a role in different stages of rice paddy cultivate, so that they did

about 50.17% of planting practices, 23.27% of protection practices, and 47.12% of harvesting practices. In total, they did about 43.12% in different stages of paddy cultivation practices from planting to harvesting. Correlation coefficient findings showed that there are positive and significant relationships between women's age, work experiences, head of household, number of children and access to educational - extensional services with their role in paddy cultivation practices. Also, there was a negative and significant relationship between rural women's education and their role in paddy cultivation practices. It indicated that women, who have level of education, have lower level of participation in rice paddy practices. Findings of stepwise regression analysis showed that education, age, and access to educational - extensional services in total explained about 32.2% of rural women's role in paddy cultivation practices. Therefore, it suggested that:

- According to importance role of women in paddy cultivation practices, it is necessary that agricultural change agents held courses about paddy cultivation practices to them. Moreover, since women encountered with limited time to participate in these courses, use of mass media can be the best option to their education. Also, pay attention to the training of expert women and experienced researchers in the field of research on rural women and their number in agricultural organization is adequate to cover rural women.
- Mainly of women who participated in paddy cultivation practices have lower literacy and older age, therefore, it is essential that agricultural change agents imply appropriate approaches to motivate younger women to participate in paddy cultivation practices. To achieve to these aims, it suggested that there will be held meeting among paddy farmer's women with agricultural change agents and in these meeting, share their knowledge and information with others (especially with yang paddy farmer women). Moreover, use of agricultural machinery which is proportional with women's body structure that is recommended to encouraging young women to engage in paddy cultivation practices.
- According to positive and meaningful relationship between women role in paddy cultivation practices with their role in family as head of household, it is essential that they educated by agricultural change agents on small-scale businesses according to their conditions.
- According to positive and meaningful relationship between women role in paddy cultivation practices and with access to educational - extensional services and based on the results of the regression analysis, it is recommended that agricultural jihad officials provide various educational programs based on the participatory approach among women of paddy farmers. Also, the flexibility aspects of time and place of classes must be considered so that rural women can determine the time and place of classes.

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