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Evaluation of reproductive health criteria in seasonal agricultural workers: a sample from Eskisehir, Turkey

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ABSTRACT

Introduction: The aim of the present study was to determine reproductive health outcomes of seasonal agricultural female workers in rural areas of Eskisehir, Turkey, and to compare such identified outcomes with the country-wide data.

Methods: Data in respect of this cross-sectional study were collected during a field visit in July 2012. The study group was formed by all of the distribution camps located in rural areas of Eskisehir. Each tent was considered as a domestic dwelling and the census method was used. First, a household questionnaire about sociodemographic characteristics was administered. The '15–49 year old married women questionnaire' was applied only if there was a married woman in the household in the age range of 15–49 years. The said questionnaire comprised information on marriage, childbirth and family planning. The 2008 Turkey Demographic and Health Survey was utilized for the comparison between the data attained from the rural sample and those of the general population.

Results: A total of 192 married women aged 15–49 years, inhabiting the 133 tents, were included in the study group. The mean age at first marriage and at first pregnancy were significantly lower in the female seasonal agricultural workers compared to the general Turkish population. Compared with the overall Turkish population, the crude birth rate and general fertility rate of the female seasonal agricultural workers were 2.5 times higher whereas the total fertility rate was 3.9 times higher and the completed fertility rate 2.3 times higher. With the exception of the 45–49 year age group, the age-specific fertility rates were 2–24 times higher. Female seasonal agricultural workers have higher fertility rates than the general population.

Conclusions: According to the results of the present study, reproductive and maternal health status is significantly lower in female seasonal agricultural workers compared to the general Turkish population. There is a need towards multidisciplinary approaches in order for the provision of improved maternal and reproductive health status and outcomes for this group of disadvantaged women in

terms of educational level, residence, fertility rights and access to healthcare services. Reducing the fertility rate should be the principal starting point.

Key words: agricultural, health outcomes, migrant, Turkey, women.

Introduction

Despite the lack of well-organised and large scaled studies towards seasonal agricultural workers, who, in comparison with the general population, hold the lowest social mobility and higher poverty rates, it is a well-known fact that seasonal agricultural workers experience many social, financial and health-related problems that differ from those in the general population[1,2]. Moreover, agricultural female workers invariably have more responsibilities in every family and social activity than men and accordingly greater health-related problems. Female agricultural workers are responsible for both agricultural work and housework. Female workers try to fulfil the daily needs of the family members, on the one hand, and gestate, give birth, experience the postpartum period and take care of the children as well as work to contribute to the family's income, on the other[3,4]. A report prepared by the International Labour Organization specified the seasonal agricultural female workers' problems as low education level, lack of social insurance, housework and agricultural activities together, and lack of paid work[5].

To improve the quality of health services in Turkey, reform initiatives have been adopted and implemented since the 1960s and were further accelerated in 2004. In this context, reproductive health services have been improved; however, these improvements have not been applied to all at-risk groups[6]. Seasonal agricultural workers form one of these risk groups. As in other regions of the world, seasonal agricultural labour is a major area of employment in Turkey. Of the total 25 million people in the Turkish workforce, 5.4 million are employed in the agricultural sector, approximately half of whom are seasonal agricultural workers[7]. Seasonal agricultural workers migrate primarily from the eastern and south-eastern Anatolia regions to meet the labour needs of the Western regions[8]. The aim of the present study is to determine reproductive health outcomes of seasonal agricultural female workers in rural areas of Eskisehir and to compare such identified outcomes with the country-wide data.

Methods

Study population

Eskisehir is a city located in the central Anatolia region and is among Turkey's developed cities. However, the rural areas of Eskisehir fall within the classification of developing areas. The total population of Eskisehir is 781 247, with 83% living in urban and 17% living in rural areas[9]. Although the rural areas of Eskisehir have a high potential for employment in agriculture, a seasonal agricultural workforce is needed due to a high rate of continuous emigration. Approximately 1500 seasonal agricultural workers, mainly from the south-eastern Anatolia region, are employed in the rural areas of Eskisehir every year between March and November. Seasonal agricultural workers are defined as individuals migrating to agricultural regions during the crop and harvest time, and individuals who are temporarily employed in agricultural regions when needed[10]. However, there are no health records indicating the exact number of seasonal agricultural workers in the rural areas of Eskisehir.

Seasonal agricultural workers live in migrant camp areas in rural locations close to their workplace. There are two different settlement locations for workers. The first one is closer to the fields, workers stay here for a short period of time and it holds a smaller number of tents. The latter is called the distribution camp and it comprises 20 tents. The workers residing at these camps use

transportation vehicles to get to the fields. There are three distribution camps in Eskisehir. Tents are the living spaces in these camping areas. They are placed over the ground and are made of thick fabrics or a nylon cover.

People living in tents are exposed to many risk factors[11]. For example, there is no running water or toilet inside a tent. The water must be carried in by bucket and there are a limited number of common toilets outside the tents. Only 3.8% of the tents have a separate kitchen and bathroom inside. Electricity is only available in 19.5% of the tents. The ethnicity of the individuals living in the tents is Arab or Kurd, and 35% of the study sample does not speak Turkish.

Study design

Data in respect of this cross-sectional study were collected during a field visit in July 2012. The study group was formed by all of the distribution camps located in rural areas of Eskisehir. A screening method was used and each tent was considered as a domestic dwelling. People living in the same tent were considered a household. Aside from the unofficial managers of the camps, permission to conduct the survey was obtained after giving information to regional health organizations and local administrators.

The field work was conducted by one professor and six research assistants from the Department of Public Health in addition to 10 intern doctors, for a total of eight groups, with one female and one male interviewer in each group. All interviewers received theory training before administering the questionnaires for the purpose of elimination of errors by the interviewers and establishment of communication with the special group subject to this study. The questionnaires were filled out by visiting each tent and conducting face-to-face interviews with the household. For non-speaking Turkish households, the questionnaire was filled out by a Turkish-speaking designated neighbor.

Survey instruments

First, the household form about the sociodemographic characteristics, migration-related data and living environment-related risks was administered followed by the administration of the '15–49 year old married women questionnaire', if there was a woman in the household who met this criterion. Information about marriage, childbirth(s) and family planning was obtained. This questionnaire included items about each pregnancy the women had experienced and their childbirth(s), as well as the health care they had obtained. The questionnaire of a national survey, the 2008 Turkey Demographic and Health Survey (TDHS-2008), was utilized to prepare the current questionnaires in consideration of comparison of the obtained data with the data on general population[12].

Measurements

The data from women aged 15–49 years were divided into two data sets: pregnancy-related and woman-related. The estimated rates in the current study were based on the definitions in the TDHS. The crude birth rate, general fertility rate, age-specific fertility rates, total fertility rate and completed fertility rate were used to assess reproductive health outcomes[13].

To compare this data with the TDHS-2008 data, the temporal change in pregnancy and childbirth-related healthcare services was analysed by encoding the data according to the timeframes used in the TDHS. Due to the lack of TDHS data following 2008, the data from the Turkish Statistical Institute (TSI-2012) with a similar methodology were used[14].

Statistical analysis

The data were analysed using the Statistical Package for the Social Sciences v20 (SPSS; http://www.spss.com). The frequency distributions were estimated for all categorical variables by calculating mean and standard deviation or median and interquartile ranges for continuous data. The temporal change for female seasonal agricultural workers and for the general Turkish population was calculated using the following formula: $\Delta d = (t_1 - t_2)/t_1$. The Δd values calculated for the female seasonal agricultural workers and

the general Turkish population were compared using a one-sample *t*-test[15].

Ethics approval

The study was approved by the Ethics Committee for non-drug clinical trials of Eskisehir Osmangazi University (ethics approval number 17.01.2013/05).

Results

A total of 133 tents were included in the sampling frame. There were a total of 792 households (409 (51.6%) males and 383 (48.4%) females). The mean age was 17.5 years (standard deviation (SD) 13.9 years; range 0–71 years), and the median age was 14 years (interquartile range (IQR) 6–24 years). The mean number of households was 6 (SD 3; range 1–13), and the median number of households was 6 (IQR 4–8). Of the study sample, 399 (50.4%) were aged less than 15 years.

Of the women, 50.1% (n=192) were in the 15–49-year age group (reproductive age) with a mean age of 26.4 years (SD 9.6 years). A high number of fertile women (54.7%) were in the 15–24-year age group. Of the female seasonal agricultural workers comprising the study group, 11.0% were primary school graduates, and 87.4% could not read and/or write. Many of these women (95.1%) were married at the age of 11–24 years. The median age of marriage was 19 for women in the age group of 25–49 years.

There were a total of 650 pregnancies ever experienced by these 192 female seasonal agricultural workers. Although 27 (4.2%) of these were continuing pregnancies at the time of the survey, 85.0%, 1.6%, 10.8% and 2.6% had ended in live births, stillbirths, spontaneous abortion and elective abortion, respectively.

Tables 1 and 2 show the fertility characteristics of the female seasonal agricultural workers in comparison with the general Turkish population.

The mean age at first marriage and at first pregnancy were significantly lower among the female seasonal agricultural workers compared to the general Turkish population (p<0.001). For results of pregnancy, the percentage of live births was higher (p<0.001) and the rate of curettage was lower (p<0.001) in female seasonal agricultural workers compared to the general population. The adolescent pregnancy rate was significantly higher among female seasonal agricultural workers (p<0.001).

In comparison with the general population, female seasonal agricultural workers of reproductive age had 2.5 times greater crude birth rate and general fertility rate, 3.9 times greater total fertility rate and 2.3 times greater completed fertility rate compared to the general population. The age-specific fertility rates were 2–24 times greater, except for the 45–49-year age group.

Regarding the use of any contraceptive method, 68.1% of the women reported that they were not using a family planning method. Of the contraceptive methods used by the remaining women, 8.5% used condoms, 7.4% used an intrauterine device, 5.3% used tubal ligation, 2.1% used oral contraceptives and 1.1% used injectable preparations. Additionally, 7.5% of the women reported using traditional methods such as withdrawal and lactation. Table 3 shows the family planning method characteristics of the female seasonal agricultural workers in Eskisehir.

The rate of traditional or modern family planning methods and the overall rate of the use of any family planning method were significantly lower in the female seasonal agricultural workers compared to the general Turkish population (p<0.001).

Regarding the reason for not using a family planning method, 38.7% of the married female seasonal agricultural workers aged 15–49 years reported that they wanted to have children, 32.3% reported that they had no information about these methods, 3.2% reported that they had no access to these methods, 3.2% reported that their husband or mother-in-law did not allow any methods to be used, 3.2% reported that

they had religious concerns, and 19.4% reported that they had other reasons (eg being premenopausal/menopausal, or that their husband had died).

Of the married women in the study group, nine women (7.4%) reported that they had never become pregnant. Of these women, only two (1.7%) had used an assisted reproductive method.

The temporal change in the characteristics of the female seasonal agricultural workers during and after pregnancy and comparison with the general population is given in Table 4.

The rate of antenatal care among female seasonal agricultural workers increased from 13.8% in 1993 to 47.2% after a period of approximately 18 years. The increase in the rate of antenatal care in each of the 5-year time periods, except for 1998–2003, was significantly higher in the female seasonal agricultural workers than in the general Turkish population. The rate of benefiting from a healthcare worker at birth increased from 12% to 69.9%. This increase was significantly higher for each 5-year time period, except for the 1998–2003 and 2008–2010 periods for female seasonal agricultural workers compared to the general Turkish population. The caesarean birth rate increased from 0% to 13.8%. The increase in the rate of caesarean births in seasonal agricultural workers was not different from that of general population for the time period of 2003–2008. The rate of postpartum care increased from 5.3% to 33.6%. A comparison could not be made due to a lack of data for the general Turkish population.

Discussion

Significant demographic changes have been observed in the population structure of Turkey within a relatively short period of time. The process of social change occurring in relation to the economic, social, technical and cultural improvements has resulted in decreased fertility and death rates. Prolonged education and the increased involvement in working life have led women to marry and have children at older ages[16,17]. However, these fertility-related changes did not occur at all levels of society at the same rate. Thus, these fertility-related changes differ between socioeconomically lower- and upper population groups[6]. The results showed that female seasonal agricultural workers marry and have children at an earlier age compared to the general Turkish population. Moreover, the adolescent birth rate was higher in this group compared to the general population. A greater proportion of female seasonal agricultural workers were illiterate (87.4%) and less likely to be primary school graduates (11.0%), resulting in marrying and having children at an earlier age.

Bongaarts' study found that the overall fertility rate is determined by the difference in the change in fertility between the socioeconomically lower- and upper population groups. Accordingly, the general Turkish population is in the late demographic transition period and female seasonal agricultural workers are still in the pre-transition period[12,18].

Because of ethnic and cultural structures, the families of seasonal agricultural workers are more male-dominated with a higher rate of co-wives. Female seasonal agricultural workers are usually well accepted if they have many children, and those with a small number of children, no children or with no male children are at risk of becoming a co-wife; thus, having a high number of children may be seen by them women as beneficial[19]. Another motivation for becoming pregnant may be that pregnant and postpartum women perform housework rather than work in the field.

Because female seasonal agricultural workers have a low educational level, are unaware of their healthcare rights and usually do not know the Turkish language, they usually do not benefit from healthcare services. Women should get help from a Turkish-speaking relative in order to benefit from healthcare services. In addition, receiving information about contraceptive methods or preferring a contraceptive method are almost impossible. For all of these reasons, childbearing starts at an early age and continues until advanced ages, and fertility-related measures are found to be much higher in female seasonal agricultural workers compared to the general population.

Table 1: Fertility characteristics of female seasonal agricultural workers compared to general Turkish population

Variable	Female seasonal agricultural workers	Turkey (TDHS 2008)
Age at first marriage*		
Mean (standard deviation)	18.9 (3.6)	
Min–max	11–36	
Median (interquartile range)	19 (17–20)	20.8
Age at first pregnancy (%)*		
Mean (standard deviation)	20.1 (4.0)	
Min–max	13–41	
Median (interquartile range)	20 (18–22)	22.3
Pregnancy outcome (%)*		
Live birth	85.1	78.4
Stillbirth	1.6	1.1
Spontaneous abortion	10.8	10.5
Elective abortion	2.6	10.0
Adolescent birth*	6.7	5.9

* $p<0.05$
TDHS, Turkey Demographic and Health Survey

Table 2: Fertility rates of female seasonal agricultural workers compared to general Turkish population

Rate†	Female seasonal agricultural workers	Turkey (TDHS 2008)
Crude birth rate (per 1000 population)	46.3	18.6
Age-specific fertility rate (per 1000 women)		
15–19 years	56.6	35.0
20–24 years	433.3	126.0
25–29 years	285.6	133.0
30–34 years	481.3	91.0
35–39 years	228.0	36.0
40–44 years	238.0	10.0
45–49 years	0.0	1.0
General fertility rate (per 1000 women)	191.0	76.0
Total fertility rate (per woman)	8.6	2.2
Completed fertility rate (per woman)	7.7	3.3

† For the 3-year period preceding the survey
TDHS, Turkey Demographic and Health Survey

Table 3: Current use of contraceptive methods in female seasonal agricultural workers compared to general Turkish population

Current contraceptive method	Female seasonal agricultural workers (%)	Turkey (TDHS 2008) (%)
Any method	31.9***	73.0
Any modern method	24.4***	46.0
Any traditional method	7.5***	27.0

*** $p<0.001$
TDHS, Turkey Demographic and Health Survey

Table 4: Reproductive health rates of female seasonal agricultural workers compared to general Turkish population and temporal changes between years

Variable	1993†	1998†	2003†	2008†	2012¶
Antenatal care (%)					
Female seasonal agricultural workers	13.8***	27.6***	34.5***	43.7***	47.2***
Turkey	62.3	67.5	80.9	92.0	97.0
Statistical analysis of temporal changes	$p<0.001$	$p>0.05$	$p<0.001$	$p<0.001$	
Benefiting from a healthcare worker at birth (%)					
Female seasonal agricultural workers	12.0*	33.0	36.3***	47.4***	69.9
Turkey	75.9	80.6	83.0	91.3	97.0
Statistical analysis of temporal changes	$p<0.001$	$p>0.05$	$p<0.001$	$p>0.05$	
Caesarean births (%)					
Female seasonal agricultural workers	0	0	4.9***	5.8***	13.8***
Turkey	–	–	14.0	21.0	48.0
Statistical analysis of temporal changes			$p<0.001$	$p>0.05$	
Postpartum care (%)					
Female seasonal agricultural workers	5.3	15.4	17.6	29.5***	33.6
Turkey	–	–	–	81.7	–

* $p<0.05$, *** $p<0.001$
† Turkey Demographic and Health Survey was used for comparison
¶ Health Statistics Yearbook 2012 was used for comparison

For the Millennium Developmental Goal of improving maternal health, the 'decline in maternal mortality rate', 'receiving prenatal care for at least four times' and 'rate of births performed by healthcare workers' are used to evaluate the progression of the goals. Prenatal care is a major determinant of both maternal and paediatric health and is closely related to the quality of reproductive health[20]. The rate of prenatal care was significantly lower in seasonal agricultural workers compared to the general Turkish population. Moreover, some of the deliveries were made by midwives with traditional methods and in the tents or at home. Because of a lack of access, these women usually did not benefit from professional health care during and after delivery. Although the rates of prenatal care and deliveries attended by a health professional increased over time, these rates are still far from those found in the general population. Because of the traditional structure among the seasonal agricultural workers and the fact that the male workers are usually working in the field and cannot take the women to a healthcare institution in the case of pregnancy and delivery during the summer months, the rate of benefiting from health care may be lower during pregnancy, delivery and the postpartum period.

Conclusions

According to the results of the present study, maternal and reproductive health status is significantly lower in female seasonal agricultural workers compared to the general Turkish population[12]. Multidisciplinary approaches should be utilized to provide the appropriate healthcare services to this population, which is disadvantaged in terms of educational level, residence, fertility rights and access to healthcare services. Reducing the fertility rate should be the principal starting point.

To provide the female seasonal agricultural workers with benefits from the appropriate healthcare services and to help them maintain a healthy life, healthcare professionals and healthcare policy-makers should focus increased attention on this population. Additionally, it is essential to inform these women about access to, and their personal rights about benefiting from, healthcare services and teaching them the official language used in healthcare facilities.

References

1. Svensson M, Urinboyev R, Wigerfelt Svensson A, Lundqvist P, Littorin M, Albin M. *Migrant agricultural workers and their socioeconomic, occupational and health conditions – a literature review.* Lund: Work Environment College at Lund University Sociology of Law, 2013.

2. Hurst P, Termine P, Karl M. *Agricultural workers and their contribution to sustainable agriculture and rural development*. Geneva: Food and Agriculture Organization, International Labour Organization, International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers' Associations, 2005.

3. Forastieri V. *Information note on women workers and gender issues on occupational safety and health*. Geneva: International Labour Office, 1999.

4. Connor A, Layne L, Thomisee K. Providing care for migrant farm worker families in their unique sociocultural context and environment. *Journal of Transcultural Nursing* 2010; **21(2):** 159-166. http://dx.doi.org/10.1177/1043659609357631

5. Fontana M, Paciello C. *Gender dimensions of rural and agricultural employment: differentiated pathways out of poverty*. A global perspective paper. Rome: UN Food and Agricultural Organization, International Fund for Agricultural Development and International Labour Office, 2009.

6. Jakab M, Hawkins L, Loring B, Tello J, Ergüder T, Kontas M. *Better non-communicable disease outcomes: challenges and opportunities for health systems, Turkey Country Assessment*. Copenhagen: WHO Regional Office for Europe, 2014.

7. Turkish Statistical Institute. *Household labour force*. Ankara: Turkish Statistical Institute, 2014.

8. Selek Öz C, Bulut E. The status of seasonal agricultural workers in Turkish legislation. *Labour World* 2013; **1(1):** 94-111.

9. Eskisehir Metropolitan Municipality. *Eskisehir'in nüfusu*. (Internet) 2014. Available: http://www.eskisehir-bld.gov.tr/eng/eskisehir_nufus.php (Accessed 7 November 2016).

10. Rosenbaum S, Shin P. *Migrant and seasonal farmworkers: health insurance coverage and access to care*. Washington: Center for Health Services Research and Policy, The George Washington University, 2005.

11. Simsek Z, Koruk ?, Doni NY. An operational study on implementation of mobile primary healthcare services for seasonal migratory farmworkers, Turkey. *Maternal and Child Health* 2012; **16(9):** 1906-1912. http://dx.doi.org/10.1007/s10995-011-0941-3

12. Hacettepe University Institute of Population Studies. *Turkey Demographic and Health Survey 2008*. Ankara: Hacettepe University Institute of Population Studies, Ministry of Health General Directorate of Mother and Child Health and Family Planning, T.R. Prime Ministry Undersecretary of State Planning Organization and TUBITAK, 2009.

13. OECD – Social Policy Division – Directorate of Employment, Labour and Social Affairs. *OECD family database*. (Internet) 2014. Available: http://www.oecd.org/els/family/SF_2_1_Fertility_rates.pdf (Accessed 7 November 2016).

14. Basara Bora B, Guler C, Yentur GK, Pulgat E. *The Ministry of Health of Turkey health statistics yearbook 2012*. Ankara: Republic of Turkey Ministry of Health General Directorate of Health Research, 2013.

15. Akdag B, Sumbuloglu K. *Önemlilik testleri*. Ankara: Hatiboglu Yayinevi, 2010.

16. James K, Skirbekk V, Van Bavel J. Education and the global fertility transition. [Foreword]. In: W Lutz, KS James, V Skirbekk, J Van Bavel (Eds). *Vienna yearbook of population research*. Vienna: Austrian Academy of Sciences, 2012; 1-8.

17. Kirdar M, Dayioglu M, Koç I. *The effect of compulsory schooling laws on teenage marriage and births in Turkey*. Anakara: Munich Personal RePEc Archive, 2012.

18. Bongaarts J. The end of the fertility transition in the developed world. *Population and Development Review* 2002; **28(3):** 419-443. http://dx.doi.org/10.1111/j.1728-4457.2002.00419.x

19. Koçyigit OT. Infertilite ve sosyo-kültürel etkileri. *Insanbilim Dergisi* 2012; **1(1):** 27-37.

20. World Health Organization. *Millennium development goals*. Geneva: WHO, 2008.

