Contents

From the Editor

Each year on April 7th, the world celebrates World Health Day. The subject of World Health Day 2005 is "Healthy Mothers and Children" and the slogan is "Make every mother and child count ". To reduce child mortality, improve maternal health and combat HIV/AIDS, malaria and other diseases are among the Millennium Development Goals which all Member States have intended to meet by the year 2015. These goals are, eradication of extreme poverty and hunger, achievement of universal primary education, promotion of gender equality and empowerment of women, reduction in child mortality, improvement of maternal health, fighting against HIV/AIDS, malaria and other diseases and assuring environmental sustainability.

In this issue, in order to meet the global topic of World Health Day 2005, we have chosen mostly the articles on maternal and child health.

Ozvaris et al. point out some factors as living in the Eastern region of Turkey, rural residence, low maternal education and lack of antenatal care associated with being small at birth. Uner and Ozcebe, showed that urbanisation, literacy of population, literacy of female population and having health insurance reduced child mortality in Turkey.
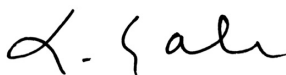
Akman et al. examined (investigated) lipid profile changes during normal pregnancy and its effects on women's long term health.

Another important topic related to the Millenium Development Goals is rubella seroprevalence among reproductive age midwifery and nursing students. Oncu et al. showed a high rubella seropozitivity ratio among these students and suggested further studies in large groups according to age.

Caliskan brings to our attention an ongoing debate "vaginal douching" and discuss its health effects by evidence-based literature in Turkey and in the world.

We hope you enjoy this issue and we would like to invite everybody to participate in the coming issues. We also would like to thank all the authors and reviewers who contributed to this issue.

Editor

Sanda Cali

Information for Contributors

Aim and Scope

The Turkish Journal of Public Health (TJPH) is a peer-reviewed research journal published bi-annually and serving a broad audience in the field of Public Health and Community Medicine both nationally and internationally. TJPH aims to provide a medium for the rapid communication of advances and new knowledge in this field. The editor anticipates receiving manuscripts from the following areas of research: health policy and management, biostatistics, epidemiology, environmental health, health economics, medical demography, social sciences for health, health education, public health laboratory, community nutrition, infectious diseases, disaster management, accidents, women's health/reproductive health, child health, chronic diseases, and occupational health.

Submission of Papers

The following types of contributions are welcomed:

1. Original research articles: papers reporting original research findings in a relevant area (maximum 5000 words).

2. Short reports: preliminary/short reports of research findings (maximum 1500 words).

3. Critical reviews: authors are advised to contact the editor prior to submission of critical review papers (maximum 4500 words).

4. Notes from the field: Highlighting practice-based programs, initiatives of widespread interest, experiences to share with the public health community (maximum 1000 words).

5. Letters to the editor: a limited number of letters to the editor concerning the published papers in the TJPH (maximum 300 words).

6. Data: Data from nationally or sub-nationally representative surveys (maximum 35 tables and figures).

Submissions will be considered on the understanding that they comprise original, unpublished material and are not under consideration for publication elsewhere. A cover letter to this effect should be enclosed with each submission, signed by all authors of the paper.

All papers are published in English although submission of articles in Turkish is encouraged and will not prejudice editorial consideration. The authors may use either the British or the American spelling, but they should be consistent throughout the paper. Submissions undergo a two-tiered review process. The editorial board for overall quality and interest screens them initially. Papers accepted for formal review will be sent anonymously to at least two independent referees.

Authorship

Authorship by more than 6 authors requires justification. We adhere to the criteria of the International Committee of Medical Journal Editors (JAMA. 1997; 277:927-934). For manuscripts with two or more authors, each author must qualify by having participated actively and sufficiently in the study that is being carried out and reported on. The inclusion of each author in the authorship list of a report is based only (1) on substantial contributions to (a) concepts and design, or analysis and interpretation of data and (b) drafting the manuscript or revising it critically for important intellectual content; and (2) on final approval by each author of the submitted version of the manuscript. Conditions 1 (a and b) and 2 must both be met. Others contributing to the work should be recognized separately in an Acknowledgement. In the covering letter that accompanies the submitted manuscripts, it must be confirmed that all authors fulfilled both conditions.

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Manuscripts must be typewritten on one side of a white paper, page numbered, and double-spaced with 2.5 cm margins. Good quality printouts with a font size of 12 pt are required. Provide a word count for the paper and abstract. The original copy of text, tables, and figures should be sent to:

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Please label the disk with your name, the name of the file on the disk and the title of the article.

Electronic submission would be preferred.

Cover letter

All authors must sign the letter, with one named correspondent (give postal and e-mail addresses and telephone and fax numbers). Disclose all possible conflicts of interest (e.g. funding sources for consultancies of studies of products). A brief indication of the importance of the paper to the field of public health is helpful. You may suggest up to 4 knowledgeable reviewers (include postal and e-mail addresses and telephone and fax numbers).

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Include:
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Second title page

Type only the title (to keep authorship unknown to reviewers), and remove other obvious indications of author identity.

Text

The text of the article should include the following: Abstract (up to 250 words, followed by up to 6 keywords), Introduction, Materials and Methods, Results, Discussion, and Acknowledgments. Each section should begin on a new sheet.

Figures

All figures (photographs, drawings, diagrams, charts) should be clear, easily legible, and cited consecutively by Arabic numerals in the text (Figure 1, Figure 2, etc) and should be placed on separate sheets. Legends should contain sufficient detail to permit figure interpretation without reference to the text. Units should be indicated in the figures. All line graphs and their respective data points should accompany charts so that they can be replicated on the journal's computers. Cost for printing of color plates will be charged to the authors.

Tables

Tables must be concise, as simple as possible, and cited consecutively by Arabic numerals in the text (Table 1, Table 2, etc). Each table should be titled and typed on a separate sheet. The title of each table should clearly indicate the nature of the contents. Sufficient detail should be included in the table footnote to facilitate interpretation.

References

Cite references in numerical order and as superscripts in the text. List all authors when there are six or fewer; when there are seven or more, list only the first three and add "*et al.*" Use Index Medicus (abridged) abbreviations for journal names. Do not reference papers that are "submitted"; these can be mentioned in the body of the text. Cite personal communications in text only, giving source, date, and type (if e-mail, provide sender's address). References should follow the style described by the International Committee of Medical Journal Editors (www.icmje.org). The following are sample styles:

Journal article

Feldman HA, McKinley SM. Cohort versus cross-sectional design in large field trials: precision, sample size, and unifying model. Stat Med 1994; 13: 61-78.

Book

UNICEF. State of the World's Children. New York: Oxford University Press, 1998.

Chapter in a book

Phillips SJ, Whisnant JP. Hypertension and stroke. In: Laragh JH, Brenner BM, editors. Hypertension: Pathophysiology, Diagnosis, and management. 2nd ed. New York: Raven Press; 1995. p. 465-78.

Online book or web site

Garrow A, Winhouse G. Anoxic brain injury: assessment and prognosis. In: Up To Date Cardiovascular Medicine [online]. Available at: www.UpToDateInc.com/card. Accessed February 22, 2000.

Acknowledgements

Prepare acknowledgments on a separate page. Upon acceptance, you will be asked to certify that you have listed all persons who have contributed substantially to the work but who do not fulfill authorship criteria and that you have obtained permission for listing them. Also required is disclosure of all financial and material support. If human subjects are involved, you must report approval by an institutional review board. TJPH adheres to the Declaration of Helsinki of the World Medical Association (JAMA 1997; 277: 925-926).

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Estimates of neonatal mortality, "smaller" and "before term" births in Turkey based on the 1998 Demographic and Health Survey data

Sevkat Bahar OZVARIS[a], Nuriye Nalan SAHIN-HODOGLUGIL[b], Ayse AKIN[c]

Abstract

Data from the 1998 Turkish Demographic and Health Survey related to neonatal mortality, smaller and before term deliveries were analyzed to examine the incidence of these conditions and also their association with some socio-demographic factors. Smaller newborn (as calculated from mothers' perceptions about the size of their newborns) was found to be 26.1% and overall delivery before term (as indicated by the mothers) incidence was calculated as 5.1% for 3418 births within the last 5 years preceding the survey. Neonatal mortality rate was estimated as 2.6% and was found to be significantly associated with "smaller", "before term" births, multiple pregnancies, birth intervals and mother's education. Living in the Eastern region of Turkey, rural residence, low maternal education and not receiving any antenatal care were some of the factors significantly associated with "smaller". The associations of delivery before term were puzzling, with significantly higher rates of delivery before term in Western regions, for mothers with higher education and mothers receiving adequate antenatal care.

Key words: Neonatal mortality, low birth weight, preterm birth, Turkey

Introduction

Every year 4 million neonatal deaths, where preterm and premature birth and low birth weight are the major causes, occur largely as a result of poorly managed pregnancies and deliveries[1]. Neonatal mortality constitutes two thirds of infant mortality and nearly two fifths of all deaths in children under age 5[2]. Even though some important improvements have been made within the last 25 years in combating child and infant mortality around the world, neonatal mortality, together with maternal mortality have continued to remain unacceptably high[3]. To alleviate the burden of suffering borne by women, children and families, World Health Organization has been conducting activities including the Making Pregnancy Safer and the Safe Motherhood Programme[4].

Birth asphyxia (21.1%), pneumonia (19.0%), neonatal tetanus (14.1%), congenital anomalies (11.1%) and birth injuries (10.6%) account for the majority of newborn deaths[1]. Antenatal registration and care; clean and safe delivery and early detection and management of complications are some of the specific interventions advocated in the Safe Motherhood Package, to prevent neonatal deaths[5, 6].

Deliveries before the completion of 37 weeks of gestation are classified as preterm and it is one of the most intractable problems that contribute to infant mortality[7, 8]. Apart from such factors as age, parity and past reproductive history, in several studies, low socioeconomic status, as defined by occupation, income, education, or ethnic group has been independently associated with an increased risk of preterm delivery[7, 9, 10]. However, attempts to understand rates of preterm delivery in lower socioeconomic

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groups have not yet revealed clues to the cause of preterm birth in general[7].

Low birth weight (LBW), on the other hand, is a well-documented risk factor for neonatal mortality and, is defined as a birth weight of less than 2500 grams[11]. The definition of LBW, unfortunately fails to distinguish between LBW neonates who are premature and those who are merely small for their gestational age. It is reported that, in developing countries, the majority of LBW infants have intra uterine growth retardation, rather than being pre-term[11].

In Turkey, the first population and health survey on a representative sample of the whole country was conducted in 1963. These surveys have been regularly conducted with 5-year intervals since then. Hacettepe University, Institute of Population Studies and Macro International Inc. conducted the most recent of these surveys, the Turkish Demographic and Health Survey (TDHS) in 1998, collaboratively. Infant mortality rate was 42.7 per thousand live births, while 25.8 per thousand was neonatal, 16.9 per thousand was post-neonatal mortality in this survey[12]. Unwanted pregnancies are 29%, induced abortions (per 100 pregnancies) are 15.7%, prevalence of any Family Planning (FP) methods is 64.0%, for traditional methods the prevalence is 26.2%, for modern FP methods the prevalence is 37.7%. Sixty eight percent of pregnant women receive antenatal care (ANC) in Turkey. That means, one of 3 pregnant women does not receive ANC. Eighty one percent of the deliveries are assisted by health personnel, which means one in 5 pregnancies is delivered without any medical help (assisted by TBAs). Utilization of obstetrical services is closely related to education in women. When education level in women increases, percentage of utilization of services also increases. Practice of FP methods has also the same trend by education of women[12]. In this paper, data from the 1998 survey related to neonatal mortality, smaller and before term deliveries were analyzed, to examine the prevalence of these conditions and some socio-demographic factors associated with them.

Material and methods

The sampling of 1998 TDHS, conducted to collect data on subjects such as the change in fertility rates, infant and child mortality, family planning, and maternal and child health, with representative sample of all groups from Turkey, was designed to provide demographic and health indicators for urban and rural areas for 5 regions and for the whole country. A multistage, stratified cluster sampling method was used in the survey. The interviews were made with 8059 households; 8576 women whose response rate was 91%. All women from the age group of 15-49, who stayed at the house one night before the survey, were included in the survey[12]. To the questionnaire used in the 1998 TDHS detailed information on the history of live births of women for the 5 years preceding the survey and also questions about the utilization of obstetrical care services were included[12]. The data about deliveries and postnatal care were examined separately for each birth for a total of 3418 births. Therefore the unit of analysis is not the woman or pregnancy, but the live birth.

The independent variables of the "1998 TDHS Further Analysis" were such socio-demographic indicators as geographic region in Turkey, place of residence (urban or rural), mother's education and mother's age at birth, birth order, birth interval, multiple pregnancies, which are all known to effect the outcome variables of this analysis. Quality and place of antenatal care (ANC), and ANC provider were defined as intermediate variables. "Adequate ANC" was defined as the detection of pregnancy within the first 3 months and five or more antenatal visits by a health personnel. "Inadequate ANC" implies that at least one of the above conditions was not fulfilled. "Safe delivery" in this study defines deliveries in a health institution or at home through the assistance of health personnel. Delivery outside of a health institution and without assistance of a health personnel is defined as "unsafe delivery". By this definition, deliveries attended by a traditional birth attendant are also unsafe, as, in Turkey, only trained and certified health personnel are authorized to assist in deliveries.

Neonatal mortality rates were calculated as the probability of dying within the first 28 days, based on the birth history indices for the last 5 years. The survey question about the size of the newborn is the self-assessment of the mother about the baby, at the time of the birth. Similarly, whether the baby was term or before term was again questioned by asking the mother (See the endnotes for the full wording of these questions in the 1998 TDHS). In the analyses, mothers' self-assessments were used as a proxy to

the birth weight and term of the newborn respectively. If the mother perceived the baby to be smaller than normal, it was classified as "smaller", and if the mother indicated that the baby was born before its due date, it was classified as "before term" or "preterm". To the 1998 TDHS also a question on the actual birth weight of the newborn, was included, but due to the low rates of responses -no information was available for 64% of all births-, it was not included in the analysis. Chi-square test or when the number of observations was low Fisher's exact test were used for the analysis.

Results

Table 1 presents the perceived size of the newborn (as a proxy for birth weight) according to the different socio-demographic variables. Among the 3418 births, 57% of the newborns were assessed as normal size, 26% as smaller than normal, and 17% as larger than normal. All of the factors investigated in this table, i.e. the geographic regions in Turkey, rural or urban residence, age and education of mothers, birth order and intervals, multiple pregnancy and status of antenatal care, were found to have significant effects on the size of the newborn (Table 1). It should be noted that, the prevalence of "smaller" newborns was highest in the Eastern region of Turkey, born to mothers who were less than 20 years old and living in rural areas with no or very limited education.

The results of the association with deliveries "before term" were somewhat different (Table 2). Apart from the residence and birth interval, all other variables were found to have significant relationships with the term status of the newborn. While babies born to younger mothers and first order births had a tendency to be indicated as "before term", mothers who had adequate ANC and mothers who had secondary or higher education reported to have had a "before term" delivery significantly more often than mothers with no ANC or mothers with no or very little education. Again, it is interesting to note that mothers living in the Westerns region of Turkey were found to have significantly higher rates of preterm births, while Eastern regions have the lowest incidence. Overall, 5.1% of all deliveries were indicated to be "preterm".

Table 1. Percent distribution of mothers' assessment about the size of their newborn (as a proxy for birth weight) by some selected background characteristics. Turkey, 1998

Charac-teristics	Normal	Smaller than normal	Larger than normal	No. of births	x^2, p
Total	56.6	26.1	17.3	3377	
Residence[1,2]					
Urban	58.4	23.2	18.4	2138	x^2=29.50
Rural	53.3	31.6	15.1	1215	p<0.001
Mother's education[1]					
None/incomplete primary	47.5	32.4	20.2	909	x^2=56.55
Primary/incomplete secondary	59.0	25.3	15.7	2070	p<0.001
Secondary or above	65.0	16.3	18.7	398	
Mother's age at birth[1]					
<20	55.3	33.6	11.0	489	x^2=36.59
20-34	57.6	24.8	17.6	2636	p<0.001
≥35	48.3	25.8	25.9	252	
Birth order[1]					
1	56.7	31.4	11.9	1175	x^2=73.41
2-3	59.8	21.1	19.1	1468	p<0. 001
4-5	50.2	30.1	19.7	409	
≥6	49.5	25.1	25.3	325	
Birth interval[3]					
<2 years	52.3	30.2	17.5	642	x^2=24.40
(2 years	58.3	20.5	21.2	1560	p<0. 001
Multiple pregnancy[1]					
Yes	42.9	55.2	1.9	38	x^2=18.65
No	56.7	25.8	17.5	3339	p<0. 001
Antenatal care receiving status[4]					
No antenatal care	51.7	33.5	14.9	1074	x^2=57.06
Inadequate	56.9	25.7	17.4	1245	p<0. 001
Adequate	61.4	19.1	19.5	1042	

[1] Data for 41 births were not available;

[2] 24 babies delivered abroad were not included;

[3] First births were not included;

[4] Data for 57 births were not available

Table 2. Percent distribution of mothers' assessment about the term status of their newborn (as a proxy for preterm delivery) for the births in the last 5 years preceding the survey by some selected background characteristics. Turkey, 1998

Characteristics	Preterm	Term[1]	No. of births	x^2, p
Total	5.1	94.9	338	
Residence[2,3]				
Urban	5.5	94.5	2150	x^2=2.73
Rural	4.2	95.8	1215	p>0.05
Mother's education[2]				
None/primary incomplete	2.5	97.5	911	x^2=16.61
Primary/ secondary incomplete	5.9	94.1	2081	p<0.001
Secondary or above	6.4	93.6	397	
Mother's age at birth[2]				
<20	7.7	92.3	495	x^2=10.11
20-34	4.8	95.2	2642	p<0.05
≥35	2.8	97.2	252	
Birth order[2]				
1	7.2	92.8	1186	x^2=21.11
2-3	4.3	95.7	1467	p<0.001
4-5	4.1	95.9	409	
≥6	1.8	98.2	327	
Birth interval[4]				
<2 years	4.9	95.1	640	x^2=2.12
≥2 years	3.5	96.5	1563	p>0.05
Multiple pregnancy[2,5]				
Yes	46.3	53.7	40	Fisher exact 2-tailed
No	4.6	95.4	3349	p<0.001
Antenatal care receiving status[6]				
No antenatal care	2.7	97.3	1076	x^2=21.86
Inadequate	5.7	94.3	1256	p<0.001
Adequate	6.8	93.2	1042	

[1] Also includes post-term births;
[2] Data for 29 births were not available;
[3] 24 babies delivered abroad were not included;
[4] First births were not included;
[5] Due to the low numbers, Fisher's exact test was done;
[6] Data for 44 births were not available

The overall prevalence of neonatal mortality was found to be 2.6%. Among the factors examined, mother's education and birth interval were significantly associated with neonatal death in a negative direction while multiple pregnancies, "smaller" and "before term", "preterm" births were found to be significantly associated in a positive direction. The prevalence of neonatal mortality was lowest (1.9%) among mothers who received adequate ANC, and in births attended by health personnel. The status of the delivery condition (i.e. safe or unsafe) did not seem to affect the outcome of neonatal mortality. However, neonatal mortality was found to be significantly higher in newborns either smaller or larger than normal in size. The frequency of neonatal mortality was significantly higher (19%) among births preterm compared to newborns delivered at term (1.4%).

Discussion

Of the 3418 live births analyzed in this dataset of the national sample of Turkey, 26.1% were classified as "small" (i.e., low birthweight), 5.1% as "preterm", and 2.6% neonatal deaths were registered. Size was significantly associated with geographic region, residence (i.e., urban or rural), mother's education and age, birth order, birth interval, multiple pregnancy, and antenatal care status. Term status was associated with geographic region, mother's education and age, birth order, multiple pregnancy, and antenatal care status; neonatal mortality was associated with mother's education, birth interval, size of the newborn and term status.

One of the major limitations of this study is that the information on the birth weight and gestational age of the newborn is based on mother's subjective statement, rather than on objective measurements. The recall bias in such studies is an important issue namely; it may differentiate among women who experienced a neonatal death or a preterm delivery and women whose baby was born normal and survived. However, Tate *et al.,* in their study to validate maternal recall of birth weight concluded that mothers' reports of their infants' birth weight showed high level of agreement with registration data, the mean discrepancy being consistently close to zero[13].

In the limited studies conducted in Turkey, it was reported that mean birth weight of infants was comparable to Western European and North American standards[14]. A previous study from Istanbul, which included findings of 1305 newborns, reported LBW incidence as 5.6%, and preterm births as 15.8%[14].

Table 3. Estimated neonatal mortality rates (per 100) for live births in the last 5 years preceding the survey by some selected background characteristics. Turkey, 1998*

Characteristics	Neonatal mortality (%)	No. of births	x^2, p
Total	2.6	3418	
Geographic region[1]			
West	2.2	1007	x^2= 8.93
South	1.4	474	p>0.05
Central	2.8	767	
North	1.5	263	
East	3.7	883	
Residence[1]			
Urban	2.2	2160	x^2=3.71
Rural	3.3	1234	p>0.05
Mother's education			
None/primary incomplete	3.6	925	x^2=9.35
Primary/secondary incomplete	2.4	2095	p<0.05
Secondary or above	0.9	398	
Mother's age at birth			
<20	3.0	499	x^2=3.22
20-34	2.3	2667	p>0.05
≥35	3.8	252	
Birth order			
1	2.4	1192	x^2=6.89
2-3	2.4	1480	p>0.05
4-5	1.8	416	
≥6	4.5	330	
Birth interval[2]			
<2 years	4.0	652	x^2=6.40
≥2 years	2.1	1575	p<0.05
Multiple pregnancy[3]			
Yes	12.1	40	Fisher exact 2-tailed
No	2.4	3378	p=0.0029
Antenatal care receiving status[4]			
No antenatal care	2.2	1080	x^2=1.64
Inadequate	2.7	1258	p>0.05
Adequate	1.9	1047	
Birth attendant			
Midwife/Nurse	2.0	1392	x^2=5.56
Physician	2.5	1361	p>0.05
Other	3.8	665	
Place of delivery			
Hospital	2.4	1836	x^2=1.73
Other health institution	3.3	667	p>0.05
Home	2.4	915	
Status of delivery[5]			
Unsafe delivery	2.4	630	x^2=0.45
Delivery at a primary health care unit	1.7	187	p>0.05
Delivery at home with health personnel	2.3	285	
Delivery at a hospital	2.3	2300	
The size of the newborn[6]			
Normal	1.4	1911	x^2=14.83
Smaller than normal	3.6	882	p<0.001
Larger than normal	3.0	584	
Birth before term[3,7]			
Yes	19.2	172	Fisher exact 2-tailed
No	1.4	3217	p<0.001

* The estimates for neonatal mortality reported in this study were recalculated and they are slightly different than those reported in the 1998 TDHS due to minor differences in the number of births included in the analysis;

[1] 24 babies delivered abroad were not included;
[2] First births were not included;
[3] Due to the low numbers, Fisher's exact test was done;
[4] Data for 33 births were not available;
[5] Data for 16 births were not available;
[6] Data for 41 births were not available;
[7] Data for 29 births were not available

In another study, which includes regions from Western, Northern and Eastern Turkey, overall LBW incidence was reported as 7.0%, and preterm infants (<38 weeks) were found to be 17.6%[15]. The overall 26.1% "smaller" (as a proxy for LBW) according to the 1998 survey data is significantly higher, and the 5.1% "before term" (as a proxy for preterm birth) births is significantly lower than these previously reported results. However, the authors of the before mentioned studies admitted in their results that the incidence of LBW was relatively low and incidence of preterm births was unexpectedly high[15].

On the other hand, reports from countries with similar ANC services as Turkey indicate different LBW figures. For example, the Azerbaijan Reproductive Health Survey (RHS) reports the LBW incidence (newborns under 2500 grams) as 12.3%[16]. In Azerbaijan, mothers with lower education, with no or little ANC and living in rural areas were more likely to give birth to LBW babies[16]. In the Georgian RHS, LBW was reported as 5.5%[17]. It is interesting to note that in Georgia, LBW deliveries were more common in urban areas, in contrast to findings from other countries. In Georgia, the first births and women who did not get any ANC exhibited higher incidence rates of LBW than others[17]. In Romania, LBW incidence was found to be 9% in the RHS[18].

The high incidence of "smaller" (as a proxy for LBW) according to the 1998 TDHS data may have several reasons. One reason may be the limitation of the survey question in eliciting accurate information on birth weight and term status of infants. However, the fact that the relationship with the independent variables are for the most part in expected directions, suggests a certain degree of validity, but there are other reasons which account for LBW in mothers in Turkey.

Despite the different overall LBW incidence, the previous study from different regions of Turkey also indicates similar association with present study; for example LBW was found to be significantly higher in Eastern regions of Turkey, and for babies born to illiterate women[15]. It may be thought that maternal nutritional status may be an important risk factor for LBW. However, as Neyzi et al., pointed out, maternal malnutrition was not a frequent occurrence among women, and that severe caloric deficiency is practically non-existent in the adult population in Turkey[14, 15]. The time difference of at least 10 years between the present study and earlier studies[14, 15]

and its possible role in explaining these differences on LBW rate and preterm rate may be the reason. Gunay et al., found that parity, pre-natal care, gestational age at delivery and gender of the baby affected the birth weight[19]. Other possible reasons for LBW have to be carefully examined for specific populations.

Within the last five years the coverage of ANC and safe deliveries have been increased in Turkey, which then was reflected in the reductions of maternal and perinatal infant mortality[12, 20]. Although the prevalence of safe delivery was increased from 76.0% to 81.5%, 19% of all deliveries are still taking place under unsafe conditions[12, 20, 21], and neonatal mortality is still a very important problem for Turkey.

The infant mortality rate (IMR) in Turkey has steadily declined over the years. IMR in the 1998 TDHS was calculated to be 69.7 per one thousand live births for the period between 1983-1988, and the rate has decreased to 54.0 per thousand for 1988-1993 and then to 42.7 per thousand for 1993-1998[22]. The proportion of neonatal deaths among total infant deaths has steadily increased for the same time periods, from 46.5% to 55.7%, and then to 60.4%[22]. For the Etimesgut and Cubuk regions in Ankara, which typically had better health indicators due to the special public health programs in the region, for the years 1967 and 1977, IMR was found to be in the range of approximately 140.0-160.0 per thousand, where neonatal mortality was in the range of 27.0-36.0 per thousand[23, 24]. Neonatal mortality for Turkey for the 1972-1977 period was estimated to be 60 per thousand[25]. Based on the results of 92 587 hospital births in a multicenter study, the early neonatal death rate was calculated as 17.2 per thousand and it was reported that 52% of all neonatal deaths occur in the first day of life[26]. In the same study, the neonatal deaths were largely attributed to unsafe delivery conditions and unavailability or insufficiencies of neonatal intensive care units[26].

Neonatal mortality does not always follow predictable patterns. For example, the analysis of neonatal mortality did not yield significant differences between urban and rural residence in Turkey. However, in Azerbaijan, Georgia and Romania, NMR was found to be higher in urban areas[16, 17, 18]. Another example is from Azerbaijan, where it was found that NMR is higher among university graduates. The results of this study also imply that the risk factors for neonatal mortality requires further

inquiries and that there may be other important factors apart from the place of delivery and birth attendant, which account for neonatal mortality.

The results of this study are puzzling and difficult to interpret at times, such as for receiving adequate antenatal care, that is significantly associated with lower birth weight, but not with higher rates of preterm deliveries. It seems that the results of especially before term deliveries may need verification, and further examination. The subjectivity of the assessments may also account for the discrepancies observed. For example, mothers in rural areas with lower education may have different evaluation for preterm or "smaller" newborns than mothers in urban areas. Another reason could be problems related to understanding the survey question. In another set of analysis, where those mothers could not speak Turkish (9%), or for whom Turkish was not the mother tongue, expressions for both "smaller" and deliveries "preterm" were found to be significantly higher[27]. Of course, not having Turkish as the mother tongue could well be associated with several other factors, which may assert their impact on the weight and term of the newborn. Unfortunately, the available information does not allow conclusive relations to be established.

The Safe Motherhood Package is presently the best and the most efficient for reducing maternal and newborn deaths[1]. The findings of the TDHS indicate that the nationwide coverage of all antenatal and other obstetrical care services have to be improved for better newborn health. For this purpose, it is necessary to develop a multidimensional perspective including all factors on the availability, accessibility, and acceptability of the services. As mother's education always appears as a very significant factor in analysis, one of the long-term objectives should be to empower women through raising their basic educational level. So women's improved status will help increase the utilization of services, which in turn will have a positive impact on women's, mother's and children's health. This is considered as one of the most important interventions within the context of "Health for All in the 21st Century"[28].

Based on the findings of the study it was concluded that further studies should be carried out on LBW and preterm babies-such studies should obviously focus on LBW and preterm babies compared to normal babies-by using objective criteria and measurement to implement more specific intervention programmes in Turkey.

Endnotes:

(1) The standard DHS question about the size of the baby reads:

"When (NAME) was born, was he/she: very large, larger than normal, normal, smaller than normal, or very small?" For the analysis, the categories of "very large and larger than normal" were combined and so were "smaller than normal" and "very small".

(2) The question about the term of the baby in the 1998 TDHS reads:

"In which month of your pregnancy was (NAME) born?", for which the mother can reply in months, or as "term" or "before its term".

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Rubella seroprevalence and risk factors in 16 to 27 year-old nursing and midwifery students

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Abstract

Rubella is a contagious and self-limited childhood infection. However, it may cause serious complications such as congenital rubella syndrome if acquired during pregnancy. In Turkey, rubella vaccine is not in routine childhood immunization. Nurses and midwives have higher risk for occupational exposure to rubella infection. The aim of this study was to determine the rubella seroprevalence and risk factors in students of School of Nursing and Midwifery and the students' level of knowledge about the disease. It was a cross-sectional study. All participants (n=289) completed a structured questionnaire that assessed the risk factors. Rubella specific IgG antibodies were tested with commercially available ELISA kits. Rubella IgG antibody was positive in 96.7%. Mean age was 20.16 ± 1.90 in the immune group and 21.36±2.13 in the susceptible group (p= 0.076). There was no significant difference between seropositivity and being a boarding student, residence, history of kindergarten, current inhabitance, working in a health institute/hospital, presence of child at home and monthly income. When asked about the possible problems that might occur because of having rubella infection in adulthood, 25.7% of students could not answer correctly. The results of our study show high rubella seropositivity ratios in students. Further studies including more age groups should be conducted to evaluate the change in accordance to age.

Key words: Health occupations, rubella, seroprevalence and students

Introduction

Infectious diseases are still a problem for the community and also for healthcare workers[1]. Rubella is a mild viral disease of childhood with a seasonal pattern. It is usually seen worldwide and epidemics are observed every 5-9 years[2]. Before the introduction of large-scale rubella vaccination, the average age in which children were infected varied between 6-12 years of age in industrialized areas and 2-8 years of age in urban areas of developing countries[3]. Pandemics of rubella occurred in Europe and the United States during 1963 through 1965[4,5]. In the United States, the incidence of rubella has declined by more than 99% since 1969, the year that rubella vaccination was licensed[4].

Rubella infection in pregnancy, especially in the first trimester, may cause abortion and premature birth as well as congenital rubella syndrome (CRS). This syndrome is characterized with cataract, retinopathy, cardiac defects, microcephaly, psychomotor retardation and endocrinopathies[4]. It is estimated that more than 100.000 cases occur each year in developing countries. Before the introduction of rubella vaccine, incidence rate of CRS varied from 0.1- 0.2 per 1000 live births. Epidemic rates varied from 1-4 per 1000 live births without marked differences between industrialized and developing countries[2].

For elimination or reduction of CRS, WHO recommends the introduction of rubella vaccine into routine immunization program and vaccination of

children and adolescent girls and/or women of childbearing age[2,6]. In a study from 45 developing countries, seronegativity rates among childbearing age women were found less than 10% in 13 counties, between 10-24% in 20 countries, 25% and higher in 12 countries[3]. Among studies conducted in Turkey, the lowest susceptibility rate was found by Dilmen *et al.* as 2% and the highest susceptibility rate was found by Bulut *et al.* as 18% for reproductive age women[7,8].

There are insufficient data on CRS. Rubella vaccination is not included in the national immunization program, but the vaccine is available for approximately 15 years and used on physician's recommendation or at request of the parents[9]. To develop a vaccination strategy for rubella in Turkey, it is needed to determine the age specific seropositivity rates. Under the light of these studies, the decision whether to add rubella vaccine into routine immunization program or not and the application time may be stated.

Health workers are at more risk for exposure to infectious agents due to their close contact with their patients. Non-immunized nurses and midwifes are among the risky groups for rubella infection as they are commonly at fertile ages during most of their working life[10].

The aim of this study is to determine the rubella seroprevalence and risk factors in students of School of Nursing and Midwifery, Adnan Menderes University, and to evaluate the students' level of knowledge about the disease.

Materials and methods

This cross-sectional study was conducted in Aydin province, a city in the western part of Turkey. The total number of students in School of Nursing and Midwifery was 307 in the 2003-2004 academic years. After written permission was obtained from the School Directory, in March 2004, classes were visited and the students were informed about the study. All participants completed a structured questionnaire that assessed the risk factors and the level of knowledge regarding rubella infection. The questionnaire evaluated previous rubella infection, vaccination status and the independent variables that could affect the seroprevalence of rubella infection (such as age, education/occupation of parents, place of inhabitance, and history of attending kindergarten or boarding school, household size) as well.

A five-mililitre of blood was collected from each participant into dry tubes. After clotting and centrifugation, sera were separated. Serological analyses were done in the same day at Applied Research and Development Center of Adnan Menderes University. Anti-rubella IgG was measured by micro ELISA method, using commercial kits (Meddens Diagnostics B.V.Vorden, NL).

After serological analysis, school directory was informed about the results and seronegative students were informed. Also, an education program on rubella was given to students.

The descriptive statistics of the data were given as percentage and mean±standart deviation. Chi-square test was used for analytical analysis. Statistical analysis was performed with the SPSS version 10.0 for Windows.

Results

The total number of students was 307; however, some (n=18) were absent in the class at the study time, so it was finally conducted in 289 (representing 94.1%) students (all girls; age range: 16-27) attending to School of Nursing and Midwifery. Evaluation of 16 blood samples of 289 students could not be performed, because one student was not willing to give blood sample and 15 blood samples were found inappropriate for laboratory analysis. Evaluation of both questionnaires and blood samples were performed in 94.5% (273/289) of students. Finally, 273 serum samples and 289 questionnaires including those of 16 students without serum samples were evaluated.

Mean age of students was 21.13±1.91 years. There were 279 (96.5%) single students and the other 10 students (3.5%) were married. Of the married students, 4 (1.4%) had a single pregnancy and 1 (0.3%) had three pregnancies. There were 4 students (1.4%) where each had one child, one for each three students with one pregnancy histories and one student with three pregnancy histories had also one child. A total of 287 students had no history of abortion. One (0.3%) student had one and 1 (0.3%) student had two abortions. So totally, there were seven pregnancies, 4 children and 3 abortions belonging to these students. No pregnancy was declared by unmarried students.

There were 20 (7.3%) students working in a health institution during their education (mean working experience: 49.28±37.96 months). Twenty

(7.1%) students had a total monthly income of over 1 billion TL.

Most of the students (94.1%; n=272) had been brought up at home until primary school, 5.2% (n=15) had history of going to kindergarten and 6.6% (n=19) of the students had history of attending boarding school before and during high school. Mean durations of kindergarten and boarding school were 2.40±1.56 years and 3.68±1.95 years, respectively. A total of 175 (60.6%) students stated living at home and 114 (39.4%) students declared living in a students' dormitory. Mean household size of those living at home was 2.79±1.12 people; mean number of children at home was 1.31±0.48; mean number of students in one dormitory room was 4.40±3.56. A total of 53.6% (n=155) of students had lived in city center, 28.0% (n=81) in town, 18.4% (n=53) in village for the longest time in their lives.

Sixteen (5.5%) students declared having had the infection, 56 (19.4%) did not have and 217(75.1%) had no knowledge on. Of 16 students, 12 (75.0%) were diagnosed by a physician and 4(25.0%) by relatives/households. There were 20 (6.9%) students already vaccinated against rubella.

When asked about the possible problems that might occur because of having rubella infection in adulthood, 33.9% (n=98) of students did not answer this question. Of 191 students who already answered, 25.7% (n=49) of students could not answer correctly. These students were distributed in first to fourth classes as 20.4% (n=10), 28.6% (n=14), 22.4% (n=11), 28.6% (n=14), respectively.

Anti-rubella IgG positivity was found as 96.7% (n=264). Mean age of immune group and susceptible group was 20.16±1.90 years, 21.36±2.13 years, respectively (p=0.076).

Seropositivity did not differ significantly for attending to boarding school before and during high school (p=0.445), place of inhabitance for the longest period of life (city center/village-town) (p=0.206), history of going to kindergarten (p=0.516), current place of inhabitance (house/dormitory) (p=0.568), currently working in a health institution (p= 0.170), presence of child at home (p=0.868) and income (less than 350 million TL/more than 350 million TL) (p= 0.847).

Fifteen of 16 students who stated that they had the infection earlier were all seropositive. One blood sample could not be assessed.

Discussion

The prevalence of rubella and the incidence of rubella infection in pregnancy-and thus the risk of CRS-can not be assessed without serological evidence. Serological studies have been undertaken in many developing countries to assess the proportion of the population susceptible to rubella by age, and thus to define the degree of risk in women of childbearing age. Results vary widely between countries, between different parts of the same country, and, over time, within a particular region of one country.

In our study, prevalence of rubella IgG seropositivity in students aged between 16-27 years was found as 96.7%. Previous studies, regarding rubella seroprevalence, conducted in Turkey are presented in Table 1.

Table 1. Rubella seronegativity among women in studies conducted in Turkey

Study/ Authors	Year	Age group	Seronegativity (%)	Sample size
Gemicioglu et al.[11]	1979	18-35	7.3	150
Ustacelebi et al.[12]	1986	17-40	11.2	226
Koksal ve Ustacelebi[13]	1988	17-40	7.0	100
Rota et al.[14]	1988	15-40	15.0	288
Kocabeyoglu et al.[15]	1988	17-20	13.8	94
Dilmen et al.[7]	1990	16-42	2.0	1772
Bilir et al.[16]	1991	15-30	3.1	259
Sengul et al.[17]	1991	18-20	13.9	222
Guner et al.[18]	1990-1993	—	17.9	1351
Akdag et al.[19]	1994	16-24	4.3	115
Hizel et al.[20]	1996	15-45	5.8	652
Dogan et al.[21]	1996	—	6.5	954
Sen et al.[22]	1996	12-17	6.5	200
Bulut et al.[8]	1995-1999	18-35	18	4042
Aksit et al.[9]	1998	1-29	21.9	288
Karakoc et al.[23]	1999-2000	12-35	2.4	294
Kanbur et al.[24]	2000	9-16	7.0	227
Tekerekoglu et al.[25]	2001-2002	—	12.0	593
Yalcin et al.[26]	2002	10-17	7.4	229
Oncu et al. (This study)	2004	16-27	2.9	264

In a study conducted by Aksit *et al.*, rubella seropositivity increased with age in 1-29 aged groups, but this increase did not differ significantly in the 20-29 age interval[9]. Similarly, there was no

difference among age groups in a study conducted in adolescents[24]. In our study, rubella IgG seropositivity was not significantly different among age groups. However, the age range was narrow to measure the change in seropositivity. Most of the students were in 19-20 age groups. Further studies including more age groups should be conducted to evaluate the change in accordance to age.

One of the most important risk factors for communicable childhood diseases is 'crowded style of living'. Individuals of crowded families are expected to get the infection more easily and earlier. In this study, there was no significant relation between rubella IgG seropositivity and risk factors questioned (history of going to kindergarten, presence of child at household, living in dormitory). Aksit *et al.* found no relation between seropositivity and household size[9]. Similarly, in a study carried out in Ankara in 2002, no relation was found between living in crowded places and seropositivity ratios[26].

In this study, there was no significant difference of rubella seropositivity among the students who lived in the rural area (village- town) and city center for the longest time of their lives. Aksit *et al.* found higher seropositivity ratios in urban area[9]; however, no difference was found in the study conducted by Kanbur *et al.*[24].

Socioeconomical status was evaluated according to family's total monthly income and it was not found to affect the rubella seropositivity. In studies performed in various regions in Turkey (Aksit/ Izmir, Yalcin/Ankara, Karakoc/Adana) socioeconomical status was also not found to affect the rubella susceptibility[9, 23, 26]. However, among variables, socioeconomical status is one of the hardest to measure. The studies mentioned above assessed this variable in different ways, and therefore comparisons have limitations.

The primary purpose of rubella vaccination is to prevent the occurrence of congenital rubella infection. Two approaches are recommended: a) prevention of CRS only through immunization of adolescent girls and/or women of childbearing age; or b) elimination of rubella as well as CRS through universal vaccination of infants and young children (with/without mass campaigns), surveillance, and assuring immunity in women of childbearing age[3]. For the control of CRS, high vaccination coverage is essential. Low rates of vaccination will shift the age

of infection to older ages. This will consequently increase the number of CRS cases[3,5]. As a result, inappropriate vaccination policies may affect the epidemiology of the infection and may increase susceptibility ratios of women at reproductive age group, as in Greece example[3].

For Turkey, to recommend introduction of rubella vaccine in routine childhood vaccination programme, age specific seropositivity needs to be studied in large groups. The results of our study show high rubella seropositivity ratios which are the highest levels that may be achieved by vaccination in the participant. But the risk is higher for young women who are especially working with babies and children and continuing education in health institutions like health care centers and hospitals. Rubella vaccination is recommended to health care workers in USA and Japan[29,30]. WHO does not recommend serological screening for susceptibility before vaccination for general population[3]. However, a study in Japan emphasizes that screening is necessary for medical professionals[29]. In that study, rubella antibodies were found to be 12.5% seronegative in nurses who recently started to work. According to the result of the study, serological screening is highly recommended both before and after vaccination, especially taking into consideration the risks of their having the disease, what possible damages they may cause to their patients and lost days from work[31]. In another study among health care workers on occupational risk of rubella, the need for vaccination was found to be reduced by combining historical and serological screening[32]. Historical screening might be used for health care workers also in Turkey until a rubella vaccination strategy is settled.

Another important finding in our study was the insufficient level of knowledge among the students who are getting health care education. Students of nursery and midwifery schools are included in the risk group because they are working in health institutions both during and after their education. They should have correct and sufficient information about the disease since the first year of their education and be immune, as well. This result shows that there is a necessity of the public education about the risks of the disease.

In conclusion, risk of exposure to rubella is high in health care workers especially working in pediatrics clinics. But, the results of our study show high rubella seropositivity ratios among health science

students. As there is no routine vaccine policy in childhood, the students at this age may be vaccinated before they become pregnant while they are easy to get at. Turkey needs further studies of susceptibility rates in women of childbearing age, or data of routine testing on antenatal women in clinics, and a notification and enhanced surveillance system for CRS.

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The effects of pregnancy on women's lipid profile

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Abstract

Objective: The aim of this study was to assess the effects of pregnancy on lipid profile of women.

Methods: 174 cases (131 cases in pregnant and 43 cases in control groups) meeting the study criteria were enrolled in the study. To obtain socio-demographic data, a questionnaire was applied to all cases and serum total cholesterol, triglycerides, LDL, HDL, VLDL concentrations were determined by venipuncture blood sampling.

Results: Following mean values were assessed for pregnant group: total cholesterol 217.80±47.50 mg/dl, triglycerides 193.44±73.32 mg/dl, HDL 66.80±15.27 mg/dl, LDL 111.08±39.60 mg/dl, VLDL 39.79±15.01 mg/dl. The mean values for the same measurements among control cases were 230.84±41.76 mg/dl, 158.30±84.50 mg/dl, 48.87±12.92 mg/dl, 142.92±38.98 mg/dl and 32.32±15.49 mg/dl respectively. Pregnant women had significantly higher total cholesterol, HDL, LDL, VLDL, triglyceride values compared to their controls. In the analyses of socio-demographical data no significant differences were seen between study and control groups

Conclusion: According to these findings women develop an atherogenic lipid profile during normal pregnancy. The effects of these changes, especially in multiparous women, on woman's long-term health remain unclear.

Key words: Pregnancy, Lipid Profile, Coronary Heart Disease.

Introduction

In the eyes of most people, the stereotype victim of Coronary Heart Disease (CHD) remains, the 45-year-old stressed businessman. For economical reasons, cardiovascular research, prevention and intervention have often been targeted at men and relatively few studies incorporate data on women[1]. Although CHD is by far the leading single killer of women in the United States, taking about 240.000 of their lives in 1995[2], most women estimate that their own risk for CHD is very low[3]. The rate of decline in CHD rates in the United States has been less in women than in men since 1979[4,5].

Hyperlipidemia is one of the most important risk factors identified for CHD. The rise in CHD risk with increasing triglyceride (TG) is much steeper in women than in men[6], and a 1 mg/dl increase in high-density lipoprotein-cholesterol (HDL) decreases CHD risk 3% in women compared to 2% in men in observational epidemiological data[7]. In Turkey, according to the results of TEKHARF study,

the rate of CHD in women seems to be very close to the CHD rate in men- 4.8 coronary events per 1000 women[8]. Also it has been reported that the lipid profile of the Turkish population shows some characteristics of its own like low HDL levels and genetic tendency to atherogenic lipid profile[8,9].

Pregnancy, being a special period in a woman's life, is a period in which plasma lipids change both quantitatively and qualitatively. Whether repeated exposure to lipid changes of pregnancy increases the risk for atherosclerotic disease is unclear. Data associating parity with CHD are contradictory[10,11]. Both the Framingham study and a British study found no link between parity and risk for CHD[12,13]. A Swedish study found an increased risk for CHD after multiple pregnancies or abortions[14]. What is more, in this study, relative risk for CHD was 1.8 in women whose age at first pregnancy was less than 20 years. In Vecchia's study the same age cut-off was also found to increase the relative risk (2.3) for CHD[15]. In 2000 Sirikulchayanonta et al. reported a

significant difference between maternal TG and parity as well as low-density lipoprotein-cholesterol (LDL) and parity[16]. In 1999 Martin *et al.* determined the lipid profile of 120 primagravid women during normal gestation and compared the results with non-pregnant age matched controls. They concluded that an atherogenic lipid profile develops during normal gestation[17].

Since CHD is the leading cause of death and some forms of hyperlipidemia contribute to the pathogenesis of CHD, then what is the nature of lipid changes in Turkish women? The purpose of this study is to address these questions during pregnancy.

Materials and methods

Subjects were selected from the gynecology and prenatal care outpatient clinics over a period of three months. Pregnant subjects having a concomitant disease (diabetes, hypertension-including pregnancy induced hypertension, eclampsia/preeclampsia, genetic or neurological diseases) were excluded from the study. An age-matched control group was formed among the patients who applied to the gynecology outpatient clinic during the same period. Only subjects having no chronic internal or gynecological disease and applying to the outpatient clinic for intrauterine device placement/control, family planning or control after a gynecological infection were included in the control group of the study. Besides this, not being on oral contraceptive pills or lipid lowering agents for at least six months was mandatory for all the subjects of the study. During the first two months of the study all eligible subjects who admitted to prenatal care outpatient clinic were enrolled in the study. All eligible controls admitted to gynecology outpatient clinic were enrolled during the last month of the study. An informed written consent was gained from all subjects before the onset of the study. The study was approved ethically and methodologically by Haseki Education and Research Hospital Family Medicine Resident Thesis Committee. All subjects were informed about their lipid profile on their control visit to outpatient clinics. They were relieved that high lipid levels mostly decrease after giving birth. Subjects having high lipid profile than average, according to literature, were informed to come back for blood tests for lipid levels 6-8 weeks after the birth of their baby.

The final number of subjects at the end of the study period was 131 (first trimester 17, second trimester 65 and third trimester 49 cases) in the pregnant group (PG), and 43 in the control group (CG). Also each subject filled in a questionnaire to determine the demographical and socio-economical status. 5-10 ml blood samples were drawn by venipuncture by study personnel to determine blood total cholesterol (TC), HDL, LDL, VLDL and triglycerides (TG) levels. For this purpose Ultra Kone autoanalyzer and Kone kits were used.

All data were analyzed using statistical package SPSS for Windows, release 10.0. Categorical variables were analyzed by chi-square test. In the analysis of continuous variables, student t-tests or its nonparametric equivalents (Mann-Whitney U) were used.

Results

The mean ± SD ages were 27.15±5.22 and 27.45±5.55 years respectively in the PG and CG. Among pregnant cases 81.7% were housewives, 61.1% did no further studies after primary school, 8.1% had a university degree and 89.9% never smoked. In the control group 88.4% never smoked, 69.8% were primary school graduates, 90.7% were housewives. Mean ± SD gestational ages according to the last menstruation date were 10.8±2.3, 23.0±4.2, 33.2±2.6 weeks in first, second and third trimester subgroups respectively.

Mean values and standard deviations of total cholesterol, triglycerides, HDL, LDL and VLDL for each study group can be seen in Table 1.

According to the data, mean TC of the PG was 26.7% higher than the CG. As the pregnancy proceeds; TC, TG, LDL and very low-density lipoprotein-cholesterol (VLDL) levels increased steadily, reaching the highest levels in the 3rd trimester. When HDL mean values were considered, we observed about 31.7% increase in the 2nd trimester and an approximately 9.8% decrease in the 3rd trimester. In the second trimester there was a 38% increase in total cholesterol levels relative to the first trimester and in the third trimester there was a 5.4% increase relative to the second trimester. LDL levels were increased 42.4% in the second and 5.3% in the third trimesters. Triglycerides levels showed a continuous increase of 42% in the second and 21.6% in the third trimesters.

Table 1. Mean values of lipids and lipoproteins in study groups

Group	n	Cholesterol mean±SD mg/dl	Triglycerides mean±SD mg/dl	HDL mean±SD mg/dl	LDL mean±SD mg/dl	VLDL mean±SD mg/dl
Pregnant group	131	217.80±47.10	193.44±73.32	66.88±15.27	111.08±39.60	39.79±15.01
1st Trimester	17	160.76±26.00	130.29±58.16	53.70±9.55	79.58±16.88	29.94±16.74
2nd Trimester	65	221.56±43.42	185.58±65.55	71.63±16.09	113.29±40.12	37.13±13.02
3rd Trimester	49	232.61±43.29	225.77±71.71	65.16±12.69	119.08±39.78	46.73±14.05
Control group	43	172.44±32.87	127.79±38.02	53.46±14.37	92.27±24.31	26.41±7.08
Total	174	206.59±48.11	177.21±72.09	63.56±16.09	106.43±37.26	36.48±14.66

Analysis by student t-test showed a significant difference between PG and CG when TC, TG, HDL, LDL and VLDL levels were concerned ($p<0.05$). To determine in which trimester the statistically significant variables differentiate, PG was divided into three groups as first, second and third trimester. Each subgroup was then compared with CP. When the trimester subgroups were analyzed independently, the same significant differences were obtained for the same mean values between the 2nd trimester subgroup and CG and also between the 3rd trimester subgroup and CG. As a contrast, no significant difference was observed between the 1st trimester subgroup and CG for any of the lipid profile mean values (Table 2).

Atherogenic index (LDL/HDL) increases as pregnancy progresses (for the 1st, 2nd and 3rd trimesters 1.48 ; 1.58 ; 1.82 respectively).

To determine the effects of pregnancy on lipid and lipoprotein levels the correlation between the parida and lipid levels was estimated. A statistically negative correlation was found between HDL levels and parida but this correlation was not that powerful (Pearson correlation= 0.2 p=0.000).

In the analysis of socio-economic data by using chi-square test; age, educational status, occupation, smoking, using oral contraceptives in the past, monthly income, electronic equipment in the house variables did not differ significantly between PG and CG.

Table 2. Comparison of pregnant groups in different trimester with control group

Measurement	All pregnant cases		1st Trimester		2nd Trimester		3rd Trimester	
	t*	p	Mann-Whitney**	p	t*	p	t*	p
Cholesterol	5.923	0.000	288.00	0.203	6.314	0.000	7.425	0.000
Trigliserides	5.649	0.000	345.50	0.743	5.224	0.000	8.021	0.000
HDL	4.801	0.000	334.00	0.605	5.998	0.000	4.146	0.000
LDL	3.030	0.003	247.00	0.052	3.078	0.003	3.832	0.000
VLDL	5.704	0.000	362.50	0.961	4.929	0.000	8.565	0.000

* Student t-test ** Mann-Whitney u test

Discussion

PG had higher lipid levels in all categories compared to CG ($p<0.05$). It was found that the differentiation on lipid levels started in the second trimester and continued during the third trimester. Figure 1 summarizes the effect of pregnancy on the lipid profile.

Previous studies were consistent with our findings of marked hyperlipidemia (TC: 35%; TG: two-fold increase) during the course of normal pregnancy; serum TC and TG have been found to increase by approximately 25-60% and two to three fold respectively[17-19].

Figure 1. Cholesterol, HDL, LDL, VLDL and Triglycerides Values of PG and CP (box-plot)
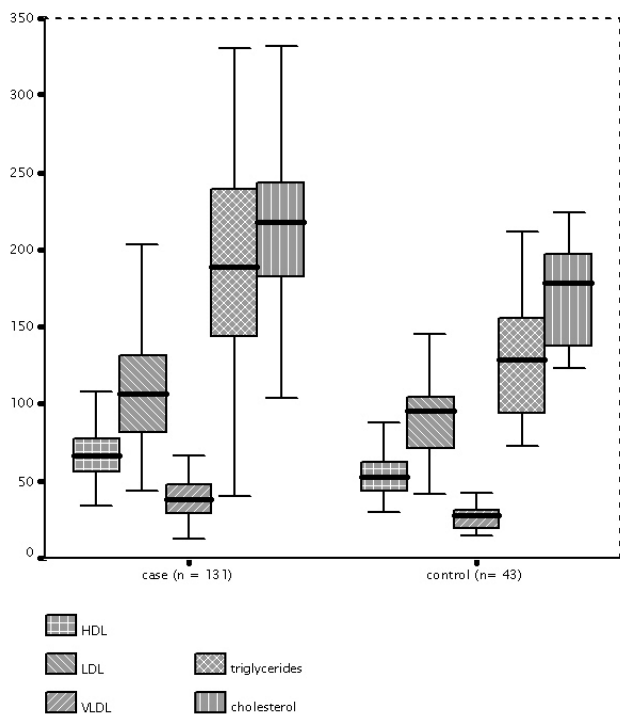
In a follow-up study Kamaci *et al.* reported an increase of 35% and %62.4 in TC and TG levels respectively from the first to the third trimesters on 133 Turkish pregnant subjects[20]. The same values are 45% for TC and 73% for TG in our study.

In another study, African women showed increasing total cholesterol and LDL levels and decreasing HDL levels and HDL/triglycerides ratio during pregnancy. According to these results, authors suggested that African women were more prone to hyperlipidemia during pregnancy[21]. In contrast, our results showed an increase in all lipid categories including HDL in pregnant subjects. Although we observed a decrease in the third trimester, the HDL levels were still 22% higher than the CG HDL levels at term. Different studies also reported a decline of HDL in the third trimester, remaining about 15% above the baseline values[22]. Since this increase in HDL levels is not enough to effect the increasing pattern of atherogenic index during the course of pregnancy in our study population, it does not seem to be possible to suggest protective effect of HDL increase according to our findings. The study of Kamaci *et al.* also showed the increase in atherogenic index as pregnancy progressed[20].

TC and TG levels have been shown to be positively correlated with 17 β-oestradiol, progesterone, human placental lactogen and insulin levels during gestation[23]. Although the significance of these changes in serum lipid concentrations are uncertain, they are likely to relate to maintenance of nutrient fuel to the mother and foetus. Changes in TG during normal pregnancy are especially important in relation to lipoprotein sub-classes, such as LDL. Plasma TG is the major determinant of small, dense LDL's - which are believed, facilitate the initiation of atherogenesis- accounting for 40-60% of the variability of this fraction in the plasma[24]. Knowing that elevated serum TG is an independent risk factor for CHD in women[25], the changes in lipid profile during pregnancy may be of potential importance for a woman's long-term health[17]. Although, the long term consequences of transient hyperlipidemia during pregnancy (especially together with preeclampsia, gestational diabetes and maternal obesity) for CHD is not clear, an increase in the prevalence of angina, cholesterol gallstones, diabetes and obesity were reported to be in post-menopausal multiparous women[26]. Another question is whether postpartum serum lipids and subfractions normalize as rapidly and completely in multiparous women who are at increased risk of cardiovascular disease[27].

There are some limitations of our study because of its cross-sectional design. First of all we did not follow our subjects during the all course of pregnancy, so we could not evaluate the effect of all pregnancy trimesters individually on our subjects, instead we compared lipid profile of independent trimester groups. Besides with the given study design, it is difficult to calculate any risk measures which could be attributable to pregnancy in means of increasing lipid profile. Considering our results, it is also not possible to determine if certain women are at increased risk of developing more atherogenic lipid profile during pregnancy.

In conclusion, our results showed that pregnancy has an effect on the lipid profile by increasing all lipid and lipoprotein levels. Thus, pregnant women have an atherogenic lipid profile compared to non-pregnant women. The evaluation of the severity and duration of this effect and especially the effect of parida on the lipid profile for women who are at risk for CHD are other research questions, which need to be answered.

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Effect of some socioeconomical factors on infant mortality rate: Turkey experience

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Abstract

Development is one of the major concepts discussed extensively during the last century. While development was being defined as determining economical growth and improvement by using economical indicators formerly, now it has been expanded to cover also the social dimensions. Today, development levels of countries are determined by different criteria in addition to economical indicators. Infant mortality rate which is affected by many known socioeconomic factors is an indicator of social and economical development. The trend of infant mortality rate in Turkey could be evaluated as an example to global infant mortality rate. This article aims to describe some socio-economical factors associated with infant mortality rate in Turkey.

In this descriptive, ecological study, we examine infant mortality rate according to years and factors through Spearman correlation analysis. Variables having significance are urban population percentage with regard to general population, literate population percentage, literate female population percentage, and percentage of population having health insurance. It is found that the relationship between the literacy percentage of women and neonatal mortality rate was significant as with the relationship of post-neonatal mortality rate and infant mortality rate. There was no relation between infant mortality rate and variables such as the shareof Ministry of Health in the national budget, number of physicians per 10.000 people, share of health expenses in Gross National Product and annual health expenses per person.

One of the main objectives of the health sector is to decrease the infant mortality. However, the health services alone are not sufficient to reduce the infant mortality rate. Multisectoral approach is needed for the interventions which will affect the social development of the country.

Key words; infant mortality, effecting factors, Turkey

Introduction

Development is one of the major concepts discussed extensively during the last century. While development was being defined as economical growth and improvement by using economical indicators formerly, now it has been expanded to cover also social dimensions. Today, development levels of countries are determined by different criteria in addition to economical indicators[1]. Infant mortality rate which is affected by many known socioeconomic factors is an indicator of social and economical development of the country.

Improvement in infant and child health in the past 50 years is nothing less than spectacular and appears likely to continue to decline in recent decades[2]. In general while infant and child mortality rates reflect the socioeconomic development of a country, the gap between developed and developing world in terms of infant and child survival is one of the health inequalities to be spared[1]. Globally the infant mortality rate fell from 148 per 1000 live births in 1955 to 59 per 1000 live births in 1995. The infant mortality rate is projected to reach a value of 29 per 1000 live births in 2025[2]. The trend of infant mortality rate in Turkey could be evaluated as an example to global infant mortality rate. Turkey between 1980-1999, was one of the countries in the world where infant mortality rate had decreased more than 50%[3]. Infant mortality rates in Turkey have been calculated through "Demography and Health" surveys – first of which was carried out in 1966-67 – in every five years. This article aims to describe some socioeconomic factors associated with infant mortality rate in Turkey.

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Material and methods

We examined infant mortality rate according to years and factors in this descriptive, ecological study. Population, percentage of urban population and literacy, health expenses reserved from Gross National Product together with health expenses per person, percentage of population having social and health insurance, the share of the budget of Ministry of Health and number of physicians for every 10.000 people were the factors which were supposed to affect infant mortality rates. Statistical data were obtained from some researches, publications of State Institute of Statistics and the Ministry of Health and surveys of Hacettepe University Institute of Population Studies[4-21].

Each of the variables was examined through Spearman correlation analysis. However analysis of neonatal and post-natal mortality rates and rural/urban mortality rates could only be obtained for the period after 1972. Additionally, since the data related to the share of health expenses reserved in Gross National Product and the health expenses per person belonged to the term after 1980, analysis could be made only for the last 20 years. The data that we used in the analyses were estimates. There were no row data and the variations of data were unknown. Because of these limitations, statistical significance of the analyses should be evaluated cautiously.

Some information about the social, demographic and economic status of Turkey

The first population census of Turkey took place in 1927 and was carried out from 1935 to 1990 every five years. The population being 13 million in 1927 has reached to 67 millions, increasing 5.15 times in 73 years. In addition to the increase in the country population, the percentage of urban population has also increased significantly. While urban population was 23.5% of the total, during the first years of the Republic, this ratio has increased to 70.6 in the year 2000. Population ratios having social and health insurance can be used as an indicator for social development of the society. In Turkey, an increase trend in the percentage of population possessing social and health insurance is observed year-by-year (Table 1)[4-8].

Socioeconomic structure of the country has also undergone important changes since the foundation of the Republic. While the ratio of literate population during the first years of the republic was quite low, recently this ratio has increased significantly. Percentages of literacy and illiteracy in 1935 were observed to reverse to be just the opposite in 1990. Literacy ratios of males and females were observed to differ significantly. The percentage of literate male was 29.3% in 1935 while this ratio increased to 88.8% in 1990. As for females, these ratios were 9.8% and 72.0% (Table 2)[4-9].

The share of the Ministry of Health from the national budget changes occasionally due to several varying policies followed by the Ministry of Health since the foundation of the Republic and, the transformation of the economic structure of the country. The State budget share reserved for the Ministry of Health has increased regularly during the first 30 years of the Republic, and then this level has been maintained in spite of increases or decreases in the subsequent years.

Table 1. Number of population and health insurance coverage during 1927-2000 in Republic of Turkey [4-8]

Year	Population	Increase rate of population (%)	Urban population (%)	Insurance (%)	Health insurance (%)
1927	13 648 270	—	—	—	—
1935	16158 018	2.11	23.5	—	—
1950	20 947188	2.17	25.0	3.9	3.9
1960	27 754 820	2.85	31.9	5.8	5.8
1970	35 605156	2.50	32.4	26.9	26.9
1980	44 736 957	2.07	42.1	48.9	38.4
1990	56 473 035	2.17	54.0	72.7	54.4
1995	62 171 000	1.62	60.9	81.3	64.3
2000	67 332 000	1.66	70.6	91.3	*

* No data.

Table 2. Percentages of literate males and females and female ratio in the literate population by the census year (age 6 and older)[4-9]

Year	Literate			Female Ratio in the Literate Population (%)	Population
	Male (%)	Female (%)	Total (%)		
1935	29.3	9.8	19.2	25.1	12 862 754
1940	36.2	12.9	24.6	26.3	14 900 126
1950	45.3	19.4	32.4	30.0	17 856 865
1960	53.6	24.8	39.5	31.6	22 542 016
1970	70.3	41.8	56.2	37.3	29 273 361
1980	80.0	54.7	67.5	40.6	37 523 623
1990	88.8	72.0	80.5	44.8	49 163 110

Number and distribution of human resources in health services have also changed significantly within the period starting from the foundation of the Republic until today. Number of health personnel being very small in the first years of the Republic has increased rapidly. While there were 554 physicians, 136 midwives and no nurse in 1923, physicians have risen to 73,350, nurses to 75,011 and midwives to 48,900 in 1997. Increase in the number of physicians in this period caused population per each physician to fall down[10,11].

The estimated mortality rate was found 273‰ in 1935 and 260‰ between years 1935-50 with a 4.8% decrease rate. The decrease rate in infant mortality between 1950s and 1960s (from 260‰ to 203‰) was 21.9%, between 1960-82 53.2% and finally 54.7% between 1982 and 1998. The decrease rate in infant mortality between 1935 and 1998 was 84.2%[12-21].

Findings

The neonatal mortality rate has shown 52.4% decrease between 1972 and 1998 while the post neonatal mortality rate displayed a 77.0% decrease. The infant mortality rate has decreased 68.1%, mainly due to the decrease in post-neonatal mortality rate. An evaluation of neonatal and post neonatal mortality rates in Turkey according to years showed that post neonatal mortality rate was higher than neonatal mortality rate until 1993. However the decrease rates of mortality in urban and rural regions were different. The decrease rate of infant mortality rate in rural regions was 62.3%, while it is 69.7% for post-neonatal mortality rate and 52.4% for neonatal mortality. These percentages for the urban regions were 70.4%, 80.8% and 59.4% respectively (Table 3).

Variables having significance with neonatal, postneonatal and infant mortality rates were urban population percentage with regard to general population, literate population percentage, literate female population percentage, and percentage of population having health insurance (Table 4).

There was no relation found between infant mortality rates and variables like the share of Ministry of Health has in the national general budget, number of physician per 10.000 people, share of health expenses in Gross National Product and health expenses per person.

Table 3. Neonatal, post neonatal and infant mortality rates by residence and by year in Turkey[12-21]

Period	Neonatal mortality rate (%0)			Post neonatal mortality rate (%0)			Infant mortality rate (%0)		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
1972-77	62.0	58.0	60.0	84.0	61.0	74.0	146.0	119.0	134.0
1978-83	50.4	30.7	42.0	74.2	27.7	53.0	124.5	58.4	95.0
1985-87	43.1	27.9	36.0	62.5	22.1	42.0	105.6	50.1	77.7
1988-93	28.1	29.9	29.0	37.4	14.1	23.0	65.4	44.0	52.6
1994-98	29.5	23.5	26.0	25.4	11.7	17.0	55.0	35.2	42.7
Decrease rate (%)	**52.4**	**59.4**	**56.6**	**69.7**	**80.8**	**77.0**	**62.3**	**70.4**	**68.1**

Table 4. Evaluation of factors affecting neonatal, post neonatal and infant mortality rates in Turkey

		Neonatal mortality rate (1972-98)			Postneonatal mortality rate (1972-98)			Infant mortality rate (1935-98)		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Urban population (%)	cc	-0.9	-0.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
(1935-1995)	p	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Literacy (%)	cc	-0.9	-0.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
(1935-1990)	p	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Female literacy (%)	cc	-0.9	-0.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
(1935-1990)	p	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health insurance (%)	cc	-0.9	-0.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
(1950-1995)	p	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
The share Ministry of	cc	0.3	0.8	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Health has in general	p	0.62	0.10	0.39	0.39	0.39	0.39	0.39	0.39	0.39
budget (1935-1998)										
Physician number per	cc	0.6	-0.5	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
10.000 people (1935-1997)	p	0.29	0.39	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Share of health expenses	cc	-0.6	-0.1	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
in GNP (1980-1998)	p	0.29	0.87	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Health expenses	cc	-0.6	-0.5	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
per person (1980-1998)	p	0.29	0.39	0.19	0.19	0.19	0.19	0.19	0.19	0.19

* cc: correlation coefficient

Discussion

Today, although child mortality has declined, more than ten million children still die every year. There is a lot of information about the causes of infant mortality, but the underlying causes are dynamic and there is always a need to reevaluate the relations between socioeconomic policies and infant mortality[22]. In many researches and demographic surveys conducted in Turkey, it is shown that, region and settlement (rural/urban), some characteristics of mother (age, literacy, obstetric history etc) and having antenatal care are affecting infant mortality rate. There have been extremely impressive reductions in child mortality in many countries and some of the declines have stooled in the recent years. However, levels of child mortality remain unacceptably high in many parts of the world and declines have marked as often the widening gap between the rich and the poor[23].

Turkey achieved a substantial development socially and economically between the years 1923 and 1998 as a result of which infant mortality rate has decreased significantly. Different social, economical and health policies were applied during the 75-year history of the country. Turkey takes her place in the group of developing countries with the current indicators she has.

There are limited ecological studies in Turkey, for evaluating the alteration of the factors that affect infant mortality rate according to years. In our research we found that literacy and especially female literacy are the most affecting factors for infant mortality. This study, like some other studies, showed that there is a universal relationship between infant health and maternal education[24-29]. The literacy of male population is higher than females in Turkey-giving rise to a lower literacy percentage for women, in comparison to the literacy of overall population. It is known that a child's health is affected much more by the mother's schooling than by the father's schooling[30]. Although an important increase in the literacy percentage of women has been achieved since the foundation of the Republic, education level of the mother has yet to be promoted in order to achieve a better infant health level. It is seen that the advantages that a mother's schooling confers on her children's health are felt even before birth. Better-educated women marry and start their families later, diminishing the risk to child health associated with early pregnancies.

Health condition especially in neonatal period is closely related to the health of the mother during pregnancy and birth, and mother's usage of health care services improves the neonatal health. Educated women also tend to make greater use of prenatal care and delivery assistance. Health condition and the usage of health services are also closely related to the education level of the mother. Following birth, the children of educated mothers continue to enjoy other health-enhancing advantages, better domestic hygiene, which reduces the risk of infection, better food and immunization, both of which reduce susceptibility to infection, and wiser use of medical services[30].

Urban population percentage being a significant variable puts forth the discussion of availability and accessibility of health services in urbanized areas. Percentage of population having social and health insurance is also another factor affecting availability of health services[23]. Availability of either preventive health services or curative services in Turkey is known to be higher in urban areas[15, 23, 31]. However urban population percentage and health insurance were observed to affect infant mortality rate and post-neonatal mortality rate more significantly than that of neonatal mortality rate. This exposes the presence of other underlying factors such as the status of women in the country.

There were no relation between infant mortality rates and the budget of the Ministry of Health, share of health expenses in GNP and health expenses per person. These variables being general might cause a statistical insignificance. For example, instead of analyzing the share of the Ministry of Health has in the general budget, an analysis of the share reserved for primary health care from the budget of ministry, or an analysis of physician numbers employed within first-level services, should be performed.

According to a comparative study done in nine OECD countries, it was found that total health care expenditure per capita, the percentage spend publicly or gross domestic product per capita are not associated with inequality in self-assessed health. But it is known that public spending on health had a large impact on child mortality among the poor than any of the non-poor[32], and infant mortality rate was higher among the low-income families than the high-income families[31]. In this study, the relationship between the infant mortality rate and the regions or the different income levels could not be analyzed because of the lack of — data.

The Ministry of Health is faced with chronic problems of human resources; i.e. qualitative, quantitative and distributional problems[31]. Health manpower, which was assessed as quantitative in this study, was not found statistically significant with the decreasing rate of infant mortality. It is impossible to decide that there is no relationship between the health manpower and infant mortality rate, without analyzing the quality and distribution of health manpower.

There are some limitations to show a precise cause/result association in this ecological study. Although the importance of literacy, living in urban settlement and having social and health insurance are indicated once more in this research, one of the main objectives of the health sector is to decrease the infant mortality. However the health services alone are not sufficient to reduce the infant mortality rate (a social development indicator). Multisectoral approach is needed for the interventions which will affect the social development of the country.

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The prevalence of skin disorders involving head and hands at schoolchildren in Mersin province, Turkey

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Abstract

Aims: Skin diseases are affecting many countries of the world as endemic. The aim of this study is to examine the prevalence of skin disorders in the schoolchildren in Mersin province in Turkey. Methods: A total of 5318 elementary schoolchildren (Heads and hands of), aged 8-16 years, were examined for the presence of skin diseases. Details of socio-demographic characteristics were recorded for each child. Descriptive statistics were used in summarizing the data. Results: Of the 5318 children examined, 2847 (53.5%) were boys and 2471 (46.5%) were girls. The mean age of the children was 9.9 ± 1.3 years. In 5318 students who were examined, 8926 skin disorders were detected. In 751 of the students dermatological examinations were normal. In 4567 students, at least one or more skin disorders were detected. The most common disorder group was nail disorders (%48.3). Other skin disorder groups were nevi (9.7%), eczema (7.8%), pigmentation disorders (7.4%), hair and tricot disorders (6.6%). The most common skin disorder cases were respectively punctate leukonychia (PL) 2077 (23.3%), hangnail 1763 (19.8%), nevi (9.7%), ephelid (7.3%), pityriasis alba (6.4%). Conclusions: Our study suggests that significant skin disease is extremely common in children. The two dominant skin disorders that have no report in literature were punctate leukonychia and hang nail (%43.1). We suggest conducting further studies on these skin disorders.

Key Words: Prevalence, skin disorders, schoolchildren

Introduction

"The pattern of skin diseases is a parameter for the stage of development, public health and personal hygiene." A.R.H.B. Verhagen 1974

Epidemiological studies are important in analyzing the prevalence of skin disorders (SD) and in monitoring changes in the patterns. Skin Disorders (SDs) which are a common problem of public health, just lie in many regions of the world. Particularly the students of elementary school are under risk of infective skin disorders. In addition, aesthetic concerns may cause psychological problems in the period of adolescence.

SDs prevalence show variety from country to country due to climatic and regional differences and study design. SDs have been studied on the base of population and hospital. As children with SDs may not be taken to the doctor, population-based studies are more valuable. The number of the studies with large sampling is very few in literature. Prevalence of one or more SDs in children varies between 19.8%-34.7%[1-5]. In this study, it was aimed to detect the SDs prevalence in schoolchildren in Mersin city and to determine the most common SDs.

Material and methods

This study was conducted in Mersin, a city located on the Mediterranean coast of Turkey. It is an economically well-developed port city in which the population is 759,785, and the number of schoolchildren at ranging from 2nd to 5th grades is 60,170. The data of this study were taken from a research project titled "Dermatological examinations among

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schoolchildren in Mersin". Some results of this project were published elsewhere[6].

Estimation of sample size: A school-based cross sectional and selective (ranging from 2nd to 5th grades) study was performed. There were 60170 students attending to these grades as a total sample size. The prevalence of skin disease in schoolchildren was accepted as 50% for the biggest sampling (worst acceptable 48-52, confidence level %99). The minimum sample size was determined as 3879 and it was planned to include 5777 children in the study. The sample size randomization was made with EPI-6 INFO program.

Selection of subjects: Multi-step, stratified, cluster sampling was used. All schools were classified into three groups according to their socio-economic levels. Twenty-three elementary schools were selected randomly out of 82 schools in the city. Classes were selected randomly according to the number of students in that particular school. The study population consisted of 5777 students. This sample represented 9.6% of all schoolchildren aged between 8-16 years.

Before examining the students, a detailed structured questionnaire was submitted to parents, and written informed consent was obtained. In this form age, sex, family size, monthly income, parents' education, presence or absence of the social security of the family and whether they owned their house were recorded for each child. The children were divided into three groups according to their ages: 8-9 years, 10-11 years and 12 years and above. Family income was evaluated as low, and medium-high according to being below or above the minimum wage.

Examination of the subjects: Skin disorders diagnoses were made by physical examination. For standardization purposes, dermatologists prepared a check-list containing the standard items they were going to observe. Measures in the dermatological textbooks were used as case definition criteria. In addition, four dermatologists agreed on states that were going to be accepted as SDs. Dermatological examination included head and hands. Of the 5777 subjects, 459 were excluded from the study due to either irregular attendance or incomplete questionnaire. As a result, 5318 children (92.0 % of study sample) were analized in this study.

Statistical analysis: Descriptive statistics were used in summarizing the data.

Results

In the study group, 5318 students from the grades 2-5 were examined. 2471 of the students were female (46.5%) and 2847 were male (53.5%). Average age and standard deviation was 9.9 ±1.3 (range 8-16). 97.4% of the students were in the age group of 8 -12. Demographic characteristics of the students can be seen in the Table 1.

Table 1. Demographic characteristics of children

Demographic characteristics	n	%
Age groups (n=5318)		
8-9 years	2120	39.9
10-11 years	2609	49.1
12 + years	589	11.0
Mean ±SD age (years)	9.9 ±1.3	
Median age (years)	10	
Sex (n=5318)		
Boys	2847	53.5
Girls	2471	46.5
Family size (n=4935)		
2-5 person	3104	62.9
6 and above	1831	37.1
Mean ±SD	5.6 ±2.3	
Median	5	
Social security of the family (n=5092)		
Yes	3456	67.9
No	1636	32.1
Mother's education (n=4928)		
0-7 years	1472	30.2
8 + years	3456	67.9
Father's education (n=4818)		
0-7 years	2343	48.6
8 + years	2475	51.4
Family income* (monthly) (n=4263)		
Low	1723	40.4
Medium or high	2540	59.6
Living at the house (n=5029)		
Rent	1863	37.0
Possession	3166	63.0

* The families with monthly income below the minimum wage (121 $, concerning May 15, 2001) were regarded as "families with a low family income".

Among 5318 students, included in the study, 8926 SDs in total were diagnosed. The number of the students with one or more SD was 4567 (85.9%). The first ten SDs constituted the 82.5% (7365) of all the cases.

In 1987 (37.4%) of the students, one SD was diagnosed, where two SDs in 1739 (32.7%) three SDs in 675 (12.7%) and four SDs in 166 (3.1%) students were diagnosed respectively.

As a result of the dermatological examination, 16 different diagnosis groups were detected. The most common disorder group was the Nail disorder group. Nail disorder was diagnosed in 4314 students (48.3%), eczema was diagnosed in 698 students (7.8%), pigmentation disorders were detected in 588 students (7.4%) and hair disorder was diagnosed in 588 students (6.6%) respectively (Table 2).

Table 2 also presents the SDs prevalence according to the specific diagnoses. The most common SDs are respectively punctate leukonychia (PL) 2077 (23.3%), hangnail 1763 (19.8%), nevi (9.7%), ephelid

Table 2. Prevalence of skin disorders in all children

Dermatological diagnosis	n	%	Dermatological diagnosis	n	%
Normal	751	8.42	Viral infections	240	2.54
			Verruca vulgaris	187	2.10
Nail disorders	4314	48.34	Herpes simplex	26	0.29
Punctate leukonychia	2077	23.27	Others	17	0.19
Hang nail	1763	19.75			
Onychotillomania	310	3.47	Disease of eccrine, apocrine, and sebaceous glands	168	1.88
Longitudinal lines	43	0.48	Acne vulgaris	103	1.15
Pitting	40	0.45	Milium	33	0.37
Dystrophic nail	29	0.32	Xerosis	25	0.28
Sububgual haematoma	16	0.18	Hiperhidrosis	7	0.08
Paronychia	12	0.13			
Onycholysis	11	0.12	Diseases originating from vascular structure	129	1.44
Pytergium	5	0.06	Haemangioma	125	1.40
Other	4	0.04	Facial telangiectasia	4	0.04
Nevi (for head and heads)	867	9.72	Fungal infections	96	1.08
			Candidal infections	90	1.00
Eczema/Dermatitis	698	7.82	Others	6	0.07
Pityriasis capitis simplex	573	6.42			
Cicatricial alopecia	56	0.62	Bacterial infections	25	0.28
Alopecia areata	32	0.36	Impetigo	24	0.27
Others	20	0.22	Others	1	0.01
	17	0.19			
Pigmentation disorders	661	7.40	Dermatosis cased by physical factors	13	0.14
Ephelid	651	7.30			
Others	10	0.11	Hypersensitivity reactions	12	0.13
			Insect bite	12	0.13
Hair disorders	588	6.59			
Pityriasis Capitis simplex	436	4.88	Genodermatosis	8	0.09
Cicatricial alopecia	137	1.53	Ichthyosis, keratosis pilaris	8	0.09
Alopecia areata	11	1.23			
Others	4	0.04	Papulo-squamous disorders	5	0.06
			Psoriasis	5	0.06
Parasite infestations	361	4.04			
Pediculosis	360	4.03	Benign tumors	3	0.03
Others	1	0.01			
			TOTAL DIAGNOSIS	8926	100.0

Table 3. Prevalence of the skin disorders according to age groups and ratio boy/girl

Dermatological diagnosis	8-9 years (%)	10-11 years (%)	12 + years (%)	Count*	%[a]	%[b]	Boy/Girl
Punctate leukonychia	22.6	23.3	24.8	2077	23.3	39.1	c 1.7
Hang nail	21.7	19.3	15.6	1763	19.8	33.2	1.2
Nevi	9.1	10.1	10.0	867	9.7	16.3	1.2
Ephelid	5.9	8.6	6.2	651	7.3	12.2	d 1.4
Pityriasis alba	5.5	6.7	8.0	573	6.4	10.8	c 2.1
Pityriasis capitis simplex	3.1	5.6	7.5	436	4.9	8.2	c 0.3
Pediculosis	3.9	4.4	4.4	360	4.0	6.8	c 0.1
Onychotillomania	3.7	3.5	3.6	314	3.5	5.9	1.1
Verruca vulgaris	1.8	2.1	2.7	187	2.1	3.5	1.1
Cicatricial alopecia	1.4	1.4	2.1	137	1.5	2.6	c 7.6
Haemangioma	1.3	1.4	1.5	125	1.4	2.4	0.9
Acne vulgaris	0.5	1.2	2.8	103	1.2	1.9	c 0.5
Others	7.9	5.5	6.0	582	6.6	11.0	0.9
Normal	11.6	6.9	4.8	751	8.4	14.1	0.9
Total diagnosis	3336	4497	1093	8926	100.0	100.0	

[a] According to total Skin disorders diagnosis (n=8926)
[b] According to student (n=5318)
[c] Significance p<0.001
[d] Significance p<0.01
* Skin disorder diagnosis counts

(7.3%), pityriasis alba (6.42%). Distribution of SDs in terms of total diagnosis number, the number of the students examined, age groups and sex can be seen in Table 3.

Discussion

Even though an enormous range of diseases-reaction pattern characterizes dermatology, prevalence surveys suggest that the bulk of skin disease is made up of less than ten diseases[7].

That the first ten diagnoses constitute 82.5% of all diagnoses support this idea. In this study, the reason why one or more skin disease is high is that diagnoses of punctate leukonychia and hangnail are at a high rate.

The prevalence of one or more skin disorders in schoolchildren were reported 31.3% by Fung *et al.*[4], 22.8% by Popescu *et al.*[2], 26% by Bechelli *et al.*[3], 34.7% by Satima *et al.*[5], 19.8% by Bahamdan *et al.*[1]. In this study the prevalence of one or more skin disease in schoolchildren was 85.9%.

Punctate leukonychia (PL) is comprised of 1-3 mm-diameter white spots[8]. Although often due to minor matrix trauma (e.g. manicure, nail biting), it is also seen in alopecia areata. The pattern and

number of spots may change as the nail grows. It is almost exclusively seen in children. It is usually caused by repetitive minor traumatic injuries to the nail matrix producing a disturbance in the nail matrix keratinisation. Although PL is commonly believed to be caused by calcium deficiency there is no relationship between this condition and the calcium content of the nail. PL spontaneously regresses by avoiding trauma[9-10]. The most common SD in all the diagnoses made (23.3%) and the students who were included in the study (39.1%) were PL. No study reporting PL was found in the literature. We could not explain why the rate of PL diagnoses was so high in our study. However some factors may be related to this high prevalence rate such as minor traumas, eating nails and using pencils. This striking result should be examined in further laboratory based studies in detail.

The second most common SD was hangnail in this study. Approximately one of each five diagnoses was hangnail (19.8%) and approximately one of each three students had hangnail (33.2%). No study concerning hangnail was found in the search made in the literature. Hangnails are due to pieces of epidermis breaking away from lateral nail folds. Although often due to nail biting, they may result

from many other minor injuries. The splits may be painful when they penetrate to the underlying dermis. They should be removed with sharp, pointed scissors. In our subjects, we found that, high frequency of hangnails is the lateral and proximal nail folds. We believe that the high frequency of hang nails in our series may be due to traumatic habits in childhood period such as nail biting and using pencil. It is known that there was a relationship between nail biting and hangnails[8]. Further studies are needed to clarify the etiology and pathogenesis of this disorder.

Nevocytic nevi are a collection of melanoblasts in the epidermis, dermis, or both. Five clinic types are described including flat lesions, slightly elevated lesions, papular lesions and pedunculated lesions. It, usually apparent at birth or in early childhood, affects both sexes equally. The lesions may be deeply or slightly pigmented, have either a unilateral or a bilateral distribution, and may occur anywhere on the cutaneous surface. Although single lesions may occur, the disorder generally consists of multiple lesions. Generally present at birth, it may also appear in infancy, early childhood, and occasionally in adult life[11-12].

Nevi was reported as 14.4% in the study conducted by Inanir et al.[13] in Turkey and as 16.8% in the study conducted by Bechelli et al.[3]. In our study, rate of nevi for head and hands in all diagnoses was (867/8926) %9.7 and it was (867/5318) %16.3 in terms of the number of students examined.

Pityriasis alba is a non-specific skin disease of unknown origin, occurring exclusively in children. An individual lesion is characterized by a round to oval-shaped, fine scaly flat erythematous or hypo pigmented macule. The etiology of pityriasis alba is unknown. Poor hygiene, excessive microbial colonization without evidence of infection and sun exposure may be contributory factors. By careful dermatological examination, up to 30% of the children may be found to have this condition as an asymptomatic finding. Individual lesions may last for years, but sometimes disappear within a few months. Most lesions disappear by puberty. Finally, the condition is self-limited and the prognosis is excellent[14-19].

Pityriasis alba is one the skin disorders that are frequently reported in the epidemiological studies. Pityriasis alba was reported as 12.0% by Inanir[13], 9.9% by Bechelli[3], 25.0% by Tay[20], 5.1% by Larsson[21], 1.0% by Fung[4]. In our study, rate of Pityriasis alba in all diagnoses was 6.4% and it was 10.8% in terms of the number of students examined.

Among the skin disorders, one of the most studied disorders is pediculosis capitis (PC). PC is very common in the world and its prevalence displays a wide distribution range from country to country. PC prevalence was reported by Estrada[22] as 15%, by Ebomoyi[23] as 3.7%, by Bechelli[3] as 50%, by Bahamdan[1] as 9.8%, by Huh[24] as 37.2%, by Speare[25] as 33.7%, by Magra[26] as 9.4%, by Fan[27] as 40%, by Downs[28] as 28.3%. It was reported that PC prevalence is 2-36% in the schoolchildren in Turkey[29]. In our study 6.8% of the students had PC.

Ephelides (freckles) are red or light brown well circumscribed maculae, usually less than 5 mm in diameter, which appear in childhood, especially on sun-exposed areas of the skin, and tend to fade during the winter and adult life. Freckles are most common on the face (especially the nose), shoulders, and upper back. There is a seasonal variation in their appearance. They become darker and more confluent during the summer and are smaller, lighter, and fewer during the winter[30]. In the current study, the most common fourth SD was ephelid 651 (7.3%). We found a high prevalence of ephelides. Since, this study was conducted in summer; this high prevalence might have been due to seasonal variation.

Our study suggests that significant skin disorders are extremely common in children. The two dominant skin disorders that have no report in literature were punctate leukonychia and hangnail (%43.1). We suggest conducting further studies on these skin disorders.

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The great debate: To do or not to do traditional, religious habit "vaginal douching"

Deniz CALISKAN[a]

*I wonder "how many physicians
ask their applicants-patients about
vaginal douching in our country".*

TIME TO CHANGE THAT

Abstract

Vaginal douching is the process of intra vaginal cleansing with a liquid solution. Douching is common practice among women in many parts of the world. The aim of this study is to describe epidemiological characteristics of this practice, to evaluate its effect on health and to find out the frequency of vaginal douching in Turkey and in the world by the help of evidence based literature on the subject.
  Key words: Vaginal Douching, Pelvic Inflammatory Disease, Ectopic Pregnancy, Infertility, Cervical Carcinoma

Introduction

Vaginal douching is the process of intra vaginal cleansing with a liquid solution[1,2]. Douching is a common practice among women in most parts of the world. Douching is used for various reasons (personal hygiene, aesthetic, reducing symptom, preventing pregnancy etc.) in many countries[1-6].

Among women, belief of "vaginal douching proves genital hygiene" was common. In the United States, vaginal douching reinforced in the 1880s by public health professionals, because of the concerns about the unsanitary nature of menstrual blood[3]. In a guide about female hygiene published in 1902, Joseph Greer propose that "every part of the body should be as clean as the face" and that menstrual blood "generates unpleasant odors, a sure sign of noxious effluvia and breeding bacteria". In the early 1990s, companies such as Lysol Incorporated, began advertising campaigns encouraging young women to buy their commercial douche products to keep themselves clean. Even today, many products, describe douching as "a gentle shower for your vagina gently cleanses to leave you feeling clean, fresh and confident."[3].

In Muslim countries vaginal douching is besides an ancient, traditional and also a religious practice[7,8]. Many Muslim women douched because of "ghusl" after intercourse or during bath. Ghusl is described as "the greater purification". Ghusl is obligatory when one is defiled as a result of sexual intercourse, child birth, after menstruation or when entering into the fold of Islam. The procedure is as follows: Wash the hands and the affected parts of the body with water to remove any impurity. In Ghusl, not to be said "apply vaginal douching", only be said "wash whole body, can't remain any dry area on the body"[9]. Many Muslim women accept this instruction as vaginal douching is a component of Ghusl. They also believe if they do not do vaginal douching, they can not be purified. Because of these reasons, vaginal douching is common in Muslim countries.

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Epidemiology of vaginal douching

Douching is common practice among women all over the world. Vaginal douching in the United States is more common among African-American women (Table 1). The prevalence of douching has decreased since 1988, but it is still a common practice among American women, especially adolescents, African-American women and Hispanic women. In 1995, 55 percent of non-Hispanic Black women, 33 percent of Hispanic women, and 21 percent of non-Hispanic White women reported regular douching. In the US, 52-69 percent of adolescents reported that they had vaginal douching at least once in their lifes[1,2,6]. Especially in the US, douching behaviour was common in adolescent and young adult women who were at high risk for sexually transmitted disease[3,4,10-12]. In addition, douching is prevalent in some African countries, such as Cote d'Ivoire, where the douching rate among women has reported to exceed 97 percent[1]. Brown reported that in the sub-Saharan Africa, researchers from 11 countries have documented traditional intravaginal practices; outside Africa, traditional vaginal practices have been reported in Qatar, Indonesia, Thailand, Haiti, and the Dominican Republic[5]. Joesoef et al. reported that in Indonesia douching with water or water and soap is a common practice among women to clean the genitals after urination or sexual intercourse[13]. They found that 82 percent of women had douched at least once in the preceding month[13]. In Rajamanoharan et al.'s study, vaginal douching was reported as 2% among white women, 9% among black Caribbean, 13% among other ethnic groups in London[14]. In France 24% of French women had vaginal douching, and 71% of black African women who live in France[15] had the same.

There are a few studies about vaginal douching in Turkey. The prevalence of vaginal douching is shown as 63-78%[7,16,17].

Many studies are performed about the characteristics of vaginal douching in many countries. According to these studies, the timing of douching is depending on some conditions such as sexual activity, symptoms and menstrual cycle. Women who douche consider it to be a healthy practice and often state that hygiene is their primary reason for douching. Some women state that douching is "necessary for good hygiene". Motives for douching are many: to cleanse the vagina after menses or before or after sexual intercourse, to prevent or ameliorate an odour, to prevent or treat vaginal symptoms such as itching and discharge, and less commonly, to prevent pregnancy and sexually transmitted diseases. Other people such as mothers, friends, relatives, physicians may influence a woman's decision on douching. Water, and water and soap are frequently used for douching. Besides home

Table 1. Percentage of women who douche regularly, by age and race/ethnicity, according to the National Survey of Family Growth, United States

Year	Sample size	Age (years)	All races	Non-Hispanic Black (%)	Non-Hispanic White (%)	Hispanic (%)
NSFG* 1995	10.847	15-44	26.9	55.3	20.8	33.4
		15-19	15.5	36.8	10.8	16.4
		20-24	27.8	60.4	20.4	32.5
		25-29	30.0	58.7	23.9	38.0
		30-34	30.6	60.4	24.5	35.1
		35-39	28.9	62.5	21.9	41.2
		40-44	26.9	53.1	21.1	38.5
			All races	Black (%)	White (%)	
NSFG* 1988	8.450	15-44	36.7	66.5	32.0	
		15-19	31.0	53.5	25.4	
		20-24	41.1	63.1	35.7	
		25-29	37.6	67.6	32.9	
		30-34	36.0	64.8	31.5	
		35-39	35.1	70.2	30.2	
		40-44	37.0	65.8	33.8	

NSFG, National Survey of Family Growth

Table2. Some vaginal douching commercial and home preparation products

Ingredients	Function	Commercial	Home preparation
5 % acetic acid (vinegar)	Acidifying agents	+	+
Benzoic acid, citric acid, lactic acid, ascorbic acid	Acidifying agents		+
Blech (sodium hypochlorite and sodium hydroxide)	Cleanser		+
Cetylpyridinium chloride	Antimicrobial, antiseptic, germicidal, surfactant	+	
Decyl glucoside	Nonionic detergent, mild surfactant, solubilizes water-insoluble materials	+	
Diazolidinyl urea	Acidifying agents	+	
Disodium ethylenediaminetetraacetic asid (EDTA), edentate disodium	Preservative, antibacterial agents, metal chelator (binds magnesium and calcium)	+	
Lysol	Cleanser	+	+
Octoxynol-9	Surfactant, produces a mucolytic or proteolytic effect, spermicide	+	
Povidone-iodine	Antimicrobial	+	
SD Alcohol 40	Liquid vehicle	+	
Sodium benzoate	Preservative (prevent bacteria from growing in solution that contains citrate and lactate)	+	
Sodium bicarbonate (baking soda)	Alkalizing agent	+	+
Sodium citrate	Acidifying agents	+	
Sodium lactate	Acidifying agents	+	
Water	Liquid vehicle, cleansing	+	+
Yogurt	Potential source of non-human strain of lactobacillus		+

made products, commercial products are also common in developed countries[1-4,10,12,18-20]. Table 2 shows these douching commercial and home preparation products.

Among the different reasons that separate Turkey from the other countries as a predictor in douching are religion and motivation[7]. However, the role of the religion on vaginal douching should be examined further, in controlled community based studies in Muslim countries. Secondly, physicians may affect women negatively about vaginal douching. In Turkey many physicians tell their patients before the examination "you should be clean after your menstrual period has finished and then you may come for gynaecological examination". This word "clean" means that the menstruation bleeding has stopped and therefore if any vaginal discharge exists it can be seen easily by the physicians. But this is understood by most of the women as to come to examination after doing vaginal douching. Thirdly, after urination and defecations, applied douching may be more dangerous than others because of "taharet", hygienic habits after toilet in our country. Usually, many women are doing the vaginal douching after anal cleaning at the same time and by the same dirty

hand. Therefore, combined with hygienic habits after toilet, vaginal douching is very harmful in Turkey.

Health effects of vaginal douching

Douching may remove normal flora and may permit overgrowth of pathogens. It may also provide a pressurized fluid vehicle for pathogen transport, helping lower genital tract infections ascend to the cervix then into uterus and fallopian tubes, or even abdominal cavity. In addition, vaginal douching reduces the density of normal vaginal flora[1-4,21,22]. The weight of the epidemiologic evidence suggests that repeated douching causes diminishing of the lactobacilli predominance and increasing risks of the reproductive tract infections[1-4.]

Douching in association with pelvic inflammatory disease[23-25], increases susceptibility to sexually transmitted infections including human immun-deficiency virus (HIV)[11,13,26], bacterial vaginosis[14,27-29], recurrent vulvovaginal candidiasis[30], recurrent urinary tract infections[31], reduced fertility[32], ectopic pregnancy[33,34], preterm birth[35], low birth weight[36] and cervical ectopia or carcinoma[37-40]. Nonetheless, douching continues to be common practice in many developed and developing countries.

Vaginal douching and pelvic inflammatory disease

Pelvic inflammatory disease (PID) is a prevalent problem worldwide. Its serious reproductive outcomes and financial burdens are a major factor, motivating sexually transmitted infections' control and prevention. Vaginal douching may potentially increase the risk of PID by promoting the ascension of lower genital tract infections to the upper genital tract; by changing the vaginal environment and increasing susceptibility to reproductive tract infections that precede PID, or by introducing non-pathogenic vaginal bacteria into the typically sterile upper genital tract[1]. There are many studies on PID and vaginal douching[1-4,23-25]. Zhang *et al.* determined that in their meta-analysis, women who douche have a 73% increase in risk of PID in comparison to those who do not douche[2]. Scholes *et al.* reported that, compared to the women who reported never having douched, women who douched during the previous 3 months had a risk of PID of 2.1 after controlling for other measured risk factors (95% CI:1.2-3.9)[23]. Women who douched at least once a week had 3.9 higher estimated risk (95% CI:1.4-10.9)[23].

Vaginal douching and sexually transmitted infections

Two bacterial sexually transmitted infections (STIs), Gonorrhea and Chlamydia, are especially important causes of PID. Chlamydia has been associated with tubal infertility due to fallopian tube scaring and obstruction, ectopic pregnancy and PID. In addition, both Chlamydia and Gonorrhea have been reported to facilitate HIV transmission. Douching might plausibly contribute to the risk for PID by promoting a hospitable vaginal environment for the acquisition of STIs and by enhancing an infection's ascent in to the upper genital tract, resulting in the development of PID and its sequelae[1-4]. Joesoef *et al.* showed that, compared to women who never douched, women who always douched with betel leaf or commercial agent had a substantially increased and 9.4 times higher risk for STIs (95% CI:1.8-50.3)[13].

Vaginal douching, bacterial vaginosis and other infections

The mechanism by which douching predisposes to these diseases may be by distrupting the normal vaginal flora[1-4,21,22]. In the healthy vagina, hydrogen peroxide and lactobacilli protect against endogenous bacteria (such as the anaerobic gram-negative rods Bacteroides and Prevatella, genital mycoplasmata and *Gardenerella vaginalis*) and exogenous pathogens (such as *Neisseria gonorrhoae* and *Chlamydia trachomatis*) by producing bacteriocins, as well as hydrogen peroxide and lactic acid, both of which lower the vaginal pH to a level inhospitable to many other bacteria. When the flora is disrupted, the hydrogen peroxide producing lactobacilli decrease in concentration and are replaced by an overgrowth of anaeorobic and facultative aerobic bacteria. There are many studies about bacterial vaginosis and vaginal douching[14,27-29]. Ness *et al.* indicated that douching at least once per month was associated with an increased frequency of bacterial vaginosis. Those who ever having douched recently (within 7 days) had 2.1 times higher risk (95% CI:1.3-3.1) [29].

The same mechanism in vaginal douching is associated with many infectious diseases. In the literature for vulvovaginal candidiasis, recurrent urinary tract douching is described as a potential risk factor[30,31].

Vaginal douching and ectopic pregnancy

Several studies have suggested links between douching and ectopic pregnancy possibly mediated through effect of douching and PID[1-4,24,33,34]. Kendrick *et al.* determined that the risk of ectopic pregnancy associated with ever having douched was 3.8 times higher (95% CI:1.6-8.9). The risk increased with the increasing number of years of douching at least once per month[33]. Chow *et al.* showed that the risk of tubal ectopic pregnancy for women who douched at least weekly was twice that of women who never douched (95% CI:1.03-4.00). The risk for women who used commercial douches on a weekly basis was 4.4 (95%CI:1.6-12.7) compared to the risk of women who never douched[34].

Vaginal douching and reduced fertility

A relationship between douching and reduced fertility, a common sequela of both clinical and silent PID has been reported[1-4,23-25]. Baird et al. reported that in comparison to non douchers, women who douched were 30% less likely to become pregnant each month they attempted pregnancy. The reduction was not related to the type of douching preparation used[32].

Vaginal douching and preterm birth, low birth weight

Douching may affect the risk for preterm birth through two different mechanisms. Douching has been linked to bacterial vaginosis and endometritis. These two situations are main risk factors of preterm birth. Fiscella et al. reported that, the risk of preterm birth associated with douching more than once a week is 4.09 times higher (95% CI:1.0-15.5)[35]. In addition to this, there is significant association between regular douching and low birth weight. In multivariate analysis, association between daily douching and low birth weight was 2.49 (95% CI:1.23-5.01)[36].

Vaginal douching and cervical ectopia or carcinoma

Cervical cancer is a common cancer in women worldwide. Nearly all squamous cell cervical cancer cases are related to human papilloma virus, a STI. The cause of cervical cancer has been postulated to be multifactorial, with other cofactors being required to cause cancer[1]. As early as 1931, investigators evaluated vaginal douching as a risk factor for cervical cancer. Gardner et al. showed that the association between cervical carcinoma and vaginal douching was examined in a population-based, case-control study conducted in the low-risk population of Utah between 1984 and 1987[38]. 266 cases of in situ and invasive cervical carcinoma were compared to 408 group-matched controls by douching behaviour, controlled for age, lifetime number of sex partners, cigarette smoking history, religious activity, and educational level. Women, who douched more than once a week, demonstrated 4.7 times greater risk for cervical carcinoma (95% CI:41.9-11.0) than others[38]. There are several studies about cervical carcinoma and vaginal douching[1-4,37-40].

Is there any benefit of vaginal douching?

In contrast to numerous studies demonstrating adverse effects of douching, a few recent studies conducted in developing countries have found that douching, depending on timing of douching, and type of products used, is associated with Human Papilloma Virus regression[41,42], reduced risk of STIs/HIV[43], and favourable changes in vaginal flora[44,45]. The participants in these studies were at very high risk of STIs. Review of medical and social science literature of the past 50 years shows that vaginal douching is common in many countries[1-5]. Thus, it is important to confirm that douching is beneficial or at least harmless to women's health, in any circumstances. So, especially prospective studies may conduct to determine effect of vaginal douching on health.

Govermental and public health organizations and vaginal douching

There is no official medical or public health advisory policy on whether douching should be discouraged. Government, health and professional organisations should re-examine available data and determine if there is enough information to issue clear policy statement on douching[1]. Recently, because of the many studies, Centres for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA) have discussed seriously whether to curtail or discourage douching[46]. On April 15, 1997, the Non-prescription Drug Advisory Committee of the FDA held a meeting to discuss vaginal douching. From the FDA's review of epidemiologic studies on vaginal douching (considered published case-control and cross-sectional studies), a consistent moderate adverse or null effect of douching was noted; the evidence was considered suggestive that douching was independently the risk of pelvic inflammatory disease, ectopic pregnancy, infertility and cervical carcinoma. The American College of Obstetricians and Gynecologists', American Medical Association, The National Institute of Allergy and Infectious Disease, The National Institute of Enviromental Health Science and National Institute of Health in USA and World Health Organization gave a place to vaginal douching and harmful effects on health several times[1].

Despite vaginal douching being common in Turkey, it is not perceived as a harmful habit and it is not given any attention by physicians and health services.

Conclusions

In the light of these reviews, it is evident that vaginal douching is quite common in the world. But, unfortunately no accurate nationwide information about vaginal douching is available in Turkey. Just as is in The United States, vaginal douching may take part in Turkey Demographic and Health Survey or other surveys and routine records in the primary care centres. Many women believed that vaginal douching is beneficial. Health professionals are not aware and do not pay attention to this traditional habit.

Based on the existing evidence, this kind of traditional harmful practices should be discouraged considering their adverse effects on health. Intervention studies may be the best way to gain both health benefit and insight in to the temporal associations of douching and adverse outcomes[1]. The motivation for douching is a complicated issue because of psychological and social features that need to be addressed if vaginal douching behaviours are likely to be modified on any scale[1,18]. To be able to change these kinds of habits in the long term, health education programmes should be developed. Those programmes should be community-based, focused on behavioural changes and should take into consideration all religious aspects and socio-cultural determinants of health behaviour.

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The knowledge of hotel employees on food and general hygiene

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Abstract

We aimed to determine the knowledge of staff, working in Ankara city centre hotels with a tourism certificate, on food and general hygiene.

The sample size was calculated as 35 hotels and the sample was stratified according to the number of stars of the hotels. A questionnaire was applied under observation by 437 workers. The questionnaire was scored over 100 points. Multiple regression analysis was used for the statistical evaluation of the data.

It was found that room service staff had lower knowledge score on cleaning materials; kitchen staff had lower knowledge score on general hand hygiene and dry storage. Food and drink staff had higher information score in general, than those kitchen and room service staff. The only factor that was found to be associated with information score was the previous on-the-job training status among food and drink staff.

Further studies observing and measuring the behaviour of workers in this sector are required.

Key words: Tourism health, hotel staff, hygiene information, Turkey

Introduction and aim

Tourism is the consumers travelling and temporary residing activity which takes place generally outside the permanent place of residence, realized for vacation, entertainment and business purposes[1].

The faster and easier transportation facilities throughout the world has been stated to be among the causes of many diseases threatening our health. Tourist health is therefore now an issue that is beyond the capacity of individual health institutions or workers[2].

The rapid and seasonal population increase in the touristic regions, inadequate infrastructure, the difficulty of keeping up with the hygienic food requirements for a large number of people in a short time, inadequacy of the number and quality of the inspections, institutions and organizations have all made 'tourist health' an active item on the agenda[3].

Tourist health is also concerned with the health of tourism workers. It is therefore very important for these people to be trained and for their service to be inspected. Touristic institutions and organizations have to provide health-related training to their staff at every stage and make sure they protect their own health[1].

The health of staff concerned with the storage and processing of food and presenting it to the tourists is especially important. These people are easily able to spread their disease if they are carriers of agents spread by the fecal-oral route. The risk to human health posed by the violation of hygienic conditions by those producing and presenting food keeps the subject of personal hygiene and food health constantly on the agenda[4]. The subject of general and food hygiene is always an important issue due to the risk posed on human health by the violation of hygienic conditions by those producing and presenting food. It is therefore very important to evaluate the knowledge level on food and general hygiene of those working in the tourism sector and to develop educational programs quickly according to their needs.

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We aimed to determine the knowledge status of staff working in the Ankara city centre hotels with a tourism certificate, on food and general hygiene.

Material and methods

The study universe consisted of 84 hotels with a tourism certificate in Ankara. The sample size was calculated as 35 hotels with a 0.05 probability of error and ±1.7% deviation. The hotels were stratified according to the number of their stars and selected by systematic sampling. All hotels placed in the sample were accessed. A questionnaire was applied to 437 workers in the 35 hotels accessed.

A questionnaire prepared beforehand was used as the data source. The survey consisted of two parts. The first part of the questionnaire consisted of 11 questions about characteristics of the staff. This part was applied to all staff working in room service, food and drink service and the kitchen. The second part of the questionnaire contained specific questions regarding the working units. There were 40 questions for those working in room service, 20 questions for the food and drink service and 50 questions for the kitchen service. Questions regarding the level of knowledge were prepared from a training book [5, 6].

The study was undertaken during July - August 2001. An appointment was made with the hotel administrators. The questionnaires were distributed to the staff and these were completed under observation. The staff was then given information about the correct answers to the questions.

The score for each of the 40 questions asked to the room service staff was 2.5 points while each of the 20 questions for the food and drink service staff was rated 5 points and each of the 50 questions to the kitchen staff was rated 2 points, for a total of 100 points.

Multiple regression analysis was used to analyse the relationship between knowledge and the related variables such as level of education, work year in the tourism sector, work year in that specific department and previous on-the-job training status.

Results

The study group consisted of 437 subjects, where 371 were male (84.9%). In all departments there were more male staff. The mean age of the subjects was 31.1±9.1. Eighty percent of the subjects had a health inspection card. Most of the staff were primary school graduates in room service department and in the kitchen department (52.6 % and 60% respectively). In the food and drink department however, majority of the staff (54.1%) graduated from a high school/vocational school or higher educational institution (p< 0.05). Work duration was 0-4 years for 37.5% of the subjects while 46.9% had worked at their current department for 0-4 years.

Food and drink service staff had the highest knowledge score compared to room service and kitchen service staff.

Among the room service staff only 17.5% were aware that dense dirt on surfaces should be cleaned with hydrochloric acid and 6.6% were aware that fly and insect droppings should be cleaned with vinegar. Among the kitchen staff, 19 % of them were aware of the time of periodic health check for kitchen workers, while less than 10.0% had correct information on hand hygiene and only 15.0% on dry storage medium conditions.

In the univariate analysis the only factor that was found to be associated with knowledge score was the previous on-the-job training status. The knowledge test mean score for those who had received previous on-the-job training was higher than those who had not, for all three departments. But this difference was statistically significant only for the food and drink departments. When the multivariate regression analysis was run for the three staff groups separately, it was found that having had previous on-the job training was positively correlated with knowledge score among food and drink staff.

Conclusion

The tourism sector is in constant renewal and there are few long-term jobs. Even when staff work in this sector for a long time it seems that knowledge is not renewed and gradually forgotten. It is therefore important to plan on-the-job training for both new and old tourism sector staff.

In this study we did not investigate the behaviour of the staff. Further studies observing and measuring the behaviour of workers in this sector are required.

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