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Assessment of Patients Who Apply to the Family Medicine Outpatient Clinic to Obtain A Medical Report

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Abstract

Objective: Medical reports are crucial in Family Medicine. However, many legal issues remain unresolved. Unnecessary examination requests cause significant costs, labor loss for physicians, and affect occupational safety. This study aimed to evaluate the age, gender, and occupational distribution of individuals applying to the Family Medicine Outpatient Clinic for driver's license, employment, marriage, diaper, and medication reports, and to examine the relationship between the requested examinations and reports.

Method: This single center and retrospective study were conducted with individuals who applied to the Family Medicine Outpatient Clinic of a tertiary hospital between 01.01.2014-01.01.2015 to obtain driver's license, employment, health, marriage, diaper and medication reports. Data were collected by retrospective file screening method. The requested hemogram and biochemical tests, ELISA tests (Hbs Ag, Anti-Hbs, Anti-HIV, Anti-HCV), Venereal Disease Research Laboratory (VDRL), thalassemia screening, nasal and throat cultures, and chest radiography results for the relevant report were reviewed. The examinations requested according to the age and gender and report type data of the people were recorded.

Results: The mean age of 3673 individuals included in the study was 35.45 and 52.7% (n=1936) of them were male. It was observed that the most applications were made in September. Medical reports were mostly requested prior to employment (%76). Essential hypertension (%34) was the most common drug report diagnosis, and urinary incontinence (%32) was the main reason for diaper reports. Among those screened for pre-employment and marriage reports, 4% (n=10) were positive for Hepatitis B surface antigen (HbSAg)and Hepatitis B Surface Antibody (AntiHbs). 9% of those who applied for a marriage report were positive for thalassemia. Chest x-ray and nose, throat, stool cultures were common tests for employment reports. Staph aureus was found in 7.9% of nasal cultures.

Conclusion: Standardizing all medical reports, especially pre-employment health reports, will alleviate the burden on family medicine physicians and ensure proper legal procedures. By preventing unnecessary medical examinations, physician workforce loss and healthcare costs must be minimized. In this context, the Ministry of Health needs to coordinate with institutions and organizations

Keyword: Employment, family medicine, home care, marriage, medical reports

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INTRODUCTION

Health reports aim to provide information about the health status of the person and to take precautions by identifying possible risks. In our country, a health report can be issued in various situations. Family physicians play an important role in issuing various reports. Family physicians are authorized to issue many different types of health reports to closely monitor health conditions. (1)

For example, before starting work, various tests are requested from people depending on the type of job they will work in and a health report can be issued. Employment reports are necessary to determine the health risks of the employee and to protect occupational health. World Health Organization (WHO) and International Labour Organization (ILO) have defined the purpose of occupational health as physical, mental and social well-being and prevention of health risks arising from working conditions. Porteur examination provides the detection of persons carrying the infectious agent. In the food sector, hygiene and sanitation training is required instead of this examination. (2)

Reports stating that people have no contagious diseases or blood diseases before marriage are submitted to the relevant institutions. Marriage reports require blood group, Hepatitis B-C, syphilis, Human Immunodeficiency Virus (HIV) and thalassemia tests, while chest radiography is requested for tuberculosis. (3)

In recent years, both newborn screening and carrier testing for Spinal Muscular Atrophy (SMA) have been conducted in our country. Infants identified with genetic mutations through heel prick blood samples are referred to higher-level facilities for follow-up and treatment purposes. The premarital screening program initiated in December 2021 aims to identify and raise awareness among carrier couples. Screening for carrier status can also be applied to couples who are currently married and considering having children, as well as to the parents of infants diagnosed with the disease during newborn screening. (4)

Reports can be created for medications, foods and medical products for chronic diseases that are used regularly by patients. Medication reports determine long-term medication use for chronic diseases. Since the Health Implementation Communiqué is constantly updated, reports should also be up-to-date. Diaper report determines the use of diapers for patients without bladder or rectal control. (5)

Also to obtain or renew a driver's license, a medical report along with various examinations is required. Unnecessary or non-targeted laboratory tests can increase costs in healthcare while causing patients to experience undue anxiety and waste time. When these tests are performed without a direct connection to the patient's complaints or clinical condition, they can produce irrelevant results and misleading findings. Additionally, these tests can lead to unnecessary treatment processes, complicating the patient's healthcare journey. It is crucial for healthcare professionals to understand the true needs of patients and recommend only necessary tests, as this approach is essential for improving the effectiveness of healthcare services. This not only enhances patient safety but also ensures more efficient use of healthcare resources. (6)

The aim of the study is to evaluate these reports through analysis results and examination data and aims to protect individual and social health.

METHODS

Study Design

This was a single center and retrospective study. Individuals who applied to the Family Medicine Outpatient Clinic of a tertiary hospital between 01.01.2014-01.01.2015 to obtain driver's license, employment, health, marriage, diaper and medication reports were included in the study. Data was collected by retrospective file screening method.

Sample Selection Criteria

Patients who presented to our outpatient clinic to obtain the specified reports between 01/01/2014 and 01/01/2015 were included. In the retrospective review, individuals with incomplete data were excluded from the study.

Data Collection

The sociodemographic and medical characteristics of the individuals were recorded in the Descriptive Information Form prepared by us. Data was collected by retrospective file screening method. The requested hemogram and biochemical tests for the relevant report, Elisa tests (Hbs Ag, Anti Hbs, Anti HIV, Anti HCV), thalassemia screening test, stool, nasal and throat cultures, and chest X-ray results were reviewed. The data of examinations requested according to the required report type were recorded. Laboratory reference ranges were determined as the ranges used by the laboratory of our hospital.

Statistical analysis

IBM SPSS 16.0 (SPSS, Inc., Chicago, Illinois) program was used for statistical analysis.

Descriptive statistical methods (mean, standard deviation, median, and frequency) were used to evaluate the study data.The distribution of the variables was checked using the Kolmogorov-Smirnov test. For the analysis of quantitative data, independent sample t-tests and Mann-Whitney U tests were used. For the analysis of qualitative data, the chi-square test was used. The level of significance was set at $p<0.05$.

RESULTS

This study was conducted with 3673 individuals. The majority of the study group (52.7%; n=1936) were male. The mean age of the study group was 35.45±19.9 years and ranged between 15 and 105 years. When the applications made to the polyclinic to obtain a report were evaluated, it was seen that the majority (76%; n = 2769) was a report given for pre-employment The distribution of sociodemographic characteristics and report types of the study group is given in Table 1.

The most common diagnosis in medication reports was essential hypertension with 34% (n=114), followed by diabetes (19%; n=64) and hyperlipidemia (17%; n=56). The most common reason for diaper reports (32%; n=180) was urinary incontinence.

The distribution of AntiHbS and HbSAg results by gender and age group of the study group were given in the Table 2. AntiHbs was requested from 450 individuals from all types of reports. 176 individuals who applied for a marriage report were requested, 87.5% (n=154) were negative, 12.5% (n=22) were positive. 33% (n=88) were positive for AntiHbs in employment reports (Table 2).

75.4% (n=2769) of the study group consisted of those who applied to receive a pre-employment report Most of the patients who applied for pre-employment health report were negative for HbSAg (96%; n=257). Among those who applied for a marriage report, 99,1% were HbSAg negative (n=175). HbSAg was most frequently positive in the 41-64 age group (45.5%; n=5). 11% (n=19) of the AntiHbs requested for the marriage report were positive.

The ages of the applicants ranged between 15-64 years and the relationship between the age group of the applicants.HCV, HIV and VDRL were asked from all 176 applicants for pre-marital health report and all of them were found to be "negative".

Hemoglobin variant analysis was requested from 26.7% (n=47) of those who applied for a pre-marital health report. Thalassemia positivity was 9.1% (n=4). 1 person was thalassaemia intermedia and 3 people were thalassemia carriers. Hemoglobin was requested from 44.3% (n=78) of the individuals who applied for a marriage certificate and haemoglobin value was found to be below the

reference value (13u/L) in 12.5% (n=22) of them.

The relationship between ALT, AST, Vitamin B12, Haemoglobin and the employment report . Vitamin B12 was found to be low (<197 pg/ml) in 46% (n=13) of the patients.

When evaluated the tests requested for the health report for employment, the most requested test was chest X-ray with 12% (n:333). Throat, nose, stool culture and stool microscopy constituted 21.56% (n=597) of the requested tests. The second most requested test was HbSAg (11%; n=167). Urinary tract infection was detected in 33% (n=21) of the complete urine tests requested in the medical reports.

Among throat culture, stool culture and microscopy and nasal culture, nasal culture was the most frequently requested one (33.82% n=226). Staph aureus was found in 7.9% (n=18) of the nasal cultures. Figure 2 shows the distribution of the cultures requested in the health reports.

Table 1. Distribution of sociodemographic characteristics and report types of the study group

Sociodemographic Characteristics	n	%
Gender		
Female	1737	47.3
Male	1936	52.7
Age Groups		
<18 years	155	4.2
18-40 years	2606	71.0
41-64 years	511	13.9
≥ 65 years	401	10.9
Distribution of report types		
Pre-employment	2769	75.4
Medication	307	
Diaper	229	
Driving	178	
Marriage	176	
Sports		

Data presented as n (%).

Table 2. Distribution of AntiHbS and HbSAg results by gender and age group.

Variables	AntiHbS (+)	AntiHbS(-)	HbSAg (+)	HbSAg (-)
Gender	**n (%)**	**n (%)**	**n (%)**	**n (%)**
Female	75 (%4,3)	143 (%8,2)		
Male	79 (%4,1)	153 (%7.9)		
p	0,869[a]		0.078[a]	
Age Groups				
<18 years	3 (%1,9)	9 (%5,8)		
18-40 years	138 (%5,3)	245 (%9,4)		
41-64 years	13 (%2,5)	40 (%7,8)		
≥ 65 years	0	2 (%0,5)		
p	0,001[b]*		0.001[b]*	

Data presented as n (%). [a]Mann Whitney U Test [b]Kruskal Wallis Test *p<0.05

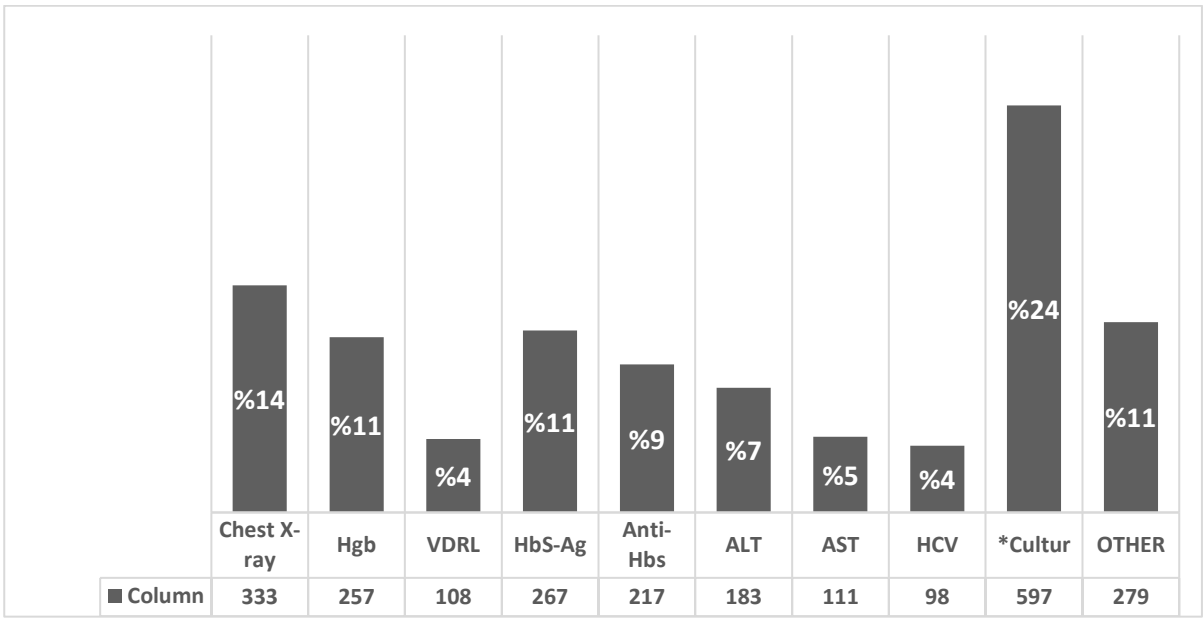

Figure 1. Distribution of requested tests in pre-employment health reports-2; (* Throat, nasal, stool culture, and stool microscopy)

DISCUSSION

Our study evaluated the applications made to the outpatient clinic for obtaining rmedical reports, and it was observed that the majority (%76; n=2769) of the study group consisted of health reports given for pre-employment.

Chronic infection with the hepatitis B virus (HBV) poses a significant global health challenge, impacting approximately 257 to 291 million individuals across the globe. This condition is linked to considerable health complications, including liver cirrhosis and hepatocellular carcinoma, leading to notable morbidity and mortality rates. (7) Turkey has an intermediate endemicity for HBsAg seropositivity (%2-8). In the TURKHEP study, approximately 1,200,000 individuals including blood donors were investigated nationwide, and the average HBsAg frequency was found to be 6.11%. (8)

HBsAg seroclearance rates in adults with chronic HBV infection are 1.02% annually, with higher rates in those with lower baseline HBV DNA levels and HBsAg levels.(9)In our study, HBsAg positivity was found to be 4% (n=10) in pre-employment health reports. The higher prevalence of HBsAg positivity in portors in our study may be attributed to the smaller number of evaluated individuals compared to other studies.

In a study conducted by Yıldırım et al. in 2015, a HBsAg positivity rate of 2.8% was detected in individuals applying for marriage reports at a tertiary hospital (10).

When evaluating Anti-HBs positivity according to age groups, it was most commonly observed in the age group under 20 .Although our study is not primarily a prevalence study, we found

HBsAg positivity of 1% in marriage reports and 4% in pre-employment health reports. This difference in HBsAg results between marriage and pre-employment health reports may be

attributed to the higher age average of those obtaining pre-employment health reports, the increase in exposure with age considering the Hepatitis B vaccination program has been implemented since 1998, and the increasing number of individuals without immunity. (8)

In our study, the rate of anti-HBs positivity was found to be 11% (n=19) in marriage reports and 33% (n=88) in pre-employment health reports, which is consistent with previous studies. According to the results of our study, we believe that the Hepatitis B vaccination program is important, and we anticipate that the rate of anti-HBs positive individuals will increase with the appropriate implementation of the vaccination program in future studies.When evaluating anti-HBsAg positivity by age groups, it was most common at 5.3% (n=138) in the 18-40 age group in our study. This difference can be explained by the majority of individuals included in our study being in the 18-40 age group. We believe that the effective implementation of the Hepatitis B vaccination program by the Ministry of Health and the inclusion of Hepatitis B vaccine in the expanded immunization program since 1998 will lead to a decrease in the anti-HBs positive age range in future studies. (11)

The prevalence of HCV infection worldwide is estimated to be 71 million people with chronic hepatitis C infection, with genotype1 being the most common8. (12) In a study conducted by Özer TT et al. in 2011, no anti-HCV positivity was found in premarital screening tests. (13) Similarly, in individuals applying for marriage reports at Istanbul Medeniyet University Göztepe Training and Research Hospital in 2015, no cases of Anti-HCV and VDRL positivity were detected, while Anti-HIV positivity was found in 2 individuals (10).In our study, no anti-HCV positivity was detected, which is consistent with the results of previous studies. We attribute the absence of HIV-positive individuals among those applying for marriage health reports in our study to the reluctance of HIV-positive individuals to apply for pre-employment health reports due to the fear of disclosure of their condition and the possibility of not being accepted for employment due to the required tests.

The Turkish Hemoglobinopathy Council evaluated the screening results of a total of 377,339 healthy individuals in 16 high-risk cities where hemoglobinopathies are common, and the prevalence of thalassemia carrier status was found to be 4.3% in these regions.(14) In our study, 26.7% (n=47) of individuals applying for marriage reported requesting hemoglobin variant analysis, and thalassemia carrier status was detected in 6.75% (n=3) of these individuals. Although some studies differ,

the similarity of our results to most studies may be due to the variation in abnormal hemoglobins according to ethnic structure and region. Further studies are needed to determine the exact cause.

Turkey is a country with a moderate tuberculosis (TB) frequency, with an incidence of over 20 per 100,000. (15) In our study, chest X-rays were requested from 176 individuals applying for marriage reports and 333 individuals applying for pre-employment health reports. No specific lesions suggestive of tuberculosis were found. This can be attributed to the small number of individuals included in the study, the higher socio-cultural level of the individuals, and the fact that chest X-rays alone may not be sufficient for diagnosis, as well as the fact that the individuals may not have applied for reports at the time of illness.

In the study Positivity rates of examined six-year rotavirus, adenovirus, and fecal parasite tests were 7.7% for rotavirus, 2.3% for adenovirus, and 16.8% for parasite analysis. (16) In our study,stool cultures and stool microscopy were performed on 131 and 65 individuals, respectively, and no parasites were detected. This may be due to the high socioeconomic status of the population studied and the fact that the tests were performed on individuals before they started working, before exposure.

İnci et al. To work in the food industry among 971 people who applied for a health report, Methicillin Resistant Staphylococcus aureus (MRSA) was found in 35 (3.6%) individuals in their nasal cultures. Methicillin Sensitive Staphylococcus aureus (MSSA) was found positive in 2 (0.2%) people. (17). In our study, nasal cultures were obtained from 226 individuals and throat cultures from 193 individuals. No growth was observed in throat cultures. Staph. Aureus colonization was observed in 18 individuals (7.9%) in nasal cultures. The lower rate of Staph. aureus carriage in our study compared to the general population may be due to the insufficient number of individuals included in the study and the fact that the tests were performed before individuals started working, when the risk of exposure was lower. We believe that these figures will be higher in follow-up examinations performed by occupational physicians after individuals start working, as the risk of exposure to the pathogen increases.

In our study, urinalysis was requested from 63 individuals applying for pre-employment health reports, and urinary tract infection was detected in 33% of them (n=22). Of these, 10 were male and 12 were female. The high rate of urinary tract infection in our study may be due to contamination.

All ages anemia prevalence was 22.8% (95% CI: 22.6–23.1) globally in 2019, a decrease from 27.0% (26.7–27.2) in 1990. While prevalence decreased over this time, total cases of anemia increased from 1.42 (1.41–1.43)

billion in 1990 to 1.74 (1.72–1.76) billion in 2019. (18) In our study, 15.6% (n=40) of 257 individuals applying for pre-employment health reports had anemia, with 60% (n=24) of them being women. Our findings are similar to previous studies, and we attribute the higher prevalence of anemia in women to societal factors.

In a study conducted by Öztürk et al. 623 reports of 446 people whose medication reports were renewed or issued for the first time were examined. At least one antihypertensive medication report was issued for 79.37% (n=354) of the patients, and an oral antidiabetic medication report was issued for 14.57% (n= 65). (19) In our study, the most commonly used diagnosis in medication reports was Essential Hypertension (34%, n=114), followed by DM (19%, n=19), and Hyperlipidemia (17%, n=56). The most common diagnosis in diaper reports was urinary incontinence (32%, n=180). Our results are similar to previous studies, and we believe that more studies are needed in this regard.

In the study conducted by Kılıç et al., the rate of requesting laboratory examinations decreased to the 30% range, and laboratory examinations were mostly requested for port of health. Out of 17 physicians requesting laboratory examinations, 12 stated that they requested them for port of health examinations. Additionally, three physicians requested complete blood count, two physicians requested chest X-ray, and one each requested full urinalysis and EKG. (20) In our study, when we evaluated the tests requested for pre-employment health reports, chest X-ray was the most commonly requested test (12%, n=333). Throat, nasal, stool cultures, and stool microscopy constituted 21.56% (n=597) of the tests requested. However, when the cultures were evaluated separately, the rates decreased, so HBsAg was the second most requested test (11%, n=267). The difference between the two studies may be due to the larger number of individuals included in our study and the fact that many tests are now requested by the employer instead of the physician, leading to the ordering of many unnecessary tests.

Kılıç et al. also found that the distribution of reports given in health centers varied by month, with the fewest reports issued in February (127 cases) and the most in September (530 cases). Similarly, in our study, the fewest reports were issued in February (n=305, 6%) and the most in September (n=573, 11%). (20) The similarity in results between the two studies may be explained by the fact that more individuals graduate from school and start working in September.

Study limitations

The main limitation of our study is that the study sample was drawn from a single center outpatient clinic and may limit the generalizability of the results to a broader population.

CONCLUSION

In summary, it is crucial to tailor medical examinations required for employment to the specific occupational hazards and requirements. Unnecessary tests not only increase the burden on both the healthcare system and individuals but also contribute to economic losses. Physical examination and medical history should be the primary focus before employment. Adequate training and counseling should be provided to prospective employees, and medical reports should only be issued if individuals are deemed suitable for the job. It's essential that requested tests are relevant to the tasks at hand, as unnecessary testing not only misuses healthcare resources but also results in a loss of workforce productivity for physicians. Moreover, employers and institutions should be educated about the sufficiency of physical examinations and medical history in diagnosing most occupational diseases, with laboratory methods employed only in suspicious cases.

Furthermore, it's crucial to maintain an adequate number of occupational health physicians and safety experts in workplaces and implement effective health inspection mechanisms. For marriage-related health reports, they should be seen as an opportunity to provide counseling on emerging infectious diseases and genetically inherited conditions, ensuring that prospective spouses are educated about potential risks, disease outcomes, and prevention methods. Primary care physicians play a crucial role in this regard. However, there is a need to evaluate whether the collected data are utilized for database creation, treatment planning, and monitoring, as this could lead to significant resource wastage. Therefore, it's imperative for the Ministry of Health to establish necessary connections with institutions, standardize all medical reports, particularly employment health reports, and establish legal frameworks that alleviate the significant burden and responsibility placed on primary care physicians.

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Ethics Committee Approval: Ethics committee approval was received for this study from Şişli Hamidiye Etfal Training and Research Hospital Clinical Research Ethics Committee of Health Sciences University (Approval No:512/987; Date:26.05.2015). The study was conducted under the principles of the Declaration of Helsinki.

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