# STUDYING THE PROCESS OF JUSTICE IN DISTRIBUTING DENTISTHUMAN FORCEBASED ON DOZEN COEFFICIENT INDEX DURING YEARS 2006 TO 20011

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**Abstract**

**Introduction:** Present research aims to study the process of justice in distributing dentist human force based on dozen coefficient index during years 2006 to 2011.

**Method:** Present research is applicative and its method is descriptive-analytical. Considering that the data is related to a specific time period of the years 2006-2011, therefor this research is longitude and historical. Research society in this research includes all dentist human force in all over the Kermanshah province divided based on townships. Samples were gathers in form of census from Iran's census center and Ministry of Health, treatment and medical education's census management and information technology center and were registered in information forms. The Excel software was used to do the calculations.

**Results:** The dozen coefficientscalculated for the dentists during years 2006 till 2011 varied and had a decreasing path at first and then turned increasing. The calculated dozen coefficients for years 2006 to 2011 was respectively equal to 0.418977, 0.412601, 0.407787, 0.400588, 0.400297 and 0.409416.

**Discussion and Conclusion:** Findings of the present research shows that the changes in dozen coefficient for dentists was decreasing at first and then became increasing which shows the necessity of universities' managers and policymakers intervention to decrease this procedure.

**Key words:**

Justice, Dentist human force distribution, Dozen coefficient index.

**Introduction**

Equality in achieving health services is considered to be among important goals of each health system. Equality in health-medical services is a multidimensional concept and achieving that is one of the biggest challenges health area policy makers are facing. Among the important dimensions in equality in health we could mention the discussions about the equality in distributing the resources in this section. Health is one of the fundamental individual rights of every human society; that should be in reach of all members of the society equally and without any discrimination. Achieving this goal and satisfying it requires skilled and professional human force such as doctors, nurses and other medical and treatment staff with other resources which are considered to be main capitals of health and medical organizations. But the main problem in this area is the limitation of resources in contrast with unlimited needs of the society's individual. Meanwhile, human resources are considered to be one of the most important internal elements of the health systems due to its unique specifications. This fact that human resources are the most important existing resource in country's health section and are also confirmed by the health area expertise (1). The issue of equality in distributing health resources and its effect on quality and quantity of the presented services has been challenging health system policymakers for a long time and so many issues have been told about it. The importance of the right to have these services to create physical and mental health is very important to do social activities. Considering specific and scientific policies to increase the level of health section resources, the manner to devote and distribute them in health section seem distribution in health sections essential (2). Unequal distribution in health section manufacturing institutes (such as doctors, nurses, hospital beds and …) could affect the justice and equality in achieving the healthcare services and increases the injustice and inequality in receiving health services. One of the important preconditions to present healthcare services is to create a relation between people who need services and people who present these services. If there is an optimized level of services, there should be the possibility for these services to be received in time and place of need. Essentially the required condition to achieve these services is quantitative efficiency, proper geographic distribution and lack of any cultural, economic and educational obstacles presence for health services. The quantitative efficiency refers to the proportion between medical personnel and technologic facilities such as doctors, nurses, pharmacists, and equipment's such as hospital beds (3). now a days the justice in distributing the health and deleting the inequality in health section has turned into one of the most important issues and worries of health systems in all over the world, specially the

developing countries. Lack of enough human and monetary resources from one hand and the increasingly complication of health from the other hand, challenges the justified providing, maintaining and improving of health in various societies (4). The equality principal is one of the most important pillars of primarily healthcare services.

The decrease in health and healthcare leaves a challenge for health policies of all countries, developed or developing. In fact, justice is one of the health policy priorities and important goals due to economic, social and moral reasons (5). Despite the fact that justice is the key motivation for presenting public and governmental hospital services, the distribution of resources in public systems is rarely concentrated on people with most needs and decisions related to resource devotion are usually effected by politics (6). Resources are usually devoted in an unbalanced manner in developing countries do to the lack of information, skills and expertise in relation to health and treatment planning (7). Our country's position in justice in health is 112 (8). this position shows the undesirable condition of justice in country's health, therefore the awareness of the existing condition, devotion of resources and institutes of the health section in a manner to provide a clear insight of the manner of distributing them to the planners and policymakers, requires statistical and analytical studies and evaluating them during studies related to such issue (9).

The numerical amount of the dozen coefficients is between 0 and 1, 0 indicating the total equality and 1 showing total inequality (10). This scale has desirable statistical characteristics and therefore makes it possible to evaluate the significance of the effect of policy changes on the inequality of profit or expense distribution(11). usually if the index is between .2-.35 the distribution is balanced, between .35-.5 its rather unequal and if it's between .5-.7 it is totally unequal (12, 13). Results presented by Abassi& et al. showed that the dozen coefficients of nurses have decreased during the studied years and this is while we don't observe a notice able change in dozen coefficients of hospital beds (9). results presented by Shahabi& et al (2010) showed that the dozen coefficient for years 2001-2006 for specialists was respectively equal to .0876, .0874, .0909,.0329,.0951 and .0520 (14). Results presented by Zandian& et al. (2012) shows that the amount of dozen coefficient for specialists during years 2001-2009 was respectively equal to .58,.57,.58,.56,.54,.56,.55,.53,.52. The process of inequality level among specialists had a lower rate of fluctuation and in fact their condition hasn't changed much during past 8 years; although this process has been decreasing generally and we observed a little decrease in level of inequality in distribution of working force (15). Results of Chung & et al. (2009) showed that the changes in dozen coefficients were rather low for pediatricians (16).

Results of Kioko& et al. (2009) showed that the highest rate inequality in distributing pediatricians observed in Japanese rural area was observed during years 1996-2004 (17). therefore, considering this background the aim of present study is to study the procedure of justice in distribution of dentist human force based on dozen coefficient index during years 2006- 2011.

**Method**

Present research is applicative and descriptive- analytical in method. Considering that these data are related to the year 2006-2011 and in a specific time in the past, therefore it's a longitude and historical study. The research society includes all the dentists in all over the Kermanshah province divided based on the township. Samples were gathered in form of census from Iran's statistics center and Ministry of Health, Treatment and Medical Education's information technology and statistics management center and were registered in Data forms. The data were analyzed based on this method: data was gathered by a form called research fiche and the Excel software was used to do the calculations. In analyzing the distribution of dentists human force we used the dozen coefficient standard technique and the researcher completed the province's townships population in an increasing manner by means of data of the forms. It means that to obtain the dozen coefficients we should first calculate the associative percentage of the population and associative percentage of human force of specialists and then its coefficient is calculated by means of its dozen formulas.

**Table-1: Redundancy distribution of dentist's human force and population during years 2006-2011.**

| population | Number of dentists | year |
|---|---|---|
| 1879385 | 55 | 2006 |
| 1885248 | 62 | 2007 |
| 1891312 | 64 | 2008 |
| 1941849 | 74 | 2009 |
| 19057293 | 78 | 2010 |
| 1945227 | 89 | 2011 |

**Results**

**Table 2.Thedozencoefficients calculated for dentists during 2006-2011.**

| Variant | dozen coefficient | standard deviation | low limit | high limit |
|---|---|---|---|---|
| 1: GINI_dentist2006 | 0.418977 | 0.227534 | -0.072580 | 0.910533 |
| 2: GINI_dentist2007 | 0.412601 | 0.215373 | -0.052683 | 0.877886 |

| | | | | |
|---|---|---|---|---|
| 3: GINI_dentist2008 | 0.407787 | 0.210325 | -0.046592 | 0.862165 |
| 4: GINI_dentist2009 | 0.400588 | 0.206502 | -0.045533 | 0.846709 |
| 5: GINI_dentist2010 | 0.400297 | 0.205697 | -0.044085 | 0.844678 |
| 6: GINI_dentist2011 | 0.409416 | 0.213823 | -0.052521 | 0.871353 |

Based on the above table it is shown that the dozen coefficients calculated for the dentists during years 2006-2011 was variant and decreasing at first and increasing later. The calculated dozen coefficients for years 2006-2011 was respectively equal to 0.418977, 0.412601, 0.407787, 0.400588, 0.400297 and 0.409416.

**Diagram-1: The dozen coefficients calculated for dentists during years 2006-2011.**
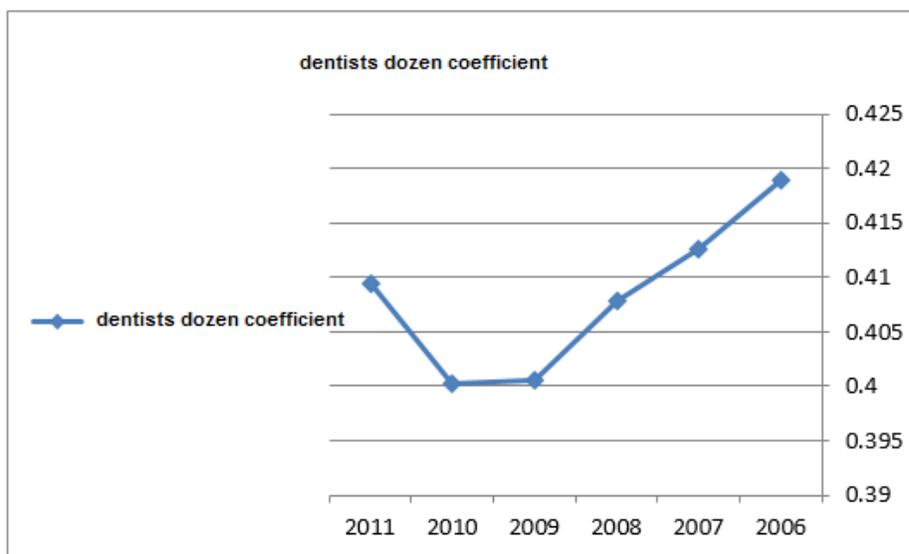


Based on the above diagram, the maximum dozen coefficient of pharmacist human force was related to years 2006 equal to 0.418977 and the minimum amount was related to the 2010 equal to 0.400297. His maximum unequal distribution happened during years 2010 and 2011. The above table shows that the process of changes in dozen coefficients during the studied period was decreasing at first and then increasing with a slow gradient.

**Discussion and Conclusion**

The dozen coefficients usually have a rather balanced distribution in case it's between .2-.35, rather unequal distribution if between .5-.35 and in case it's between .7 - .5, the distribution is totally unequal. Results show that the dozen coefficients calculated for the dentists human force during 2006 to 2011 was variant and had a rather variant procedure. In a manner that it was decreasing from 2006 to 2010 and then decreasing from 2010 till 2011. The dozen coefficients calculated for years 2006 to 2011 was respectively equal to 0.418977, 0.412601, 0.407787, 0.400588, 0.400297 and

0.409416. Considering that the calculated dozen coefficients was more than .35 and less than .5, then we could say that the distribution of dentists was rather unequal. the results presented by Abbasi& et al. showed that the nurses dozen coefficient has decreased during the studied years while no significant decrease is observed in hospital beds' dozen coefficient (9) which is similar with results presented in this research. Findings of Shahabi& et al. (2010) showed that the dozen coefficient during years 2001 – 2006 was equal to the fallowing amount for the specialists .0876, .874, .0909,.329 ,.0951 And.0520 (14) and isn't similar to results presented by this research. The reason for this difference is probably due to the difference of statistical society and the studied sample and the political power in devoting and distributing human force. Results of Zandian& et al. (2012) shows that the amount of dozen coefficient for specialist during years 2001 -2009 was respectively equal to.58,.57,.58,.56,.54,.56,.55,.53,.52.. The process of inequality among specialists had lower calculation and in fact their distribution didn't change very much during past 8 years; although this procedure had been decreasing generally and a little decrease is observed in unequal level of human force distribution (15) and is similar to results of present research. Findings of Chang & et al (2009) showed that the changes in dozen coefficients were rather low for pediatrician (16) and are similar to present research results. results presented by Kioki& et al. (2009) showed that the maximum equality in distributing pediatrician in Japanese rural area happened during 1996-2004 (17) while the maximum in equality of distribution in present research was during 2010 to 2011. Findings of this research show that the changes in dozen coefficients of dentists was first decreasing and then increasing which emphasis the essentiality of policymakers and university's manager's intervention in order to decrease this procedure. It is also suggested to present plans to minimize this procedure to distribute the amount of dentists' dozen coefficient in a more justified manner.

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