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Research Article

Rates to Measures the Social Inequity Attributable To Smoking

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Abstract

Introduction: Smoking has two main explicative variables given by the consumption of tobacco and cigarettes and the smokers' number. The relation between both and the researched risk factor determine the social behavior of it. The social inequity attributable to smoking is given by the particular way to impact over the researched population.

Objective: To design an inequity rate for each identified form of social inequity attributable to smoking. Was made an analytic research about the smoking social inequity.

Materials and methods: Were used like theorical methods the comparative and the inductive deductive and like empiric method the bibliographic research.

Results: The social inequity attributable to smoking is given by the social cost because of smoking. These costs are determined by the smoking effect over the economic resources consumption´s financing the health services and the smoking effect over the society and the economy in general by the labor productivity lose.

Conclusion: Smoking like risk factor has several forms to impact over the population researched. Each identified form of social inequity has one particular form of social inequity and one form of socioeconomic inequity too.

Key words: social inequity; smoking, rate

Introduction

Since the microeconomic point of view tobaccos and cigarettes are ordinaries and necessaries goods. Consequently a net growing in consumption intensity carries to increase the effective demand of health services because of smoking and higher ability to pay more for a single consumption since the smoker position [1,2,3].

Several countries had applied effective policies to reduce the tobacco consumption. These experiences are showing the social and economic relevancy of appropriate policies to contribute to the smoking control [4].

At short time there is an inverse relation between the tobacco taxes and the tobacco consumption intensity. That's why increase tobacco taxes at short time should increase poorness in smoker with higher tobacco dependence [5].

In the Public Health context the researches about sickness cost had got more relevancies especial with the no transmissible. These sickness are the most related with smoking like risk factor [6].

That´s why fiscal authorities must not abandon the use of tributaries policies for the smoking control because these measures often are more effectives at middle and long time. This situation is especially important in countries where the fiscal budget covers wholly the health spend [7].

Smoking has two main variables: the tobacco consumption and the total of smokers. The single variation of both carries to move the smoking impact in the same way. Consequently the smoking social cost and the inequity because of smoking are directly proportional to each variable [8].

Smoking overcharge to smokers but to no smokers too. That's why smoking carries to a social inequity which particularities will depend from the smoking impact. Part from this impact is assumed by no smoker showing thus the social inequity attributable to smoking. The most evident case is the passive smokers who suffer the same morbidity consequences that smoker in proportion to tobacco exposition [9].

The consumption intensity is in dependence from previous consumption intensity because of the addictive effect of tobacco. This condition and the accumulative effect of smoking determine a growing and accelerated relation of morbidity front of the consumption intensity [10].

The growing of smoker population and/or consumption intensity carries to higher dynamic for the social morbidity attributable to smoking and the social inequity attributable to smoking by morbidity too [11].

In case of the socioeconomic inequity attributable to smoking by morbidity the social redistribution effect may cover the economic and especially the fiscal damages, but never should cover the social damages and don´t make null the social inequity attributable to smoking. That´s why the fiscal policy for the smoking control must be effective moreover than the cost benefit relation [12].

Nevertheless, the social inequity attributable to smoking is directly related with the particular form of smoking impact over the society. That's why the objective of this research is to design an inequity rate for each identified form of social inequity attributable to smoking.

Materials and methods

Were used like theorical methods the comparative and the inductive deductive and like empiric method the bibliographic research.

Results

Several socials disequilibrium occurs because of smoking like social inequity cause. These disequilibrium are manifested by increasing social spends because of smoking in several social sectors [13].

The social inequity attributable to smoking is determined by disparities caused by this risk factor. That's why smoking social costs are relevant rates to measure this inequity form [14,15].

Inequity attributable to smoking in the consumption of health services.

From the health services, a significant part is to satisfy the health service demand because of smoking. By this way it establishes an inequity based on the morbidity increasing because of smoking. This disparity is directly determined by the tobacco consumption, the morbidity related to smoking and the effective demand o health services because of smoking. That's why the economic burden attributable to smoking is a main rate to measure the social inequity attributable to smoking since the health consumption [16,17]

The epidemiologic burden is given by the social relevancy from the morbidity attributable to smoking. It is equivalent to the probability of the morbidity attributable to smoking [17].

The smoking economic burden by morbidity is determined by the social relevancy from the health spend because of smoking. It is equivalent to the probability of the health spend because of smoking [17].

The smoking economic burden is determined by the smoking epidemiologic burden. That´s why the smoking economic burden is a single expression from the smoking epidemiologic burden. By them the socioeconomic inequity attributable to smoking is a single form from the social inequity attributable to smoking too.

Socio-labor and socioeconomic inequity by labor productivity loss attributable to smoking.

Labor productivity loss attributable to smoking may be absolute or relative. The absolute is given by the over mortality because of smoking in labor age. The relative is given by the morbidity attributable to smoking and is associated to the labor time loss because of smoking [18,19,20].

Relative labor productivity loss may be by touchable or untouchable absence. The touchable absence occurs when the worker smoker is physically absence at workplace because of smoking. By other side the untouchable absence occur when the worker smoker is physically at workplace but use a part from the work time to smoke [18].

Each of these labor productivity losses carry to social costs attributable to smoking. By the same the social inequity attributable to smoking by labor productivity loss will depend from the self-characteristic of each labor productivity loss because of smoking [9].

By general way it may identify two main forms of social inequity by labor productivity loss attributable to smoking: the socio-labor and the socioeconomic. The socio-labor is given by the labor time loss because of smoking. By other side the socioeconomic inequity by labor productivity loss attributable to smoking is given by the whole economic cost attributable to this particular labor productivity loss.

Rates for the social inequity attributable to smoking.

Rates for measure the inequity attributable to smoking in the consumption of health services.

The socio-epidemiologic inequity from smoking is given by the smoking epidemiologic burden. To make a trustable measure for the socio-epidemiologic inequity from smoking it assume that active smokers (FA) and no-smokers are populations mutually excluding and complementary at same time.

Taking the tobacco consumption like main cause of the smoking social cost and the smoking social inequity too, then, the suggested rate to measure the socio-epidemiologic inequity attributable to smoking (CIP) can be calculated like the division between the smoking epidemiologic burden (CPM) and the whole probability to hasn´t an active smoker, like show the following equation.

$$CIP = \frac{CPM}{1-PFA} \; ; PFA: probability\ to\ has\ an\ active\ smoker$$

Smoking is a socioeconomic risk factor that carries to higher health spends. This situation and the limited ability of economic resources carry to a social redistribution in favor to the Public Health. Then, eliminating the main cause of the smoking existence it may make a better use of the economic resources in the public administration.

Have a rate to measure this inequity form will contribute to a better understanding of the smoking impact. This rate should be a point of reference since the theoric and the practice point of view too for a whole understanding of the smoking impact over health, resources distribution and redistribution and fiscal decision for the public management.

The asymmetric caused by smoking over the health services consumption can be measured according to the respective smoking impact. To construct this rate it assumes that success to has a person like active smoker and to hasn´t are mutually complementary and excluding. For that it uses the following variables:

1) IT: rate for the socioeconomic inequity attributable to smoking.
2) N: population
3) FA: active smokers
4) PSG: whole health budget.
5) PCT: health budget because of smoking.
6) PST: health budget because of no-smoking.
7) CE: smoking economic burden.
8) PFA: probability to have an active smoker. Can be calculated like FA/N.

From previous supposes it establis the following equatios:

$$PSG = PST + PCT \ (I)$$

$$PCT = PSG * CE \ (II)$$

$$PST = PSG * (1 - CE) \ (III)$$

$$IT = \frac{PCT/FA}{PST/(N - FA)} \ (IV)$$

Replacing II and III in IV and reordering:

$$IT = \frac{CE/PFA}{(1 - CE)/(1 - PFA)} \ (V)$$

This rate is consequent with the dependence relation between active smokers and passive smokers. That's why the rate falls the whole inequity to active smokers. The application of this rate will make more evident the smoking economic impact. Thus, will be easier the decision taken process for the smoking control.

Rates to measure the social inequity by labor productivity loss

To build each rate to measure the social inequity attributable to smoking by labor productivity loss it use the following variables:

ILP: Socio-labor inequity rate by labor productivity loss across touchable absence.

DPB: Labor days´ loss because of morbidity attributable to smoking.

DLP: Labor days´ loss by an active smoker because of morbidity attributable to smoking.

PDL: Whole labor days´.

PAP: Probability for the touchable absence.

FA: Number of active smokers.

N: total de individuos en la población de estudio.

PFA: Probability to has an active smoker.

ILA: Socio-labor inequity rate by labor productivity loss across untouchable absence.

TLF: Labor time loss because smoking during work time.

TCU: Work time used smoking a tobacco.

JLT: Whole work time for all workers together.

JLU: Single work time.

PAA: Probability for the untouchable absence.

ILM: Socio-labor inequity rate by absolute productivity loss attributable to smoking.

SMF: Middle salary from active smokers.

SMN: Middle salary from no active smokers.

IEP: Socioeconomic inequity rate by relative loss of labor productivity attributable to smoking because of touchable absence.

IEA: Socioeconomic inequity rate by relative loss of labor productivity attributable to smoking because of untouchable absence.

IEM: Socioeconomic inequity rate by absolute loss of labor productivity attributable to smoking.

PAPL: Absolute loss of labor productivity by smoker.

TLS: Middle time of labor life.

PAM: Probability for absolute loss of labor productivity by smoker.

From supposes and principles of research it may obtain the following equations:

$$IPL = \frac{DPB}{PDL * N} \ (I)$$

IPL may be written by:

$$IPL = \frac{DLP * FA}{PDL * N} \ (II)$$

Transforming (II), IPL may be written by:

$$\boldsymbol{IPL = PAP * PFA} \ (III)$$

In reference to **ILA**, this may be obtained like:

$$ILA = \frac{TLF}{JLT} \ (IV)$$

Also, ILA may be written like:

$$ILA = \frac{TCU * FA}{JLU * N} \ (V)$$

Transforming (V) ILA may be written like:

$$\boldsymbol{ILA = PAA * PFA} \ (VI)$$

In reference to **ILM**, this may be obtained like:

$$ILM = \frac{PAPL * FA}{TLS * N} \ (VII)$$

Transforming (VII) ILM may be determined like:

$$\boldsymbol{ILM = PAM * PFA} \ (VIII)$$

These three rates are measuring the socio-labor inequity by labor productivity loss attributable to smoking. The corresponding socioeconomic inequity may be measured taking account these rates previously defined. Nevertheless, it is necessary consider other subjects

that are determining the corresponding socioeconomic inequity by labor productivity loss attributable to smoking.

The socioeconomic inequity by labor productivity loss attributable to smoking must consider the economic variations attributable to smoking over the labor productivity. Labor productivity is directly associated to current spends from workforce. That's why it is possible establishing a relation between labor productivity and workforce spends specially salary.

Taking account these arguments the respective rates for the socioeconomic inequity would be the following:

$$IEP = ILP * \frac{SMF}{SMN} \ (IX)$$

$$IEA = ILA * \frac{SMF}{SMN} \ (X)$$

$$IEM = ILM * \frac{SMF}{SMN} \ (XI)$$

It is important to appoint that the relation SMF/SMN can be more than one. This case should show that the socioeconomic inequity is more relevant than the socio-labor one. If SMF/SMN should be less than one then socioeconomic inequity would be less significant than the socio-labor one. Finally if SMF/SMN should be one both inequity would be equally relevant.

Conclusions.

Smoking has several forms to impact over the society and the economy. Each impact form previously identified has a particular form of socio-labor inequity and socioeconomic inequity too. Each rate suggested is agreed with the corresponding and particular inequity form previously identified.

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