



A Healthy Public Policy, Who's Effectiveness has been Proven: Restriction of Liquor Sales Hour

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Abstract

This study sought to relate the impact of the time restriction on liquor sales with violent deaths due to alcohol consumption. In 2011 based on an ecological comparison study between 2 districts of Lima, one with restriction and one without, evidenced the difference in the incidence of injuries of external cause related to alcohol. Therefore, the municipality of Lima promulgated ordinance 1586, which established the restriction of liquor sales hours in the 43 districts that make up metropolitan Lima and gave a period of 3 years to establish it. The Institute of Legal Medicine of Lima sent monthly the ethnographic characteristics of violent deaths related to alcohol. This ordinance has shown that it is capable of reducing violent deaths related to alcohol in traffic crashes, hit-and-runs, homicides, and suicides, fundamentally in men, young people, days of the week and time of the greatest incidence. There was also an increase in the age frequency of deaths of traffic accidents by year of the ordinance

Keywords: Healthy Public Police; Traffic Accidents; Alcohol Consumption

Abbreviations: IML: Institute of Legal Medicine; TA: Traffic Accidents.

women (1.5-3) and 6.8% in men (5.8-8.0) 95% (GBD, 2018). Within this panorama, deaths in traffic crashes and run over, according to the WHO in 2007, caused 3,510 deaths in Peru (123.9 per million), representing Lima (61.39%) with the purpose of reducing this problem, several policies were tested in public (Table 1).

Introduction

Alcohol use in the world is the seventh leading cause of death and DALYs in 2016, representing 2% of deaths in

Factors/ Phases	Humans	Vehicle and equipment	Environment
Before accident	Information Attitude Good police control SBI (Brief Detection and Intervention)	Lights Breaks Vehicle Review	Track design: braking ramps Inadequate road maintenance Poor geometric design Little or non-Signage Obstacles on the roads. Speed limits established. Restriction of hours of sale of alcoholic beverages (Carrot Law) Night Recreation Alternatives
Accident	Good functioning of the airbag (s) Seat Belt Use	Seat belt Protective design	Barrel of contentment
Post-Accident	First aid Emergency telephone exchange	Fire hazard Easy access to rescue	Facilities on the roads, for the rescue

Table 1: Haddon Matrix of Accident Prevention.

These are evidenced in a table developed by the WHO and modified by the author, following the matrix proposed by Haddon [1].

Within this list, a policy of restriction of alcoholic beverages was tested in Lima, Peru, which had a great impact on its effect in Bogotá and other cities in Colombia, as well as in a city in São Paulo, Brazil and in Asunción, Paraguay [2-4]. This trial was made through a comparison between a municipality with restricted liquor sales hours, with another neighbouring municipality, without restriction, in a national hospital and the Lima morgue in relation to the assaults, wounded and dead in traffic crashes, run over, homicides and suicides [5]. A relationship was evident between the assaults and the number of hours of sale of liquor in the intervened municipality. $Y = -11.25 + 27.32X$ ($P \leq 0.02$) an association between the consumption of liquor in both municipalities with the male sex $RR = 2.21$ (CI 1.43-4.07) 95%, and a decrease in homicides of 44% ($p \leq 0.0186$) and suicides of 35% in the intervened municipality. There was no evidence of a decrease in deaths from traffic accidents, possibly due to because the restriction of hours is nocturnal and deaths occurred before and after during the day [1].

This evidence led to the approval of Ordinance 1568, in December 2011, whose main function is the restriction of hours for the sale of alcoholic beverages, establishing that commercial establishments can sell liquors from 9:00 am to 11:00 pm, restaurants from Sunday to Thursday until midnight and on Friday and Saturday, until 3:00 am; nightclubs, Sunday through Wednesday until 1:00 am and Thursday through Saturday until 3:00 am; and bars and canteens, every day until 11:00 pm [6]. This, according to the district mayors, should be established in three years. In its application two periods can be conceived: First Period December 2011 to December 2014. Second period, January 2015 to November 2017. The base years for these two periods, would be 2010, January-November 2011 (when not there was ordinance 1568) and 2015 the entry of new mayors, also called year lost in the evolution of safe time. When the safe hour was in operation, on March 2012, an Observatory was established, which analyzed data from the IML, related to violent deaths (Traffic accidents, suicides, and homicides). The months of December of the 2011 and January and February of the 2012, were analysed for the Municipality by the first author of the present work. In this regard, the objective of this paper is to determine the relationship between the hours of sale of liquors "Safe Time" and those killed by traffic accidents (TA). Based on the evaluation of the effect of establishing these schedules in the districts of Metropolitan Lima.

Material and Methods

Metropolitan Lima is made up of 43 municipalities,

each with a municipal government, headed by an elected mayor every four year and autonomous in its management. The actual population of ML is, 9847000 inhabitants. The Metropolitan Municipality, through its metropolitan council, approved ordinance 1568. This is in accordance with the district mayors should be established within three years. The Institute of Legal Medicine (IML), sent to the Municipality of Lima, monthly information in Excel related to violent deaths, where is characterized the following data: code number, income, time, history, sex, address, age, level of education, occupation, marital status, class of accident: homicide, suicide, accident of transit, place of occurrence, time of the accident, alcohol, and district address [1]. Since 1995 the IML has established that all the violent deaths have to be examined for blood content of alcohol and drugs. The analysis univariate and bivariate are associate with alcohol consumption with violent deaths (traffic accidents, suicides, and homicides) in their monthly occurrence with all data. Those result were analyzed monthly by the Observatory established in March 2012, following the scheme planted by the author of this paper. The relative risk and confidence limits were estimated at 95% and also chi square was also implemented.

Results

In the first week of application of the restriction and making use of the surveillance system of traffic accident injuries of the MINSA (Health Minister). The effect of the restriction of hours expended in 3 hospitals emergency transit in Metropolitan Lima was studied. The weeks of 27 November to 4 December 2011 were compared (prior to 1568) against the ordinance of 4 to 10 December 2011, in three hospitals, with 56 in the period intervened, against 99 in the previous week (not intervened) meaning a reduction of 43%. Possible decrease of more than one-fifth of the wounded, between midnight and 3:00 am, observed, during the first week of validity of the Ordinance (Figure 1) [7].

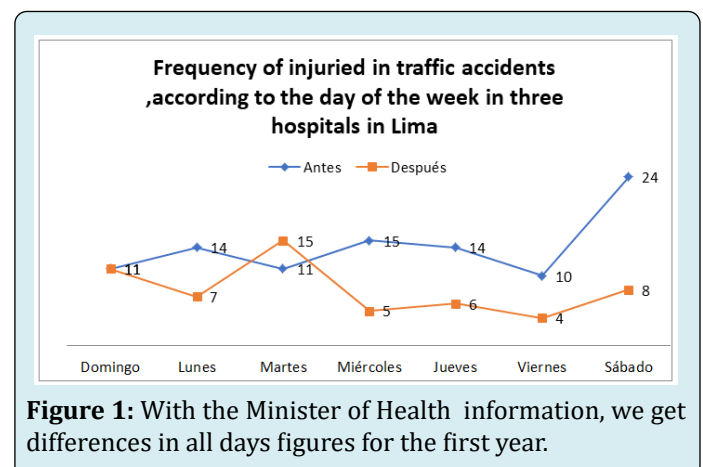


Figure 1: With the Minister of Health information, we get differences in all days figures for the first year.

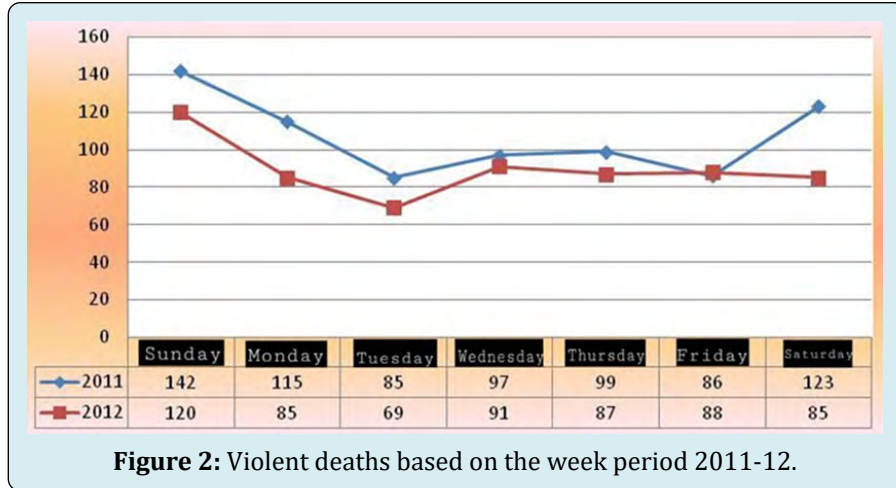


Figure 2: Violent deaths based on the week period 2011-12.

The only day that there were no diminished was Friday, due to the fact that on Thursday the ordinance said to close the sales by 3:00am of Fridays, next day. The hour of

occurrence was diminished, but mainly it occurred by 0.01 to 2.59 am (Figure 3).

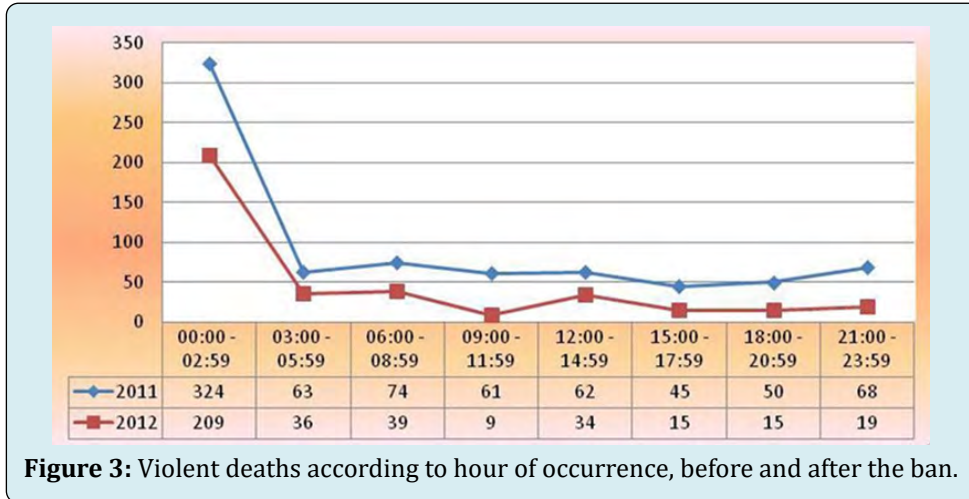


Figure 3: Violent deaths according to hour of occurrence, before and after the ban.

The same occurs by age, being the main reduction in younger people of masculine sex, the bachelors, and specially the bodies with alcohol. The same trend was observed for 2013-14. Another change that caught our attention was the increase of the corpses for distillation, which came to be the 20% in 2 014, reaching close to or above 50%, this was

the product of the change that was made by ILM, of 0.05 g per liter to zero g of alcohol in the blood, with a tendency to decrease further in 2017, and also the change of authorities in the 43 municipals, that Shaw 13 of them that not apply the ordinance (Figure 4).

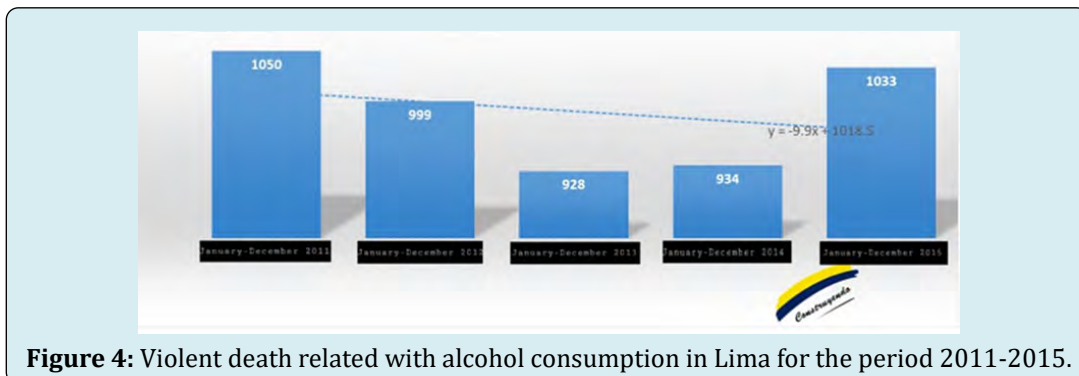


Figure 4: Violent death related with alcohol consumption in Lima for the period 2011-2015.

The comparison 2015-17 showed an evident decrease (Table 2).

Victims	Before F y % 2015	After F y % 2017	RR	Confidence limits	$X^2_{1gl}(\text{prob}X^2)$
Traffic Acc.	326 54.5	272 36.7	1.5	1.30-1.70	35.9 .0000
Suicides	114 58	78 43	1.4	1.1-1.67	8.22 .003
Homicides	232 60	173 47	1.3	1.12-1.48	13.27 .0003
Total	672 58	457 49	1.4	1.26-1.50	55.13 .0000

Table 2: Comparison of RR between findings of alcohol in the blood (≥ 0.01 grams of alcohol per liter of blood) in corpses of violent deaths. IML (2015-2017).

Observing also the displacement of the age of the deceased during the 3 years of observation in the crashes

and road accidents [5] (Figure 5).

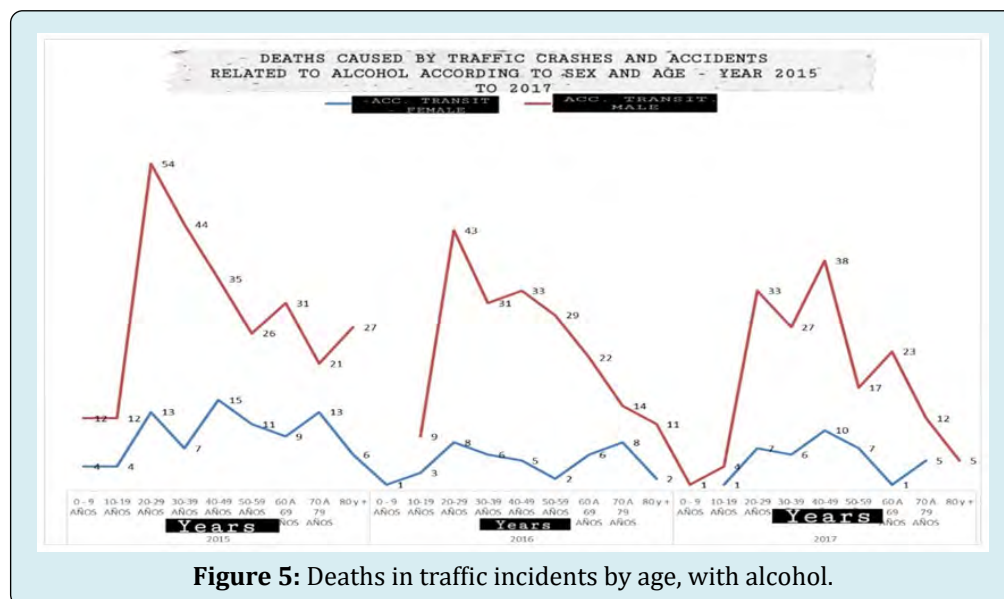


Figure 5: Deaths in traffic incidents by age, with alcohol.

Discussion

The results obtained for the reduction in traffic crashes and abuses are lower than the results of Bogota, Colombia, which reduced deaths in traffic crashes and abuses and homicides to 50%, [2]. Nonetheless, the starting points were much higher than ours. The difference of the incidence of aggression detected in La Victoria is similar to that detected in Cali, Colombia, where a correlation was found with the number of hours of liquor sales. Since the more hours of sale there would be more homicides, this observation is interesting, related with restrictions of different magnitude by different ordinances in relation to the number of hours of restriction [8]. It is also important to emphasize that at the end of Mayor Guerrero's term in Cali, the ordinance was withdrawn and homicides increased, Guerrero having been re-elected 10 years later as mayor in 2012, with this as his best achievement. The shift in age was also observed in Cali by Guerrero's team, since the homicides occurred in

older people [9]. The decrease in traffic crashes and abuses related to alcohol was also observed in the clear decrease in Breathalyzer tests, which according to the national police of Peru decreased from 7.29% incidence in 2005 with 10,000 samples to 0.9 in 2016, with more than 200,000 samples [10].

The non-decrease in violent deaths related to alcohol, on Friday, must be related to the fact that the ordinance allows the sale of liquor on Thursday night and early Friday morning until 3:00 am on Friday, remaining the risk similar to the period prior to the establishment of ordinance 1568. We think that our decrease was also evidenced when comparing the findings of the incidence of traffic crashes and accidents related to alcohol and drugs is much lower in Lima than in Sto Domingo without restrictions on sales hours [11]. Before the pandemic, the relationship was no longer monitored, but it was no longer necessary since the curfew was established at twelve at night. This evidenced the great decrease in

violent deaths in general. However, as currently the third wave caused by the omicron is in sharp decline, the curfew has been lifted, so monitoring should be restored again [12-15].

Conclusion

The “Safe Hour” liquor sales schedule is related to the decrease in deaths from traffic crashes and hit-and-runs, homicides and suicides in its alcoholic victims. The fact that the decrease is more marked in the alcoholic than in the non-alcoholic, I would define, an indicator of the effectiveness of the program. The ordinance should be reviewed on the Thursday, being the closed time of cells of liquors by 1:00am of Friday night, as the others days of the week. The monitory sessions should be reinstated as soon as possible.

Acknowledgment

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