

# Evaluating The Frequency of The Published Study Designs in The Field of Safety Promotion And Injury Prevention During The Last Three Decades (1985-2015)

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**Abstract- Background:** Study design is classified generally into two categories: observational and Interventional. The aim of this study is to determine the frequency of the published study designs in the fields of safety promotion and injury prevention regarding to the continents during the last three decades.

**METHODS:** In this review article, all published papers in Pubmed from 1984 to 2015 in the field of safety promotion and injury prevention were studied. We used the following keywords for our search: "Road traffic", "burning", "drowning", "fall" and "violence". The total number of articles in this field were 115 manuscripts.

**Results:** We showed that the most published papers in this field, were conducted in America. About 67% of all studies and 78% of all intervention studies have been conducted in the continent of America and Europe. Asia shared 9% of intervention studies and Iran shared 3.6% of the studies which have been conducted in this area.

**Conclusion:** Considering the current situation in developed compared to developing countries, if one of the goals of the national health system to be health promotion in the society, the current status in terms of study design that are running, cannot results in safety in this field.

**Index Terms—** Injury prevention, safety promotion, study design

## I. INTRODUCTION

More than 5 million people every year- one person every 6 seconds- die by accident. World Health Organization statistics revealed that the major causes of accidents are Road Traffic Accidents (RTA), violence actions against oneself or other people, burning, drowning, falling, and poisoning. RTA shared 24% of accident deaths all in the world, and has a high incidence in countries with middle- or low-income. Then the most important measures to prevent RTA deaths should be carried out in these countries. One of the most common cause

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of death and one of the most important cause of disability in Iran and other developing countries is RTA [1,2]. 250 thousand of death, and injuries and disabilities of millions of peoples during the past ten years is sufficient to put the RTA on the top of the priorities of health program in Iran [3]. Coordination of different organizations is required to solve such problems. Appropriate studies in this area are one of the most important steps to solve this problem.

Study design types of basic and clinical sciences are divided into two categories: 1) observational study, and 2) interventional study. In observational studies, the researcher just focuses on the status of the study question and describes the current status as well as measuring associations between exposures and outcomes. While, in the interventional studies, the main aim of research is the study of the intervention effects which applied on the eligible persons by researcher that could finally result in prevention and health promotion or treatment of diseases depends on applied interventions. According to the effect of interventional studies in improving the Safety Promotion and Injury Prevention, The aim of the current study is to determine the frequency of the published study designs in the fields of safety promotion and injury prevention in different continents during the last three decades (1985-2015).

## II. MATERIAL AND METHODS

This study is just a descriptive study. In this review article, all published English articles in PubMed from 1985 to 2015 in the world, which were about the safety promotion and injury prevention have been evaluated. The following keywords have been used for searching: "Road traffic", "burning", "drowning", "fall", and "violence". The total number of articles in the field of injury prevention and health promotion, from 1984 to 2015 were 115 cases, which were assessed in terms of design. Search for the related studies was limited to 1984-2015. Moreover, advanced search was carried out using 'NOT', 'OR', and 'AND'. Furthermore, the years of publication of articles was limited to 1984-2015. In this assessments, the time period of study was split into three equal periods (1985-1994, 1995-2005, and 2006-2015), and information about the name of countries and continents, years of studies, and study design (interventional or observational) of each period were entered to the software, and the results were shown as a cross tabulation.

### III. RESULTS AND DISCUSSION

In term of study design, 52% of all 115 published papers which are about safety promotion and injury prevention, are observational and rest of them are interventional (graph 1 and 2). Most studies have been carried out in the last decade (2006-2015). The most number of both observational and interventional studies have been conducted in America in all three period of time and both types of studies are equal in number in this continent. Research in this field mostly conducted in the United States. Europe is the second continent which conducted the most studies of this field. In Europe, interventional studies are more than observational studies in all three periods of time.

Most of studies of this continent have been conducted in United Kingdom and Sweden. About 67% of total studies and 78% of all interventional studies of this scope have been carried out in America and Europe. Results obtained from Asia showed that there is no study related to Safety Promotion and Injury Prevention in Asia during 1985 to 1994; but in the last two periods, the amount of observational studies are two to three time more than interventional studies, and the studies have been increasing in the recent decade, and most of observational and interventional studies have been conducted in Iran. Unfortunately, only 9% of all studies (observational and interventional) conducted in Asia, and Iran shared 7% total studies; and 7% of all interventional studies conducted in Asia and Iran shared 3.6% of them.

The lowest number of studies have been carried out in Africa, and the number of studies have been increased over time, but no interventional study were carried out in this continent. In Oceania, most of studies were conducted in Australia and New Zealand which both observational and interventional studies in three decade were almost equal and are increasing in number.

### IV. DISCUSSION

there are a lot of factors influencing the determination of the study design in different continents. This study revealed that observational and interventional study are almost equal in number in America and Oceania [6-18], and the number of interventional studies are more than observational in Europe [19-37] which shows that studies in this field are dynamic and continuance; but in Asia the number of observational studies are three time bigger than interventional studies during 1985-2015. The studies conducted in Africa are less than other continent and there is no interventional study in the continent [57-59]. This study showed than observational and interventional studies conducted in America are equal in number, resulted in reduced rate of death by accidents and thereby promotion in health. This results have been shown that United States has been pioneer in term of interventional studies. This study showed that frequency of observational and interventional studies in this field were same in America [60-107], and this is why in United States and other countries which conducted interventional studies many years ago, the statistic of mortality and morbidity of accidents are very lower than those which have lesser studies in this field. In

some high-income countries such as America, Sweden, France, Canada and Australia, reports have been shown that deaths caused by accidents are decreasing. For example, the number of death caused by accidents in 2013, was 471, 380, 2889, 423, 233 and 1616 in Sweden, Finland, Canada, New Zealand, Norway, and Australia, respectively and 16872 in Iran [108, 109]. This high number of mortality and morbidity in developing countries compared to developed countries are the results of interventional measures which conducted in developed countries.

According to the frequency of death caused by accidents and bear in mind that Safety Promotion and Injury Prevention are one of the most important goals of health system in low- and middle-income countries, such as Iran, we offer here some suggestions: 1) at first, many observational studies should be done. To carry out a perfect observational study which shows the reality, the relationship between causes and outcomes, and a study which not be an altered, the infrastructure of data collection should be improved; 2) if the first offer could be practical and implementation, we could think about the intervention and interventional measures to prevent injuries and promote health. So until the frequencies of interventional studies aimed to prevent injuries and promote safety and health, riches in frequency number of that in developed countries, there should not be any expectation to prevent injury and promote safety in developing countries.

Moreover, since an accident is a result of one of the four factors -human, road, vehicle and environment- then intervention in these cases is suggested. The intervention can be done in different ways, such as education, either in different education levels or through the media (radio and TV), legislating (speed law, laws about alcohol and driving, seat belts law, motorcycle running lights law), penalize lawbreakers, more monitoring to get driver's license, securing and equipping the roads and highways, using highway and road guardrails, increase quality and improve vehicle safety and equipping vehicles by speed alarm tools, repairing the roads, and doing more interventional studies. Executing of all these measures require coordination of traffic police organization with other organs including Ministry of Urban Development, Ministry of Health, Red Crescent organization, Ministry of Interior, universities and other responsible organization for further studies to prevent RTA which shared most of death and disabilities and promote health.

Weaknesses: We preferred to limit our study to papers that published in PubMed and did not consider Google Scholar and other Search Engine and this is one of weaknesses of this study. Another weakness: it would be so much better that other influential factors included in the study. For example, the sample size has not been considered in this study; by doing that, the differences between the studies of different countries and continents would be much apparent. Having an exact registering information system in America, Europe, and Oceania, observational studies are conducting in large volume of samples, but there is no suitable infrastructure for data collection in Asia and Africa, then as a result, the sample size of observational studies in many countries of these continents conducted in small size.

Strengths: The most important strength of this study is that that there is no study to evaluate the prevalence of study design in three different period of times in web sites, including PubMed, Google Scholar, Scopus, and etc. which shows differences in the continents.

Authorities around the world know that accidents are preventable. Many of them try to better identify the problem in their country to take appropriate decisions and execute them in their country, and eventually to apply effective strategies of prevention.

### CONCLUSION

Considering the current situation in developed countries compared to developing countries, in the field of safety promotion and injury prevention, if one of the goals of the national health system to be health promotion in the society, the current status in terms of study design that are running, cannot results in safety promotion and injury prevention, therefore, as long as the frequency of intervention studies with the aim of safety promotion and injury prevention in the developing countries would not as much as developed countries, we could not expect any advances in the field of injury prevention and safety promotion in developing countries.

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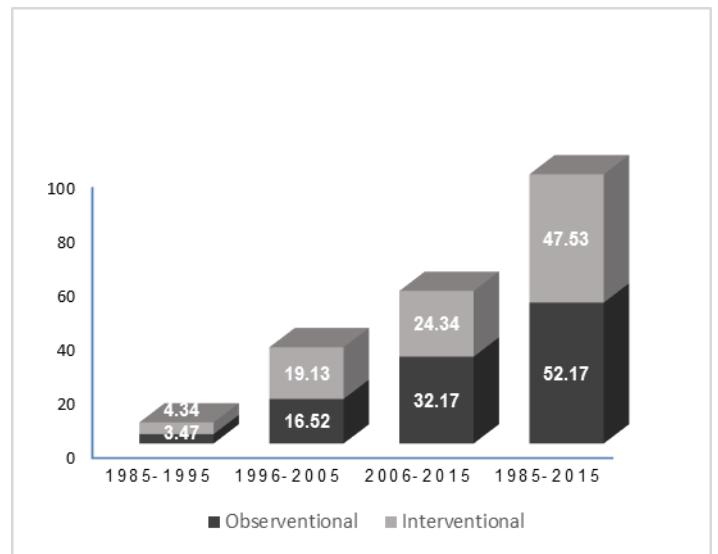
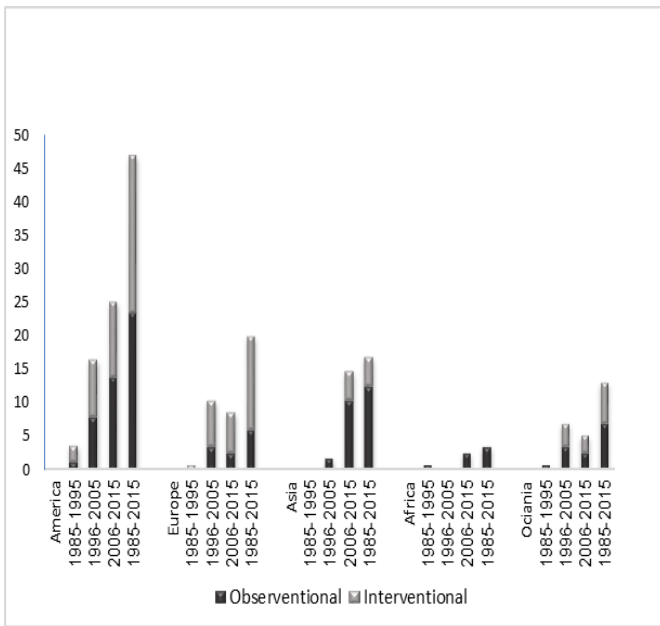


Figure 1. Frequency studies published the world by the type of study (observational - interventional) during the last three decades (1985-2015).

**Evaluating The Frequency of The Published Study Designs in The Field of Safety Promotion And Injury Prevention During The Last Three Decades (1985-2015)**



**Figure 2.** Frequency of published studies regarding safety promotion and accident prevention, by continents, during the last three decades (1985-2015)